



Savannah River Site Watch

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NRC Inspection Report Finds Violations at Plutonium Fuel MOX Plant, Cites Multiple Violations Related to Loose Bolts in Safety-Related Ductwork

NRC Overlooks Looming Problems in MOX Plant Construction as “Rework” Poses Challenges, Inspections Must Expand

Columbia, South Carolina – An inspection of the \$17 billion Mixed Oxide Fuel Fabrication Facility by the U.S. Nuclear Regulatory Commission has resulted in issuance of a safety-related violation at the facility.

The violation was communicated to CB&I AREVA MOX Services, the contractor in charge of design and constructing the MOX facility, on February 2, 2017 and made public on February 8. In the trend to keep information from the public about the problem-plagued project, neither MOX Services nor the DOE’s National Nuclear Security Administration (NNSA), in charge of the MOX project, publicized the violation.

During inspections of a sample of ductwork conducted between October 24-28, 2016, the NRC found that bolts used to tighten ductwork were not tightened to specifications and that “at least one bolt was found to spin freely by hand alone.” Similar problems that had identified in earlier inspections and not properly corrected, resulting in the NRC’s noting the “repeated failure to install the ductwork” according to safety procedures.

The violations are of concern as the ductwork is used to supply air to the MOX facility is required to be of the highest quality (Quality Level 1 or QL-1.) The inspection report states that “The existence of nonconforming bolted connections had previously been identified by NRC inspectors as more than minor because it resulted in an adverse impact to the quality of the construction of safety-related components and could result in the inability of the Seismic Category 1 system to maintain pressure boundary integrity.”

“We are extremely concerned that ductwork installation problems in the MOX plant are a major cause of cost overruns and construction delays and this violation is but an indication of those problems,” said Tom Clements, director of Savannah River Site Watch. “Effective and comprehensive NRC inspection of the MOX plant is essential but the issuance of a single violation does little to assure the public that this complicated, massive project is receiving proper oversight from the NRC. As the MOX project is one of

the largest construction projects in U.S. history and its operation will have significant safety implications, the NRC must inspect every inch of the facility and not just a small sample and review all quality control documentation,” added Clements

The MOX plant at DOE’s Savannah River Site, which has been under construction since 2007, would handle weapon-grade plutonium and thus must meet exacting construction standards. Indicating a myriad of past and current problems facing the MOX facility construction, DOE currently estimates that the construction will not be completed until 2048.

The NRC’s inspection report determined that there were “no findings,” or no violations, related to other aspects of the project, such as piping and fire barriers.

The report confirms that the NRC reviewed some “work packages” (WP), “nonconformance reports” (NCRs) and “condition reports” (CRs), all related to status of construction, but does not reveal the quantity of documents reviewed nor the depth of such review.

While SRS Watch has repeatedly heard rumors of inadequate NRC inspection of the MOX plant and that a myriad of problems exist, such as wrongly installed duct gaskets, lack of proper inspection paperwork, lack of documentation of quality of installed items, rusted supports, obsolescent equipment and lack of proper certification for workers. A common thread to complaints we have heard involves improper installation of HVAC systems and supports.

The NNSA itself reported in its “2016 Updated Performance Baseline for the Mixed Oxide Fuel Fabrication Facility at the Savannah River Site” that a very small percent of “work packages” have been “closed” (“installed, inspected and accepted’). Despite what is stated in that key NNSA document, the NRC inspection report of February 2 reflects nothing about the situation with work packages for the various commodities, such as ductwork, piping cable trays and electrical equipment. In its 2016 report, NNSA revealed that 0% of work on conduits and electrical equipment had been closed, 1% of piping, 3% of ductwork closed, and 5% of cable trays and wireways.

SRS Watch believes that the NRC must perform an in-depth, comprehensive review of the status of work packages for all commodities and examine why they aren’t being closed. The project has been under construction for a decade and the closure rate for the work packages should be far higher. As a persistent rumor is that the work packages can’t be closed due to poor quality of work, the NRC must significantly increase its oversight and let the public know why the troubling situation exists with the commodity work packages.

In that same 2016 report, the NNSA states that the MOX plant was only 28% complete according to the DOE’s Office of Project Management Oversight and Assessments. Some claim that the MOX plant is 70% complete, but there has been no explanation of how this figure could have been derived given that \$12 billion is yet to be spent on the \$17 billion facility and that construction work alone could go on for another 31 years.

Notes:

NRC’s “**NRC INSPECTION REPORT NUMBER 70-3098/2016-004 AND NOTICE OF VIOLATION**,” dated February 2, 2017, made public on February 8, 2017:

<https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML17038A321>

NNSA report “**2016 Updated Performance Baseline for the Mixed Oxide Fuel Fabrication Facility at the Savannah River Site**”:

https://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/2016_updated_performance_baseline_for_mox.pdf

See table on page 4 for “Final Attributes % Complete” and also page 4 for the “28% complete” figure.

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