



Westinghouse Electric Company
 Nuclear Fuel
 Hematite Fuel Manufacturing

3300 State Rd. P
 Festus, MO 63028
 USA

Docket No. 70-36
 License No. SNM-33

Director,
 Office of Nuclear Materials Safety and Safeguards
 U. S. Nuclear Regulatory Commission
 ATTN: Document Control Desk
 Washington, DC 20555

Subject: Revised Submittal of License SNM-33 Pages-Downgrade, Organization Changes

References: (1) Letter to NRC from CE Nuclear Power, "Submittal of License SNM-33 Application Pages Affected by Phase Down of Operations and Corporate Name Change", dated March 29, 2001.
 (2) Letter to NRC from Westinghouse Electric Company, "Submittal of License SNM-33 Pages – Downgrade, Organization Changes", dated May 11, 2001.

Gentlemen:

As discussed with Mr. Mohammad Haque of the NRC, additional changes are necessary to the SNM-33 application to reflect planned changes to the Hematite organization and as a result of the completion of fuel manufacturing operations. As requested, these changes are being submitted as a combined application of the changes submitted in references (1) and (2), modified pursuant to our discussions. This submittal is a replacement for references (1) and (2). The changes are described in Enclosure I. A listing of affected pages is included in Enclosure II. The revised pages are provided in this enclosure. Also, Enclosure III contains an updated listing of effective pages for the SNM-33 license application. Provided for your use are six copies of this transmittal.

If you have any questions please contact Mr. Kevin Hayes at (636) 937-4691, Ext. 464.

Sincerely,

Westinghouse Electric Company LLC

Richard Gerwels
 Plant Manager

AUGUST 2, 2001
 Date

Enclosures

cc: Mohammad Haque, NRC License Project Manager
 Patrick Hiland, NRC RIII Branch Chief

NIMSSOIPublic

Westinghouse Electric Company LLC
Description of Changes
Date: August 2, 2001

As discussed with Mr. Haque, additional changes are necessary to the SNM-33 application to reflect planned changes to the Hematite organization and as a result of the completion of fuel manufacturing operations. As requested, these changes are being submitted as a consolidated application of the changes submitted in the March 29, 2001 and the May 11, 2001 applications, modified per discussions with NRC. This submittal is a replacement for the above applications. The changes are described below:

- 1. Section 1.1 :** Changes made to the corporate name and principle corporate offices address.
- 2. Section 1.2 :** "Hematite fuel manufacturing facility" was replaced with "Hematite facility". "Nuclear fuel manufacturing" and "conversion of UF₆ to UO₂, fabrication of UO₂ pellets, fabrication of nuclear fuel assemblies" were deleted from the listing of activities involving SNM, and "preparation and shipment of scrap and wastes" was added. Fuel manufacturing operations have been completed and activities are limited to preparation and shipment of the remaining SNM inventory offsite incident to decommissioning.
- 3. Section 1.4 :** Change made to the corporate name. The possession limit for ²³⁵U was reduced from 20,000 to 2,000 kilograms. This quantity is sufficient to cover the SNM inventory remaining onsite in excess material, scrap and wastes.
- 4. Section 1.5 :** Change made to the corporate name. "In order to" replaced with "formerly used to" to reflect that fuel manufacturing operations have been completed. "Emergency generator" was deleted from the utilization listing for Building 115, as a smaller unit is now located outside of Building 255. The missing building number, "260" was added for the Oxide Building and Dock. "UF₆ to UO₂ conversion, UF₆ receiving" was deleted for the Oxide Building and Dock and the condition, "SNM shall not be reintroduced to the oxide conversion equipment" was added.
- 5. Section 1.6 :** Special condition 1.6(h) was deleted as the authorization to release hydrofluoric acid manufactured as a byproduct of the uranium hexafluoride to uranium oxide conversion process is no longer required since the this process is not in operation.
- 6. Section 2.1 :** The title of Plant Manager was changed to Site Manager to reflect the completion of manufacturing operations at Hematite and the ongoing project to prepare and ship the remaining SMN inventory offsite. "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety". It was clarified that the Site

Manager has delegated programmatic responsibility to the Manager Environment, Health and Safety. The provision that any of the positions in this section may be performed by contract or part time employees was added to provide for more effective staffing given the current lower level of activities at the Hematite facility.

7. Section 2.1.1 : The position of Director of Uranium Operations was deleted since manufacturing operations are completed and the responsibilities of this position was combined with those of the Site Manager. Changes were made in these responsibilities to reflect the change in plant status. "Production" was changed to "facility operations" and "process and equipment" was deleted preceding "engineering and maintenance".

8. Section 2.1.3 : "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety". Changes were made in the responsibilities of this positions to reflect the change in plant status. "Laboratory services", "shipping, receiving and transportation of SNM products and waste", and "Packaging SNM and waste for shipment" were moved to the responsibilities of the Project Manager.

9. Section 2.1.4 : "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety".

10. Section 2.1.5 : "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety".

11. Section 2.1.6 : "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety".

12. Section 2.1.7 : The word "sometimes" was added to the parenthetical phrase "called Special Evaluation Travelers" to clarify that radiation work permits are often issued as independent documents. The past practice was to incorporate radiation work permit conditions into the Special Evaluation Traveler.

13. Section 2.3 : "Plant Manager" was changed to "Site Manager" and "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety". "Production" was changed to "facility operations". "CE Nuclear Power LLC" was changed to "Westinghouse Electric Company". "The Committee Chairman may invite participation by others from within Hematite or from the staff at Windsor" was deleted and "and/or outside organizations" was added to better define staff participation in the Safety Committee. "Review of significant physical facility changes in the pellet shop" was changed to "Review of significant physical facility changes" since pelletizing operations have been completed.

14. Section 2.5 : The requirement for testing Production Supervisors for sufficient knowledge to carry out their training functions was deleted. Training is conducted by individuals knowledgeable in the area in which they are providing training and all

individuals are now tested after training in radiation safety and criticality control. "Operating personnel" was changed to "Personnel who work with SNM" to better describe continuing activities.

15. Section 2.6 : "Operating" was deleted before "Procedures" in the title of this section. "Operation sheets and special evaluation travelers" rather than "operating procedures" were shown to be the basic control document. The statement that operating procedures are issued under the direction of Quality Control was replaced with "Procedures are issued by Document Control under the direction of Environment, Health and Safety". "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety". "Directors" was changed to "their" since the directors were replaced with managers. "Regulatory Affairs" was changed to " Environment, Health and Safety".

16. Section 2.7 : "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety".

17. Section 2.8 : Change made to corporate name. The word "reported" was added and the phrase "listed in the daily exception report distributed" was deleted since significant problems observed in daily checks are now normally reported electronically rather than by the former manually generated exception report. "Production Supervisor" was changed to "Supervisor". "Director of Uranium Operations" was changed to "Site Manager". "Operation procedures" was changed to "operating procedures". Vice President, Fuel Operations" was changed to "Site Manager".

18. Section 2.9 : "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety".

19 Section 2.10 : "Regulatory Affairs" was changed to "Environment, Health and Safety".

20. Table 2-1 : "Director of Uranium Operations" was changed to "Site Manager". "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety". "4/Health Physics with 2/Operational health physics with uranium bioassay techniques, internal exposure control, and radiation measurement techniques" was deleted in the education column for this position. "5/Operational safety related to special nuclear material was added". The revised education/experience requirement are considered to be adequate since nuclear fuel manufacturing, including UF₆ processing, has been completed at Hematite. Technical support will be provided by the Health Physicist and the Criticality Specialist as required. "Fuel manufacturing" was changed to "processing special nuclear material" for the Nuclear Criticality Specialist, and to "special nuclear material" for the Health Physicist.

- 21. Section 3.1.1 :** Change made to corporate name. "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety". "Director of Uranium Operations" was changed to "Site Manager".
- 22. Section 3.1.2 :** "Regulatory Affairs" was changed to "Environment, Health and Safety".
- 23. Section 3.2.3.1 :** "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety".
- 24. Section 3.2.5 :** The new technology of solid state dosimeters was added to the listing of approved personnel monitoring devices. It was clarified that dosimeters used for monitoring exposure to radiation for individuals shall be processed by an NVLAP accredited processor.
- 25. Section 3.2.6.1 :** "Production Supervisor" was changed to "Supervisor". "Regulatory Affairs" was changed to "Environment, Health and Safety".
- 26. Section 3.2.6.2 ;** "Lunchrooms, snack area" was deleted from the daily minimum frequency surveys since these area are no longer directly adjacent to the contamination control areas and are considered part of the clear areas requiring a monthly survey. Footnote (2), " When in use" was added to the daily survey frequency for step-off pad areas since not all present step-off pads will be in use now that manufacturing operations have been completed.
- 27. Section 3.2.10.1 :** "Regulatory Affairs" was changed to "Environment, Health and Safety".
- 28. Section 4.1.1 :** Change made to corporate name.
- 29. Section 4.1.3 :** "Director of Regulatory Affairs" was changed to "Manager Environment, Health and Safety".
- 30. Section 4.2.4(b) :** This condition was revised to delete references to the operation of the hydrometers on the plant air to the Oxide Building receivers and cooler-hopper since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 31. Section 4.2.4(c) :** This condition related to the R-2 and R-3 steam lines in the Oxide Building was deleted since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.

- 32. Section 4.2.4(d) :** This condition was changed to delete measurement of moisture content of UO₂ transferred to bulk storage hoppers since the conversion process has ceased operation and no more transfers will be made.
- 33. Section 4.2.4(e) :** This condition related to the R-1, R-2, and R-3 inlet pressure switches was deleted since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 34. Section 4.2.4(f) :** Transfer of material into the bulk storage hoppers was deleted for this condition since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 35. Section 4.2.4(t) :** This condition related to the control of solution volume in the vaporizer chests was deleted since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 36. Section 4.2.4(u) :** This condition related to the use of barriers for the Oxide Building receivers was deleted since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 37. Section 4.2.4(v) :** This condition related to the use of barriers for the Oxide Building reactor gas filtration system was deleted since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 38. Section 4.2.4(v) :** This condition related to control of uranium concentration the oxide conversion HF absorber system was deleted since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 39. Table 4-4 :** Oxide Building equipment was deleted since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 40. Table 4-5 :** Oxide Building processes and vessels were deleted since the conversion process has ceased operation and SNM has been removed and will not be reintroduced in the equipment.
- 41. Section 5.2 :** "Regulatory Affairs" was changed to "Environment, Health and Safety".
- 42. Section 6.3 :** "Air, water, and steam" was deleted from the listing of essential loads of the emergency generator. These loads are no longer essential now that fuel manufacturing activities have been completed.
- 43. Section 6.4 :** Regulatory Affairs" was changed to "Environment, Health and Safety".

43. Section 6.5 : This section on controls for UF₆ cylinders and processing was deleted since the conversion process has ceased operation and all UF₆ cylinders have been removed from the Hematite site.

44. Chapter 7 : Change made to corporate name. The date (February 16, 2001) of the latest financial assurances document was added.

44. Chapter 8 : Change made to corporate name.

Enclosure II to RA01/086

**Westinghouse Electric Company LLC
List of Affected Pages
Date: July 19, 2001**

Westinghouse Electric Company LLC provides those pages affected by the requested amendment, and a revised list of effective pages. These pages replace the pages submitted in the March 29, 2001 and the May 11, 2001 applications. Changes are marked in the right margin. The replacement pages are provided in this enclosure.

<u>Delete Page</u>			<u>Add Page</u>		
<u>Page</u>	<u>Rev.</u>	<u>Date</u>	<u>Page</u>	<u>Rev.</u>	<u>Date</u>
1-1	4	4/07/00	1-1	5	8/2/01
1-2	5	4/07/00	1-2	6	8/2/01
1-3	3	4/07/00	1-3	4	8/2/01
1-7	6	6/2/00	1-7	7	8/2/01
2-1	3	6/2/00	2-1	4	8/2/01
2-2	3	6/2/00	2-2	4	8/2/01
2-3	1	8/08/97	2-3	2	8/2/01
2-4	0	2/20/94	2-4	1	8/2/01
2-5	3	6/2/00	2-5	4	8/2/01
2-6	3	4/07/00	2-6	4	8/2/01
2-7	2	8/08/97	2-7	3	8/2/01
2-8	1	8/08/97	2-8	2	8/2/01
2-9	1	8/08/97	2-9	2	8/2/01
2-10	4	4/07/00	2-10	5	8/2/01
2-11	3	6/2/00	2-11	4	8/2/01
2-12	1	8/08/97	2-12	2	8/2/01
2-13	1	8/08/97	2-13	2	8/2/01
2-14	2	8/08/97	2-14	3	8/2/01
3-1	4	4/07/00	3-1	5	8/2/01
3-2	1	8/08/97	3-2	2	8/2/01
3-4	1	8/08/97	3-4	2	8/2/01
3-8	1	8/08/97	3-8	2	8/2/01
3-9	1	8/08/97	3-9	2	8/2/01
3-11	1	8/08/97	3-11	2	8/2/01
4-1	6	4/07/00	4-1	7	8/2/01
4-3	3	7/10/98	4-3	4	8/2/01
4-13	3	7/10/98	4-13	4	8/2/01
4-14	3	7/10/98	4-14	4	8/2/01

4-16	3	7/10/98	4-16	4	8/2/01
4-17	3	7/10/98	4-17	4	8/2/01
4-22	3	7/10/98	4-22	4	8/2/01
4-23	3	7/10/98	4-23	4	8/2/01
5-3	1	8/08/97	5-3	2	8/2/01
6-2	1	8/08/97	6-2	2	8/2/01
6-3	0	10/29/93	6-3	1	8/2/01
7-1	5	4/7/00	7-1	6	8/2/01
8-1	4	4/7/00	8-1	5	8/2/01

CHAPTER 1 STANDARD CONDITIONS AND SPECIAL AUTHORIZATIONS

1.1 Name, Address and Corporate Information

The name of the applicant is Westinghouse Electric Company LLC. The applicant is a limited liability corporation under the laws of the state of Delaware with principal corporate offices located at 4350 Northern Pike, Monroeville, PA 15146. The address at which the licensed activities will be conducted is:

Westinghouse Electric Company LLC
3300 State Road P
Festus, Missouri 63028

1.2 Site Location

The Hematite facility of Westinghouse Electric Company LLC is located on a site of about 228 acres in Jefferson County, Missouri, approximately 3/4 mile northeast of the unincorporated town of Hematite, Missouri and 35 miles south of the city of St. Louis, Missouri. Activities with special nuclear materials are conducted within an 8 acre, controlled access area near the center of the site and adjacent to the access road, State Road P. Activities involving SNM occur within the fenced, controlled area. These activities include preparation and shipment of scrap and wastes, and related processes incident to the decommissioning of the facility.

1.3 License Number and Period of License

This application is for Special Nuclear Material License (SNM) No. SNM-33 (NRC Docket 70-36). License SNM-33 was renewed July 28, 1994 for a period of ten (10) years.

1.4 Possession Limits

Westinghouse Electric Company LLC requests authorization to receive, use, possess, store and transfer at its Hematite site, the following quantities of SNM and source materials:

<u>Material</u>	<u>Form</u>	<u>Quantity</u>
Uranium enriched to maximum of 5.0 weight percent in the ²³⁵ U isotope	Any *	2,000 kilograms ²³⁵ U
Uranium to any enrichment in the ²³⁵ U isotope	Any *	350 grams ²³⁵ U
Source material Uranium and Thorium	Any *	50,000 kilograms
Cobalt 60	Sealed sources	40 millicuries total
Cesium 137	Sealed sources	500 millicuries total
Mixed Activation and Fission Product Calibration Sources Including ²⁴¹ Am	Solid Sources	200 microcuries total
Californium 252	Sealed Sources	4.0 milligrams total

* Excluding metal powders

1.5 Authorized Activities

This license application requests authorization for Westinghouse Electric Company LLC to receive, possess, use, store and transfer Special Nuclear Material under Part 70 of the Regulations of the Nuclear Regulatory Commission formerly used to manufacture nuclear reactor fuel utilizing low-enriched uranium (up to 5.0 weight percent in the isotope U²³⁵) and to receive, possess, use, store, and transfer Source Material under Part 40 of the Regulations of the Nuclear Regulatory Commission. Source materials are generally used for the start-up testing of a new process. Sealed cobalt-60 sources and solid sources are generally used for instrument calibration and testing. Sealed cesium 137 and californium 252 sources are used for performing quality checks on completed fuel rods. Authorized activities are conducted in the following buildings and facilities on the Hematite site:

<u>Number</u>	<u>Name</u>	<u>Primary Utilization</u>
101	Tile Barn	Emergency center and equipment storage
110	Office Building	Guard station and offices
115	Emergency Utilities	Water pump for fire suppression
120	Wood Barn	Equipment storage
260	Oxide Building and Dock	Uranium handling. SNM shall not be reintroduced to the oxide conversion equipment.

(f) (deleted)

(g) (deleted)

(h) (deleted)

CHAPTER 2 ORGANIZATION AND ADMINISTRATION

2.1 Organizational Responsibilities and Authority

The Site Manager (Project Manager) has complete responsibility for ensuring that operations related to licensed activities are conducted safely and in compliance with applicable regulations. The Site Manager has the overall responsibility for safe operation of the Hematite facility. This includes criticality safety, radiological and industrial safety, environmental protection, facility operations, accountability, packaging SNM and waste for transport, training, materials handling and storage, laboratory services, engineering and maintenance. The Site Manager has delegated the programmatic responsibility for safety and compliance for licensed activities to the Manager Environment, Health and Safety. Any of the positions described in this section may be performed by contract or part time employees.

2.1.1 (deleted)

2.1.2 (Deleted)

2.1.3 Manager Environment, Health and Safety

The Manager Environment, Health and Safety reports to the Site Manager. He manages radiological protection, industrial safety, SNM accountability, criticality safety, licensing, emergency planning, environmental protection, security, and their associated training programs.

His activities include review and approval of procedures for control, sampling, measurement and physical inventory of SNM, and auditing of plant operations. He reviews results from personnel and environmental monitoring and facility activities to ensure compliance with the requirements of License No. SNM-33. To enforce compliance, he has authority to halt any operation at the Hematite facility, and the operation shall not restart until approved by the Manager Environment, Health and Safety.

2.1.4 Nuclear Criticality Specialist

The nuclear criticality specialist function reports to the Manager Environment, Health and Safety. The nuclear criticality specialist verifies that equipment, processes and procedures satisfy the criticality criteria in Chapter 4 by performing the review described in Section 2.6. Alternatively, for criticality analyses that require elaborate computational techniques, the specialist may supervise and/or review the analysis. The specialist may also perform the annual audit at Hematite required by Section 2.8.

2.1.5 Supervisor, Health Physics

The Supervisor of Health Physics reports to the Manager Environment, Health and Safety. He/she supervises the health physics technicians in the radiological surveillance of activities that involve radioactive materials, in personnel radiation monitoring and in the collection and measurement of environmental samples. He/she has the authority to suspend unsafe operations.

2.1.6 Health Physicist

The Health Physicist reports to the Manager Environment, Health and Safety. Activities include observation of plant operations and evaluation of results from personnel and environmental monitoring. Quantitative measurements and other observations of facility activities are compared with the requirements of License No. SNM-33.

2.1.7 Health Physics Technicians

The Health Physics Technicians report to the Supervisor, Health Physics. The Technicians are responsible for the day-to-day monitoring of operations. Monitoring is accomplished through the collection of data which allows the effectiveness of radiological and criticality safety, environmental protection and emergency planning programs to be assessed. Technicians also monitor the proper implementation of radiation work permits (sometimes called Special Evaluation Travelers).

2.2 Personnel Education and Experience Requirements

Table 2-1 lists the minimum education and experience requirements for the positions described in Section 2.1.

2.3 Hematite Plant Safety Committee

The Hematite Plant Safety Committee meets at least once each calendar quarter to review plant operations, to compare them with selected safety requirements of Part I and the License Conditions and to consider other aspects of safety the Committee believes appropriate. The Plant Safety Committee shall perform an annual review of each of the following:

- o Environmental protection trends
- o Radiation safety trends
- o Criticality safety practices
- o Industrial safety trends
- o Adequacy of emergency planning and drills
- o Effectiveness of ALARA program
- o Internal inspection and audit reports
- o Abnormal occurrences and accidents including recommendations to prevent recurrence
- o Review of significant physical facility changes and significant changes to operations involving radiation and/or nuclear criticality safety.

The review of findings and recommendations of corrective action shall be reported to the Site Manager and to the Manager Environment, Health and Safety for action.

The Committee Chairman determines which committee members, as a minimum, shall attend each quarterly meeting, according to the topics to be considered. The Committee submits a quarterly meeting report to the Hematite manager level personnel and the Site Manager. The Committee Chairman appoints the committee members to represent, as a minimum, engineering, facility operations, health physics, and criticality safety. He or she may also approve alternate(s) for the members.

Minimum education and experience requirements for the Chairman are in Table I.2-1. The Committee is comprised of senior personnel from the technical staff of Westinghouse Electric Company LLC , and/or outside organizations, who have five years experience in the nuclear industry.

2.4 Approval Authority for Personnel Selection

Personnel for safety-related staff positions are approved by a higher level of management than the position of concern.

2.5 Training

Hematite staff conduct or supervise the indoctrination of new employees in the safety aspects of the facility. The indoctrination topics shall include nuclear criticality, safety, fundamentals of radiation and radioactivity, contamination control, ALARA practices and emergency procedures. After test results demonstrate that a new employee has sufficient knowledge in the above topics, the new employee begins on-the-job training under direct line supervision and/or experienced personnel. The Supervisor monitors performance until it is adequate to permit work without close supervision.

The training and personnel safety program continues with on the job training supplemented by training in specialized topics such as personnel protective equipment, accident prevention, and other safety topics.

Personnel who work with SNM receive a re-training course in criticality control and radiation safety on a biennial basis. The effectiveness of retraining is determined by testing. Formal training shall be documented. The health physics technicians will receive professional related training at least biennially.

2.6 Procedures

Operations which affect licensed material shall be conducted in accordance with approved written procedures. Procedures are issued by Document Control under the direction of Environment, Health and Safety. These procedures provide the detailed instructions for equipment operation and material handling and the limits and controls required by the License. Operation procedures are the basic control document; before issuance or revision they require signed approval by the Site Manager and the Manager Environment, Health and Safety. In their absence, another designated individual may provide approval. Health Physics activities will be conducted in accordance with approved written procedures; these procedures must be approved by the Manager Environment, Health and Safety or the Health Physicist.

Procedures concerning the handling, processing, storing and shipping of nuclear materials are given prior review and approval by the Manager Environment, Health and Safety. Suitable control measures are prescribed, and pertinent control procedures relative to nuclear criticality safety and radiological safety are followed.

Primary responsibility and authority to suspend unsafe operations is placed with line supervision. Within their respective responsibilities, members of Environment, Health and Safety also have authority to suspend operations not being performed in accordance with an approved procedure.

Prior to the start of a new activity affecting nuclear materials, approved procedures are available. A review procedure has been established for changes in processes, equipment and/or facilities prior to implementation. Environment, Health and Safety authorization must be obtained for each change involving nuclear safety or radiological safety. Environment, Health and Safety reviews shall be documented, except for minor changes within existing safety parameters.

The Manager Environment, Health and Safety shall grant approval only when:

a. A nuclear criticality safety evaluation has been performed based on the criteria and standards of Chapters 3 and 4 by a person who meets the education and experience requirements for a Nuclear Criticality Specialist (and who may be the Manager Environment, Health and Safety). This evaluation shall be in sufficient detail to permit subsequent review.

b. The criticality safety evaluation has been reviewed by a person who fulfills the education and experience requirements for a Nuclear Criticality Specialist (and who may be the Manager Environment, Health and Safety). This individual will be different from the person who performed the evaluation. This review is based on the criteria and standards of Chapter 4 and includes verification of each of the following:

- 1) assumptions
- 2) correct application of criteria of Chapter 4
- 3) completeness and accuracy of the evaluation
- 4) compliance with the double contingency criteria

c. The Manager Environment, Health and Safety has concluded that the operation can be conducted in accordance with applicable health physics criteria.

Review and verification shall include written approval by the reviewer.

The Manager Environment, Health and Safety has the authority to determine whether other cognizant individuals, such as the Nuclear Criticality Specialist and/or the Health Physicist, have the appropriate experience and expertise to provide approvals in the stead of the Manager Environment, Health and Safety for their areas of expertise. If he so determines, he may delegate his approval authority.

The minimum frequency for review, for the purpose of updating of operating procedures affecting Special Nuclear Materials and health physics procedures, shall be every two (2) years. Updating of operating procedures is the responsibility of the cognizant manager.

2.7 Plant Modifications

The Manager Environment, Health and Safety is responsible for determining the necessary safety reviews (e.g., for criticality and/or radiological safety) for proposed changes or modifications to equipment for SNM processing,

handling, or storage, or related operations. The necessary management and safety reviews and approvals shall be performed prior to implementation of the change. Significant changes, as determined by the Manager Environment, Health and Safety, to operations affecting radiological and/or criticality safety are also reviewed by the Hematite Plant Safety Committee. Facility change requests requiring a criticality safety review shall be evaluated by a Nuclear Criticality Specialist.

If it is deemed necessary, by any reviewer, that an inspection of equipment, procedures, and postings to assure completeness prior to startup of a new or modified process, the requirement for such an inspection will be so designated in the Change Request. Such inspections shall be documented as part of the records for this facility change.

A modified process is defined as one involving a change in equipment design, SNM amount and/or configuration, or process controls when that change invalidates any aspect of the previous safety analysis.

2.8 Audits and Inspections

Audits and inspections shall be performed to determine if plant operations are conducted in accordance with applicable license conditions, Westinghouse Electric Company LLC policies, and written procedures. Audits shall apply to safety-related and environmental programs. Qualified personnel having no direct responsibility for the plant operation being audited shall be used to ensure unbiased and competent audits.

Daily checks for safety related problems are made by Health Physics Technicians, who observe, note and make general observations in addition to their other duties.

Problems are normally corrected on the spot by the Supervisor. More significant problems are reported to the Site Manager and manager level staff. The Site Manager is responsible for corrective action.

Planned and documented quarterly inspections cover criticality control and radiation safety. The inspection of criticality control shall be performed by an individual meeting at least the education and experience requirements of a Nuclear Criticality Specialist. The inspection of radiation safety shall be performed by an individual meeting at least the education and experience requirements of a Health Physicist. Items requiring corrective action are documented in a report distributed to the Site Manager and manager level staff. The Site Manager is responsible for corrective action, except where another manager is specifically designated. Follow-up actions taken by the Site Manager, or other responsible manager, shall be documented.

Annual audits, in which the results of previous inspections or audits are reviewed, are conducted as an evaluation of the effectiveness of the program. These audits may also involve a detailed review of non-safety documents such as operating procedures, shop travelers, etc., and are documented by a formal report to the Site Manager. Annual audits are performed by

a team appointed by the Site Manager. Personnel on the team will not have direct responsibility for the function and areas being audited. The team shall include, as a minimum, a Nuclear Criticality Specialist and a radiation specialist who shall audit criticality and radiation safety, respectively. The radiation specialist who conducts the annual audit shall have as a minimum a Bachelor's degree in Science or Engineering with two years experience in operating health physics, including experience with uranium bioassay techniques, internal exposure controls and radiation measurement techniques. The annual audit will review ALARA requirements in conformance with Regulatory Guide 8.10, Revision 1-R, dated May 1977, as applicable. The Manager, Environment, Health and Safety shall be responsible for follow-up of recommendations made by the audit team.

2.9 Investigations and Reporting

Events specified by applicable regulations or license conditions shall be investigated and reported to NRC. The Manager Environment, Health and Safety shall be responsible for conducting the investigation and documentation of reportable events.

Non-reportable occurrences shall be investigated and documented as appropriate. Such reports shall be available for NRC inspection.

2.10 Records

Retention of records required to be maintained by the regulations, and by the conditions of this license, shall be the responsibility of the cognizant manager. Records of Environment, Health and Safety evaluations and approvals shall be retained for a period of at least six months after use of the operation has been terminated, or for two years, whichever is longer. Other safety significant records shall be retained for at least two years.

TABLE 2-1

MINIMUM EDUCATION AND EXPERIENCE REQUIREMENTS FOR KEY PERSONNEL

<u>Position Described In Section No.</u>	<u>Title</u>	<u>Education</u>	<u>Experience (Years/Field)</u>
2.1.1	Site Manager	Bachelors, Science or Engineering	5/Nuclear manufacturing industry
2.1.2	(deleted)		
2.1.3	Manager Environment, Health and Safety	Bachelors, Science or Engineering or Industrial Technology, and 1 week training course in nuclear criticality safety	5/Operational safety related to special nuclear material
2.1.4	Nuclear Criticality Specialist	Bachelors, Science or Engineering	2/Nuclear criticality evaluations, including 6 months applicable to processing special nuclear material
2.1.5	Supervisor, Health Physics	High School Diploma	5 Total/Nuclear industry, with 3/Health Physics Technician
2.1.6	Health Physicist	Bachelors, Science or Engineering	2/Operational Health Physics applicable to special nuclear material
2.1.7	Health Physics Technician	High School Diploma or GED Equivalent	Site specific training in radiation protection activities
2.3	Chairman, Plant Safety Committee	Bachelors, Science or Engineering	5/Nuclear manufacturing industry

CHAPTER 3 RADIATION PROTECTION

3.1 Special Administrative Requirements

3.1.1 ALARA Policy

It is the policy of Westinghouse Electric Company LLC to maintain a safe work place and healthful work environment for each employee and to keep radiation exposures to both employees and the general public As Low As Reasonably Achievable (ALARA). The annual audit team described in Section 2.8 considers ALARA requirements in conjunction with the intent of Regulatory Guide 8.10.

A written report shall be made by the Manager Environment, Health and Safety to the Site Manager every six months providing employee radiation exposure (internal and external) and effluent release data. Trends in the reported data may reveal areas where exposures and releases can be lowered in accordance with the above ALARA commitment. The data may also help to identify problems in personnel exposure, in effluent release, in process control or in equipment for measuring effluents and exposures.

3.1.2 Radiation Work Permit Procedures

Short term non-routine activities which do not require an operating procedure may be controlled by a Radiation Work Permit (RWP) approved by Environment, Health and Safety management. Examples of activities which may be controlled by such RWPs include non-routine maintenance or repair operations on equipment involved with handling radioactive materials and non-routine maintenance operations in which ventilated containment systems are breached. Such RWPs specify applicable radiological controls for the activity, such as special radiological equipment, special personnel monitoring devices, protective clothing or air sampling requirements. RWPs which remain open for more than a month are reviewed on a monthly basis to ensure the controls are effective and are closed if no longer needed.

3.2 Technical Requirements

3.2.1 Contamination Control

The facility shall be zoned to define contamination control areas and clear areas. Appropriate protective clothing shall be worn in the contamination areas. An alpha survey meter or alpha monitor shall be provided at the exit from a contamination area. All personnel are required to monitor their hands, and to monitor other body surfaces and personal clothing as appropriate, when exiting a contamination control area. Except for hand contamination which is easily removed with cleaning, health physics assistance and approval for release above background levels shall be required.

The direction of air flow in the process buildings shall be checked at least annually and documented. Major design changes having a potential to impact air flow direction may require a re-check of the air flow direction once the design change has been completed. If the air flow direction is not acceptable, action will be taken.

Fire prevention and the potential for generating explosive atmospheres will be considered in ventilation design.

Air effluents from process areas and process equipment involving uranium in a dispersible form shall be subject to air cleaning. Exhaust stacks shall be continuously sampled when in operation.

3.2.3 Work - Area Air Sampling

3.2.3.1 Air Sampling Criteria

Air sampling shall be performed using fixed location samplers, personal (lapel) samplers, and air monitors.

The type of air sample collected at a specific operation or location shall depend on the type, frequency, and duration of operations being performed. One or more of these sample methods shall be employed at intervals prescribed by the Manager Environment, Health and Safety or Health Physicist. General criteria for sampling are:

DAC-hours) for Class W and Class Y uranium and 8 milligrams per week for Class D uranium. A diagnostic study to evaluate intakes shall be started at these levels.

Exposure to radiation shall be monitored for individuals likely to receive, in one year from sources external to the body, in excess of 10% of the occupational dose limits of 10 CFR 20. The personnel monitoring device may be either a film badge (changed monthly) or a thermoluminescent dosimeter (TLD; changed quarterly) or solid state dosimeters (OSL, changed quarterly). Dosimeters shall be processed by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited dosimetry processor. The action level for investigation and possible work restrictions shall be 1 rem for deep dose equivalent (DDE) on an annual basis.

Total Effective Dose Equivalent for occupational exposures shall be calculated in accordance with 10 CFR 20 using a combination of representative air sampling data, personnel radiation exposure data and/or bioassay measurement data.

3.2.6 Surface Contamination

3.2.6.1 Special Surveys

Non-routine operations not covered by operating procedures shall be reviewed by Environment, Health and Safety and a determination made if radiation safety monitoring is required.

With the exception of incidents requiring immediate evacuation, spills or other accidental releases shall be cleaned up immediately. The Supervisor and Environment, Health and Safety must be notified immediately of such incidents.

3.2.6.2 Routine Surveillance

Surveys shall be conducted on a regular basis consistent with plant operations and prior survey results. The frequency of survey depends upon the contamination levels common to the area, the extent to which the area is occupied, and the probability of personnel exposures.

Material on processing equipment or fixed on surfaces shall be limited as required to control airborne radioactivity and external radiation exposures.

The following minimum frequency schedule shall be applied to the plant contamination survey program:

<u>Area</u>	<u>Survey Frequency</u>	<u>Action Level⁽¹⁾</u>
Contamination control areas	Weekly	5,000
Clear areas	Monthly	200
Step-off pad areas	Daily ⁽²⁾	200

⁽¹⁾ dpm/ 100 cm² as determined by smear survey

⁽²⁾ when in use

3.2.8 Respiratory Protection

The use of respiratory protection equipment will be in accordance with written operations sheets and appropriate training as required by regulation (10 CFR 20 Subpart H). Only respirators certified by the National Institute for Occupational Safety and Health/Mine Safety Administration shall be used. Protection factors from Appendix A of 10 CFR 20 (§§ 20.1001 - 20.2402) may be used when assigning actual intakes.

3.2.9 Bioassay Program

A bioassay program shall be maintained for confirmation and evaluation of intakes. The primary method of calculating Committed Effective Dose Equivalent is by using breathing zone air sampling results.

3.2.10 Nonexempt Sealed Source Control

3.2.10.1 Use of nonexempt sources for training and instrument calibration shall be limited to, or under the supervision of, Environment, Health and Safety.

3.2.10.2 Sources utilized as a functional component of devices designated for manufacturing and quality control purposes shall be operated only by personnel who have been qualified for safe practices. Health Physics shall provide appropriate monitoring support during maintenance or other operations that may entail increased exposure levels over that for normal operations.

CHAPTER 4 NUCLEAR CRITICALITY SAFETY

The administrative conditions and technical criteria in this chapter provide protection against an unplanned nuclear chain reaction (criticality). These conditions and criteria are applicable where fissile materials are to be stored, handled, or processed, and where the quantities of such fissile materials may create a potential nuclear criticality hazard.

Administrative conditions define:

- (a) the design philosophy used in the definition of processes involving the handling and storage of special nuclear materials (SNM),
- (b) the lines of responsibility for ensuring criticality safety aspects of the process are reviewed, documented, and approved by management, and
- (c) the written procedures and postings governing the processes for handling and storage of SNM.

Technical criteria provide the bases for:

- (a) limits and controls used in the processing, handling, and storage of SNM,
- (b) criticality evaluations, and
- (c) engineered process controls.

4.1 Administrative Conditions

4.1.1 Process Design Philosophy

The process design philosophy used by Westinghouse Electric Company LLC to ensure nuclear criticality safety is based on the following key elements:

4.1.3 Documenting Criticality Evaluations and Reviews

Criticality evaluations associated with facility changes affecting the handling and storage of SNM in Nuclear Manufacturing shall be documented by a Nuclear Criticality Specialist and independently reviewed.

The criticality evaluations shall consider potential scenarios which could lead to criticality and barriers erected against criticality in establishing applicable criticality limits and controls.

These limits and controls shall be incorporated into written procedures and/or postings. Postings shall be approved by a qualified Nuclear Criticality Specialist. Procedures shall be approved by the Manager Environment, Health and Safety. Day-to-day monitoring of workers for conformance to criticality limits and controls and administrative procedures shall be carried out by supervision and Health Physics Technicians. Documentation of the criticality evaluations shall be sufficiently detailed such that an independent reviewer can reconstruct the analysis and bases for the conditions presented. Criticality evaluations shall include assumptions affecting criticality safety process limits and controls. If explicit analyses using validated methodologies are used, the margin to criticality and a clear definition of off-nominal conditions shall be provided.

Criticality evaluations shall include a documented review by a qualified reviewer.

Records of the criticality evaluation and review shall be maintained according to the requirements of Section 2.10 of this license.

4.1.4 Written Procedures

Operations involving the handling and storage of SNM shall be performed according to approved, written procedures.

4.2.4 Special Controls

The following technical criteria shall be used.

- (a) Process areas containing fissile materials will not have fire sprinkler systems. Water hoses shall not be used to fight fires in the Oxide Building, and in Building Nos. 253, 254, 255, 256-1, and 230 (with the exception of the warehouse area).
- (b) The hygrometers on the plant air to the micronizers and blenders in Buildings 254 and 255 will be set to alarm at a dew point no higher than 0 °C and checked on a 6 month interval.
- (c) (deleted)
- (d) The moisture content of the UO₂ powder transferred into the recycle storage hoppers will be verified as being less than or equal to one weight percent. The instruments used for measuring moisture in UO₂ shall be calibrated on a 6 month interval. Loading and unloading of hoppers shall be done with hoods that prevent water ingress.
- (e) (deleted)

- (f) Dual, independent verifications of moisture content in UO_2 shall be made prior to transfer of material into the blenders in Buildings 254 or 255.
- (g) Moderation controlled containers shall be covered such that no moderator can enter the container when external to protective hoods.
- (h) The number of 5 gallon or less containers allowed on the second and third floors of Building 254 shall be limited as follows: lubricant and/or poreformer, 12 on each floor; UO_2 powder, 24 spaced on 2 foot centers on each floor. Additionally, the second and third floors of Building 254 shall be limited on each floor to a maximum of 10 gallons total of water, cleaning solutions, paints and powder moderators (exclusive of lubricant and poreformer) when the poreformer or lubricant mixing operations have material in process.
- (i) UO_2 powder charges added to each poreformer mixer in Building 254 shall not exceed 4.4 kg ^{235}U .
- (j) Fissile aqueous solution transfers from favorable to unfavorable geometry vessels in the wet recovery system shall have at least two independent methods for control of the fissile content of the solution prior to release of the solution to the unfavorable geometry vessel; solution transfers shall be limited such that the unfavorable geometry vessels never contain more than a safe mass. Physical barriers in piping systems shall exist to prevent the inadvertent transfer of fissile aqueous solutions to unfavorable geometry vessels.

- q) Fuel assemblies, when wrapped and stored in the Fuel Assembly Storage Area shall have the bottom end open to ensure drainage of water.
- (r) Isolated fuel assemblies shall be limited to arrays of 16 x 16, 14 x 14, and 10 x 10 rods. The maximum array size shall be limited to 8.048" x 8.048", independent of the number of rods. Pellet diameters shall be less than or equal to 0.40" and greater than or equal to 0.3224". Fuel assembly designs outside this envelope shall require a criticality safety evaluation to ensure the assembly and storage processes have adequate subcriticality margin.
- (s) Shipping package arrays containing SNM UO₂ product shall be stored within the security fence, in Building 230 or in the parking lot south of Building 230. Loaded 927 (927A1 and 927C1) shipping packages shall be stored no more than three high. There are no restrictions on the number of loaded 927 packages or their orientation in the horizontal plane. Loaded fuel shipping packages of types other than 927s shall be separated from arrays of loaded, unrestricted 927 packages by at least twelve feet.
- (t) (deleted)
- (u) (deleted)
- (v) (deleted)

(w) (deleted)

4.2.5 Controlled Parameters for Criticality Safety of Plant Processes

Table 4-4 lists the controlled parameters for criticality safety of major plant processes.

Table 4-5 lists processes and vessels with SIU based controls. That is, processes and vessels whose primary controls or controlled parameter(s) are expressed in terms of the SIUs defined in this chapter.

Table 4-4

Controlled Parameters for Criticality Safety of Major Plant Processes

Plant Process	Controlled Parameters
(deleted)	(deleted)
Bulk Storage and Recycle Hoppers	Moderation
Micronizer and Blender	Moderation
Buildings 254 and 255 Oxidation/Reduction Furnaces	Geometry
Slugging, Granulation and Pressing	Mass and Moderation
SNM Shipment Offsite and Receipt Onsite	Per Shipping Container Certificate of Compliance
Kardex Storage	Moderation - Note 1
Rod Box Storage Matrix	Moderation - Note 1
Fuel Assembly Rack Storage	Geometry - Note 1
UO ₄ Dryer Assembly	Geometry
(deleted)	(deleted)
(deleted)	(deleted)

Notes

1. See also Special Controls, Section 4.2.4.
2. See also the Design Criteria associated with Partial Reflection, Sections 4.2.1.3(c)

Table 4-5

Processes and Vessels With SIU Based Controls

(deleted)
(deleted)
(deleted)
Pellet Press Oil Sump
Pellet Handling in Buildings 254 and 255
Grinder Sludge Centrifuge
Pellet Grinding Sump
(deleted)
Incinerator
Oxide Building Trench and Sump
Vacuum Cleaners
Mop Buckets
Building 240 Oxidation/Reduction Furnaces
Filter Presses
Dissolution Vessels
UO ₄ Precipitation Tank
UO ₄ Centrifuge
Hold and Evaporation Tank Complex
ADU Precipitation Tank
Steam Cooker
Analytical Laboratory

Monitoring locations may be changed only if a documented evaluation by Environment, Health and Safety demonstrates that a new location provides data that are as representative (or more representative) of conditions likely to impact on the general public, as was the data from the original location.

Environmental samples shall be collected and analyzed as shown in Table 5-1. Sample frequency may vary due to inclement weather, plant shutdown, or operating conditions. More frequent or additional samples may be taken as required for special studies and evaluations. Should a significant continuous upward trend be noted in any of the sampling data, corrective actions will be taken to investigate the cause. Remedial actions will be taken as appropriate.

6.3 Emergency Utilities

Emergency electric generators provide electric power to essential loads such as instrumentation and alarms. These loads transfer automatically to the generators upon a power outage.

6.4 Radioactive Waste Management

Low level solid wastes shall be packaged in accordance with all applicable regulations and delivered to a carrier for transport to an approved disposal site.

Non-contaminated solid wastes are disposed of by a commercial waste disposal firm. Non-contaminated equipment may be disposed of to commercial scrap dealers, or by other means.

Conditions of storage of waste, waste containers, and contaminated equipment shall be included in the quarterly Environment, Health and Safety inspection.

6.5 (deleted)

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CHAPTER 7 DECOMMISSIONING PLAN

Westinghouse Electric Company LLC reaffirms that, upon terminating activities involving materials authorized under license SNM-33, affected facilities will be decommissioned in a manner that will protect the health and safety of the public in accordance with 10 CFR 70.38. Financial assurances in the letters dated July 19, 1990, May 28, 1993, December 10, 1993, May 23, 1994, July 29, 1994, June 18, 1999, February 7, 2000, and February 16, 2001 should be considered a part of this license application.

CHAPTER 8 EMERGENCY PLAN

Westinghouse Electric Company LLC shall maintain and execute the response measures of the Hematite Emergency Plan submitted to the NRC via letter dated October 28, 1993.

Westinghouse Electric Company LLC shall also maintain implementing procedures as necessary to implement the Plan. No change shall be made in this Plan that would decrease its response effectiveness without prior approval of the NRC as evidenced by a license amendment. Changes which do not decrease the response effectiveness of the Plan may be made without prior NRC approval; such changes to the Plan shall be reported to the NRC within 6 months after the change is made.

Enclosure III to RA01/086

WESTINGHOUSE ELECTRIC COMPANY LLC
HEMATITE FACILITY
LICENSE APPLICATION
LIST OF EFFECTIVE PAGES
Date: 8/2/01

Westinghouse Electric Company LLC provides changes to the Hematite license application. The following is a List of Effective Pages summarizing the latest applicable submittal dates for each page of the application.

<u>Pages</u>	<u>Revision</u>	<u>Date</u>	<u>Pages</u>	<u>Revision</u>	<u>Date</u>
<u>License Application Title Page</u>			2-10	5	8/2/01
			2-11	4	8/2/01
<u>Table of Contents</u>			2-12	2	8/2/01
			2-13	2	8/2/01
i	1	2/07/00	2-14	3	8/2/01
through					
xi			<u>Chapter 3</u>		
<u>Chapter 1</u>			3-1	5	8/2/01
			3-2	2	8/2/01
1-1	5	8/2/01	3-3	1	4/20/94
1-2	6	8/2/01	3-4	2	8/2/01
1-3	4	8/2/01	3-5	0	6/14/94
1-4	0	3/21/94	3-6	0	3/21/94
1-5	0	6/14/94	3-7	0	3/21/94
1-6	6	6/2/00	3-8	2	8/2/01
1-7	7	8/2/01	3-9	2	8/2/01
			3-10	0	6/14/94
<u>Chapter 2</u>			3-11	2	8/2/01
			3-12	0	3/21/94
2-1	4	8/2/01	3-13	0	3/21/94
2-2	4	8/2/01			
2-3	2	8/2/01	<u>Chapter 4</u>		
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2-5	4	8/2/01	4-2	3	7/10/98
2-6	4	8/2/01	4-3	4	8/2/01
2-7	3	8/2/01	4-4	3	7/10/98
2-8	2	8/2/01	4-5	3	7/10/98
2-9	2	8/2/01	4-6	3	7/10/98
			4-7	4	12/6/99

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4-7a	4	12/6/99
4-8	3	7/10/98
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4-13	4	8/2/01
4-14	4	8/2/01
4-15	3	7/10/98
4-16	4	8/2/01
4-17	4	8/2/01
though 4-21		
4-22	4	8/2/01
4-23	4	8/2/01

Chapter 5

5-1	0	1/14/94
5-2	0	1/14/94
5-3	2	8/2/01
5-4	1	6/2/00

Chapter 6

6-1	0	10/29/93
6-2	2	8/2/01
6-3	1	8/2/01

Chapter 7

7-1	6	8/2/01
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Chapter 8

8-1	5	8/2/01
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