

MAY 18 1989

Docket No: 70-36

Combustion Engineering, Inc.  
ATTN: Mr. J. A. Rode, Plant Manager  
Hematite Fuel Manufacturing  
1000 Prospect Hill Road  
Windsor, CT 06095-0500

Gentlemen:

Enclosed are copies of the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) prepared to support amendment of Materials License No. SNM-33 to authorize startup testing and operation of the new pellet production lines at your Hematite facility. The FONSI, which has been forwarded to the Office of the Federal Register for publication, also contains a Notice of Opportunity for Hearing in accordance with Subpart L of 10 CFR Part 2.

Sincerely,

**Original Signed By:**  
Merri Horn  
Uranium Fuel Section  
Fuel Cycle Safety Branch  
Division of Industrial and  
Medical Nuclear Safety, NMSS

Enclosures:

- 1. FONSI dtd 05/17/89
- 2. EA dtd 05/17/89

cc w/ encls:

Mr. A. E. Scherer, Director  
Nuclear Licensing

Mr. C. B. Brinkman, Manager  
Washington Nuclear Operations

Dr. P. L. McGill, Vice President  
Nuclear Fuel

Mr. H. E. Eskridge, Supervisor  
Licensing, Safety and Accountability

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NAME: <i>MAj</i> MHorn:	VLTharpe:	GHBidinger:
DATE: 5/18/89	5/18/89	5/18/89

U.S. NUCLEAR REGULATORY COMMISSION  
FINDING OF NO SIGNIFICANT IMPACT AND  
NOTICE OF OPPORTUNITY FOR A HEARING  
AMENDMENT OF SPECIAL NUCLEAR MATERIAL  
LICENSE NO. SNM-33  
COMBUSTION ENGINEERING  
HEMATITE, MISSOURI  
DOCKET NO. 70-36

The U.S. Nuclear Regulatory Commission (the Commission) is considering the amendment of Special Nuclear Material License No. SNM-33 for Combustion Engineering (CE) located in Hematite, Missouri.

**SUMMARY OF THE ENVIRONMENTAL ASSESSMENT**

Identification of the Proposed Action: The proposed action is an amendment to License No. SNM-33 to authorize CE to operate new pellet production lines. Currently, the Hematite plant receives  $UF_6$  and converts it to  $UO_2$  powder. Most of the  $UO_2$  powder is then shipped to the CE Windsor plant where it is fabricated into pellets. CE plans to relocate all pelletizing operations to the Hematite plant. The proposed action includes the installation of two new pellet lines and startup testing with depleted uranium. After the startup testing is complete, CE plans to introduce enriched uranium into the pellet lines. The environmental assessment includes the evaluation of impacts from operations with enriched uranium. The existing pellet line at Hematite will be maintained for special pellet runs.

The Need For The Proposed Action: As part of a plan for its nuclear fuel fabrication program, CE plans to conduct all uranium pellet production at its Hematite plant. In order to accomplish this relocation, CE plans to install new pellet production lines at the Hematite plant.

Environmental Impacts of the Proposed Action: The land intended for the new buildings is already committed for industrial use. The new buildings replace buildings that were demolished. Thus, there will be no significant impact as a result of the construction of the new buildings.

Addition of the new lines will not require any changes to the treatment methods for the liquid effluent streams. There will be a potential increase in the volume of liquid effluent. The volume of laundry water will increase in proportion to the number of new production personnel for the pellet lines. The laundry water is filtered, held in a storage tank, and sampled prior to release. The amount of liquid going to the sanitary water system will also increase in proportion to the number of new personnel. Trace amounts of radioactivity enter the system from sinks and showers. The control limits for the liquid effluent radioactivity remain the same. The volume will increase by approximately 20 percent. The impact from liquid discharges is expected to be minimal.

The main source of solid waste is from the solidification of liquid waste end product from the recovery/recycle processes and mop water. These liquid wastes are heated and concentrated; the concentrate is solidified and put into drums for transport to a commercial licensed disposal facility. The increase in solid waste is expected to be small and to cause an insignificant impact.

Air effluents from the existing oxide building and the recycle/recovery building are not expected to increase. Effluent from the current pellet building will decrease as the pellet production is moved to the new building. Effluents from the Windsor plant are also expected to decrease as the pellet production activities are relocated to the Hematite facility.

Exhausts from the new pellet building are filtered through a double bank of HEPA filters. The exhaust air from the process areas is sampled continuously during operations. CE has a current limit on total plant exhaust of 150 microcuries per calendar quarter; this limit remains unchanged. CE's objective is to increase pellet production with no significant increase in the existing rates of effluent release. However, radioactive releases are expected to increase. If it is conservatively assumed that the release doubles, the critical organ dose to the nearest resident would only be 0.15 mrem/yr to the

lung. An infant at the nearest residence would receive only 0.27 mrem/yr to the lung. This is well below the 25 mrem permitted by 10 CFR Part 20, Section 20.105(c), which incorporates the provisions of EPA's standards in 40 CFR Part 190.

Conclusion: Although there will be an increase in effluent, the staff concludes that there will be no significant impacts associated with the operation of the new pellet lines.

Alternatives to the Proposed Action: Alternatives to the proposed action include complete denial of CE's amendment application. This action would result in operations remaining unchanged. Another alternative would be approval of only one new pellet line. Since impacts from the new operation are expected to be minor, neither of these alternatives offers any real benefit.

Agencies and Persons Consulted: In performing this assessment, staff utilized the environmental report dated March 29, 1989, and amendment applications dated March 22, and May 1, 1989.

Finding of No Significant Impact: The Commission has prepared an Environmental Assessment related to the amendment of Special Nuclear Material License No. SNM-33. On the basis of this assessment, the Commission has concluded that environmental impacts that would be created by the proposed licensing action would not be significant and do not warrant the preparation of an Environmental Impact Statement. Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

The Environmental Assessment and the above documents related to this proposed action are available for public inspection and copying at the Commission's Public Document Room at the Gelman Building, 2120 L Street NW., Washington, DC. Copies of the Environmental Assessment may be obtained by calling (301) 492-3358 or by writing to the Fuel Cycle Safety Branch, Division of Industrial and Medical Nuclear Safety, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

OPPORTUNITY FOR A HEARING

Any person whose interest may be affected by the issuance of this amendment may file a request for a hearing. Any request for hearing must be filed with the Executive Director for Operations, U.S. Nuclear Regulatory Commission, Washington DC 20555, within 30 days of the publication of this notice in the Federal Register, and must comply with the procedures set forth in the Commission's regulation, 10 CFR Part 2, Subpart L, "Informal Hearing Procedures for Adjudications in Materials Licensing Proceedings." Subpart L of 10 CFR Part 2, which became effective March 30, 1989, was published in the Federal Register on February 28, 1989.

Dated at Rockville, Maryland, this 17<sup>th</sup> day of May, 1989.

FOR THE NUCLEAR REGULATORY COMMISSION

*Leland C. Rouse*

Leland C. Rouse, Chief  
Fuel Cycle Safety Branch  
Division of Industrial and  
Medical Nuclear Safety, NMSS



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

MAY 17 1989

DOCKET NO: 70-36  
LICENSEE: Combustion Engineering (CE)  
Hematite, Missouri  
SUBJECT: ENVIRONMENTAL ASSESSMENT - OPERATION OF THE NEW PELLET LINES

### Introduction

By application dated March 22, 1989, CE requested authorization to initiate startup testing of the pellet lines using depleted uranium and to use the new warehouse space. CE requested authorization to introduce enriched uranium into the pellet lines by application dated May 1, 1989. On March 29, 1989, CE submitted environmental information to support startup testing and production operations of the revitalized Hematite facility. In accordance with 10 CFR Part 51.21, the NRC has prepared this assessment of the resulting impacts. The assessment includes the evaluation of impacts from operations with enriched uranium.

### Background

Currently, the Hematite plant receives  $UF_6$  enriched up to 5 percent in U-235 and converts it to  $UO_2$  powder. Most of the  $UO_2$  powder produced at Hematite is shipped as powder to the Combustion Engineering Windsor plant where it is fabricated into pellets. The remaining powder is fabricated into pellets at the Hematite plant. After the revitalization effort is complete, all pellets will be fabricated at the Hematite plant. To increase pellet production at Hematite, CE is constructing three new buildings (a warehouse and shipping dock, storage/utilities/office building, and a pellet building). The pellet building will contain two pellet production lines. The old pellet line will be maintained for special pellet runs. Figure 1 shows the new building layout.

### The Proposed Action

The proposed action is an amendment to License No. SNM-33 to authorize CE to operate new pellet production lines. The existing line will be maintained for special pellet runs. Below is a description of the operations.

$UO_2$  granules are processed into pellets in two new parallel pellet production lines. The granules are received in 1,000 kg hoppers. The filled hoppers move on a wheeled transporter through the current pellet Building 255 and into the adjoining new pelletizing Building 254. In Building 254, the granules flow by gravity from the hopper to the mill (micronizer), and the resulting powder is pneumatically transferred by negative pressure into a blender. The blended powder is pneumatically transferred by negative pressure into a new dry powder preparation process that includes the addition of a pore-former and lubricant,

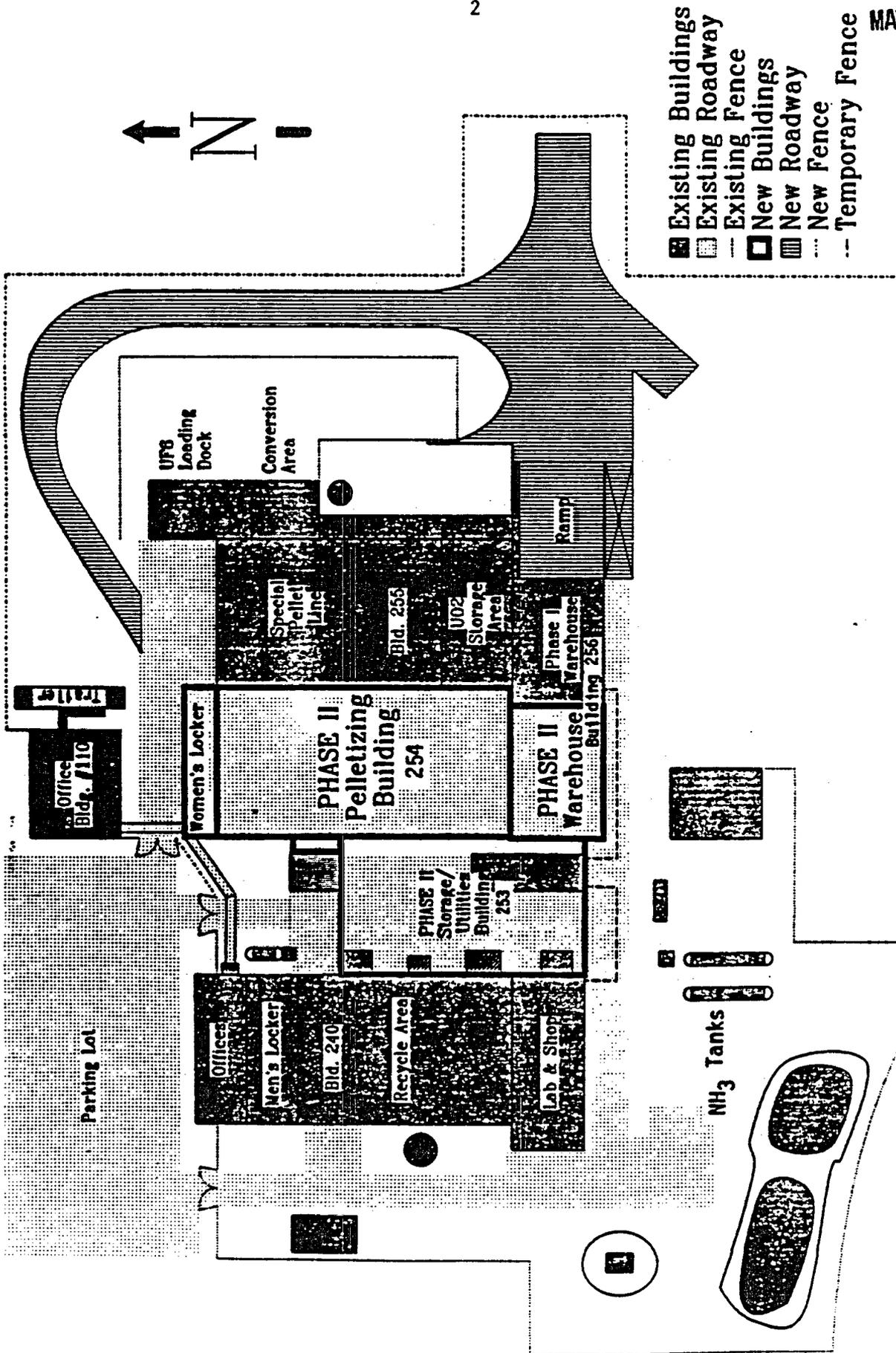


Figure 1: New Building Layout

slugging, and granulating. The granulated powder is pressed on new rotary presses. The pellets pass through two furnace steps (dewaxing to burn off additives and sintering). The sintered pellets then go through a wet grinding process, similar to that currently used. The finished pellets are then packaged for shipping and loaded directly into drums on shipping skids in the new warehouse building 256.

Building 254 also has the capability for recycle of green scrap and hard scrap. The process employed is the same as the current process used in Building 240 for recovery of clean dry scrap from the existing line. The clean scrap is oxidized in a furnace, milled, and reduced to  $UO_2$  in a second furnace.

The new warehouse serves as a storage and shipping facility for finished pellets and as a receiving warehouse for site supplies. Solidification is performed in the south end of new Building 253. The center area provides storage of  $UO_2$  powder, chemicals, and maintenance items. New process engineering offices and a change room occupy the north end of the building.

### Environmental Impacts of the Proposed Action

#### A. Construction Impacts

The land intended for the new buildings is already committed for industrial use. The new buildings replace buildings that were demolished. Thus, there will be no significant impact as a result of the construction of the new buildings.

#### B. Liquid Effluents

Addition of the new lines will not require any changes to the treatment methods for the liquid effluent streams. There will be a potential increase in the volume of liquid effluent. The volume of laundry water will increase in proportion to the number of new production personnel for the pellet lines. The laundry water is filtered, held in a storage tank, and sampled prior to release. The amount of liquid going to the sanitary water system will also increase in proportion to the number of new personnel. Trace amounts of radioactivity enter the system from sinks and showers. The control limits for the liquid effluent remain the same. The volume will increase by approximately 20 percent. The impact from liquid discharges will be minimal.

#### C. Solid Waste

The main source of solid waste is from the solidification of liquid waste end product from the recovery/recycle operating and mop water. These liquid wastes are heated and concentrated; the concentrate is solidified and put into drums for transport to a commercial licensed disposal facility. The increase in solid waste is expected to be small and to cause an insignificant impact.

**D. Gaseous Emissions**

Air effluents from the existing oxide building and the recycle/recovery building are not expected to increase. Effluent from the current pellet building will decrease as the pellet production is moved to the new building. Effluents from the Windsor plant are also expected to decrease as the pellet production activities are relocated to the Hematite facility.

Exhausts from the new pellet building are filtered through a double bank of HEPA filters. The exhaust air from the process areas is sampled continuously during operations. CE has a current limit on total plant exhaust of 150 microcuries per calendar quarter; this limit remains unchanged. CE's objective is to increase pellet production with no significant increase in the existing rates of effluent release. However, radioactive releases are expected to increase. If it is conservatively assumed that the release doubles, the critical organ dose to the nearest resident would only be 0.15 mrem/yr to the lung. An infant at the nearest residence would receive only 0.27 mrem/yr to the lung. This is well below the 25 mrem permitted by 10 CFR Part 20, Section 20.105(c), which incorporates the provisions of EPA's standards in 40 CFR Part 190.

**E. Chemical Usage**

The increased pellet production increases the ammonia used by 200,000 lbs per year. A new 8,000-gallon storage tank is located aboveground near the 10,000-gallon tank. The excess hydrogen from the ammonia used in the pellet furnaces burns off and is exhausted to the atmosphere along with the nitrogen. No significant change to existing environmental discharge occurs as a result of increased ammonia usage. CE has installed a new hydrant connected to the Hematite City water supply. In case of an ammonia release, the water supply will aid in reducing offsite ammonia dispersion.

The use of Cranko and trichloroethane will decrease in proportion to decreased pellet production in the existing line. These will no longer be used in pellet production.

CE plans to use ammonium oxalate to control porosity of the sintered pellets. Usage will be approximately 1,500 lbs per year. The ammonium oxalate burns off cleanly in the pellet furnaces.

Zinc stearate will be employed as a pellet die lubricant. Approximately 1,500 lbs per year may be used, this will also be burned off in the pellet furnaces.

**F. Environmental Monitoring**

There will be no change in the environmental monitoring program. When in operation, the six new stacks will be continuously sampled.

**G. Accidents**

There are no accident situations that are unique to the new pellet lines. Potential accidents have been assessed in previous assessments and are not repeated here.

**Need for the Proposed Action**

As part of a plan for its nuclear fuel fabrication program, CE plans to conduct all uranium pellet production at the Hematite plant. In order to accomplish this relocation, CE plans to install new pellet production lines at Hematite.

**Alternatives to the Proposed Action**

Alternatives to the proposed action include complete denial of CE's amendment application. This action would result in operations remaining unchanged. Another alternative would be approval of only one new pellet line. Since impacts from the new operation are expected to be minor, neither of these alternatives offers any real benefit.

**Agencies and Persons Consulted**

In performing this assessment, staff utilized the environmental report dated March 29, 1989, and the amendment applications dated March 22, and May 1, 1989.

**Conclusion**

Although there will be an increase in the effluents, the staff concludes that there will be no significant impacts associated with the operation of the new pellet lines.

*Merri Horn*

Merri Horn  
Uranium Fuel Section  
Fuel Cycle Safety Branch  
Division of Industrial and  
Medical Nuclear Safety, NMSS

Approved by:

*George H. Bidinger*  
George H. Bidinger, Section Leader