

# DOE to use Interim Safe Storage Complete Enclosure Approach for 105-K East Reactor

U.S. Department of Energy

DOE will place the 105-K East Reactor into interim safe storage (ISS) by constructing a shell-like structure over the reactor and adding a roof to that structure. In the past reactors were placed into ISS or cocooned by adding a roof to the existing reactor building walls. DOE's present approach exposes workers to fewer hazards. DOE will issue a Tri-Party Agreement (TPA) change notice to update the existing regulatory document, 105-K East Reactor Action Memorandum (AM), to include this new application of an existing technology.

## Background

The 105-K East Reactor is located in Hanford's 100 Area. The reactor was built in 1952 and operations stopped in 1971. A decision was made in the 1993 *Record of Decision for Decommissioning of Eight Surplus Production Reactors at the Hanford Site, Richland, WA* to place Hanford's eight reactors in interim safe storage for up to 75 years.

connected to the reactor, the reactor building itself will not require the extensive facility wall and ceiling bracing used in the past when the roof was connected to the reactor.

Using this approach, workers will be exposed to fewer industrial, radiological, and waste management hazards while enclosing this reactor. The structure provides a safe storage enclosure (SSE) over the reactor building that will protect the reactor and meet seismic and wind requirements. The roof is designed at an angle that directs rain water runoff away from adjacent waste sites. The enclosure is designed to have a less intrusive appearance in its surroundings, which takes into consideration some of the visual issues of Hanford buildings raised by the Tribal Nations.

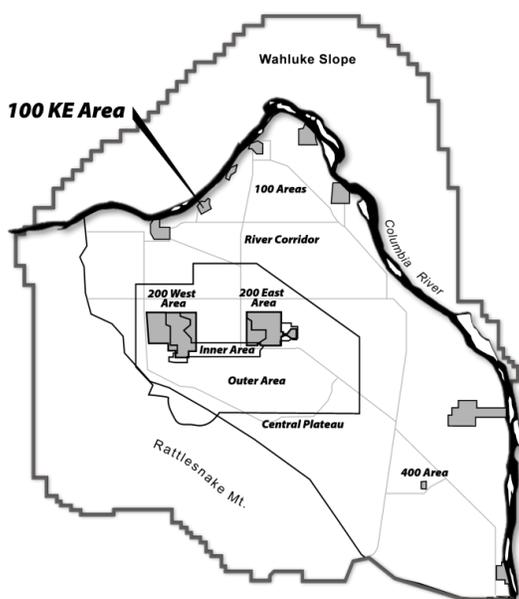
In planning for future ISS of other Hanford reactors, DOE will consider both the traditional methods of cocooning and the complete enclosure approach. The effectiveness of this removal action will be evaluated during the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 five-year review process. The 105-K East Reactor SSE construction is scheduled to begin in 2013.

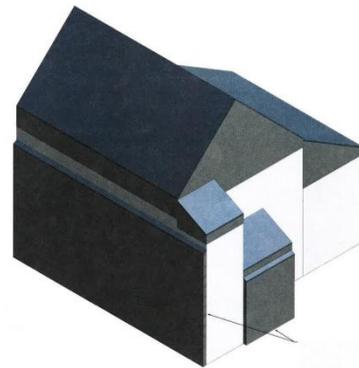
## Regulatory Process

A Tri-Party Agreement change notice will be signed by DOE and the lead regulatory agency, the U.S. Environmental Protection Agency. The change notice will state that the ISS description in the AM (the removal action decision document) and work plan, which implements the AM, will be changed to reflect that a shell-like structure with a roof will be placed around the 105-K East reactor. A change notice does not require a public process.

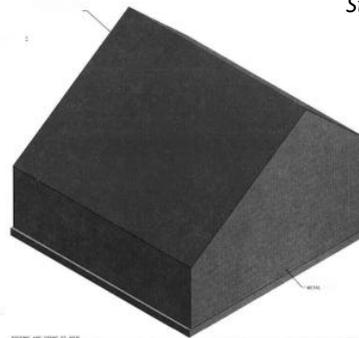
## Interim Safe Storage Complete Enclosure

Experience gained during Hanford's previous reactor ISS (i.e., cocooning) efforts has led DOE to update the reactor ISS design description. The complete enclosure approach meets the requirements, goals, and intent of the decision in the AM. Since this approach requires minimal grouting (i.e., sealing off) of high wall openings attached to the reactor, it minimizes potential radiological exposure to workers. Also, because the roof of the shell-like structure will not be





*Standard ISS Approach*



*Safe Storage Enclosure ISS Approach*

*The east side of 105-K East Reactor (as illustrated in drawing in the upper left side of this page.) The entire reactor will be enclosed in a steel structure as illustrated in the drawing to the right (bottom).*

*Complete enclosure is ideal for 105-K East ISS because it minimizes radiological work and exposure. Conceptual renderings are shown in the two illustrations to the right. The top illustration is the artist's drawing of the steel structure during construction and the bottom illustrates the structure after installation of steel sheeting.*



105KE SAFE STORAGE ENCLOSURE

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