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**TRI-PARTY AGREEMENT**

Change Notice Number: TPA-CN-0711      TPA CHANGE NOTICE FORM      Date: 04/19/2016

Document Number, Title, and Revision: DOE/RL-98-44 Surveillance and Maintenance Plan for the 105-C Reactor Safe Storage Enclosure      Date Document Last Issued: August 2004  
1212408

Originator: Boyd Hathaway, DOE-RL      Phone: 376-4264

**Description of Change:**  
The referenced surveillance and maintenance (S&M) plan identifies requirements for monitoring the internal temperature and flood sensors of the safe storage enclosures (SSE) Section 2.4.2 Instrumentation, and performance of internal inspections of the safe storage enclosures (SSE) at 5-year intervals and allow for change in the inspection interval based on completed inspections (Section 2.3).  
  
This change notice will eliminate the periodic monitoring task and change the 5-year interval to a 10-year interval with the next inspection period for all SSEs in 2025. Redline changes are attached.

Boyd Hathaway and EPA agree that the proposed change  
**DOE**      **Lead Regulatory Agency**  
modifies an approved workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records*, and not Chapter 12.0, *Changes to the Agreement*.  
The following change is authorized:  
  
In the referenced surveillance and maintenance plan, the requirements for remote internal temperature and flood sensor monitoring is eliminated (Section 2.4.2) and the Periodic inspection period is changed from 5 years to 10 years (Section 2.3).  
  
**Note: Include affected page number(s)**

**Justification and Impacts of Change:**  
**Eliminate Monitoring:**  
HNF-59342, *Surveillance Report for of 105-C, 105-D, 105-F, 105-H and 105-N/109-N Safe Storage Enclosures*, provides temperature and flood condition data for all SSEs, including 105-C, since 2009. The data demonstrate that the interior temperature sensors accurately reflect the exterior ambient air temperature (i.e., cooler in the winter months and warmer in the summer months). Similarly, there is no indication that a flooding event has occurred: as evidenced by the fact that no flood sensors have been alarmed and no water accumulation was found on the floors during the recent interior inspections. A flooding event is not likely to occur due to the low annual rainfall and the depth to groundwater.  
  
The empirical data collected to date demonstrate that the interior conditions (temperature variation and no demonstrated flooding) of the SSEs are stable. **Continued monitoring does not add value to the ongoing surveillance and maintenance operations.**  
  
The sensor equipment will be de-energized and left in place, however, it will not be regularly serviced or monitored. The cellular service to each SSE will be discontinued.  
  
Annual exterior inspections will continue along with the periodic interior inspections to assess the structural and radiological conditions of the SSE.

**Revise Inspection schedule:**  
  
In FY 2015, RL completed the 5-year inspection of 105-C, 105-D, 105-F, 105-H, and 105N/109N SSEs. Work on 105-DR was completed in 2013. The results of the FY 2015 inspections of 105-C, D, F, H, and N are provided in HNF-59342, *Surveillance Report for of 105-C, 105-D, 105-F, 105-H and 105-N/109-N Safe Storage Enclosures*. Based on the findings of these recent assessments, the SSE structures, including 105-C, are holding up well to the elements and minimal repairs have been needed to date. Where maintenance or

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housekeeping actions have been recommended, the actions have been or will be completed by RL.

An exterior condition assessment of all SSEs, including 105-C, and exterior radiological conditions will continue to be completed annually. The combination of annual exterior inspections and 10-year interior assessment/repair cycle is adequate to maintain protectiveness of human health and the environment.

Continued

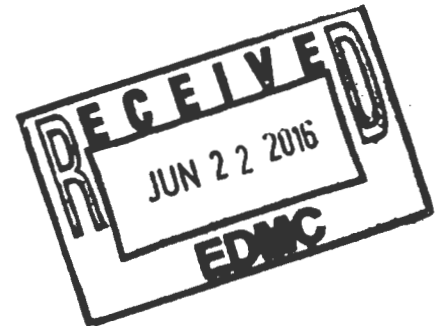
Approvals:

Boyd Hathaway 6/11/2016  Approved  Disapproved  
DOE Project Manager  
Boyd Hathaway Date

[Signature] for 6/9/2016  Approved  Disapproved  
Laura Buelow (105-C)  
EPA Date

Approved  Disapproved

Date



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DOE/RL-98-44  
Rev. 1

# Surveillance and Maintenance Plan for the 105-C Reactor Safe Storage Enclosure



United States  
Department of Energy

100-BC-1

## Facility Description

layers of masonite, and steel on the four sides and top. The entire block (14 m by 14 m by 12.2 m [46 ft by 46 ft by 40 ft]) rests on a massive concrete foundation.

### 2.3 SURVEILLANCE AND MAINTENANCE

The primary activity for 105-C SSE is periodic facility surveillance to ensure that structural integrity and hazardous material confinement is maintained. The planned surveillance routes are shown in Figures 2-1 through 2-7. Surveillance requirements are defined in BHI-FS-01, Vol. 1, *Field Support Administration*, Procedure 3.1, "Facility Surveillance." Field work instructions are defined in BHI-FS-02, Vol. 1, *Field Support Work Instructions*. The Bechtel Hanford, Inc. (BHI) Field Support group provides routine maintenance, when required. Maintenance activities are implemented in accordance with the *ERC Maintenance Implementation Plan* (BHI 2000).

The 105-C SSE was designed to require minimal maintenance. A provision for periodic surveillances of the accessible internal areas of the SSE at ~~5-year~~<sup>10-year</sup> intervals has been included to verify facility status. The surveillance frequency may be adjusted at a later time, based on actual inspection history. Nonroutine activities may include necessary repair work on installed monitoring equipment or the facility.

Access to the existing building's roofs is not part of the normal surveillance and inspection route. Prior to accessing any existing roof area within the SSE, requirements for fall protection evaluation, and authorization must be met.

An external visual inspection of the 105-C SSE roof (e.g., roofing, siding, and flashing) and building structure is conducted annually in accordance with BHI-FS-01, Vol. 1, Procedure 3.1. Access to the roof is not required and should be avoided unless repair is necessary. Visual inspection of the roof can be performed from grade because any potential degradation will be readily apparent (e.g., flashing coming loose).

The 105-C SSE is a deactivated facility and is expected to remain in the S&M program until final decommissioning. Planned S&M activities will include the following areas: structural integrity, barriers and postings, radiological surveys, repair of weather protection systems and structural components, and removal of hazardous substances. These activities are addressed in the following subsections.

## Facility Description

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The 110-VAC receptacles are located at the -9-ft level in the passage leading to the lower instrument room and tunnels. Several receptacles are located at the 0-ft level along the surveillance route and in the SSE access room. Additional receptacles are located on the 12-ft, 23-ft, and 45-ft levels.

### 2.4.2 Instrumentation

*See Item B from Revision Page*

The 105-C SSE is configured with two sets of temperature sensors (i.e., resistance temperature detectors [Figures 2-1 and 2-7]) and a set of flooding sensors (float switch [Figure 2-2]), which include installed spares for each sensor. Temperature sensors are located at grade-level on the west side of the reactor, near the west stairwell. Temperature sensors are also located at 80-ft 5<sup>1</sup>/<sub>4</sub>-in. level near the center of the attic space and near the west wall. The flooding sensors are located at the west side of the -17-ft 6-in. level, near the stairwell.

The remote sensors are controlled through a programmable logic controller (PLC) powered from DP-3. Signals are transmitted (via modem and a dedicated phone line) and monitored at the operation supervisor's workstation, which is currently located in the 1112-N Building. If an alarm is observed at the remote monitoring station, personnel will evaluate the alarm and, if required, will go to The 105-C Reactor and take appropriate corrective actions. Due to the need for changes in the location of the remote monitoring station, the system is portable and can be relocated if required.

A loss of continuity to a resistance temperature detector will result in a loss of signal to the monitoring station. The flooding sensor is normally closed-circuit, so a loss of continuity failure will result in a flooding alarm at the monitoring station. The flooding circuit is directly wired to the PLC. The temperature-monitoring circuits operate on a 4 to 20 mA current loop from transmitters. The transmitters are supplied with 120 VAC for operating power. In the event of an instrument failure, monitoring for the temperature sensors can be manually switched to previously installed spares from the SSE utility room, eliminating the need to make a special entry into the SSE. Instrument replacements will normally be made during regularly scheduled surveillance periods. In addition, the redundant flooding sensors can be electrically switched from the workstation at the 1112-N Building to the backup spare sensor.

### 2.4.3 Ventilation

The 105-C SSE is a deactivated facility that is uninhabited and locked, except during S&M activities. Many of the reactor's components were removed as part of the stabilization effort for placing the facility into ISS. Remaining equipment and components that contain radiological inventory were sealed during implementation of the ISS Project. A fixative has been applied to many accessible areas in the interior of the building to limit the spread of contamination. As such, no mechanical ventilation of the building is anticipated to be necessary either during normal storage or during periodic surveillance.

A provision has been made to ventilate the facility with exhaust fans for entry and/or maintenance, if required. The 105-C SSE has been designed for up to 9,000-ft<sup>3</sup>/min exhaust for building ventilation for nonroutine maintenance. If building exhaust ventilation is required, the

**TPA Change Notice (TPA-CN 0711)**

**Revised language to DOE/RL-98-44 Rev. 1, Surveillance and Maintenance Plan for the 105-C Reactor  
Safe Storage Enclosure**

**Insert A as new Paragraph - Section 2.3 Surveillance and Maintenance (DOE/RL-98-44 Rev. 1, Page 2-2)**

The regulatory agencies, EPA and Department of Ecology, will be notified and invited to attend annual inspections and ten year surveillance inspections. To support the internal surveillances every 10 years, DOE will submit a report to Ecology and the administrative record documenting all issues and concerns, including the checklists for the past 10 year annual inspections.

**Item B - Section 2.4.2 Instrumentation (DOE/RL-98-44 Rev. 1. Page 2-10)**

In 2009, the analog cellular system was replaced with a digital system and continuous monitoring was converted to periodic monitoring once per month. Signals were transmitted to remote laptop computer instead of the supervisors work station located in the 1112-N building.

In 2016, the digital telephone modem that allows remote computer access to the monitoring instrumentation will be disconnected in accordance with TPA Change Notice 0711. The interior equipment including sensors and wiring will remain in place, however, the equipment will not be maintained. If required in the future, the telephone modem connection may be reestablished.