Chernobyl Shelter Fund

Timeline

26 April: Explosion of Unit 4 at Chernobyl Nuclear Power Plant

Construction of temporary shelter

1986

G7/EU and Ukraine **agreement** on the Shelter Implementation Plan (SIP)

G7 summit in Denver pledges US$ 300 million

Establishment of the Chernobyl Shelter Fund (CSF) at the EBRD

1997

EBRD and Ukraine sign Framework **Agreement**

1998

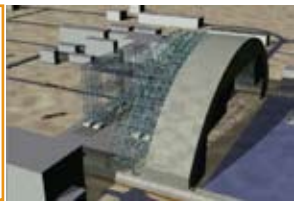
First emergency works repair of roof supports and stabilisation of ventilation stack

1999

Ukraine **shuts down** last operating reactor (Unit 3) at Chernobyl

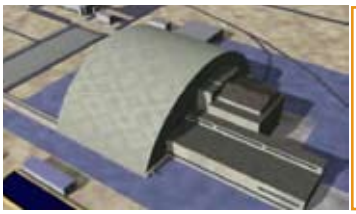
2000

Decision in principle on the design of the New Safe Confinement (NSC)



2001

2002



Approval of New Safe Confinement concept design

2003

Shelter stabilisation **works begin**

2004

2005

Shelter stabilisation **works finalised** with 50 per cent of roof load transferred to new supporting structure (Western wall)

2006

July 2007: Assembly of Donors approves grant allocation of €330 million to permit start of NSC as soon as the contract between the recipient and the contractor has been signed

August 2007: Ukraine and EBRD sign grant agreement for NSC

2007

Chernobyl Shelter Fund

Achievements

With the signing of the contract for the construction of the New Safe Confinement (NSC) the Chernobyl Shelter Implementation Plan (SIP) enters its final phase. The SIP identified 22 primary tasks, among which the NSC is by far the biggest project. This, however, should not disguise the fact that most of the other SIP tasks have been completed since the plan was first designed in 1997.

The Donor Assembly as highest decision-making body of the Chernobyl Shelter Fund to-date has approved 8 grant agreements totalling over €700 million.

The EBRD administers the Chernobyl Shelter Fund and monitors compliance with the Bank's rules and policies (in particular procurement) and disburses funds directly to contractors.

Achievements so far:

- Emergency repairs in 1998 and 1999
- Completion of infrastructure works in support of stabilisation works and the NSC construction. Among the completed projects are:
  - Changing facility for 1,430 workers
  - Two training centres and introduction of training programmes
  - Medical facilities
  - Sewage distribution pump station and sanitary lock
  - Lay-down area for temporary storage
  - Guards' house and maintenance shop
  - Access control to IEAE standards
  - Data base information and analytical centre
- Shelter stabilisation: The work has been completed with 50 per cent of roof load transferred to a new supporting structure (Western wall) and a number of other measures inside and outside the Shelter.
- Installation of integrated monitoring systems - nuclear and seismic
- Implementation of a safety culture and improvement of worker and environmental safety:
  - Start of biomedical protection and screening programmes in 2004; more than 3,000 people have been checked
  - In almost 5 million working hours worked at the Chernobyl site there have been no notable radiological incidents or accidents with major consequences
  - Refurbishment of a hospital wing in Slavutych, acquisition of new ambulances, introduction of systematic medical care and screening programmes
  - Concept design for new fire protection
- Design and construction of a new ventilation stack is currently at procurement stage.

Costs & Contributions

The Shelter Implementation Plan of 1997 includes the amount of US$ 768 million as a cost indication for the project. As the SIP is a programme of actions this was never a precise cost estimate. In addition, during implementation over the past 10 years the scope of work has changed in accordance with the requirements on the site.

Even more substantial is the fact that no contingencies were included for the largest SIP project, the New Safe Confinement. The SIP also did not include any provisions for escalation. All prices were 1997 prices. Some of the main cost elements, notably steel, energy, concrete and Ukrainian labour, however, have increased sharply since then.

As a result of all these factors the latest cost estimate from July 2007 forecasts an overall cost of US$ 1.39 billion. The cost for the New Safe Confinement alone is likely to exceed US$ 500 million.

As of end-June 2007, the EBRD-managed Chernobyl Shelter Fund has recorded total contributions of €739 million. Adding accrued interest brings total income to €810 million.

To-date 138 contracts have been concluded, of which 86 have been completed. The total value of contracts is €356 million, of which €308 million have been disbursed.

In its last assembly meeting in mid-July 2007 the donor community reiterated its commitment to the final implementation of the SIP.

Donors

The following countries are contributors to the Chernobyl Shelter Fund and members of the Donor Assembly:

Country	Amount (€ million)
Austria	7.5
Belgium	4.3
Canada	34.9
Denmark	5.0
European Community	204.8
Finland	4.5
France	41.8
Germany	60.5
Greece	5.0
Ireland	8.0
Italy	33.0
Japan	41.7
Kuwait	5.4
Luxembourg	2.5
The Netherlands	5.7
Norway	7.0
Poland	2.5
Russia	9.0
Spain	5.0
Sweden	6.7
Switzerland	9.3
Ukraine*	45.0
United Kingdom	47.6
United States	138.8

*Ukraine has in addition agreed to take on the dismantling of unstable Shelter parts, a task valued at about US$ 22 million.

Donations have been made by Iceland, Israel, Korea, Portugal, the Slovak Republic and Slovenia.

Chernobyl Shelter Fund

Glossary

Shelter Implementation Plan

Designed by international and Ukrainian experts in 1997 the Shelter Implementation Plan (SIP) addressed the problems of converting the increasingly unstable Shelter over Unit 4 at the Chernobyl Nuclear Power Plant into an environmentally safe and secure condition. The report comprised a technical strategy and conceptual design definition with an associated schedule and planning budget.

The SIP outlines a course of action to accomplish five objectives:

- Reduce potential for accidental collapse of the Shelter
- Reduce consequences from an accidental collapse of the Shelter
- Improve nuclear safety
- Improve worker and environmental safety
- Develop long-term strategy for conversion into an environmentally safe site.

The SIP identified 22 primary tasks which were further divided into 297 activities. The core and biggest single project under the plan is the *New Safe Confinement*.

The SIP was endorsed by Ukraine and EU/G7 in 1997. The results of a first pledging conference allowed for the establishment of the *Chernobyl Shelter Fund* under the administration of the EBRD.

New Safe Confinement

Within the framework of the *Shelter Implementation Plan* the principal decision was taken in April 2001 to bring the Chernobyl Shelter under a confinement. The new structure will contain the radioactive inventory of the Shelter, prevent the intrusion of water and snow and provide equipment for the eventual deconstruction of the destroyed reactor and the Shelter. The concept design for the New Safe Confinement (NSC) was approved by the Ukrainian government in July 2004.

The NSC will be a freestanding, semicircular arch 257 metres (840 feet) across, 105 metres (345 feet) high, and 150 metres (490 feet) in length. The arch frame is a lattice construction of tubular steel members. The construction will be assembled on the site of the Chernobyl Nuclear Power Plant and eventually be slid over the Shelter. Inside the NSC will be equipped with cranes for deconstruction.

Construction of the New Safe Confinement is expected to take between 48 and 52 months. The first step will be detailed design studies, before actual physical work on the ground can begin. The NSC will be designed for a minimum of 100 years.

Chernobyl Shelter Fund

The Chernobyl Shelter Fund (CSF) was established at the EBRD in 1997. The Bank acts as the fund manager and ensures the oversight of the effective implementation of the project together with the Government of Ukraine. The Bank enters into grant agreements with the recipient organisation and disburses funds to project contractors.

The highest decision-making body of the CSF is the Assembly of Contributors. Since its establishment it has been chaired by Hans Blix and has met 25 times to-date. As of end-June 2007, the CSF has recorded total contributions of €739 million. The Assembly has so far approved 8 grant agreements committing more than €700 million to the completion of the project.

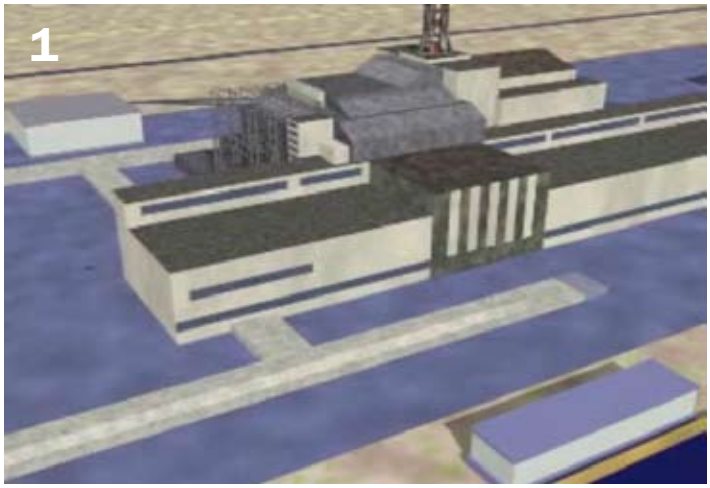
Confinement fast facts*

Width	**257 m (840 ft)**
Height	**105 m (345 ft)**
Length	**150 m (490 ft)**
Weight	**approx. 20,000 tonnes**
Construction time	**48 - 52 months**
Life time	**100 years min.**

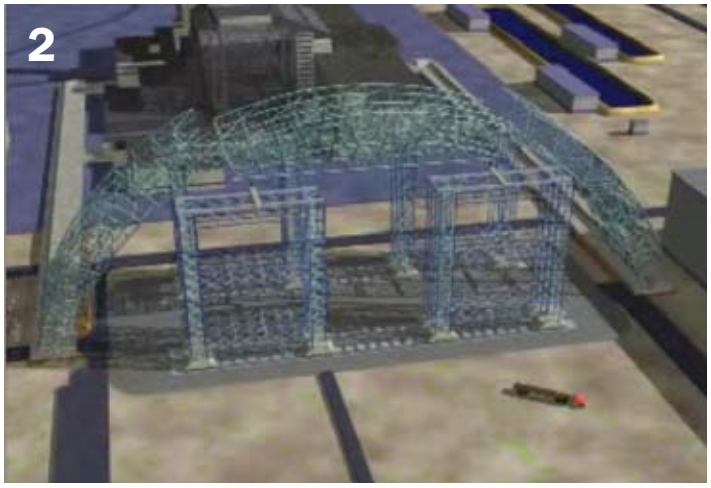
***based on concept design specifications.**

Chernobyl Shelter Fund

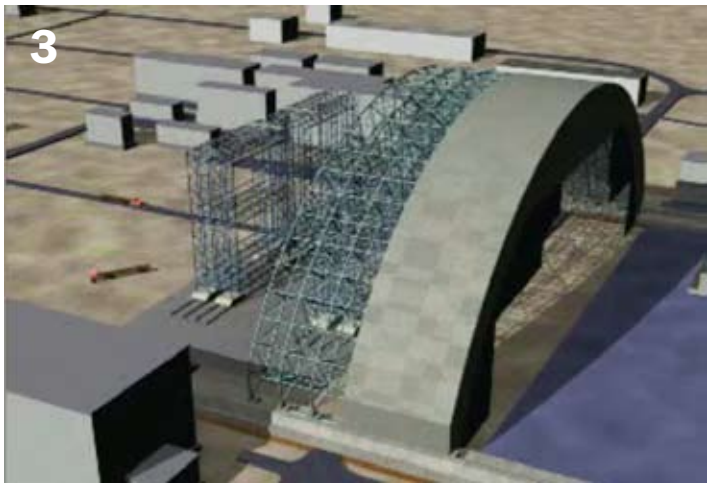
Concept design* for New Safe Confinement



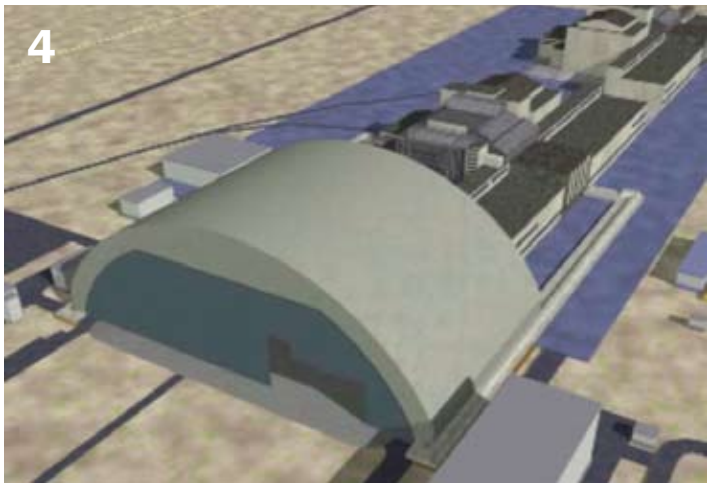
The first stage is construction of arch erection area and sliding pads. This requires removal of contaminated top soil.



The arch is constructed, section by section. Arch elements are constructed off-site then brought to the assembly area to minimise work on site.

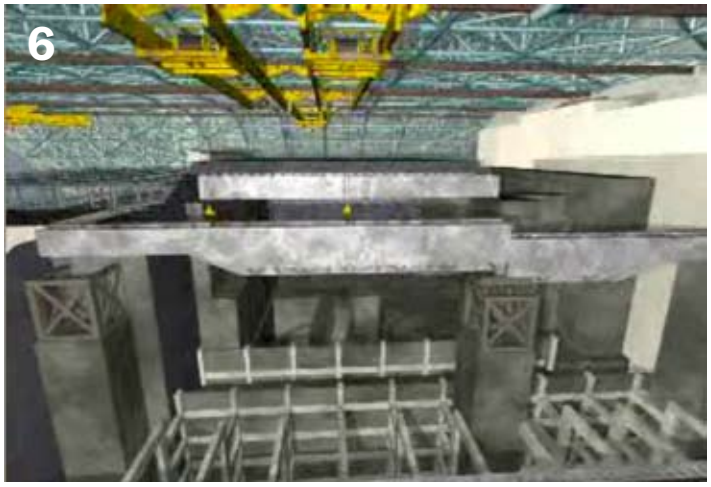


As each section is completed it is slid forward to make room for the next section. Installation of cladding and bridge cranes is completed in the assembly area.



Once finished the whole structure is slid directly over Unit 4.

After full commissioning of the arch, cranes can begin deconstruction of shelter components. Sections which are too large to move can be cut into pieces for removal.



Each dismantled structure will then be processed in the auxiliary buildings and eventually stored in the temporary storage under the arch.

*The concept design was developed in 2003; the actual design and implementation may differ.