Savannah River Site
Citizens Advisory Board

Recommendation 334
Nuclear Materials Operations Review

Background

In September 2015, there was an incident in the HB line which resulted in an operational shutdown of the entire plant for several months, and an extended operational shutdown with deliberate operations in H canyon until the end of February, 2016. Full operations at HB Line did not resume until mid-April, 2016. The cost resulting from the shutdown has not been evaluated but is probably extensive. The shutdown also contributed to the plant missing its Performance Measures for FY 2015 (Rich Olsen, Environmental Management Cleanup Program Performance Measures FY 2015, FY 2016 Targets).

During this incident, an experienced team of three workers and a first line manager intentionally packed a few plutonium samples in an appropriate container safe for storage but not for plutonium storage. They knew it was not the correct container. We were told that the shift manager had other responsibilities at the time but was not required to physically oversee this procedure. The workers involved in the incident failed to call a time out or self-report the mispackaging at the time of the incident. The problem was only discovered four days later by an engineer who was checking other unrelated paperwork and, only by accident, noticed the improper packaging and reported it. The procedure was performed on a Thursday, prior to a long holiday weekend. The next work shift did not begin until the following Tuesday.

A report containing lessons learned from the incident concluded that there needed to be more worker training, heightened worker awareness, and increased worker usage of the time out procedure. (See full report in presentation to CAB NM Committee, December 2015).

As part of the corrective process, compliance violations were self-reported by SRNS. Following this self-report, the company began paperwork to reach a settlement with DOE. The ensuing Order of Consent between SRNS and the U.S. Department of Energy entered into in April, 2016, requires SRNS to meet several objectives and pay a $175,000 penalty. In addition, SRNS must arrange an effectiveness review and nuclear safety assessment to be conducted by independent, external parties. (Thomas Gardiner, "SRNS signs consent order to take steps to correct safety compliance concerns," April 29, 2016, Aiken Standard) (Consent Order (NCO-2016-01) http://energy.gov/ea/downloads/savannah-river-nuclear-solutions-llc-consent-order-nco-2016-01)

However, it should be considered that this is not the first problem with personnel at SRS. On May 16, 2014, Defense Nuclear Facilities Safety Board, DNFSB, issued a letter to SRS stating, "The DNFSB is increasingly concerned with shortcomings in the safe performance of work across the SRS." (DNFSB letter to Mr. Huizenga, May 16, 2014).

Since there have been other performance problems, as mentioned by DFSB in this letter, and due to the cost incurred by the extended operational shutdown throughout the plant, and the failure to meet performance goals, other factors should also be examined such as:

Shift work at SRS and specifically, at SRNS:

- Starting a job late on Thursday, the last day of a four day work week, which leaves any Thursday problems not discovered for three days until Monday.

- Starting a job on Thursday followed by a Monday holiday, which leaves any Thursday problems not discovered for four days until Tuesday.

And:

- Sufficiency of supervisory personnel at SRS and SRNS as well as areas of assignment of those supervisory personnel
- Most importantly, the lack of an additional, next-level supervisor to review jobs within 24 hours of their completion. As noted above, the HB line error was only found because another engineer discovered it accidentally when he was checking other paperwork on Tuesday, four days later.

One lingering, unanswered question is why trained and experienced employees deliberately acted in violation of known procedures. The CAB hopes that this question was fully investigated, and that measures have been considered and taken to address this concern.

Recommendations

When there is a job at SRS involving radioactive materials and/or criticality, such as the procedures involved in the HB line incident, the CAB recommends that DOE requires that SRNS, as part of its Procedure Performance:

1. Review any resulting paperwork or documentation by an additional supervisory level, at the end of the work shift, but no later than within 24 hours, even if that 24 hour period includes a weekend or holiday.
2. Hire additional personnel or shift responsibilities so that this type of supervision could be carried out.
3. Allocate or apply for additional funding to enable #2.
4. Review, analyze and rewrite Procedure Performance 5.3, as needed.
5. Review procedures for team composition, to change members to different teams periodically so that 'team member familiarity' does not prevent or diminish optimum work quality.
6. Request that DOE include in the SRNS independent assessment referred to in item 1c of Consent Order NCO-2016-01:
    a. Analysis of adequacy of the number of supervisors in HB line incident, including first line supervisor and shift supervisor
    b. Analysis of effectiveness of four day shifts in areas where procedures involve nuclear criticality;
    c. Analysis of effectiveness of keeping same team members instead of a random rotation of members when possible.
7. Request that DOE provide CAB a presentation on the results of SRNS effectiveness review from item 1a of Consent Order NCO-2016-01.
8. Request that DOE provide CAB a presentation on the results of SRNS "independent assessment of its Nuclear Criticality Safety Program, including H-Area and the F/H analytical laboratories..." As described in all of item 1c of Consent Order NCO-2016-01.