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8 août 2017

Etats-Unis : Westinghouse Electric Corporation : Critères de sécurité dépassés suite à une accumulation d'uranium

La découverte a été effectuée le 13 juillet 2016 par le département de l'environnement, de la santé et de la sécurité (EH & S). Du 28 mai au 29 mai, des échantillons de grappes ont été prélevés dans chaque conteneur et analysés pour déterminer la concentration en uranium. Bien que les mesures ne soient pas précises, elles suggèrent que la limite de masse de 29 kg d'uranium a été dépassée. La zone de conversion a été arrêtée afin de planifier un deuxième nettoyage complet de l'épurateur afin de confirmer que l'accumulation de solides s'accélère lentement au fil du temps.

***** Mise à jour du 26 07 2016 ***** L'analyse chimique sur site a confirmé que la limite de masse de l'uranium pour le site de transfert était dépassée car le matériau accumulé contenait 87 kg d'uranium.

***** Mise à jour du 31 07 2016 ***** Le département Environnement, hygiène et sécurité (EH & S) a déterminé que les matériaux de nettoyage trouvés dans l'épurateur et le plancher de l'épurateur dépassaient potentiellement la limite de masse d'uranium pour l'évaluation de la criticité de l'épurateur. Le processus d'épuration restera en mode d'arrêt sécurisé jusqu'à ce que d'autres investigations et actions correctives soient achevées.

***** Mise à jour du 7 08 2016 ***** A aucun moment, il n'y a eu de conséquences réelles ou potentielles sur la santé et la sécurité des travailleurs, du public ou de l'environnement. Le processus d'épurateur restera dans un mode d'arrêt sécurisé jusqu'à ce que d'autres investigations et actions correctives soient achevées. Les gestionnaires de projet de la Région ont été avisés.

***** Mise à jour du 15/09/16 ***** Le système 3A / 3B a été mis hors service en 2002, lorsque l'épurateur S-1030 l'a remplacé et, lorsqu'il était en service, il a éliminé les vapeurs chimiques et les particules de la zone de conversion. pour l'événement S-1030. A

aucun moment, il n'y a eu de conséquences réelles ou potentielles sur la santé et la sécurité des travailleurs, du public ou de l'environnement.(Sic)

***** Mise à jour du 23/08/16 *** "INFORMATION MISE À JOUR DU 23 AOÛT 2016 NOTIFICATION : Cette notification sert également à mettre à jour les informations précédemment fournies le 23 août 2016 où un examen de vidéo d'inspection pour le conduit S-1030 en conversion a identifié l'accumulation de matériau dans un coude qui pourrait dépasser limite de masse d'uranium pour la section du coude (36,5 kg U) Ce rapport a été établi sur la base de la possibilité de rencontrer le 10 CFR 70 Appendice A (a) (4) dans les conduits. le poids total du matériau enlevé était de 5,5 kg dans le coude et de 3,0 kg dans une section horizontale du conduit, ce qui est bien inférieur à la limite de masse dans la base de la sûreté, les informations du rapport potentiel du 23 août 2016 sont donc rétractées. "**

***** Mise à jour du 05/10/16 *** Le 4 octobre 2016, vers 17 h HAE, des travaux d'entretien ménager et de nettoyage des conduites hors service 3A et 3B ont révélé la présence d'une dégradation dans une zone inaccessible au fond du système de filtration hors service. Cette découverte a été faite lors de l'exécution d'activités de nettoyage couvertes par un permis de travail radiologique (RWP). Le travail a été arrêté, et Health Physics (HP) a effectué des études de contamination de la région. La zone radiée a été scellée et isolée. Aucun contrôle radiologique supplémentaire n'a été nécessaire et l'accès à la zone n'a pas été restreint. Aucune dégradation n'a été constatée dans d'autres systèmes hors service sur le toit.**

***** Mise à jour du 8/08/17 *** Le 17 août 2017 à 11h17, il a été signalé au département de l'environnement, de la santé et de la sécurité (EH & S) que des matières résiduelles supplémentaires se trouvant dans l'épurateur S-1056 hors service ont été trouvées. Le matériel de ce système hors service a été précédemment signalé le 7 août 2016. Le matériau a été retiré et placé dans un stockage de géométrie favorable. Le matériel a été quantifié et déterminé contenir moins de 80 grammes d'uranium, ce qui est bien dans les marges de sécurité. L'accumulation n'était pas visible avant le démantèlement de l'équipement abandonné pour le retrait du toit. La démolition et l'enlèvement ont déjà été complétés pour les filtres des systèmes de ventilation 2A, 2B, 3A, 3B et 7A. La découverte et l'échantillonnage ont été documentés dans le Redbook 72846 et le CAPAL 100488919. Aucune conséquence réelle ou potentielle sur la santé et la sécurité (Sic)**

Fuel Cycle Facility

Event Number : 52090

Facility : WESTINGHOUSE ELECTRIC CORPORATION

RX Type : URANIUM FUEL FABRICATION

Comments : LEU CONVERSION (UF6 to UO2) COMMERCIAL LWR FUEL

COLUMBIA State : SC County : RICHLAND

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.

*** UPDATE AT 1546 EDT ON 8/23/16 FROM NANCY PARR TO JEFF HERRERA ***

"On August 23, 2016, during the extent of condition for this S-1030 scrubber system event, a review of inspection video for the S-1030 ductwork in Conversion identified material accumulation in an elbow which potentially could exceed the uranium mass limit for the elbow section (36.5 kgU).

"This report is being updated based on a potential to meet the 10 CFR 70 Appendix A(a)(4) in the ductwork.

"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."

The Region IV Project Managers were notified.

Notified the R2DO (Michel), IRDMOC (Stapleton) and NMSS Events Notification Group (via email).

* * * UPDATE AT 1810 EDT ON 9/15/16 FROM NANCY PARR TO DANIEL MILLS * * *

"24-Hour Event Notification based on 10 CFR 70 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 10 CFR 70.61.'

"On September 15, 2016 at 1204 EDT, it was reported to the Environment, Health and Safety (EH&S) department that residual material was located within the abandoned 3A/3B ventilation system. Based on gamma radiation surveys, the material contains Uranium.

"The 3A/3B system was taken out of service in 2002, when the S-1030 scrubber replaced it. When operational, it removed chemical fumes and particulate matter from the Conversion area. The material in the system was discovered as an extent of condition for the S-1030 event.

"When taken out of service, the system was isolated from the introduction of any additional material and/or moderator. However, because the system is out of service, it is considered an unanalyzed system without IROFS or controls. The reported depth of material in the duct appears well within analyzed safety margins for similar systems.

"At no time was there any actual or potential health and safety consequence to the workers, the public, or the environment.

"UPDATED INFORMATION FROM AUGUST 23, 2016 NOTIFICATION : This notification also serves to update previously reported information provided on August 23, 2016 where a review of inspection video for the S-1030 ductwork in Conversion identified material accumulation in an elbow which potentially could exceed the uranium mass limit for the elbow section (36.5 kg U). This report was made based on a potential to meet the 10 CFR 70 Appendix A(a)(4) in the ductwork. The material was removed from the ductwork and weighed. The total weight of the material removed was 5.5 kgs in the elbow and 3.0 kgs in a horizontal section of the duct, which is well below the mass limit in the safety basis. Therefore, the information from the August 23, 2016 potential report is retracted."

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

* * * UPDATE AT 1701 EDT ON 10/05/16 FROM NANCY PARR TO JEFF HERRERA * * *

"On October 4, 2016 at approximately 1700 EDT, while performing housekeeping and cleanout activities on the out of service 3A and 3B ductwork, degradation was discovered in an area not routinely or readily accessed in the bottom of the out of service filter house system. This discovery was made while performing clean-out activities covered under a Radiation Work Permit (RWP).

"The work was stopped, and Health Physics (HP) performed contamination surveys of the area. The degraded area was sealed and isolated. No additional radiological controls were needed, and access to the area was not restricted.

"No degradation was found in other out of service systems on the roof. A comprehensive extent of condition is ongoing.

"There was no actual or potential health and safety consequence to the workers, the public, or to the environment during this time."

Notified the R2DO (Bonser) and NMSS Event Notification Group (via email).

* * * UPDATE AT 1113 EDT ON 08/18/17 FROM NANCY PARR TO BETHANY CECERE * * *

"On August 17, 2017 at 11:17 a.m., it was reported to the Environment, Health and Safety (EH&S) department that additional residual material located within the out of service S-1056 scrubber was found. Material in this out of service system was previously reported on August 7, 2016. The material was removed and placed into favorable geometry storage. The material has been quantified and determined to contain less than 80 grams of uranium, which is well within safety margins.

"This information is being reported in accordance with the 24 Hour Event Notification criterion : 10 CFR 70 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 10 CFR 70.61.'

"The buildup was not visible until dismantling the abandoned equipment for removal from the roof. Demolition and removal has already been completed for ventilation system filter houses 2A, 2B, 3A, 3B and 7A.

"The discovery and sampling were documented in Redbook 72846 and in CAPAL 100488919. At no time was there any actual or potential health and safety consequence to the workers, the public, or the environment."

The licensee discussed this report with NRC Region 2 (Vukovsky and Michel).

Notified the R2DO (Sykes) and NMSS Event Notification Group (via email).

<https://www.nrc.gov/reading-rm/doc-collections/event-status/event/2017/20170821en.html>