



Westinghouse Electric Company LLC  
Columbia Fuel Site  
5801 Bluff Road  
Hopkins, South Carolina 29061-9121  
USA

Director, Office of Nuclear Material Safety and  
Safeguards  
U. S. Nuclear Regulatory Commission  
Document Control Desk  
11555 Rockville Pike  
Rockville, Maryland 20852-2738

Direct tel: 803-647-1957

e-mail: [donnelpb@westinghouse.com](mailto:donnelpb@westinghouse.com)

Your ref:  
Our ref: LTR-RAC-22-63

December 29, 2022

SUBJECT: 60-Day Report Regarding the November 1, 2022, Incident Reported under 10 CFR 70  
Appendix A 24-Hr Report, Columbia Fuel Fabrication Facility (License No. SNM-1107,  
Docket No. 70-1151)

REFERENCES: 1) NRC Event Notification (EN) 56199  
2) LTR-RAC-22-62, WEC (Donnelly) to NRC (Document Control Desk),  
Request for Temporary License Amendment for Storage of Hematite  
Ash (Docket No. 70-1151, License SNM-1107)

Dear Sir or Madam:

On November 2, 2022, the Columbia Fuel Fabrication Facility (CFFF) reported to the NRC an  
unanalyzed condition associated with the storage of ash material transferred to CFFF from the  
Hematite Site. The attached follow up report is being submitted to comply with 10 CFR 70.74(b).

Attached is a copy of the NRC Form 361A provided to the NRC Operations Center at the time of  
notification submitted to comply with 70.50 (c)(2)(i) and the 60-day follow-up report, submitted to  
comply with 10 CFR 70.50 (c)(2)(ii-iv).

Please contact me at (803) 647-1957 should you have questions or need any additional information.

*Patrick Donnelly*

Patrick Donnelly (Dec 29, 2022 08:06 EST)

Patrick Donnelly  
Regulatory Affairs Manager  
Westinghouse Columbia Fuel Fabrication Facility  
Docket 70-1151 License SNM-1107

Attachment 1: NRC Form 361A associated with EN 56199

Attachment 2: Westinghouse 60-Day Report for EN 56199

cc: NRC, Ms. Jennifer Tobin  
NRC, Mr. Thomas Vukovinsky

**Attachment 1**

**NRC Form 361A associated with EN 56199**

NRC FORM 361A  
(09-2020)U.S. NUCLEAR REGULATORY COMMISSION  
OPERATIONS CENTER

APPROVED BY OMB: NO. 3150-0238

EXPIRES: 10/31/2022

FUEL CYCLE AND MATERIALS  
EVENT NOTIFICATION  
WORKSHEET

Estimated burden per response to comply with this voluntary collection request: 30 minutes. The information provided will be used for evaluation of licensee event description, facility status and for input to the public website. Send comments regarding burden estimate to the FOIA, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollects.Resource@nrc.gov](mailto:Infocollects.Resource@nrc.gov), and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0238), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: [oir\\_submission@omb.eop.gov](mailto:oir_submission@omb.eop.gov). The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

EN # 56199

NRC OPERATIONS TELEPHONE NUMBERS: PRIMARY - 301-816-5100 or 800-532-3469+, BACKUPS - [1st] 301-951-0550 or 800-449-3694+, [2nd] 301-415-0550 and [3rd] 301-415-0553. #Licensees who maintain their own ETS are provided these telephone numbers. FAX - 301-816-5151, EMAIL - [hoo.hoc@nrc.gov](mailto:hoo.hoc@nrc.gov)

Notification Time	Facility or Organization	License #	Name of Caller/Title	Call Back #
1112 ET	Westinghouse	SNM-1107	Patrick Donnelly, Reg Aff	(803) 647-1957

Event Time & Zone	Event Date	Location of Event (Include County and State)	Portion of Plant Affected (If applicable)
1129 ET	11/1/2022	Richland County, Hopkins, SC	Outside URRS

EVENT CLASSIFICATIONS		EVENT TYPES		INCIDENT REPORTS (30.50, 40.60, 70.50)			
<input type="checkbox"/> GENERAL EMERGENCY*	<input checked="" type="checkbox"/> FUEL CYCLE	<input type="checkbox"/> 20.2201	LOSS / THEFT	<input type="checkbox"/> (a)	PROTECTIVE ACTION PREVENTED		
<input type="checkbox"/> SITE AREA EMERGENCY	<input type="checkbox"/> MEDICAL / ACADEMIC	<input type="checkbox"/> 20.2202	ACTUAL / THREATENED OVEREXPOSURE	<input type="checkbox"/> (b)(1)	UNPLANNED CONTAMINATION		
<input type="checkbox"/> ALERT	<input type="checkbox"/> TRANSPORTATION	<input type="checkbox"/> 20.2202	ACTUAL / THREATENED RELEASE	<input type="checkbox"/> (b)(2)	SAFETY EQUIPMENT FAILURE		
<input type="checkbox"/> NOTIFICATION OF UNUSUAL EVENT*	<input type="checkbox"/> WASTE MANAGEMENT	<input type="checkbox"/> 21.21	DEFECT / NONCOMPLIANCE	<input type="checkbox"/> (b)(3)	MEDICAL TREATMENT WITH CONTAMINATION		
<input checked="" type="checkbox"/> INCIDENT REPORT	<input type="checkbox"/> INDUSTRIAL/ COMMERCIAL	<input type="checkbox"/> 26.791	FITNESS FOR DUTY	<input type="checkbox"/> (b)(4)	FIRE / EXPLOSION		
<input type="checkbox"/> TRANSPORTATION EVENT	<input type="checkbox"/> FOREIGN EVENT	<input type="checkbox"/> 35.3045	MEDICAL EVENT	<input type="checkbox"/> 70.52	CRITICALITY / SNM LOST		
<input type="checkbox"/> INFORMATION ONLY	<input type="checkbox"/> OTHER (Specify)	<input type="checkbox"/> 36.83	IRRADIATOR EVENT	<input type="checkbox"/> 70.52	ACTUAL / ATTEMPTED THEFT		
<input type="checkbox"/> OTHER (Specify)		<input type="checkbox"/> 39.77	RUPTURED WELL LOGGING SOURCE	<input type="checkbox"/>	APPENDIX A, 1-Hour		
		<input type="checkbox"/> 39.77	IRRETRIEVABLE WELL LOGGING SOURCE	<input checked="" type="checkbox"/>	APPENDIX A, 24-Hour		
		<input type="checkbox"/> 40.26	TAILINGS / WASTE DAM FAILURE	<input type="checkbox"/>	CONCURRENT REPORT		
		*ONLY UNDER OLD 1981 ORDER					

NOTIFICATIONS	YES	NO	WILL BE	
NRC REGION	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Anything Unusual or not understood? <input checked="" type="checkbox"/> Yes (Explain below) <input type="checkbox"/> No
STATE(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Did all systems function as required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Explain below)
LOCAL	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
OTHER GOVERNMENT AGENCIES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Additional Information on page 2? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
PRESS RELEASE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Event Description (Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc.) (Continue on Page 2)

Uranium Recovery and Recycle Services (URRS) personnel were offloading ash received in 2003 from the decommissioned Hematite site at Dock 3, which is where material enters the manufacturing building for processing. The operators opened the Type A drum and the inner canister, pulled out the bag of ash, and noted the tag on the bag stated that the contents were 5.010% U235. The operators stopped and contacted criticality safety engineering and the safeguards coordinator. The operators were instructed to replace the bag in the canister, place the canister in the drum, segregate the drums that contained material potentially >5% U235 and space the containers at least 24 inches apart in accordance with generally accepted guidance for criticality safety. An extent of condition was performed using MC&A records of the received material. It was discovered that 7 drums potentially contain a bag of material between 5% and 5.17% U235, with a total of 9 drums with contents potentially at or above 4.96% U235. Total U235 material potentially at or exceeding 5% was 540 grams, which is above the material possession limits of SNM-1107.

The drums are currently stored in two transportation intermodal containers on trailers. Actions have been initiated by URRS to remove the drums in the intermodal containers, move the drums containing 4.96% U235 or greater into one intermodal container spaced at least 24 inches apart, and the other drums moved to the remaining intermodal container and the Dock 3 area for processing.

NRC FORM 361A  
(09-2020)

# **FUEL CYCLE AND MATERIALS EVENT NOTIFICATION WORKSHEET (Continued)**

U.S. NUCLEAR REGULATORY COMMISSION  
OPERATIONS CENTER

EN # 56199

**RADIOLOGICAL / CHEMICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS**

Isotope	Activity	Physical Form	Chemical Form		Stack	Liquid Effluent	Other (Specify)
				Monitor Reading			
				Alarm Setpoint			

<input type="checkbox"/> ONGOING RELEASE <input type="checkbox"/> TERMINATED RELEASE <input type="checkbox"/> OFFSITE RELEASE <input type="checkbox"/> ONSITE AREAS EVACUATED <input type="checkbox"/> OFFSITE PROTECTIVE ACTION RECOMMENDED	<b>PERSONNEL EXPOSURE / CONTAMINATION DATA</b>						
	Number of Personnel Exposed			Number of Personnel Contaminated			
	Maximum External Dose			Maximum External Level			
	Maximum Internal Dose			Maximum Internal Level			
	Critical Organ (if known)			Critical Organ (if known)			

**Number and Types of controls necessary under normal operating conditions**

Controls are required to be in place, however this event was unanalyzed as the plant is not licensed to possess 540 grams of material enriched above 5% U235.

**Number and Types of controls which functioned properly under upset conditions**

The URRS operators reviewed the contents of the drum and contacted Criticality Safety Engineering and the Safeguards Coordinator when they found material labeled as >5% U235.

**Number and Types of controls necessary to restore a safe situation**

Drums with >4.95% U235 will be segregated and spaced at least 24" apart.

**Safety Significance of Events**

The plant was in a safe condition and the steps taken in response to this event are considered conservative.

**Safety Equipment Status**

N/A

**Status of Corrective Actions**

There are 112 drums on site with Hematite ash. A total of 9 will be segregated and spaced 24 inches apart as a conservative criticality safety measure based on generally accepted spacing for criticality safety.

**Event Description (Continued)** (Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc.)

This report is being made per 10 CFR 70 Appendix A (b)(1). This event resulted in the facility being in a state that was not analyzed in the Integrated Safety Analysis, and resulted in a failure to meet the performance requirements of 10CFR70.61, specifically there were no controls in place due to it being an unanalyzed condition.

At the time of decommissioning, the Hematite fuel fabrication plant was a Category III facility. Westinghouse believes it is possible the actual U235 enrichment of the ash content is <5% and the listed results are inaccurate. However, Westinghouse is unable to open, sample and test the ash to determine enrichment until the scenario has been analyzed with documented controls in place.

This issue has been entered into the corrective action program as IR-2022-9728.

## **Attachment 2**

### **Westinghouse 60-Day Report for EN 56199**

**Westinghouse 60-Day report associated with EN 56199**Probable Cause of Event

NRC Form 741 documentation accompanying the shipments from the Hematite site to the CFFF site in 2003 only listed the average uranium enrichment of the entire contents of each intermodal container and the forms did not provide batch level details on the drum contents as is customary for this type of shipment. As a result, the material was received at CFFF without recognition that some of the contents within the shipments were potentially above the SNM-1107 License limit of 5 wt% U235.

Two contributing causes were identified that impacted earlier detection of the condition reported in Event Notification 56199:

- 1) At the time of receipt of the Hematite material, CFFF management did not establish a clear timeline to process the Hematite material and allowed storage for an extended period of time.
- 2) The material control and accounting procedure revision in use at the time of receipt of the Hematite material was inadequate, as it lacked the necessary steps and guidance for receipt of non-routine special nuclear material shipments.

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

Westinghouse submitted a License Amendment Request (Reference 2) to the NRC on December 2, 2022, requesting permission to possess the Hematite material that is labeled as exceeding 5 wt% U235 under a temporary license condition. Following approval of the amendment request, Westinghouse intends to submit a plan for NRC approval to bring Hematite material labeled as greater than 5 wt% U235 into the plant for sampling, testing and potential down blending. Following NRC approval of the plan to disposition the Hematite Ash, CFFF intends to execute the plan prior to the expiration of the temporary license amendment.

To ensure personnel awareness of the event, a site-wide communication was issued in November 2022. The communication provided pertinent details on the event and emphasized that the questioning attitude and effective safety communications behaviors demonstrated by Uranium Recycle and Recovery Services (URRS) personnel played a vital role in identification of the event condition.

An evaluation of current material control and accounting (MC&A) procedures and practices concluded that the MC&A procedures governing SNM receipts currently contain the necessary protocols for non-routine receipts of SNM-bearing material shipments.

#### Integrated Safety Analysis Evaluation

The discovery of the nine drums of Hematite ash with potentially greater than 5 wt% U235 was reported as an unanalyzed condition in the CFFF Integrated Safety Analysis (ISA) in accordance with 10 CFR 70 Appendix A (b)(1).

The nuclear criticality safety (NCS) technical justification analysis provided in Reference 2 concluded that the drums of ash material are bounded by the existing NCS basis for drum storage of the material. It was also determined that the condition falls within the existing safety basis for drum storage in ISA 16, *Storage of Uranium Bearing Materials*, from the environmental, fire, chemical and radiological safety perspectives.