

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 11, 2014

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and D. L. Burnfield, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending July 11, 2014

Maintenance: Messrs. Sautman, Shrestha, and Sircar reviewed the maintenance and operation of 30+ safety class, safety significant, and defense-in-depth systems at several SRS facilities. The review examined open corrective maintenance (CM) work orders, deferred preventive maintenance (PM), causes of system unavailability, and other operational events (e.g., alarms, tripped interlocks, failed calibrations). In general, the systems examined had small CM backlogs that mostly consisted of minor repairs that were having little impact on their current operations. Many of the PM deferrals were related to vendor delays or aligning the PM with upcoming outages. That being said, the maintenance of non-credited safety equipment was sometimes not as rigorous. Two examples are discussed below.

The Defense Waste Processing Facility has two pumps, an electric and a diesel, to support the fire water supply system. The fire suppression system is classified as defense-in-depth/important-to-safety. SRR believes that the annual fire pump test data between 2010 and 2013 likely do not meet expectations. The 2012 and 2013 data are considered invalid because an incorrect valve position produced erroneous flow indications. A subsequent recirculation flow test and a hydrant flow test both indicated that the flow was only 90% of the pump's nameplate capacity. National Fire Protection Association 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, requires the test results to be at least 95% of the pump's nameplate capacity. While the pumps are functional, DOE and the Board's staff are interested with how long it has taken to identify and investigate the degraded performance. The staff will provide DOE a list of questions for a more in-depth discussion on this topic.

Last November, SRR stopped performing preventive maintenance (e.g., calibrations) on purge exhaust flow gages for slow and very slow gas generation tanks. While these specific gages are not required by the Technical Safety Requirements, the system engineer uses them to monitor the system's performance. When the staff asked why they stopped doing PMs, tank farms management stated that they did not want to be forced by DOE to declare a reportable event if the calibration failed. Afterwards, DOE and SRR reached agreement on the safety function of these gages so this issue is now resolved.

H-Canyon: As workers began exiting the hot crane maintenance area (HCMA), the breathing air operator accidentally shut off breathing air to the incorrect worker's plastic suit for 5 seconds before realizing his mistake and turning the air back on. Fifteen minutes later, the breathing air operator made the same mistake again with a different operator, but this time he also disconnected the hose and tossed it inside the HCMA. To avoid suffocating, the affected worker went to the step off pad and removed the top of his plastic suit. These are just the latest incidents where a worker's breathing air was accidentally turned off because the breathing air operator did not use 3-way communications (see 12/21/12, 2/12/10, 5/1/09, 5/23/08, 10/20/06 reports). SRNS also resumed dissolution of used nuclear fuel.

Modular Caustic Side Solvent Extraction Unit (MCU): After a long shutdown, SRR resumed MCU operations. Operations were shut down the next day to perform inspections and confirm satisfactory sample results before resuming operations. SRR also had to shut down MCU twice due to alarms triggered by a scrub contactor fault and a bad relay.

Tritium: An operator failed to follow established procedures to define system alignment and ended up blowing out a rupture disk. At the issue review, SRNS determined that the starting system pressure was too high to perform the desired operation.