Audit Report on The Procurement of Safety Class/Safety-Significant Items at the Savannah River Site
DOE/IG-0814
April 28, 2009

Why we prepared this report...

In a previous audit, Quality Assurance Standards for the Integrated Control Network at the Hanford Site’s Waste Treatment Plant (DOE/IG-0764, May 2007), the audit found that the Waste Treatment Plant control system acquired by the Department of Energy (Department) did not meet applicable Quality Assurance Requirements for Nuclear Facility Applications (NQA-1). These requirements must be applied to "safety-class" and "safety-significant" structures, systems and components (SSCs). Due to the importance of protecting the public, worker, and environment, we initiated this audit to determine whether the Department procured safety-class and safety-significant SSCs that met NQA-1 standards at the Savannah River Site (Savannah River).

Background

The Department is constructing and operating several nuclear facilities to carry out its nuclear security and environmental missions at Savannah River. Specifically, the National Nuclear Security Administration built the Tritium Extraction Facility (TEF) to maintain the reliability of the U.S. nuclear stockpile. The Mixed Oxide Fuel Fabrication Facility (MOX Facility) is being constructed to make fuel assemblies from weapon-grade plutonium oxide and depleted uranium oxide that will be used by commercial nuclear reactors. The Interim Salt Processing (ISP) project, managed by the Office of Environmental Management, will treat radioactive waste.

What we found...

Our audit disclosed that safety-class and safety-significant SSCs not meeting NQA-1 quality standards had been procured and installed in three major nuclear facilities at Savannah River. Our review of subcontracts for safety-class and safety-significant SSCs, valued at $30 million, revealed multiple instances in which SSCs did not meet NQA-1 standards. Specifically,

- Three structural components were procured and installed by the prime contractor at the MOX Facility that did not meet the technical specifications for items relied on for safety.
- In six instances, items used in the construction of TEF failed to satisfy quality standards. In one instance, operating procedures had to be modified to ensure that the problem item did not compromise safety; and,
- At ISP, one component that did not meet quality standards was procured. The failure of the item could have resulted in a spill of up to 15,000 gallons of high-level radioactive waste.

We concluded that these failures were attributable to inadequate attention to quality assurance at Savannah River. Departmental controls were not adequate to prevent and detect quality problems. Additionally, management did not effectively communicate quality assurance concerns between the several Departmental program elements operating at Savannah River.

The procurement and installation of these nonconforming components resulted in cost increases. The internal control weaknesses we discovered could have permitted, without detection, the procurement and installation of safety critical components that did not meet quality assurance standards. In a worst case scenario, undetected, nonconforming components could fail and injure workers or the public. In certain instances, the Department took steps to ensure that the prime contractors at Savannah River began action to remediate nonconforming components and to strengthen policies and procedures. Accordingly, we made several recommendations designed to strengthen quality assurance at Savannah River.

Finally, the matters discussed in this report provide valuable lessons learned as the Department implements the American Recovery and Reinvestment Act. The Department will use Recovery Act stimulus funds to initiate new and to accelerate ongoing projects throughout its complex. The Department must maintain a focus on quality assurance issues to ensure the safety of its workforce and the public.

To view the full report, click on the following link:
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For more information, contact judy.garland-smith@hq.doe.gov