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13 juillet 2017

## Etats-Unis : Westinghouse Electric Corporation : violation des critères de sûreté suite à la présence d'un excès d'uranium

Le département de l'environnement, de la santé et de la sécurité a déterminé, pendant l'arrêt de maintenance annuel, que la masse limite d'uranium de 29 kg prévue dans le matériel de nettoyage de l'épurateur S-1030 était dépassée. De fait, les d'entrées et l'épurateur ont été soigneusement nettoyés et les solides contenant de l'uranium, ont été placés dans des conteneurs à géométrie favorable. L'inspection et le nettoyage sont devenus mensuels. La configuration réelle serait restée sûre à tout moment.

**\*\*\* MISE A JOUR A 10H25 HAE LE 26/07/2016 \*\*\***

L'analyse chimique sur place a montré que le matériau accumulé contenait 87 kg d'uranium.

**\*\*\* MISE A JOUR A 1749 HAE LE 31/07/2016 \*\*\***

Il n'y aurait eu aucune conséquence pour le public, les travailleurs ou l'environnement.

**\*\*\* MISE A JOUR À 16H20 HAE LE 8/7/2016 \*\*\***

Le 6 août 2016, la présence d'uranium dans le matériel résiduel situé dans l'épurateur abandonné S-1056 a été confirmée et échantillonnée.

***Available in english only***

Event Number : 52090

Facility : WESTINGHOUSE ELECTRIC CORPORATION

RX Type : URANIUM FUEL FABRICATION Comments : LEU CONVERSION (UF6 to UO2) COMMERCIAL

LWR FUEL

City : COLUMBIA State : SC

Event Date : 07/13/2016 Event Time : [EDT]

Emergency Class : NON EMERGENCY 10 CFR Section : PART 70 APP A (a)(4) - ALL SAFETY ITEMS  
UNAVAILABLE PART 70 APP A (b)(1) - UNANALYZED CONDITION

### **DEGRADED SAFETY ITEMS CAUSED BY URANIUM BUILDUP**

"On July 13, 2016, it was determined by the Environment, Health and Safety (EH&S) department that scrubber clean-out material, found in the S-1030 scrubber transition section during the annual maintenance shutdown that occurred in late May, potentially exceeded the uranium mass limit for the scrubber transition.

"(IROFS [Items Relied on for Safety] VENT-S1030-110) requires annual inspection and removal of significant solids buildup in the transition section. Upon inspection, significant buildup was found, and the ductwork was opened to permit extensive cleanout. 36 containers of material with a total gross weight of 210.4 kg was removed from the inlet transition during the cleanout on May 28th to May 29th. Grab samples were subsequently taken from each container and analyzed for uranium concentration. On July 13th, the EH&S department was made aware that the grab sample results averaged 47.8% U. Although the exact uranium mass cannot be determined until the material is dissolved and representatively sampled, available evidence suggests that the mass limit of 29 kg U in the inlet transition was exceeded. The 29 kg U limit is based on an optimally moderated, fully reflected spherical geometry which very conservatively bounds the conditions in the inlet transition of the scrubber. IROFS remained to limit the quantity of uranium available to the scrubber (IROFS VENT-S1030-101, -102, -103 & -104), which are physical barriers designed to minimize uranium in the airflow entering the transition area. Continuous liquid spraying in the inlet transition section to limit solids accumulation (IROFS VENT-S1030-109) was also in place.

"The inlet transition and scrubber were thoroughly cleaned, and the uranium bearing solids were placed into favorable geometry containers. Also, the inspection and cleanout of the transition frequency was increased to monthly.

"Based on available but degraded IROFS, this accident sequence was unlikely. Therefore, this mass accident sequence does not meet the performance requirements of 10CFR70.61. The actual configuration remained safe at all times. Also, no external conditions affected the event.

"Immediate Corrective Actions : NRC Region II personnel, who were onsite at the CFFF [Columbia Fuel Fabrication Facility], were made aware of the discovery.

"The Conversion area was shutdown to plan for a second extensive scrubber clean-out to validate that the accumulation of solids is a slow buildup over time. The last extensive cleanout was performed in 2009.

"An extent of condition was performed to determine if other scrubbers potentially had significant uranium buildup. Inspection data indicated that this material accumulation issue was limited to the S-1030 scrubber.

"This event has been entered into the facility Corrective Action Prevention And Learning system (CAPAL) #100397353."

\*\*\* UPDATE PROVIDED BY NANCY PARR TO JEFF ROTTON AT 1025 EDT ON 07/26/2016 \*\*\*

"Onsite chemical analysis confirmed that uranium mass limit for the scrubber transition piece was exceeded. The accumulated material contained 87 kgs of Uranium.

"The Criticality Safety Evaluation for this system was revised and implemented on July 20, 2016 to add Items Relied on For Safety to prevent recurrence of a mass exceedance while the causal analysis and additional corrective actions are completed."

Notified R2DO (Nease) and NMSS Events Notification Group via email.

\* \* \* UPDATE PROVIDED BY NANCY PARR TO HOWIE CROUCH AT 1749 EDT ON 07/31/2016 \* \* \*

"On July 31, 2016, it was determined by the Environment, Health and Safety (EH&S) department that clean-out material found in the S-1030 scrubber packing and floor also potentially exceeded the uranium mass limit for the scrubber criticality safety evaluation. Over years of operations, the same available but degraded mass prevention and inspection/clean-out IROFS did not prevent exceedance of the mass limit.

"This report is being upgraded to a 1 Hour Event Notification based on 10CFR70 Appendix A(a)(4).

"There was no consequence to the public, the workers or the environment.

"The scrubber process will remain in a safe shutdown mode until further investigation and corrective actions are completed."

Notified R2DO (Rose), IRD (Grant), NMSS EO (Kotzalas) and NMSS Events Notification via email.

\* \* \* UPDATE FROM JOHN HOWELL TO VINCE KLCO AT 1620 EDT ON 8/7/2016 \* \* \*

"On August 6, 2016 at 1700, it was reported to the Environment, Health and Safety (EH&S) department that residual material located within the abandoned S-1056 scrubber was sampled and confirmed to contain Uranium.

"24 Hour Event Notification based on 10CFR70 Appendix A(b)(1) 'Any event or condition that results in the facility being in a state that was not analyzed, was improperly analyzed, or is different from that analyzed in the Integrated Safety Analysis, and which results in failure to meet the performance requirements of 10CFR70.61.'

"The S-1056 is an out-of-service scrubber. When operational, it scrubbed the acid fumes from the Conversion area. It currently is an unanalyzed system without IROFS or controls. The reported volume of approximately 15 kg is well within safety margins.

"It was taken out of service in 2002, when the S-1030 scrubber replaced it. The material in the S-1056 was discovered as an extent of condition for the S-1030 event.

"The discovery and sampling were documented in Redbook 71409. At no time was there any actual or potential health and safety consequence to the workers, the public, or the environment."

The licensee notified the NRC Regional Inspector (Lopez).

Notified the R2DO (Suggs), R2RA (Haney) and NMSS Events Notification Group via email.

<https://www.nrc.gov/reading-rm/doc-collections/event-status/event/2016/20160808en.html>