



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

DEC 7 1993

*release*

Docket 70-36  
License SNM-33  
Amendment 25

Mr. J. A. Rode, Plant Manager  
Hematite Nuclear Fuel Manufacturing  
Combustion Engineering, Inc.  
P.O. Box 107  
Hematite, MO 63047

*R*

Dear Mr. Rode:

SUBJECT: EMERGENCY PLAN (TAC NO. L21644)

In accordance with your amendment application dated October 28, 1993, and pursuant to Part 70 to Title 10 of the Code of Federal Regulations, Materials License SNM-33 is hereby amended to incorporate CE's Emergency Plan. The Plan should be implemented 180 days from the date of this amendment. At that time, the Plan will replace your current NRC approved Radiological Contingency Plan which is required by License Condition S-9.

Due to a reorganization at the Nuclear Regulatory Commission, we have reformatted your license by combining into one document the safety and safeguards license conditions. Although this licensing action only addresses changes to your Safety Conditions, for convenience, we are reissuing the complete license. In addition, those license conditions that have been complied with have been deleted (formerly Conditions 16, 18, and 24a).

Accordingly, Safety Condition S-1 of Materials License No. SNM-33 is revised to include the date of October 28, 1993.

To reflect our Division's reorganization, License Conditions S-3 and S-3 have been revised as follows to update attachment descriptions:

- S-3 Sealed byproduct material sources shall be subject to the leak testing and actions specified in the attached "License Condition For Leak Testing Sealed Byproduct Material Sources," dated April 1993.
- S-4 Release of equipment, facilities, or packages to the unrestricted area or to uncontrolled areas onsite shall be in accordance with the attached "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated April 1993.

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If you have questions about this document, please contact Sean Soong, Project Manager, on (301) 504-2604.

Enclosed is a copy of the complete License SNM-33, in the new format, which incorporates changes to the Safety Conditions. Also enclosed is the Safety Evaluation Report, which includes the Categorical Exclusion determination.

Sincerely,

**ORIGINAL SIGNED BY**

**Robert C. Pierson**

Robert C. Pierson, Chief  
Licensing Branch  
Division of Fuel Cycle Safety  
and Safeguards, NMSS

**Enclosures:**

1. License SNM-33
2. Safety Evaluation Report

cc w/encls:

Mr. J. F. Conant, Manager  
Nuclear Materials Licensing

Distribution w/encls. (Control No. 280S)

Docket No. 70-36	PDR/LPDR	NRC File Center	NMSS R/F
FCSS R/F	Region III	SHO	GFrance, RIII
MAdams	FCLB R/F	FCLS2 R/F	LTenEyck
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OFC	FCLB	<i>SE</i>	FCLB	<i>RE</i>	FCLB	<i>E</i>	FCLB	<i>E</i>
NAME	SSoong:mf		VLTharpe		MAdams		MTokar	
DATE	12/6/93		12/6/93		12/6/93		12/6/93	
OFC	FCLB	<i>E</i>						
NAME	RPierson							
DATE	12/7/93							

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## MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee		DEC 7 1993	
1. Combustion Engineering, Inc.	3. License number	SNM-33 Amendment No. 25	
2. P. O. Box 107 Hematite, Missouri 63047	4. Expiration date	December 31, 1989	
	5. Docket or Reference No	70-36	
6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license	
A. Uranium enriched to maximum 5.0 weight percent in the U-235 isotope	A. Any, excluding metal powder	A. 8,000 kilograms contained U-235	
B. Uranium, any U-235 enrichment	B. Any	B. 350 grams	
C. Source material (Uranium and Thorium)	C. Any, excluding metal powder	C. 50,000 kilograms	
D. Cobalt-60	D. Sealed sources	D. 40 millicuries, total	
E. Americium-241	E. Solid sources	E. 200 microcuries	
F. Cesium-137	F. Sealed sources	F. 500 millicuries	
G. Californium-252	G. Sealed sources	G. 4 milligrams	
9. Authorized place of use: The licensee's existing facilities in Hematite, Missouri, as described in the referenced license renewal application.			

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10. This license shall be deemed to contain two sections: Safety Conditions and Safeguards Conditions. These sections are part of the license, and the licensee is subject to compliance with all listed conditions in each section.

FOR THE NUCLEAR REGULATORY COMMISSION

Date: 7 DECEMBER 1993

By: Robert C. Pierson  
Division of Fuel Cycle Safety  
and Safeguards, NMSS  
Washington, DC 20555

**MATERIALS LICENSE  
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License number

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**SAFETY CONDITIONS**

**SAFETY CONDITIONS**

- S-1. Authorized use: For use in accordance with the statements, representations, and conditions contained in Part I of the licensee's renewal application dated February 26, 1982, and supplements dated July 21, 1982; February 21, 1983; May 31, 1984; April 29, June 6, and October 11, 1988; February 10, March 22, May 1, August 18, October 23, October 26, and November 8, 1989 (2); January 3, January 12, March 16, and September 4, 1990; August 12, 1991; August 5 and November 6, 1992; and February 19, March 2, and October 28 (effective 180 days from the issuance of Amendment 25), 1993; and letters dated February 29, 1984, January 20, 1986, and March 30, 1987.
- S-2. A written report shall be made by the NLS&A Supervisor to the Plant Manager every 6 months reviewing employee radiation exposure (internal and external) and effluent release data to determine:
- a. if there are any upward trends developing in personnel exposure for identifiable categories of workers, types of operations, or in effluent releases;
  - b. if exposures and releases can be lowered in accordance with the ALARA commitment; and
  - c. if equipment for effluent and exposure control is being properly used, maintained, and inspected.
- S-3. Sealed byproduct material sources shall be subject to the leak testing and actions specified in the attached "License Condition For Leak Testing Sealed Byproduct Material Sources," dated April 1993.
- S-4. Release of equipment, facilities, or packages to the unrestricted area or to uncontrolled areas onsite shall be in accordance with the attached "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated April 1993.
- S-5. Pursuant to 10 CFR 20.302, the licensee is authorized to treat waste and scrap materials containing uranium enriched in U-235 and/or source material by incineration.
- S-6. The licensee shall survey spent limestone rock discharge from each HF scrubber for beta contamination. Rock with beta contamination which exceeds five times the background of fresh rock shall not be used for landfill.

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## SAFETY CONDITIONS

- S-7. The licensee shall decontaminate the two evaporation ponds such that the average residual contamination in each pond does not exceed the appropriate limit of either 250 picocuries of insoluble uranium or 100 picocuries of soluble uranium per dry gram of soil. The Tc-99 concentrations in a composite sample for each pond shall be determined.
- S-8. a. If the radioactivity in plant gaseous effluents exceeds 150  $\mu\text{Ci}$  per calendar quarter, the licensee shall, within 30 days, prepare and submit to the Commission a report which identifies the cause for exceeding the limit and the corrective actions to be taken by the licensee to reduce the release rates. If the parameters important to a dose assessment change, a report shall be submitted within 30 days which describes the changes in parameters and includes an estimate of the resultant change in dose commitment.<sup>1</sup>
- b. In the event that the calculated dose to any member of the public in any consecutive 12-month period is about to exceed the limits specified in 40 CFR 190.10, the licensee shall take immediate steps to reduce emissions so as to comply with 40 CFR 190.10. As provided in 40 CFR 190.11, the licensee may petition the Nuclear Regulatory Commission for a variance from the requirements of 40 CFR 190.10. If a petition for a variance is anticipated the licensee shall submit the request at least 90 days prior to exceeding the limits specified in 40 CFR 190.10.
- S-9. The licensee shall maintain and execute the response measures of his Radiological Contingency Plan submitted to the Commission by letters dated December 28, 1987, and August 23, 1990. The licensee shall also maintain implementing procedures for his Radiological Contingency Plan as necessary to implement the Plan. The licensee shall make no change in his Radiological Contingency Plan that would decrease the response effectiveness of the Plan without prior Commission approval as evidenced by a license amendment. The licensee may make changes to his Radiological Contingency Plan without prior Commission approval if the changes do not decrease the response effectiveness of the Plan. The licensee shall furnish the Chief, Licensing Branch, Division of Fuel Cycle Safety and Safeguards, NMSS, U. S. Nuclear Regulatory Commission, Washington, DC 20555, a report containing a description of each change within 6 months after the change is made.
- S-10. At the end of the plant life, the licensee shall decontaminate the facilities and site in accordance with the general decommissioning plan submitted in the enclosure to the letter dated January 12, 1979, so that these facilities and grounds can be released to unrestricted use. The financial commitment to assure that funds will be available for decommissioning in the letter dated March 8, 1979, is hereby incorporated as a condition of the license.

<sup>1</sup>The report or petition should be submitted to the Director, Office of Nuclear Material Safety and Safeguards, with a copy to the Regional Administrator, Region III.

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**SAFETY CONDITIONS**

- S-11. The licensee shall continue the soil sampling program for the spent limestone fill areas, as described in the letter dated February 29, 1984, until discontinuance is authorized by the Commission.
- S-12. The monitoring program for the spent limestone shall include measurement of the uranium activity on the surface of the spent limestone. Prior to conducting such a program, the licensee shall submit the sampling and analytical program to the NRC for approval.
- S-13. Processing of  $UF_6$  in 10-ton cylinders is not authorized.
- S-14. The 10-ton  $UF_6$  cylinders shall be equipped with valve protectors.
- S-15. The concrete pad for storage of  $UF_6$  cylinders and the surrounding area shall be sloped or graded so that any spilled combustible fluids would not be confined to the storage area.
- S-16. No combustibles shall be stored on the concrete pad.
- S-17. A  $CO_2$  fire extinguisher shall be readily available near the storage pad.
- S-18. In addition to the controls in Section I of the enclosure to the letter dated March 30, 1987,  $UF_6$  cylinders which are in transport and containing  $UF_6$  heels shall be either sealed, in sealed overpacks, or in sealed vehicles.
- S-19. Notwithstanding the statement in Section 4.2.3 of the application, the k-effective of a unit or an array of units shall not exceed 0.95 unless specifically authorized by the license.
- S-20. Nuclear criticality safety evaluations performed by the licensee in accordance with Section 2.7, Part I of the application, shall be based on assumptions of optimum moderation and reflection of individual safe units and of arrays.
- S-21. Nuclear criticality safety evaluations involving k-effective calculations performed by a Nuclear Criticality Specialist shall be independently reviewed and approved by an individual having, as a minimum, the qualifications of a Nuclear Criticality Specialist.
- S-22. For uranium enriched to more than 4.1 w/o U-235, the licensee shall limit the agglomeration/granulation process, each agglomerated powder storage location, and the pellet pressing operation to safe mass units as specified in Table 4.2.4, Part I of the application.
- S-23. At all times, the licensee shall limit moderating material (solutions and powders), except poreformer and lubricant, to not more than two 5-gallon pails on each of the second and third floors of Building 254.

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**SAFETY CONDITIONS**

- S-24. The incumbent Superintendent, Production, identified in the amendment application dated August 12, 1991, is deemed to satisfy the education requirements for the position because of the incumbent's experience in the position since 1981 and his plant experience since 1974.

**Attachments:**

1. License Condition for Leak Testing...
2. Guidelines for Decontamination...



**MATERIALS LICENSE  
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SAFEGUARDS CONDITIONS

**SAFEGUARDS CONDITIONS**

Section 1.0 - Material Control & Accounting

SG-1.1 The licensee shall adhere to the commitments in Part I, Chapters 1.0 through 9.0, and Part II, Chapters 1 through 5, of its Fundamental Nuclear Material Control Plan dated January 1986, as revised by pages all dated June 1987, May 1990, April 1993, and May 1993.

Future revisions to this Plan shall be made in accordance with 10 CFR 70.32(c) or 70.34.

Section 2.0 - Physical Protection for SNM of Low Strategic Significance

SG-2.1 The licensee shall follow the security plan entitled, "Physical Security Plan for Protection of Nuclear Material of Low Strategic Significance" dated May 1980, as revised by Revision 3 dated November 1992 (letter dated November 12, 1992), and as revised in accordance with the provisions of 10 CFR 70.32(e).

SG-2.2 The licensee shall ensure that the surveillance tour, conducted by the guards or authorized person in accordance with Section 3.1.1, includes surveillance over the UF<sub>6</sub> outdoor storage area.

Section 3.0 - Reserved for International Safeguards

LICENSE CONDITION FOR  
LEAK TESTING SEALED BYPRODUCT MATERIAL SOURCES

APRIL 1993

- A. Each source shall be tested for leakage at intervals not to exceed 6 months. In the absence of a certificate from a transferor indicating that a test has been made within 6 months prior to the transfer, the sealed source shall not be put into use until tested.
- B. The test shall be capable of detecting the presence of 0.005 microcurie of contamination on the test sample. The test sample shall be taken from the source or from appropriate accessible surfaces of the device in which the sealed source is permanently or semipermanently mounted or stored. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.
- C. If the test reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired by a person appropriately licensed to make such repairs or to be disposed of in accordance with the Commission's regulations. Within 5 days after determining that any source has leaked, the licensee shall file a report with the Director, Division of Fuel Cycle Safety and Safeguards, U. S. Nuclear Regulatory Commission, Washington, DC 20555, describing the source, test results, extent of contamination, apparent or suspected cause of source failure, and corrective action taken. A copy of the report shall be sent to the Administrator of the nearest NRC Regional Office listed in Appendix D of Title 10, Code of Federal Regulations, Part 20.
- D. The periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to any use or transfer to another person unless they have been leak tested within 6 months prior to the date of use or transfer.

**GUIDELINES FOR DECONTAMINATION OF FACILITIES AND EQUIPMENT  
PRIOR TO RELEASE FOR UNRESTRICTED USE  
OR TERMINATION OF LICENSES FOR BYPRODUCT, SOURCE,  
OR SPECIAL NUCLEAR MATERIAL**

**U.S. Nuclear Regulatory Commission  
Division of Fuel Cycle Safety  
and Safeguards  
Washington, DC 20555**

**April 1993**

The instructions in this guide, in conjunction with Table 1, specify the radionuclides and radiation exposure rate limits which should be used in decontamination and survey of surfaces or premises and equipment prior to abandonment or release for unrestricted use. The limits in Table 1 do not apply to premises, equipment, or scrap containing induced radioactivity for which the radiological considerations pertinent to their use may be different. The release of such facilities or items from regulatory control is considered on a case-by-case basis.

1. The licensee shall make a reasonable effort to eliminate residual contamination.
2. Radioactivity on equipment or surfaces shall not be covered by paint, plating, or other covering material unless contamination levels, as determined by a survey and documented, are below the limits specified in Table 1 prior to the application of the covering. A reasonable effort must be made to minimize the contamination prior to use of any covering.
3. The radioactivity on the interior surfaces of pipes, drain lines, or ductwork shall be determined by making measurements at all traps, and other appropriate access points, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but are of such size, construction, or location as to make the surface inaccessible for purposes of measurement shall be presumed to be contaminated in excess of the limits.
4. Upon request, the Commission may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated with materials in excess of the limits specified. This may include, but would not be limited to, special circumstances such as razing of buildings, transfer of premises to another organization continuing work with radioactive materials, or conversion of facilities to a long-term storage or standby status. Such requests must:
  - a. Provide detailed, specific information describing the premises, equipment or scrap, radioactive contaminants, and the nature, extent, and degree of residual surface contamination.
  - b. Provide a detailed health and safety analysis which reflects that the residual amounts of materials on surface areas, together with other considerations such as prospective use of the premises, equipment, or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

5. Prior to release of premises for unrestricted use, the licensee shall make a comprehensive radiation survey which establishes that contamination is within the limits specified in Table 1. A copy of the survey report shall be filed with the Division of Fuel Cycle Safety and Safeguards, U. S. Nuclear Regulatory Commission, Washington, DC 20555, and also the Administrator of the NRC Regional Office having jurisdiction. The report should be filed at least 30 days prior to the planned date of abandonment. The survey report shall:
  - a. Identify the premises.
  - b. Show that reasonable effort has been made to eliminate residual contamination.
  - c. Describe the scope of the survey and general procedures followed.
  - d. State the findings of the survey in units specified in the instruction.

Following review of the report, the NRC will consider visiting the facilities to confirm the survey.

TABLE 1  
ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDES <sup>a</sup>	AVERAGE <sup>b,c,f</sup>	MAXIMUM <sup>b,d,f</sup>	REMOVABLE <sup>b,e,f</sup>
U-nat, U-235, U-238, and associated decay products	5,000 dpm $\alpha$ /100 cm <sup>2</sup>	15,000 dpm $\alpha$ /100 cm <sup>2</sup>	1,000 dpm $\alpha$ /100 cm <sup>2</sup>
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm <sup>2</sup>	300 dpm/100 cm <sup>2</sup>	20 dpm/100 cm <sup>2</sup>
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1000dpm/100cm <sup>2</sup>	3000 dpm/100 cm <sup>2</sup>	200 dpm/100 cm <sup>2</sup>
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5000 dpm $\beta\gamma$ /100 cm <sup>2</sup>	15,000 dpm $\beta\gamma$ /100 cm <sup>2</sup>	1000 dpm $\beta\gamma$ /100 cm <sup>2</sup>

<sup>a</sup>Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

<sup>b</sup>As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

<sup>c</sup>Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

<sup>d</sup>The maximum contamination level applies to an area of not more than 100 cm<sup>2</sup>.

<sup>e</sup>The amount of removable radioactive material per 100 cm<sup>2</sup> of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

<sup>f</sup>The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

DEC 7 1993

DOCKET: 70-36

LICENSEE: Combustion Engineering, Inc.  
Hematite, MO

SUBJECT: SAFETY EVALUATION REPORT, AMENDMENT APPLICATION DATED OCTOBER 28, 1993, EMERGENCY PLAN (PLAN)

Background

On April 6, 1992, CE submitted for NRC approval an Emergency Plan in accordance with the regulatory requirements of 10 CFR 70.22(i)(3). CE commits to 180 days from the date of NRC's approval to complete implementation of the Plan. At that time, the Plan will replace CE's current NRC approved Radiological Contingency Plan which is required by License Condition S-9. In response to a staff letter dated March 24, 1993, CE revised the Plan on April 26, and May 29, 1993. By letter dated October 28, 1993, CE submitted a revised Plan in its entirety to reflect recent plant changes and editorial changes.

Discussion

Section 70.22(i) requires certain NRC fuel cycle licensees to maintain emergency plans for responding to serious accidents involving release of licensed radioactive materials. The regulations require that an emergency plan specifically include: (1) a facility description, (2) a list of possible types of accidents, (3) classification of accidents, (4) means of detecting accidents, (5) procedures for the mitigation of accidents, (6) methods for assessing the release of materials, (7) a description of plant personnel responsibilities, (8) notification and coordination procedures, (9) types of information to be communicated to offsite agencies, (10) training criteria, (11) procedures for a safe restart, (12) provisions for training exercises, and (13) a list of hazardous chemicals onsite.

CE's Emergency Plan was written based on Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities," dated January 1992. The Guide provides general guidance for meeting the above requirements and a standard format for submitting an emergency plan.

The staff has reviewed CE's revised Plan against the requirements of 10 CFR 70.22(i)(3) and Regulatory Guide 3.67 and finds it acceptable.

### Categorical Exclusion

The staff has reviewed the amendment application and the revised Emergency Plan and has determined that the amendment is administrative and procedural in nature. The staff has determined that the proposed changes do not adversely affect the public health and safety or the environment.

Therefore, in accordance with 10 CFR 51.22(c)(11), neither an environmental assessment nor an environmental impact statement is warranted for the proposed action.

### Conclusion/Recommendation

The staff concludes that the amendment meets the requirements of 10 CFR 70.22(i)(3) and can be issued without undue risk to the workers, public, or the environment. Therefore, approval of the application is recommended.

The Region III Office has no objection to this licensing action.

### Principal Contributors

Sean Soong  
Mary Adams