OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
SAFETY EVALUATION
SNM-00033
HEMATITE FORMER FUEL FABRICATION FACILITY
FESTUS, MISSOURI
DOCKET NO.: 70-36

# 1. INTRODUCTION

## 1.1 Background:

From July 1956 through mid 2001, the Hematite facility was operational and its primary function was to manufacture uranium metal and uranium compounds from natural and enriched uranium for use as nuclear fuel. Westinghouse Electric Company LLC (WEC), the licensee, ceased fuel fabrication operations at the Hematite site in June 2001 and has no future plans for operation of the site as a nuclear fuel processing facility. By letter dated October 5, 2004, the licensee, submitted to the U.S. Nuclear Regulatory Commission (NRC), a request for amendment to Chapter 1 of SNM-00033 to allow the dismantlement and demolition of site buildings down to building slabs and foundations at grade at the licensee's Hematite Facility located in Festus, Missouri (1). The licensee submitted with its request an Environmental Report for Building Demolition at the Hematite Facility (2), prepared in accordance with "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs," NUREG 1748 (3). Through a letter dated December 22, 2004, the licensee also submitted an evaluation it performed for the building demolition activities to supplement its October 5, 2004 license amendment application (4). Staff evaluated these submittals using "Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licensees," NUREG-1757, Vol. 1, 2, and 3, as applicable, as guidance (5).

## 1.2 Purpose and Need for the Proposed Action:

License Number SNM-00033 authorizes the licensee to conduct certain decontamination activities necessary to reduce the current inventory of Atomic Energy Act materials, e.g., packaging and shipping materials and to engage in activities necessary to plan for decommissioning of the site, e.g., site characterization and maintaining the site in a safe condition pending license termination. However, the licensee is prohibited from performing building demolition, soil and groundwater remediation, and conducting final status surveys until these activities are approved by a specific license amendment or NRC - approved Decommissioning Plan (6).

## 1.3 Description of the Proposed Action:

Specifically, the licensee requests authorization to dismantle and demolish Hematite facility buildings 101, 110, 115, 120, 230, 231, 235, 240, 245, 252, 253, 254, 255, 256, 260 and 261, all located on approximately 10 acres of land at the licensee's Hematite facility. The licensee states that equipment from each building will be removed prior to the initiation of demolition so as to allow for complete characterization of contamination within the buildings prior to

demolition and to reduce the risk of future exposures to these materials. Prior to demolition, the licensee plans to remove the contamination and/or fix it on the surfaces of applicable steel, concrete and metal siding. In addition, the licensee states that the interior and exterior of each building will be sealed with a lock down agent to fix the contamination to the steel, wood, or concrete. The licensee states that the demolition of concrete buildings will be performed as determined by engineering evaluation and it will prepare work plans or other applicable guidance documents that provide work instructions for dismantlement and demolition techniques. The licensee proposes that its evaluation will include the review of concrete and other building material demolition aspects utilizing techniques such as cutting, shearing, sawing and use of impact hammers. The licensee believes that it will demolish each building using conventional demolition equipment such as a track-hoe mounted shear supplemented by a concrete/masonry processor or other applicable method.

## 2.0 FACILITY DESCRIPTION/OPERATING HISTORY

### 2.1 Site locale and physical description:

The Hematite facility is a former fuel cycle facility, located near the City of Hematite, in Jefferson County, Missouri. The Hematite facility is located approximately 3/4 of a mile northeast of the unincorporated town of Hematite and approximately 35 miles south of the City of Saint Louis, Missouri.

### 2.2 Description of facilities:

The buildings at the Hematite facility are of differing sizes and are constructed from a combination of materials. The majority of the buildings are constructed of concrete block, but some are constructed of wood and others of steel and concrete floors. Table 4, Hematite Building Description, of the Environmental Report for Building Demolition at the Hematite Facility (7), provides a detailed summary of each building's construction materials and openings. It should be noted that some of the buildings have multiple floors and contain different numbers of rooms. Furthermore, most of the process buildings are interconnected.

### 2.3 Chronological description of the facility development and operations:

In the mid-1950's Mallinckrodt Chemical Works (MCW) purchased 150 acres of land from a dairy farmer. Of the 150 acres, the facility originally occupied eight acres. In March 1956, MCW began construction of the Hematite Facility and began production in July 1956. The facility continued to operate under MCW until January 2, 1959 when it was transferred to Mallinckrodt Nuclear Corporation. In September 1960, Mallinckrodt Nuclear Corporation was liquidated and the Hematite facility was transferred back to MCW. MCW operated the facility until May 1961. At this time ownership was transferred to United Nuclear Corporation (UNC). In 1970, Gulf United Nuclear Fuels Corporation (Gulf) owned and operated the Hematite Facility until the Spring of 1973. Gulf closed the plant and began decommissioning. General Atomic Company purchased the property in January 1974 and sold it to Combustion Engineering Inc. (CE) in May 1974. In 1989, Asea Brown Boveri (ABB) acquired

the stock of CE and began operating the facility. In April 2000, WEC, the licensee, purchased the nuclear operations of ABB which included the Hematite Facility.

Throughout the history of the facility, various buildings were constructed and demolished or incorporated into other buildings as necessary. Primary functions at the facility throughout its history have included the manufacture of uranium metal and uranium compounds from natural and enriched uranium for use as nuclear fuel. Specifically, operations included the conversion of uranium hexafluoride gas of various uranium-235 enrichments to uranium oxide, uranium carbide, uranium dioxide pellets, and uranium metal. These products were manufactured for use by the federal government and government contractors and by commercial and research reactors approved by the Atomic Energy Commission. Research and development and uranium scrap recovery processes were conducted at the Hematite facility. During the period prior to CE's purchase of the facility in 1974, government projects dominated the operations of the site. Much of the work was classified and because of this, the licensee states that specific details regarding the exact nature of the processes are not known.

In accordance with the conditions currently described in Materials License Number SNM-00033, the licensee has been performing remediation of residual radioactivity and other industrial contaminants from internal building equipment and components for the building complexes since December 2004.

**2.4 Description of radioactive material management activities and practices**

Numerous radiological and chemical constituents have been used in the activities of the Hematite facility. The presence of these constituents present potential occupation and radiological health risks during the demolition of the buildings at the Hematite facility. The primary radionuclides at the Hematite facility include uranium-234, uranium-235, uranium-238, and technetium-99. Additional potential contaminants of concern include thorium-232 and its progeny, americium-241, neptunium-237, and plutonium-239 due to the historical use of reprocessed uranium at the site. Historically, prior to 1974, wastes were disposed of in burial pits on site. The burial pits are being addressed under a separate characterization and decommissioning plan (separate licensing action-decommissioning plan).

Chapter 3, Radiation Protection and Chapter 4, Nuclear Criticality Safety of Material, and Chapter 6, Radioactive Waste Management of Materials License number SNM-00033 describe the Hematite Facility's radiation protection, nuclear criticality safety, and radioactive waste management requirements, respectively. If the license is amended to include the proposed building dismantlement and demolition activities, the above requirements will apply to the work. In addition, according to Material License number SNM-00033 condition number 15, the licensee shall follow PO-MCA-001, "Fundamental of Nuclear Material Control Plan."

## 3.0 RADIOLOGICAL STATUS OF FACILITY

### 3.1 Radiological status of all structures and systems:

The radioactive contamination at the licensee's Hematite site located in Festus, Missouri consists of soils and building and equipment contaminated with uranium, fission products, and by-product material from licensed operations that occurred from the mid 1950's until 2001. The groundwater in the overburden has historical contamination of technetium-99 (8). According to the Engineering Evaluation and Cost Analysis for Removal on Buildings and Equipment at the Westinghouse Former Fuel Cycle Facility Site Festus, Missouri, DO-04-007, Rev. 0 (referenced in the Environmental Report for Building Demolition at the Hematite Facility (9)), a field investigation was performed in 1996 that indicated that the technetium-99 entered the groundwater system in the site overburden from the soil in the vicinity of an outside storage area and traveled down-gradient toward nearby monitoring wells (10).

Currently as authorized by the Materials License number SNM-00033, the Hematite Facility is undergoing activities necessary to reduce the current inventory of Special Nuclear Material, Source Material, and Byproduct material from the site including, but not limited to, such activities as: 1) preparation, packaging, and shipment of the remaining inventory of Special Nuclear Material and Source Material, 2) waste preparation, packaging, and shipment, and 3) equipment testing, clean-out, and decontamination in preparation for packaging and shipment. The licensee estimates that the above work will be completed by the end of December 2005 (11). Before the licensee conducts building dismantlement and demolition, it proposes to have all equipment removed from each of the buildings. According to the licensee's application request, equipment removal will "allow for complete characterization of contamination within the buildings prior to demolition and will reduce the risk of future exposures to these materials."

### 3.2 Radiological Status of surface and subsurface soils:

According to the licensee's building demolition application request, the licensee states that there is evidence of radiological contamination of soil beneath many of the facility buildings. According to the Historical Site Assessment, the process buildings and surrounding land are to be considered an impacted area (12). According to the April 2004 (13) and the January 2005 (14) versions of the Hematite Decommissioning Plan (DP) (non NRC approved documents), the area where the buildings are located, in the central tract, was classified as a class 1 area. Class 1 areas are areas that have, or had prior to remediation, a potential for radioactive contamination (based on operational history) or known contamination (based on previous radiological surveys)(15). Additionally the Engineering Evaluation and Cost Analysis for Removal on Buildings and Equipment at the Westinghouse Former Fuel Cycle Facility Site Festus, Missouri, DO-04-007, Rev. 0, identifies radiological contamination in soil samples taken under several buildings at the Hematite facility. Bore hole and sampling locations were selected based on input from previous employees and historical knowledge of site operations to provide for biased sampling locations most likely

to be impacted by radioactive materials. The results of the samples collected, presented in Table 2-3 of the document, indicate radionuclide contamination in the soil at the site (16).

### 3.3 Radiological Status of ground and surface water.

According to the Hematite Historical Site Assessment, the groundwater in the overburden has historical contamination of technetium-99. The licensee states that characterization efforts will be developed to further determine the extent of the water contamination in the overburden.

Five intermittent tributaries and one perennial stream flow across or run adjacent to the Site. There are two ponds/lakes, including the East Lake and Site Creek Pond are also on the property. Quantities of technetium-99, as a contaminant in the uranium received from the enrichment facilities, have been detected in some of the environmental monitoring wells. Surface water is monitored under Materials License SNM-00333 and National Pollutant Discharge Elimination System (NPDES) wastewater discharge permit, issued by the State of Missouri.

## 4.0 EVALUATIONS

### 4.1 Decommissioning Task Management Program

The licensee has committed to conduct dismantlement and demolition activities in a manner that protects the health and safety of the public, site workers, and the environment. The licensee notes this commitment includes the development of programs and procedures that provide for monitoring and detection, and control of potential releases of radioactive material to the environment. Additionally, the licensee has committed to develop a Building Demolition Work Plan.

### 4.2 Occupational Safety and Industrial Hygiene Programs

The licensee, in order to mitigate potential safety and health issues related to both radiological and non radiological concerns during the building dismantlement and demolition at grade activities has committed to implement a Radiation Protection Program (RPP) and a Site Health and Safety Plan (SSHP). For non-radiological occupational safety and health issues, the licensee has committed to comply with the regulations of the U.S. Department of Labor, Occupational Safety and Health Administration, safety and health regulations (29 CFR 1910 and 1926), and specifically, the Safety and Health Regulations for Construction: Removal of steel construction (10 CFR 29 1926.858) and the U.S. Environmental Protection Agency's (EPA)'s National Emission Standards for Hazardous Air Pollutants regulations (40 CFR 61, Subpart M).

### 4.3 Radiation Protection Programs

The licensee, in order to mitigate potential safety and health issues related to both radiological and non radiological concerns during the building dismantlement and demolition at grade activities, has committed to implement a RPP and a SSHP. The licensee, WEC, is committed to implement Radiation Work Permits that will include WEC RPP safety, health, and environmental

protection measures. The licensee has committed during the demolition activities to comply with applicable portions of the NRC's Standards for Protection Against Radiation (10 CFR 20) (17). The licensee has also committed to perform the activities in compliance with applicable and best practices Health Physics procedures in such areas as inhalation, and air and effluent emissions, and will abide by the guiding philosophy of keeping exposure to As Low As Reasonably Achievable. The licensee has committed to a policy of ensuring that exposure of personnel to radiation and radioactive materials is minimized to the maximum extent practical.

Currently, the licensee is in the process of source reduction activities. A final radiological status of the facility, before dismantlement and demolition, is yet to be determined by the licensee. However, the licensee has committed to characterize the equipment and structures before dismantlement and demolition so to obtain the radiological status of the process and non process buildings before dismantlement and demolition. Staff agrees that the radiological statuses of the buildings are needed before dismantlement and demolition for radiation protection of the worker, public and the environment.

In addition, the licensee has committed to implement a contamination monitoring and control program to detect and minimize the spread of contamination. Contamination monitoring will be accomplished by: (1) conducting routine surveys; (2) use of access controls to prevent inadvertent personnel access to contaminated areas; 3) use of radiation work permits in areas where there is potential for workers to exceed 10 percent of the regulatory limits; (4) use of personal protection; and (5) employee training. Although through the staff's evaluation of the licensee's amendment application, staff concluded that there will be no direct surface or subsurface soil disturbances as the buildings are proposed to be removed only down to the grade and concrete slab level. Staff finds contamination control particularly important given the fact that soil may be contaminated under and around the buildings since complete site characterization has not yet been accomplished.

Also, currently, environmental monitoring is accomplished through the implementation of approved plans, policies and procedures that support the license. The licensee has committed to modify or supplement as necessary these plans, policies and procedures to support building dismantlement and demolition. The program implements the applicable requirements of Material License number SNM-00033, Chapter 3, Radiation Protection, and Chapter 5, Environmental Protection. The implementation plan is the Radiation Protection Plan (PO-HP-001).

The licensee has committed to develop procedures to perform building demolition that will provide guidance for controlling fugitive emissions and runoff. The licensee states that these procedures will be developed, approved, and workers will be trained prior to the start of work. Such procedures will incorporate action levels and appropriate actions to be taken. The licensee has committed to then evaluate procedure revisions and work practices to ensure

changes do not negatively impact the health and safety of the public, workers, license commitments, or radiological/environmental conditions.

The licensee recognizes that building demolition activities will shift air pathway monitoring to air monitoring devices located around the site to assure that all pathways for release of radioactive material are monitored. The licensee has stated that the number of air monitors will be increased and that locations will be selected to provide measurements at both downwind locations that are considered to be representative of anticipated release pathways and upwind locations for background comparison. The licensee has also committed to address sampling frequency.

The licensee states that surface water runoff will be monitored as six different outfall locations in accordance with the WEC's renewal application for its NPDES wastewater discharge permit. The licensee stated in its application for license amendment that it will expand its current liquid effluent monitoring program to incorporate additional potential discharge points as identified by WEC and the Missouri Department of Natural Resources during consideration of the renewal of its NPDES permit. Also, the licensee states that monitoring of outfall gross alpha and beta radioactivity will be performed weekly in accordance with the license and although significant runoff from water application is not expected, it will be controlled through the use of silt fencing or straw bales. Analysis results approaching or exceeding limits will result in the associated work activity being modified or stopped until appropriate evaluations and corrective actions can be completed.

Moreover, the licensee has committed to review the environmental monitoring program currently in place (which is based on production) to determine whether from a technical basis it is appropriate for the decommissioning activities as described in its license amendment application for building dismantlement and demolition activities (18). The licensee has also committed to either develop or revise as necessary project policies and procedures to implement appropriate changes to the environmental monitoring program, to include development of the technical basis for sampling and monitoring locations (19). Staff finds this acceptable provided that it is accomplished before building dismantlement and demolition is accomplished.

### 4.4 Radioactive Waste Management Program

The licensee's radioactive waste management program implements the applicable requirements of Materials License number SNM-00033, Chapter 6, Radioactive Waste Management. The only potential waste streams from the activities, as described in the licensee's amendment request application, will result from the dismantlement and demolition process.

Based on characterization data, the licensee proposes to segregate and analyze the waste as required by the disposal facility site's waste acceptance criteria. The licensee anticipates that 2-3 truck loads of waste a day of building debris will be produced. The licensee states that it will not place hazardous waste in storage and such waste will be segregated to prevent co-mingling prior to packaging.

Characterization of waste will be performed to define proper waste disposal options. The licensee proposes that clean debris that meets the surface release limits of SNM-00033 and does not have a concern of volumetric contamination will be containerized, transported and disposal of it at permitted facility. This indicates to the staff that the licensee does not plan on leaving any building demolition debris or associated waste at the site.

In addition, according to the licensee's July 22, 2005 response to NRC's June 28, 2005 request for additional information question number 4, the licensee states that "Prior to former process building demolition, equipment removal and some cleaning will be performed to remove most loose uranium contamination. Contaminated surfaces will be surveyed and assigned a uranium mass. The contamination will be locked-down using at least one commercially obtained and industry accepted fixative agent. When the lock-down has cured, additional surveys or smears will be used to ensure maintenance of our safety and emission objectives during demolition, and that the demolition wastes and debris meet disposal facility waste acceptance criteria and U.S. Department of Transportation requirements for shipments. For non-process buildings or structures that may be free released in the future, decontamination and survey activities will be done in accordance with applicable regulations. The plan for this process will be approved by Westinghouse and implemented in the future if a decision is made to seek free release of any of such structures."

Staff notes that any buildings or structures that may be free released in the future, decontamination and survey activities shall be done in accordance with applicable regulations. According to the licensee's building demolition application request, the licensee states that there is evidence of radiological contamination of soil beneath many of the facility buildings. If the licensee makes a decision to seek free release of any such structures, because of the evidence of radiological contamination of soil beneath many of the facility buildings, plans for this process will be addressed under a separate licensing action or an approved DP and implemented in the future.

According to the licensee's July 22, 2005 response to NRC's June 28, 2005 request for additional information question number 5, the licensee states that based on industry experience, facility process knowledge, and survey data, volumetric contamination in the building structures would most likely be a small fraction of the waste volume generated by the building demolition. A possible area for volumetric contamination would be cinder block walls. Pre-demolition characterization will identify areas for further investigation and handling as radioactive waste. The licensee commits to fixing in place (locking-down) residual contamination on building surfaces prior to demolition to ensure that waste generated will meet disposal facilities' waste acceptance criteria and airborne emissions are controlled. The licensee also states that in accordance with approved procedures, characterization will be performed through surveys before and after the fixative is applied. The licensee further states that radiation surveys will be performed during demolition activities in accordance with its existing Radiation Protection Program and implementing procedures. The licensee states that the specific implementing procedures provide guidance if

levels approach or exceed action levels or limits. Staff finds the above approach acceptable and reserves the right to inspect the licensee at anytime to verify that it has fulfilled these commitments as described above.

For packaging and shipment of the low level radioactive waste, the licensee along with its designated shippers will comply with applicable NRC and U. S. Department of Transportation (DOT) regulations and directives, and will obtain the appropriate state permits and licenses for transportation of radioactive and hazardous materials. For the generation, storage and transportation of hazardous waste, the licensee has committed to comply with the Resource Conservation & Recovery Act (RCRA) regulations outlined in 40 CFR 260 through 272.

**4.5 Technical and Environmental Specifications:**

The Hematite Facility is a registered large quantity hazardous waste generator with the State of Missouri and the EPA. Currently, Hematite is disposing of hazardous waste in accordance with EPA and DOT regulations and this does not require a permit. The licensee states that no RCRA material will be involved in the demolition of the building and RCRA permitting will not be required. Since the licensee has not yet completed equipment removal and characterization of the buildings, staff finds the licensee's approach acceptable, provided that they verify after characterization is complete that no RCRA material is present in the buildings before building dismantlement and demolition.

Staff issued a Federal Register (FR) Notice of License Amendment Request of Westinghouse Electric Company, LLC, Festus, MO, and Opportunity to Request a Hearing (69 FR67187) (20). The NRC staff in accordance with the NRC regulations at 10 CFR 51.30 and 10 CFR 31 prepared an Environmental Assessment (**EA**) (21). The NRC consulted the State of Missouri Department of Natural Resources, State Historic Preservation Office, U.S. Fish and Wildlife Service, and the National Park Service. On September X, 2005, in accordance with NRC regulation at 10 CFR 51.32 issued the EA and a Finding of No Significant Impact (69 FR XXXX )(22). On the basis of the EA, NRC has concluded that there are no significant environmental impacts from the proposed amendment and has determined not to prepare an environmental impact statement. However, staff has determined that Implementation of the proposed action would directly impact the potentially historical resources at the Hematite facility. The plan to remove these buildings would result in the permanent loss of these buildings from the historical record. Due to the potential historical significance and the proposed impacts to these buildings, the U.S. National Park Service (NPS), the U.S. Fish and Wildlife Service (FWS), and State Historic Preservation Office (SHPO) of Missouri were consulted. The NPS and SHPO required a Historic American Engineering Record (HAER) be compiled for each of the buildings on site (HAER file No. MO-311), as a result of a draft Memorandum of Agreement (MOA) between WEC and SHPO. The SHPO's initial opinion was that the proposed demolitions will have an adverse effect on the National Register of Historic Places eligible district. The NPS advised WEC that it may proceed with demolition in accordance with stipulations outlined in the

MOA with the Missouri SHPO. NPS further advised WEC that a letter of final approval for this large HAER project will be provided upon receipt of the complete, revised documentation. SHPO in a letter dated January 4, 2005 to NRC states: "While all parties involved in the project have followed the stipulations in the draft MOA in good faith, please be aware that an executed MOA is necessary to complete the Section 106 process. In order for the project to move forward, it is acceptable to our office that Westinghouse and NRC proceed with the project, in accordance with the draft MOA." The FWS has provided that their evaluation and search of existing information indicates no federally listed, proposed, or candidate species or critical habitat occurs on or near the project site. Staff finds this approach acceptable provided that the licensee provide that an executed MOA is completed before building dismantlement and demolition.

**4.6 Public and Worker Doses from Decommissioning**

The licensee states that the planned building demolition will not result in radiation exposures to workers higher that those encountered during operations. The staff agrees with the licensee for the following reasons: 1) building contamination levels will be greatly reduced and radiation exposure will be minimal as building equipment and recoverable uranium will be removed prior to demolition activities, 2) only minimal uranium contamination is anticipated to be present on building surfaces, 3) the licensee has committed to remove the contamination or fix the contamination to limit airborne contamination generated during demolition.

The licensee states that the planned dismantlement and demolition activities of the Hematite site buildings will not result in effluent releases higher than routine effluents during operations. The staff agrees with this conclusion. Staff agree that the demolition activities will involve techniques that have been used during other cleanup or maintenance operations and these activities will not require workers to enter areas where surface contamination and radiation levels are significantly higher than could be encountered during other licensed operations.

The licensee states that there will be no liquid effluents released during the planned activity. Surface water runoff may be generated. However the licensee has committed to develop procedures to perform building demolition that will provide guidance for controlling fugitive emissions and runoff. Furthermore, the licensee states that surface water runoff will be monitored as six different outfall locations in accordance with the WEC's renewal application for its NPDES wastewater discharge permit. Also, the licensee states that monitoring of outfall gross alpha and beta radioactivity will be performed weekly in accordance with the license and although significant runoff from water application is not expected, it will be controlled through the use of silt fencing or straw bales. Also, due to the anticipated low residual uranium contamination present on the surfaces of the building that the licensee has committed to lock-down, fugitive air emissions of uranium are expected to be very low and well within the routine air effluents during operations. Air monitoring will be performed during the activities to confirm effluent levels (fugitive emissions).

Furthermore, the staff believes that the planned demolition of the buildings that the licensee proposes to dismantle and demolish at grade should not involve nuclear criticality safety considerations because by the time the buildings are ready to dismantle and demolish, all equipment and ventilation systems will have been removed. However, since the licensee has not yet completely characterized the buildings, there is a low potential for some radioactive material to be found in the plant walls. The work will not involve any accumulation of enriched uranium. Furthermore, gross contamination will either be removed or locked-down. All equipment and ventilation systems will also be removed from the buildings before dismantlement and demolition. Staff finds this acceptable and, upon request through the NRC inspection process, may ask the licensee for building characterization data, survey data, and radiation protection implementing procedures before building dismantlement and demolition.

### 4.7 Release Criteria

The licensee is proposing to dismantle and demolish site buildings down to building slabs and foundations at grade at the Hematite Facility located in Festus, Missouri. The licensee states that demolition debris and wastes will meet the disposal facility waste acceptance criteria and the DOT requirements for shipment.

The licensee leaves room for flexibility concerning non-process buildings or structures. The licensee requests approval to dismantle and demolish such buildings but does not have to do so. If the licensee decides to leave any non process building or structure covered in this license amendment request, at a later date, it may wish to free release it. Based on the licensee's application request, the licensee has not decided at this point in time to free release any such buildings or structures. Any buildings or structures that may be free released in the future, decontamination and survey activities will be done in accordance with applicable regulations. According to the licensee's application request, the licensee states that there is evidence of radiological contamination of soil beneath many of the facility buildings. As stated above in Section 4.5, any buildings or structures that may be free released in the future, decontamination and survey activities shall be done in accordance with applicable regulations. According to the licensee's building demolition application request, the licensee states that there is evidence of radiological contamination of soil beneath many of the facility buildings. Because of this staff believes that the plan for this process will be addressed under a separate licensing action or an approved DP and implemented in the future if the licensee makes a decision to seek free release of any such structures.

## 5.0 CONCLUSION

Based on the considerations discussed above, NRC concluded that; (1) dismantlement and demolition site buildings down to building slabs and foundations at grade at the licensee's Hematite Facility located in Festus, Missouri according to the licensee's application adequately protects workers, members of the public, and the environment and, (2) such activities will be conducted in compliance with NRC regulations.

Through the staff's evaluation of the licensee's license amendment request, staff finds it acceptable that the licensee has committed to review the environmental monitoring program currently in place (which is based on production) to determine whether from a technical basis it is appropriate for the decommissioning activities as described in its license amendment application for building dismantlement and demolition activities and to either develop or revise as necessary project policies and procedures to implement appropriate changes to the environmental monitoring program, to include development of the technical basis for sampling and monitoring locations. Staff expects these actions to be accomplished before any building dismantlement and demolition is initiated.

Through the staff's evaluation of the licensee's amendment application, staff concluded that there will be no direct surface or subsurface soil disturbances as the buildings are proposed to be removed only down to the grade and concrete slab level. However, staff finds contamination control particularly important given the fact that soil may be contaminated under and around the buildings since complete site characterization has not yet been accomplished. Furthermore, the current source removal work schedule estimates that all such work will be completed by the end of December 2005. Before building dismantlement and demolition occurs, all equipment must be removed from each of the buildings to "allow for complete characterization of contamination within the buildings prior to demolition and to reduce the risk of future exposures to these materials, and building characterization must be complete and assessed, work plans as well as monitoring plans must be updated as necessary to reflect building characterization assessments, and the licensee must verify after characterization is complete that no RCRA material is present in the buildings before building dismantlement and demolition.

Also, staff finds that the licensee's building dismantlement and demolition approach acceptable provided that the licensee provide that an executed MOA is completed before building dismantlement and demolition.

Finally, If the licensee makes a decision to seek free release of any such structures, because of the evidence of radiological contamination of soil beneath many of the facility buildings, plans for this process will be addressed under a separate licensing action or an approved DP and implemented in the future, as appropriate.

## 6.0 REFERENCES

1. Letter from Karen Ann Craig, Westinghouse Electric Company, LLC to Amir Kouhestani, NRC, Request for Amendment to Chapter 1 of SNM-33, dated October 5, 2004.

2. Environmental Report for Building Demolition at the Hematite Facility, DO-04-007, Rev. 0, Westinghouse Electric Company, LLC.

3. U.S. NRC, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs," NUREG-1748, August 2003.

4. Letter from Karen Ann Craig, Westinghouse Electric Company, LLC to Amir Kouhestani, NRC, Submittal of Building Demolition Evaluation, dated December 22, 2004.

5. U.S. NRC, "Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licensees," NUREG-1757, Vol. 1, 2, and 3, September 2003.

6. Materials License Number SNM-00033

7. Ibid 2

8. Hematite Former Fuel Cycle Facility Decommissioning Historical Site Assessment, DO-02-001, Rev. 0, May 2003.

9. Ibid 2

10. Engineering Evaluation and Cost Analysis for Removal on Buildings and Equipment at the Westinghouse Former Fuel Cycle Facility Site Festus, Missouri, DO-04-007, Rev. 0

11. Telephone conversation between Amy M. Snyder, NRC and Gordon Vytlacil, WEC, August 31, 2005.

12. Ibid 8

13. Westinghouse Electric Co., LLC, Hematite Former Fuel Cycle Facility Decommissioning Plan, DO-04-004, Rev. 0.

14. Westinghouse Electric Co., LLC, Hematite Former Fuel Cycle Facility Decommissioning Plan, DO-04-004, Rev. 1.

15. U.S. NRC, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)," NUREG-1575, Revision 1, August 2002.

16. NRC, "Radiological Criteria for License Termination," 10 CFR Part 20, Subpart E, 62 Federal Register 139, July 21, 1997.

17. U.S. NRC, Standards for Protection Against Radiation, Subpart B, Radiation Protection Programs, 10 CFR 20 Appendix B.

18. Letter from Gordon M. Vytlacil, Westinghouse Electric Company, LLC to U.S. NRC, Response to NRC Request for Additional Information (TACL52641), July 22, 2005.

19. Conservation with Hank Sepp at the August 11, 2005 NRC Licensing Inspection Out brief.

20. Federal Register Notice of License Amendment Request of Westinghouse Electric Company, LLC, Festus, MO, and Opportunity to Request a Hearing (69 FR67187).

21. Environmental Assessment for Request for Building Dismantlement and Demolition at the Hematite Facility, XXXX.

22. Federal Register Notice of EA and a Finding of No Significant Impact (69 FR XXXX) for the Hematite Building Dismantlement and Demolition, September X, 2005.