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December 13, 2018

SUBJECT: WESTINGHOUSE 30 DAY FOLLOW-UP REPORT (EN53746)

The following information is being provided by Westinghouse Electric Company LLC (Westinghouse) in accordance with 10CFR70.50(c)(2). A copy of the initial notification report, Event Report #EN53746, pertaining to the Columbia Fuel Fabrication Facility (CFFF) can be found in Enclosure 1 and provides the applicable information required by 10CFR70.50(c)(1). The information required in accordance with 10CFR70.50(c)(2) is provided in Enclosure 2.

If you have any questions or comments, or if we can be of further assistance, please do not hesitate to contact me or Nancy Parr of my staff at (803) 647-3338 or parrnb@westinghouse.com.

Yours very truly,

Michael Annacone
Columbia Fuel Operations Vice President
Westinghouse Columbia Fuel Fabrication Facility
Docket 70-1151 License SNM -1107

Enclosure 1: Original Event Report #EN53746
Enclosure 2: 10CFR70.50(c)(2) Required Information

cc:

U. S. Nuclear Regulatory Commission
11555 Rockville Pike
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Attn: Mr. Matthew Bartlett
Mail Stop: TWFN-4A60

U. S. Nuclear Regulatory Commission, Region II
245 Peachtree Center Avenue NE, Suite 1200
Atlanta, GA 30303-1257
Attn: Mr. Tom Vukovinsky

ENCLOSURE 1

Original Event Report #EN53746 dated 20 November 2018.

Caller Identification and Facility Information
Gerard Couture Licensing Engineer. Call-Back Number (803) 647-2119 or (803) 727-2127.
Westinghouse Electric Company LLC, Commercial Fuel Fabrication Facility, Columbia SC. Low enriched (5.0 wt. % U-235) fuel fabricator for commercial light water reactors. License: SNM-1107.

24 Hour Event Notification based on 10CFR70.50 (b)(3). An event that requires unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination on the individual's clothing or body. Also applicable to this issue is a 24 Hour Event Notification based on 10CFR70 Appendix A (c). Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made, shall be reported to the NRC Operations Center concurrent to the news release or other notification. This issue requires notification to the South Carolina (SC) Department of labor, Division of Occupational Safety and Health.

Description of the Event
On November 19, 2018, at approximately 11:30 a.m., a conversion area worker was cleaning up a spill of liquid uranyl fluoride (UO_2F_2) that contains hydrofluoric acid (HF). During the cleanup effort, some amount of this solution was able to come in contact with the worker's clothing potentially impacting their skin on the legs above the ankle. Appropriate treatment for exposure to HF was provided by onsite medical response staff. When the operator attempted to exit the chemical side of the plant, radioactive material contamination was detected on both hands. The contamination on both hands was above free release criteria and was unable to be removed by normal decontamination methods. The worker was transported to an offsite medical facility accompanied by plant health physics personnel. The worker was sent to the hospital for observation due to the potential chemical exposure.

The Columbia plant is a licensed Part 70 facility subject to 10CFR70 Subpart H. Spills within the conversion area of the plant are evaluated in the Integrated Safety Analysis and Summary. This issue does not challenge the performance requirements of 10 CFR 70.61.

Immediate Corrective Actions
Operations staff finished cleaning up the spill. At the time of this notification the employee has reported to management they are awaiting discharge from the hospital. This issue has been entered into the facility's corrective action program.

ENCLOSURE 2

10CFR70.50 (c)(2) Information

(i) Complete applicable information required by § 70.50(c)(1);

On November 19, 2018, at approximately 11:30 a.m., a conversion area employee was cleaning up a spill of liquid uranyl fluoride (UO_2F_2) that contains hydrofluoric acid (HF). During the cleanup effort, some of this solution came in contact with the employee's clothing, potentially impacting their skin on the legs above the ankle. Appropriate treatment for exposure to HF was provided by onsite medical response staff. When the employee attempted to exit the chemical side of the plant, radioactive material contamination was detected on both hands. The contamination on one hand (not both hands, as initially reported) was above free release criteria (i.e., slightly above 1000 dpm) and was unable to be removed by normal decontamination methods. The employee's hands were placed in gloves, and the employee was transported to an offsite medical facility accompanied by plant Health Physics (HP) personnel. The employee was admitted overnight in a hospital for observation due to the potential non-radiological chemical exposure. While admitted, the employee received prescription medication, thereby requiring a notification to the South Carolina (SC) Department of Labor, Division of Occupational Safety and Health and an NRC Concurrent Report.

The initial event report notification is provided as Enclosure 1.

(ii) The probable cause of the event, including all factors that contributed to the event and the manufacturer and model number (if applicable) of any equipment that failed or malfunctioned;

The event was entered into our Corrective Action Program (CAP) as Issue Report (IR) #2018-19356. While the Apparent Cause Analysis (ACA) is not yet finalized, the probable causes for the event are discussed below.

The cause of the spill was determined to be a partial blockage in the hydro-vent system. The hydro-vent is the ventilation header for the Conversion area V-x02 hydrolysis columns. These columns normally operate under 3-5" H_2O vacuum. With the hydro-vent system partially plugged, when the Conversion Line 3 operator initiated a nitrogen flow to educt the Uranium Hexafluoride (UF_6) cylinder, it caused the Line 3 hydrolysis column to pressurize, resulting in a spill of approximately 4 gallons of solution out of the passive overflow. The hydrolysis columns are passively designed such that solution will overflow to the hood/floor instead of backfilling into a UF_6 cylinder. UO_2F_2 solution contains approximately 4% HF. There is a gap in the system design, which means that blockages can occur, resulting in a spill of hazardous chemical solution.

In addition, management had previously accepted and tolerated leaks and spills in this area without implementing adequate corrective actions to prevent them. There had been recorded issues on the same column overflowing in the previous two weeks.

Finally, management standards related to training were less than adequate in that there was improper implementation of the On-the-Job Training (OJT) program within the area. The individual involved was a trainee, and more experienced personnel showed a lack of control to assure proper hazard identification and risk recognition/mitigation when responding to the spill. There was also a gap in training related to personnel contamination monitoring. The requirements for monitoring and for notifying HP for assistance were misapplied. In addition, the frisking technique used by the individual was not adequate to detect low level contamination.

Further investigation into the reasons why the employee's hands were contaminated is being performed per CAP IR #2018-19828. A common cause analysis to evaluate spills and leaks is being performed per CAP IR #2018-19832.

There was no equipment that failed or malfunctioned.

(iii) Corrective actions taken or planned to prevent occurrence of similar or identical events in the future and the results of any evaluations or assessments;

Following the event on November 19, 2018, Conversion area operations were shut down and placed into a safe mode until compensatory measures could be established.

A safety stand-down with all employees in all areas at the site was completed on November 26, 2018.

To address the gap in management standards related to tolerance of chemical spills and leaks, the Conversion, Integral Fuel Burnable Absorber (IFBA) scrap cage, Uranium Recycle and Recovery Services (URRS) and plating room operations completed an analysis of the top drivers for spills and leaks in the respective areas. Actions were taken to reduce or mitigate the risks associated with these spills and leaks.

To address the gaps in training of new employees related to hazard identification and risk recognition/mitigation, spill response and personnel monitoring, OJT was halted pending development of appropriate corrective actions. In addition, the expectations for performing personal safety assessments were reviewed with all employees.

To address the gaps in contamination control, refresher training was provided as part of the Chemical Area safety stand-down to ensure proper understanding of personnel monitoring requirements. HP personnel also reviewed all step-off pads to ensure personnel monitoring requirement postings were clear, and they performed focused observations to ensure proper monitoring techniques were being followed.

Additional corrective actions may be determined through the CAP investigations and will be tracked to completion in IRs #2018-19356, 2018-19828, and 2018-19832. An action is planned to modify the design of the hydrovent system to prevent system blockages.

(iv) For licensees subject to Subpart H of this part, whether the event was identified and evaluated in the Integrated Safety Analysis.

The CFFF is subject to Subpart H, and the accident sequence is identified and evaluated in the Integrated Safety Analysis (ISA). An evaluation of the event was performed, and the Performance Requirements of 10CFR70.61 remained satisfied.