

HSS Independent Activity Report - Rev. 0**Report Number:** HIAR SRS-2013-5-07**Site:** Savannah River Site**Subject:** Office of Enforcement and Oversight's Office of Safety and Emergency Management Evaluations Activity Report for the Savannah River Site (SRS) Waste Solidification Building (WSB) Corrective Actions from the January 2013 Report on Construction Quality of Mechanical Systems Installation and Fire Protection Design**Dates of Activity :** 05/07/2013 – 05/09/2013**Report Preparer:**

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Activity Description/Purpose:

1. Review the corrective actions being implemented by the construction contractor to address Findings 1-4, 6, and 9 from a construction quality review performed by the Office of Health, Safety and Security (HSS) (Reference 1).
2. Meet with the SRS WSB project staff and Savannah River Nuclear Solutions (SRNS) engineers to discuss the proposed corrective actions discussed in Reference 2, and clarify additional reviews to be performed by SRNS engineers to ensure the adequacy of the contractor's corrective actions.

Result:

1. Finding 1 concerned errors and omissions in several sections of the WSB construction specification. The specification was revised on May 9, 2013, to correct such errors as references to incorrect specification sections. These changes did not include requirements for the contractor (Baker) to submit additional records documenting completed work or specify additional quality assurance/quality control (QA/QC) inspection criteria, since these types of changes would increase the scope of the contractor's work, increase costs (requiring a change order), and impact the work schedule. SRNS is currently reviewing records submitted by the contractor to ensure that they are complete and adequate to properly document completed work activities. Independent Oversight agrees with the planned corrective actions.
2. Finding 2 concerned the failure to install two of six process ventilation vessel supports examined by Independent Oversight in accordance with drawing requirements, and the failure of QC inspectors to identify these errors. The two supports that did not comply with drawing requirements were corrected. The contractor re-inspected the supports included in three additional work packages, and because that re-inspection identified no additional discrepancies, the contractor concluded that Independent Oversight's identification of two incorrectly installed supports was an isolated condition. However, further review by SRNS field engineers identified additional discrepancies in pipe supports and tubing supports on three production service systems (argon, domestic water, and steam). Errors included incorrectly installed supports on the steam line piping, incorrectly spaced or missing supports on argon tubing lines and the domestic water piping system, and errors in the submitted as-built drawing for a portion of the argon piping (correct supports were installed, but the as-built drawing showed different types of supports in three locations). These errors may have resulted from difficulty in interpreting the requirements for locating pipe supports for field run piping, and determining the type of support that was required at specific locations. SRNS plans to perform additional walkdowns to verify that pipe supports are installed in accordance with contract drawing requirements. Independent Oversight agrees with the corrective actions for this finding.
3. Finding 3 concerned the fact that some weld inspection and test records did not furnish documentary evidence that welds for some safety significant heating, ventilation, and air conditioning (HVAC) supports met specified quality requirements for welder/weld traceability. (This finding would also apply to pipe supports.) Discussions with SRNS engineers disclosed that sufficient records exist to document the welder/weld traceability for all welders, filler materials, and welding procedure specifications used for all welds on an individual support; although the records are not traceable to each individual weld on a support, they show all the required data for all welding activities performed on each support. If a welder is suspected of performing deficient welds, the Project can determine which supports he worked on and can replace/repair any suspect support. If deficient weld filler material was used, the Project can also determine on which supports the deficient filler material was used. Independent Oversight agrees that the use of detailed weld maps is a "best practice," that the SRNS documentation meets requirements, and that this finding is resolved.
4. Finding 4 concerned the failure to implement the qualification and certification requirements for QC inspectors. SRNS's response stated that the contractor's Mechanical Level II inspectors would be exempted from SNT-TC-1A certification requirements for visual inspections of welds that are performed in accordance with the American

Society of Mechanical Engineers (ASME) Code. Discussions with SRNS disclosed that American Welding Society-certified welding inspectors who perform visual inspections of ASME piping welds will not be “exempted” from SNT-TC -1A requirements, but rather will be certified in accordance with SRNS Procedures, the project specification, and the sub-contractor's approved program. As stated in the SRNS Quality Assurance Manual "Training, qualification, and certification of NDE (see Appendix A, Glossary of Terms) personnel shall be in accordance with a Written Practice, which meets the requirements of the American Society of Nondestructive Testing Recommended Practice No. SNT-TC-1A, and its applicable supplements, and codes and standards as appropriate." The subcontractor may document the certification in accordance with the American Society for Nondestructive Testing central certification program. Independent Oversight reviewed QC inspector qualification records. The contractor QA/QC staff verifies the qualification and work histories for their QC inspectors. All QC inspectors are required to complete a required reading list during orientation, which is documented in each individual inspector’s records. Independent Oversight concluded that the revisions to the process used by the contractor to qualify and certify QC inspectors provides sufficient documented evidence that the QC inspectors are qualified in accordance with the requirements of the contractor’s QA program to perform inspections of completed work activities. The contractor currently has five qualified QC inspectors (two civil, two mechanical, and one electrical) on the project, and one additional electrical inspector is in training. Independent Oversight agrees with the proposed corrective actions for this finding.

5. Finding 6 involved a non-compliance with the requirements for installation of handrails for the stairways located in the Low Activity Process room leading up to the Mezzanine Level. SRNS developed a Life Safety Code matrix that describes these deficiencies, identifies the specific code reference, and recommends corrective actions and responsibility. The last facility walkdown was conducted on February 14, 2013, with the appropriate personnel from SRNS and the contractor (Baker). Independent Oversight has reviewed the Life Safety Code matrix and agrees with the documented information and path forward for addressing these deficiencies.

6. Finding 9 concerned an unaddressed action regarding the F Area water supply, as referenced in Technical Report F-TRT-F-00001 (Reference 3). The action was to evaluate the effects of age-related degradation on the fire water system and the processes in place to ensure that age-related degradation will not compromise the future ability of the system to accomplish design functions. SRNS has indicated that the F Area Fire Water Supply provides services for a number of facilities, including some currently in operation. The Fire Protection organization for the site is looking at long-term operation and maintenance of the system and is currently revising the referenced technical report. The issue of age-related degradation of the system is more appropriately addressed as a part of the area infrastructure. Independent Oversight agrees with this path forward and will include the F Area Fire Water Supply system in future site assessments.

HSS Participants	References
1(lead). Phillip Aiken	Reference 1 - Independent Oversight Review of the Savannah River Site, Waste Solidification Building, Construction Quality of Mechanical Systems Installation and Selected Aspects of Fire Protection System Design (January 2013)
2. Joseph Lenahan	Reference 2 - SRNS letter dated February 5, 2013, Response to Independent Oversight Review of the Savannah River Site, Waste Solidification Building, Construction Quality of Mechanical Systems Installation and Selected Aspects of Fire Protection System Design (U)
3. Jeffrey Robinson	Reference 3 - Technical Report F-TRT-F-00001, Operability Determination of Fire Water Supply System in F-Area to Support Safety Significant Fire Suppression Systems in Buildings 772-F, 772-1F, and the Waste Solidification Building (WSB), Rev. 0, dated 11/30/2010

Were there any items for HSS follow up? (X) Yes No

HSS Follow Up Items

- Perform follow-up review to verify implementation of corrective actions.