R3D3-30

COMBUSTION ENGINEERING

July 7, 1989
LD-89-071

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

Mr. Leland C. Rouse
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material
Safety and Safeguards
Attn: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 6
FOIA-2004-0234

Subject: License Amendment Request for Hematite Organizational Changes

Dear Mr. Rouse:

This amendment request describes changes to the organization for the Combustion Engineering Hematite, Fuel Manufacturing facility and adds the function of a Hematite Plant Safety Committee.

The organization described for Hematite shows that the key positions important to safety are filled by the same personnel who have managed these safety functions for at least the past four (4) years and in several positions for more than fifteen (15) years. A new position, Supervisor of Health Physics, has been established, and general staff increases have been made throughout the plant, including health physics, production and production supervision, engineering and quality control. Additionally, a Project Director of Manufacturing Technology position has been established to assist in the technical development and implementation of the current additions and modifications to the plant and processes.

Forwarded herewith are Enclosure I, containing a list of the affected pages, Enclosure II containing the license amendment change pages and Enclosure III, a check in the amount of $150.00 to cover this amendment request as required by 10 CFR 170.31. Ten copies of Enclosure I and II are included for your use.

Q-3

Power Systems
Combustion Engineering, Inc.
1000 Prospect Hill Road
Post Office Box 500
Windsor, Connecticut 06095-0500
(203) 688-1911
Telex: 99297

10 1989

If I can be of any assistance on this matter, please do not hesitate to call me or Mr. J. F. Conant of my staff at (203) 285-5002.

Very truly yours,

COMBUSTION ENGINEERING, INC.

A. E. Scherer
Director
Nuclear Licensing

AES:lw

Enclosures: As Stated

cc: G. D. France (NRC-Region III)
D. A. McCaughey (NRC)

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

ENCLOSURE I

COMBUSTION ENGINEERING, INC.

HEMATITE NUCLEAR FUEL MANUFACTURING FACILITY

REQUEST FOR LICENSE AMENDMENT

LIST OF AFFECTED PAGES

JULY 07, 1989

Docket No. 70-36
License No. SNM-33
July 07, 1989

HEMATITE NUCLEAR FUEL MANUFACTURING FACILITY

REQUEST FOR LICENSE AMENDMENT

Combustion Engineering requests that License No. SNM-33 for its Hematite Nuclear Fuel Manufacturing Facility be amended to update the organization chart and personnel resumes, to add descriptions for key positions important to safety and for subordinate supervisory positions and to add the functions of a Hematite Safety Committee. License pages affected by this amendment request and their respective revision numbers are listed below. The change pages are contained in Enclosure II.

LIST OF AFFECTED PAGES

Deleted Page		Added Page	
Page No.	Rev.	Page No.	Rev.
I.2-1	0	I.2-1	1
I.2-2	0	I.2-2	1
I.2-3	2	I.2-3	3
I.2-4	0	I.2-4	1
I.2-5	1	I.2-5	2
I.2-6	1	I.2-6	2
I.2-7	1	I.2-7	2
I.2-8	0	I.2-8	1
I.2-9	1	I.2-9	2
I.2-10	1	I.2-10	2
I.2-11	0	--	-
I.3-1	1	I.3-1	2

LIST OF AFFECTED PAGES (CONTINUED)

Deleted Page		Added Page	
Page No.	Rev.	Page No.	Rev.
II.3-1	0	II.3-1	1
II.3-2	0	II.3-2	1
II.3-3	0	II.3-3	1
II.3-4	0	II.3-4	1
II.3-5	0	II.3-5	1
II.3-6	0	II.3-6	1
II.3-7	0	II.3-7	1
II.3-8	0	II.3-8	1
II.3-9	0	II.3-9	1
II.3-10	0	II.3-10	1
II.3-11	0	II.3-11	1
II.3-12	0	II.3-12	1
II.3-13	1	II.3-13	2
II.3-14	1	II.3-14	2
II.3-15	0	II.3-15	1
II.3-16	0	II.3-16	1
II.3-17	0	II.3-17	1
II.3-18	0	II.3-18	1
II.3-19	0	II.3-19	1
--	-	II.3-20	0
--	-	II.3-21	0
--	-	II.3-22	0
--	-	II.3-23	0
--	-	II.3-24	0
--	-	II.3-25	0

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

ENCLOSURE II

COMBUSTION ENGINEERING, INC.

HEMATITE NUCLEAR FUEL MANUFACTURING FACILITY

REQUEST FOR LICENSE AMENDMENT

PROPOSED LICENSE AMENDMENT PAGES

JULY 07, 1989

2.0 ORGANIZATION AND ADMINISTRATION

2.1 Organizational Responsibilities and Authority

The President, Nuclear Power Businesses has the ultimate responsibility for ensuring that corporate operations related to the Nuclear Power Businesses Division are conducted safely and in compliance with applicable regulations. The President has delegated the responsibility for nuclear fuel manufacturing and product development activities to the Vice President, Nuclear Fuel.

2.1.1 Vice President and General Manager, Nuclear Fuel Manufacturing

The Vice President and General Manager, Nuclear Fuel Manufacturing reports to the Vice President, Nuclear Fuel. He has overall responsibility for the operation of Combustion Engineering's nuclear fuel manufacturing facilities located in Hematite, Missouri (SNM-33) and Windsor, Connecticut (SNM-1067). His responsibilities include operations, accountability, security, training, criticality safety, radiological and industrial safety, environmental protection, transportation, materials handling and storage, licensing, process and equipment engineering and maintenance.

2.1.2 Plant Manager, Hematite

The Plant Manager, Hematite reports to the Vice President and General Manager for Nuclear Fuel Manufacturing. He directs the total operation of the Hematite facility including the production, accountability, security, criticality safety, radiological and industrial safety, environmental protection, transportation, training, materials handling and storage, licensing, process and equipment engineering and maintenance. He fulfills these functions

2.1.2 Plant Manager, Hematite (Continued)

by delegation to a complete staff at Hematite that reports to the Plant Manager. He may also request support from the Windsor, CT staff to provide functions that may include nuclear licensing, criticality analysis, production methods and others as needed.

2.1.3 Manager, Nuclear Licensing, Safety and Accountability

The Manager, Nuclear Licensing, Safety and Accountability reports to the Plant Manager. He manages radiological protection and industrial safety, SNM accountability, criticality safety, licensing, emergency planning, and environmental protection. His activities include review and approval of procedures for control, sampling, measurement and physical inventory of SNM, auditing of plant operations and evaluation of results from personnel and environmental monitoring. He compares quantitative measurements and other observations of facility activities 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 Plant Manager or a duly authorized alternate.

2.1.4 Superintendent, Production

The Superintendent of Production reports to the Plant Manager. The Superintendent directs production operations in accordance with the content of Operation Sheets and Traveler documents. The Superintendent's activities may include review and approval of Operation Sheets and Travelers, scheduling of production Shift Supervisors and of the activities of the Maintenance Supervisor, recommending improvements to equipment, processes and procedures,

2.1.4 Superintendent, Production (Continued)

training and qualification of production operators through their Shift Supervisors and periodically directing the cleanout of the production equipment in conjunction with the physical SNM inventory.

2.1.5 Manager, Engineering

The Manager, Engineering reports to the Plant Manager. He manages the engineering of new equipment and of modifications to existing equipment. With support from his staff, his activities may include recommendation, development and qualification of manufacturing processes, specification of process control methods, design, procurement and installation of processing equipment, preparation, review and/or approval of Travelers, Operation Sheets and Data Logs, and providing assistance in developing procedures for material control and inventory and in developing methods and equipment for sampling.

2.1.6 Nuclear Criticality Specialist

The Nuclear Criticality Specialist is located at Windsor, CT. He reports functionally for criticality evaluations to the Plant Manager at Hematite. The Nuclear Criticality Specialist verifies that equipment, processes and procedures satisfy the criticality criteria in Section 4 of Part I by performing the review described in Section 2.6 of Part I. Alternatively, for criticality analyses that require elaborate computational techniques, he may supervise the analysis and review at Windsor. He also performs the semi-annual and annual audits at Hematite required by Section 2.7.

2.2 Personnel Education and Experience Requirements

Table I.2-1 lists the minimum education and experience requirements for the positions described in Section I.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 the safety requirements of Part I and the License Conditions and to consider other aspects of safety the Committee believes appropriate. The Committee submits a meeting report to the Hematite manager level personnel and to the Vice President and General Manager, Nuclear Fuel Manufacturing at Windsor. The Plant Manager appoints the committee members to represent, as a minimum, engineering, production, health physics, and criticality safety. He also approves an alternate for each member. The Committee or Plant Manager may invite participation by others from within Hematite or from the staff at Windsor.

2.4 Approval Authority for Personnel Selection

Two higher levels of management shall approve personnel for safety-related staff positions.

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

2.5 Training (Continued)

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 regularly scheduled meetings conducted by line supervision and specialists in the subjects covered. Topics include personnel protective equipment, industrial safety and accident prevention, and other safety topics. Production Supervisors receive formal training in radiation and criticality control. Testing determines when they have sufficient knowledge to enable them to carry out their training functions. Operating personnel receive a re-training course in criticality control and radiation safety on an annual basis. The effectiveness of retraining is determined by testing. Formal training shall be documented.

2.6 Operating Procedures

Operating procedures, called Operation Sheets, are prepared by the responsible function and are issued and controlled by Quality Control. They provide the detailed instructions for equipment operation and material handling and the limits and controls required by the License. Operation Sheets are the basic control document; before issuance or revision they receive approval by signature of at least two manager level persons or their designated alternates. Operation Sheets shall be reviewed every 2 years.

2.6 Operating Procedures (Continued)

Supervision is required to assure that handling, processing, storing, and shipping of nuclear materials is given prior review and approval by the NLS&A Manager or his designated alternate, that suitable control measures are prescribed, and that pertinent control procedures relative to nuclear criticality safety and radiological safety are followed.

Primary responsibility and authority to suspend unsafe operations is placed with Operating Supervision. Within their respective responsibilities, members of NLS&A also have authority to suspend operations not being performed in accordance with approved procedure.

Supervision is further required to assure that, prior to the start of a new activity involving nuclear materials, approved procedures are available. A review procedure has been established for changes in processes, equipment and/or facilities prior to implementation. NLS&A authorization must be obtained for each change involving nuclear safety, radiological safety or industrial safety. NLS&A reviews shall be documented, except for minor changes within existing safety parameters.

The NLS&A Manager or his designated alternate shall grant approval only when:

a. A nuclear criticality safety evaluation has been performed based on the criteria and standards of Chapters 3.0 and 4.0 by a person who meets the education and experience requirements for a Nuclear Criticality Specialist (who may be the NLS&A Manager). This evaluation shall be in sufficient detail to permit subsequent review.

2.6 Operating Procedures (Continued)

b. The criticality safety evaluation has been reviewed by a person who meets the education and experience requirements for a Nuclear Criticality Specialist. This review is based on the criteria and standards of Chapter 4.0 and includes verification of each of the following:

1) assumptions
2) correct application of criteria of Section 4.0.
3) completeness and accuracy of the evaluation.
4) compliance with the double contingency criteria.

c. The NLS&A Manager or his designated alternate has concluded that the operation can be conducted in accordance with applicable health physics and industrial safety criteria.

Review and verification shall include written approval by the reviewer.

The minimum frequency for review of operating procedures involving Special Nuclear Materials shall be every two (2) years.

2.7 Audits and Inspections

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

2.7 Audits and Inspections (Continued)

Daily checks for safety-related problems are made by NLS&A technicians, who observe, note and make general observations in addition to their other duties. Problems are normally corrected on the spot by the shift Production Supervisor. More significant problems are listed on the daily exception report distributed to the Plant Manager and manager level staff. The Production Superintendent is responsible for corrective action.

Quarterly inspections, performed by the NLS&A Manager or his designated representative, cover criticality control, radiation safety and industrial safety. Items requiring corrective action are documented in a report distributed to the Plant Manager and manager level staff. The Production Superintendent is responsible for corrective action, except where another manager is specifically designated. Follow-up actions taken by the Production Superintendent or responsible manager, shall be documented.

An inspection will be conducted twice per year by a Nuclear Criticality Specialist covering nuclear criticality safety and control, including results of previous inspections and the follow-up action taken. These semi-annual inspections are documented and reports distributed to the Vice President and General Manager, Nuclear Fuel Manufacturing, the Plant Manager, NLS&A Manager, and other manager level staff. The Production Superintendent and the NLS&A Manager are responsible for any corrective actions required.

Annual audits are conducted in which the results of previous inspections or audits are reviewed, as an evaluation of the effectiveness of the program. These audits may also involve a detailed review of non-safety documents such as operation

2.7 Audits and Inspections (Continued)

procedures, shop travelers, etc., and are documented by a formal report to the Vice President and General Manager, Nuclear Fuel Manufacturing. Annual audits are performed by a team appointed by the Vice President and General Manager, Nuclear Fuel Manufacturing. The team shall include, as a minimum, a Nuclear Criticality Specialist and a Radiation Specialist who shall audit Radiation and Nuclear Criticality Safety. The annual audit will review ALARA requirements in conformance with Regulatory Guide 8.10, as applicable. Qualifications of Windsor Specialists are provided in License No. SNM-1067. The NLS&A Manager shall be responsible for follow-up of recommendations made by the audit team.

2.8 Investigations and Reporting

Events specified by applicable regulations or license conditions shall be investigated and reported to NRC. The NLS&A Manager or his designated representative shall be responsible for conducting the investigation and documentation of reportable events. Non-reportable occurrences shall be investigated and documented as appropriate and these reports shall be available for NRC inspection.

2.9 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 tests, measurements, and surveys identified as requiring preservation until the NRC authorizes disposition shall be retained indefinitely. Records of NLS&A evaluations and approvals shall be retained for a period of at least six months after use of the operation has been terminated, or for three years, whichever is longer. Other safety significant records shall be retained for at least three years.

TABLE I.2-1

MINIMUM EDUCATION AND EXPERIENCE REQUIREMENTS FOR KEY PERSONNEL

Position			
Described In Section No.	Title	Education	Experience (Years/Field)
I.2.1.1	Vice President and General Manager, Nuclear Fuel Mfg.	Bachelors, Science or Engineering	10 Total, 5/Nuclear industry management
I.2.1.2	Plant Manager	Bachelors, Science or Engineering	5/Nuclear manufacturing
I.2.1.3	Manager, NLS&A	Bachelors, Science or Engineering	5 Total/Nuclear industry, with 3/criticality and H.P., also understanding of Ind. Safety
I.2.1.4	Superintendent, Production	High School Diploma	5 Total/Nuclear industry, with 3/Production coordination
I.2.1.5	Manager, Engineering	Bachelors, Engineering	5/Engineering design of process, systems or facilities
I.2.1.6	Nuclear Criticality Specialist	Bachelors, Science or Engineering	2/Nuclear criticality evaluations

3.0 RADIATION PROTECTION

3.1 Administrative Requirements

3.1.1 Radiation Work Permit Procedures

Operations not covered by an effective operating procedure shall be conducted under a Special Evaluation Traveler (S.E.T.). Prepared by the responsible function, it shall contain detailed instructions for the procedure and shall include all safety requirements to assure that the proposed operation is conducted in a safe manner. The same approvals as required for Operation Sheets shall be required on all S.E.T.s. Completion of the operation shall be appropriately documented as indicated on the traveler.

3.1.2 ALARA Commitment

It is the policy of Combustion Engineering to maintain a safe workplace and healthful work environment for each employee. It is also C-E's policy 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 conformance with the intent of Regulatory Guide 8.10.

3.2 Technical Requirements

3.2.1 Access Control

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

3.0 ORGANIZATION AND PERSONNEL

Section I.2.1 describes the key positions important to safety and the line of authority to top management. Section I.2.2 lists the education and training requirements for those positions. The following Sections II.3.1 and II.3.2 similarly describe subordinate positions and additional positions to complete the description of the organization for safe operation of the plant. Section II.3.3 gives the resumes for personnel currently holding the key positions described in Part I and the additional manager level positions.

3.1 Organizational Responsibilities

Figure II.3-1 is the organization chart for the key positions and for the line of authority to top management. Figure II.3-2 is the complete Hematite plant organization chart. The following sections describe the supervisory and higher level positions shown in Figure II.3-1 that are not included in Section I.2.1.

3.1.1 Manager, Administration and Production Control

The Manager, Administration and Production Control reports to the Plant Manager. He manages the control of SNM from receipt at the Hematite facility, through the production process until it is shipped as product or waste. His activities include scheduling of production, selection of SNM for use in the production process, specification of the product lot makeup, scheduling of SNM shipments from the supplier to Hematite and from Hematite to the customer, coordination of the packaging and shipment of SNM waste and residues to a commercial, licensed disposal facility and development of procedures for packaging, shipping and receiving. He also performs facility administration duties including the supervision of the guards, site purchasing and personnel services.

3.1.2 Manager, Quality Control

The Manager, Quality Control reports to the Plant Manager. He manages the measurement activities which verify that the product conforms to specification. These activities may include development of the Operation Sheets that are the procedures for acquisition of product data, approval of laboratory measurement methods, approval of statistical methodology for data evaluation and establishment of the system for control and distribution of data documentation. The manager maintains separation between his measurement activities and the production activities that he monitors. He has authority to halt production and it shall not restart until approved by the Plant Manager or a duly authorized alternate.

3.1.3 Project Director of Manufacturing Technology

The Project Director of Manufacturing Technology coordinates his efforts with the Plant Manager. He assists in the technical development and implementation of the current additions and modifications to the plant and processes. He coordinates Hematite manufacturing methods with related Windsor manufacturing and development. He reports to the Vice President and General Manager, Nuclear Fuel Manufacturing.

3.1.4 Coordinator of Nuclear Materials Accountability

The Coordinator of Nuclear Materials Accountability reports to the Manager of Nuclear Licensing, Safety and Accountability. He maintains the SNM accounting records, prepares NRC required reports on material balance, transfer and inventory, periodically verifies current knowledge of the presence of SNM and computes Inventory Differences.

3.1.5 Supervisor, Health Physics

The Supervisor of Health Physics reports to the Manger of Nuclear Licensing, Safety and Accountability. He supervises the health physics technicians in the radiological surveillance of activities that involve radioactive materials, in personnel radiation monitoring and in the collection and measurements of environmental samples. He may initiate, for approval by his manager, Travelers and Operation Sheets for non-routine activities involving radioactive materials and may suspend operations not being performed in accordance with approved procedures.

3.1.6 Supervisor, Material Control

The Supervisor, Material Control reports to the Manager, Administration and Production Control. He implements the production schedules provided by the Manager through supervision of the production clerk, the material control operators and the material handlers. He monitors the sequence of steps in the processing and handling of each material unit including the proper use of the Traveler that documents each process step.

3.1.7 Supervisor, Quality Control Engineering

The Supervisor, Quality Control Engineering reports to the Manager, Quality Control. He supervises the quality control technicians who obtain the measurement samples and he supports the activities of the Manager. His support may include recommendations on sampling plans, development of statistical methods, evaluation of data trends, recommendations on measurement standards, participation in writing procedures, review and approval of Travelers and Operation Sheets and administration of the document control system.

3.1.8 Supervisor, Laboratory

The Laboratory Supervisor reports to the Manager, Quality Control. He supervises and trains the laboratory technicians, recommends sampling procedures, establishes laboratory methods and reviews and approves all chemical measurements on SNM. He also selects subcontractors and qualifies and coordinates their measurement services.

3.1.9 Program Manager, Radiological and Industrial Safety

The Program Manager, Radiological and Industrial Safety reports to the Vice President and General Manager. He audits the programs and standards employed at Hematite that relate to radiological, criticality and industrial safety to verify completeness and consistency with Combustion Engineering policy.

3.2 Personnel Education and Experience

Table II.3-1 lists the education and experience requirements for the additional and subordinate personnel shown on the plant organization chart in Figure II.3-2 that were not listed in Table I.2-1.

3.3 Resumés of Personnel

The license application for the Windsor fuel fabrication facility, License No. SNM-1067, included resumés for two persons located at Windsor who hold key positions. They are:

C. R. Waterman - Vice President and General Manager, Nuclear Fuel Manufacturing

R. J. Klotz - Nuclear Criticality Specialist

3.3 Resumés of Personnel (Continued)

Resumes for the manager level personnel at Hematite follow here. They are:

1. J. A. Rode - Plant Manager

2. H. E. Eskridge - Manager, Nuclear Licensing, Safety, and Accountability

3. A. J. Noack - Superintendent, Production

4. R. W. Griscom - Manager, Engineering

5. R. C. Miller - Manager, Administration and Production Control

6. R. C. Fromm - Manager, Quality Control

7. L. N. Grossman - Project Director of Manufacturing Technology

JAMES A. RODE - PLANT MANAGER, HEMATITE

EDUCATION:

Ex 6

B.S., Chemical Engineering, University of Texas, [redacted]

EXPERIENCE:

COMBUSTION ENGINEERING, INC. 1974 to Present

Plant Manager, Nuclear Fuel Manufacturing, Hematite

Responsible for all Nuclear Fuel Manufacturing activities at the Hematite Plant. Manages Engineering, Production and Materials Control, Manufacturing, Nuclear and Industrial Safety, Nuclear Material Management, and Quality Control.

GULF UNITED NUCLEAR FUELS CORPORATION 1968 to 1974

Technical Consultant

Responsible for establishing process flow sheets and capacities for production of UO_2, UO_2 pellets, and uranium recovery; and coordinating development activities. Also responsible for preparation of stable density pellets and development of process modifications. Technical Assistant to the Manager of Chemicals Operations on major operational problems.

JAMES A. RODE (continued)

UNITED NUCLEAR CORPORATION

Manager of Facilities Development and Technical Director 1964 to 1968

Responsible for design, construction and startup of the first large scale fluidized-bed process for the production of UO_2 from UF_6 and of companion facilities for converting oxide to pellets.

Responsible as Technical Director for Chemicals Operations for process engineering supervision and development activities including design, construction, and operations of a pilot plant for preparation of UO_2 via the reaction of UF_6 and steam and for development, design, construction and startup of a fluid-bed vapor phase coating system.

Assistant Technical Director 1962 to 1964

Responsible for process and equipment design in the Rhode Island Scrap Recovery Facility, development work on process for producing pyrolytic carbon coated UO_2, and for continuing development work in Naval Fuel Program.

Project Leader 1961 to 1962

Assumed total responsibility for salvaging a non-operative Naval Fuels Plant including production, quality control, development and customer contacts. The facility was converted into the primary source of profits for the Chemical Operations.

JAMES A. RODE (continued)

MALLINCKRODT CHEMICAL WORKS

Group Leader and Production Superintendent 1958 to 1961

Responsible for the startup of high enrichment metal production and development and startup of the Hematite Pellet Plant.

Responsible as Production Superintendent for detailed supervision of production in both high and low enrichment conversion operations.

Process Engineer and Research Chemist 1953 to 1958

Participated in preparation of proposals for production of yttrium metal and conversion of 5000 tons per year of UF_6. Responsible for operation of the first ADU pilot plant and startup of the Hematite Oxide Plant.

HAROLD E. ESKRIDGE - MANAGER, NUCLEAR LICENSING, SAFETY AND ACCOUNTABILITY

Ex 6

EDUCATION:

B.S., Physics, North Carolina State University, [redacted]
M.S., Physics, North Carolina State University, 1963

EXPERIENCE:

COMBUSTION ENGINEERING, INC.

Manager, Nuclear Licensing, Safety and Accountability - Hematite	1989 to Present
Supervisor, Nuclear Licensing, Safety and Accountability - Hematite	1974 to 1989

Responsible for licensing, safety, and safeguards at Nuclear Fuel Manufacturing - Hematite. Develops and implements the health physics, criticality and industrial safety, and accountability programs for the Hematite facility. Audits manufacturing operations and supervises safety and safeguards personnel in day-to-day operations.

GENERAL ELECTRIC COMPANY 1972 to 1974
Nuclear Safety Engineer

Analyzed changes and specified requirements for Wilmington nuclear fuel manufacturing to assure compliance. Audited manufacturing operations and radiation protection programs. Planned and conducted development programs in dosimetry, radiation monitoring and environmental sampling.

HAROLD E. ESKRIDGE (continued)

SALISBURY METAL PRODUCTS COMPANY 1971 TO 1972

Co-Manager

Managed operations for manufacturer of precision components; including sales, finance, production control and quality assurance. Consultant to Institute for Resources Management on decontamination and radioactive waste disposal projects and a member of Rowan Technical Institute Advisory Committee.

EVIRONONICS, INC. 1970 to 1971

Vice President - Nuclear Applications

Performed variety of functions, including market research, proposal preparation and technical analyses relating to remote sensing, environmental surveys, and health physics services. Contacted potential customers, including government agencies and utility companies with power reactors.

EG&G, INC. 1967 to 1970

Senior Scientist and Scientific Executive

Head, Radiological Sciences Section and Senior Health Physicist, responsible for radiation and nuclear safety and regulatory compliance for Las Vegas Operations. Provided technical direction for Nuclear Counting Laboratory, Nevada Aerial Tracking System, and Aerial Radiation Measuring Surveys Programs. Acting Manager, Environmental Measurements Department, which included High Energy Neutron Reactions Experiment and Metrology Sections.

HAROLD E. ESKRIDGE (continued)

NORTH CAROLINA STATE BOARD OF HEALTH 1962 to 1967

Public Health Physicist

Technical, policy, and procedural consultation in all aspects of health physics, environmental surveillance and radiological health. Functioned as administrator of Radioactive Materials Licensing and Regulation. Served as Team Chief of State Radiological Emergency Team and established and equipped a laboratory for radiological and chemical analysis of environmental samples.

U.S. AIR FORCE 1954 to 1957

Nuclear Specialist

Responsible for criticality and radiological safety for nuclear weapon systems and components. Also was an instructor in nuclear safety and weapons systems.

ARLON J. NOACK - PRODUCTION SUPERINTENDENT, HEMATITE

Ex. 6

EDUCATION:

Hillsboro High School, Graduate

EXPERIENCE:

COMBUSTION ENGINEERING, INC.

Production Superintendent - Hematite 1981 to Present

Responsible for production and maintenance operations, operator and maintenance training, manpower scheduling, interviewing and hiring operating personnel, handling Union grievances, and training new production and maintenance supervisors.

Maintenance Supervisor - Hematite 1980 to 1981

Responsible for the maintenance of production equipment, building and grounds maintenance, ordering repair parts, and porter service.

Production Supervisor - Hematite 1974 to 1980

Shift Supervisor in charge of production operations, dealing with Union problems, operator training, and scheduling production to assure fulfillment of customer schedule requirements.

ARLON J. NOACK (continued)

GULF UNITED NUCLEAR FUELS CORPORATION
Production Supervisor - Hematite 1970 to 1974

Production Supervisor in charge of production operations, dealing with Union problems, operator training, and scheduling production to fulfill customer schedule requirements.

Engineering Technician - Hematite 1969 to 1970

Responsible for production engineering functions as assigned by the Process Engineer, some drafting responsibilities, and Engineering technical assistance.

UNITED NUCLEAR CORPORATION 1966 to 1969
Process Development Technician - Hematite

Participated in development of Uranium Oxide Conversion Plant, such as operating and repairing development equipment, and assisting in the development of new operating techniques.

LUDLOW SAYLOR WIRE CLOTH COMPANY 1963 to 1966
Production Operator - St. Louis

Operated wire screen loom, wire stretcher, and punch press.

HOWASRD INDUSTRIES COMPANY 1962 to 1963
Junior Draftsman - Festus

Responsible for drawing changes, drawing minor equipment, and document control of production drawings.

ROBERT W. GRISCOM - MANAGER, ENGINEERING, HEMATITE

EDUCATION:

B.S., Chemical Engineering, Georgia Institute of Technology, [redacted] Co-op
M.S.C.E.-Sanitary, University of Missouri-Rolla, 1974.

Ex 6

EXPERIENCE:

COMBUSTION ENGINEERING, INC.	1981 to Present
Manager, Engineering - Hematite	1989 to Present
Engineering Supervisor - Hematite	1981 to 1989

Responsible for managing Engineering Department. Activities including process engineering, plant expansion design and management, drafting, instrument maintenance, and staff assistance to other plant departments.

NATIONAL STEEL ENGINEERS & ASSOCIATES	1977 to 1981
Project Manager - St. Louis	

Project Manager in corporate environmental consulting group. Directly responsible for engineering, fabrication, and installation of multi-million dollar air pollution control and wastewater treatment systems for major steel companies.

ROBERT W. GRISCOM (continued)

ROCKWELL INTERNATIONAL 1974 to 1977

Senior Test Engineer - St. Louis

Responsible for establishing and gathering an hourly emission inventory for EPS sponsored St. Louis Regional Air Pollution Study (RAPS). Also supervised and performed stack sampling in St. Louis and New Mexico.

MONSANTO COMPANY 1969 to 1974

Process Engineer - St. Louis

Responsible for process and cost improvements in various chemical production departments. Designed and installed a wastewater treatment system for removing phenolics.

ROBERT C. MILLER - MANAGER, ADMINISTRATION AND PRODUCTION CONTROL

Ex 6

EDUCATION:

B.S., Business Administration - Industrial Management, Washington University,

EXPERIENCE:

COMBUSTION ENGINEERING, INC. 1974 to Present

Manager, Administration and Production Control - Hematite

Responsible for all production control, security, shipping and receiving, and material handling functions. Responsibility for administration functions was added in 1985.

GULF UNITED NUCLEAR FUELS CORPORATION 1969 to 1974

Production Control Supervisor - Chemical Operations

Responsible for production control functions for the Hematite facility including manpower planning, raw material procurement schedule, cost estimates, and customer contact.

UNITED NUCLEAR CORPORATION

Production Control Foreman - Chemical Operations 1964 to 1969

Responsible for the development and implementation of a production control system and coordination of production operations. Assumed responsibility of the shipping, receiving, and storeroom operations.

ROBERT C. MILLER (continued)

Process Development Technician 1961 to 1964

Participated in development of naval fuels production process, Supervisor during naval fuel production plant startup and stabilization of operation.

MALLINCKRODT CHEMICAL WORKS 1959 to 1961
Research and Development Technician

Physical and chemical control testing and participation and support on uranium process development projects.

RONALD C. FROMM - MANAGER, QUALITY CONTROL, HEMATITE

EDUCATION:

B.S. Industrial Management and Business Administration, Washington University, Ex 6

EXPERIENCE:

COMBUSTION ENGINEERING, INC. 1985 to Present

Manager, Quality Control - Hematite

Responsible for the operation of the Quality Control Program, including auditing, quality control and inspection within the Hematite Plant and for internal quality control planning and quality engineering activities. The latter includes preparation of quality instructions, gauging, specifications, records, review of non-conforming material Corrective Action program.

AMERICAN HOSPITAL SUPPLY CORPORATION

Quality Assurance Manager - St. Louis 1981 to 1985

Developed quality systems to support production. This included manufacturing, distributing, functional tests, inspection methods and assuring conformances to tolerances. Resolved quality problems during initial production of new products.

Quality Assurance Supervisor - St. Louis 1979 to 1981

Total responsibility for development of a Q.A. program to meet all requirements of a new FDA regulations for medical devices in a plant that manufactured a wide variety of stainless steel surgical instruments.

RONALD C. FROMM (continued)

COMBUSTION ENGINEERING, INC. 1974 to 1978

Quality Control Engineering Supervisor - Hematite

Developed and supervised implementation of a quality control system for a nuclear fuel plant, including statistical process control sampling plans, inspection procedures, and quality release criteria for materials from receipt through finished product. Monitored the process control data to determine corrective action. Developed a calibration system for measurements used for accountability and performed the statistical calculations to determine the measurement error.

FLORIDA POWER AND LIGHT COMPANY May, 1974 to September 1974

Quality Assurance Engineer - Miami, Florida

Evaluated and audited the quality system of the suppliers of the major components for FPL's nuclear power plant.

GULF UNITED NUCLEAR FUELS CORPORATION

Quality Control Engineering Supervisor - Hematite 1971 to 1974

Responsible for quality engineering functions including supervision of Quality Control Technicians. Prepared quality control systems for nuclear fuels.

Quality Engineer Naval Fuels - Hematite 1958 to 1971

Responsible for administration of quality programs for naval nuclear fuels contracts.

UNITED STATES ARMY 1966 to 1968

RONALD C. FROMM (continued)

UNITED NUCLEAR CORPORATION 1961 to 1966

Quality Control Technician - Hematite

Monitored quality programs for naval and commercial fuel processes, including statistical calculations for sampling plans, inspection, auditing, testing, analysis of quality data, and quality procedures.

L. N. GROSSMAN - PROJECT DIRECTOR OF MANUFACTURING TECHNOLOGY

Ex 6

EDUCATION:

M.S. Ceramic Engineering, University of California at Berkeley (1960)
B.S. Physics, University of California at Berkeley

EXPERIENCE:

COMBUSTION ENGINEERING, INC., Windsor, Connecticut 1988 to Present
Project Director of Manufacturing Technology

Responsible to the Vice President, Nuclear Fuel Manufacturing for overseeing all plant upgrades for the Nuclear Fuel Manufacturing and Product Development facilities.

GENERAL ELECTRIC COMPANY, G-E LIGHTING, Cleveland, Ohio 1982 to 1988
Manager, Advanced Product Development

Responsible for management of a development center engaged in new product and automated process development.

GENERAL ELECTRIC COMPANY, G-E NUCLEAR FUELS MANUFACTURING, Wilmington, North Carolina 1981 to 1982
Manager, Advanced Product Development

Responsibility for management of the automation of the manufacturing and quality assurance processes for nuclear fuel manufacturing.

L. N. GROSSMAN (continued)

GENERAL ELECTRIC COMPANY, G-E NUCLEAR FUELS MANUFACTURING, Wilmington, North Carolina — 1981 to 1982

Manager, Advanced Product Development

Responsible for management of the sixteen engineers and scientists involved in the automation of the manufacturing and quality processes for nuclear fuel manufacturing.

GENERAL ELECTRIC COMPANY, G-E NUCLEAR FUELS MANUFACTURING, Vallecitos Nuclear Center, Pleasanton, California — 1974 to 1981

Manager, Ceramic Development and Getter Manufacturing

Responsible for development of engineering ceramic materials for commercial and space-based nuclear reactors.

Prior Positions: (General Electric, Pleasanton, California)

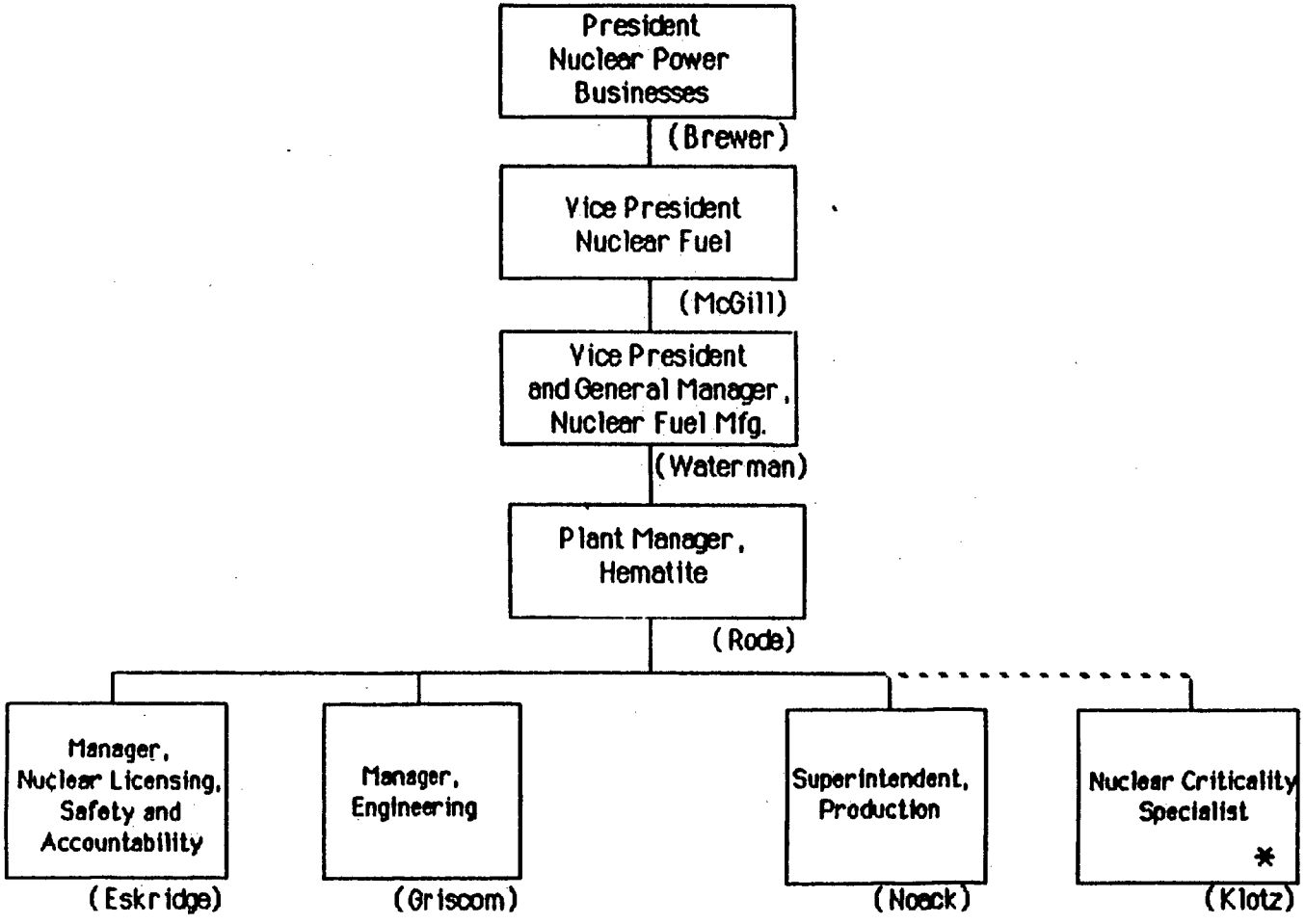
Technical Leader	1969 to 1970
Senior Research Chemist	1965 to 1969
Metallurgist/Ceramist	1960 to 1965

TABLE II.3-1

MINIMUM EDUCATION AND EXPERIENCE REQUIREMENTS FOR PERSONNEL IMPORTANT TO SAFE OPERATION

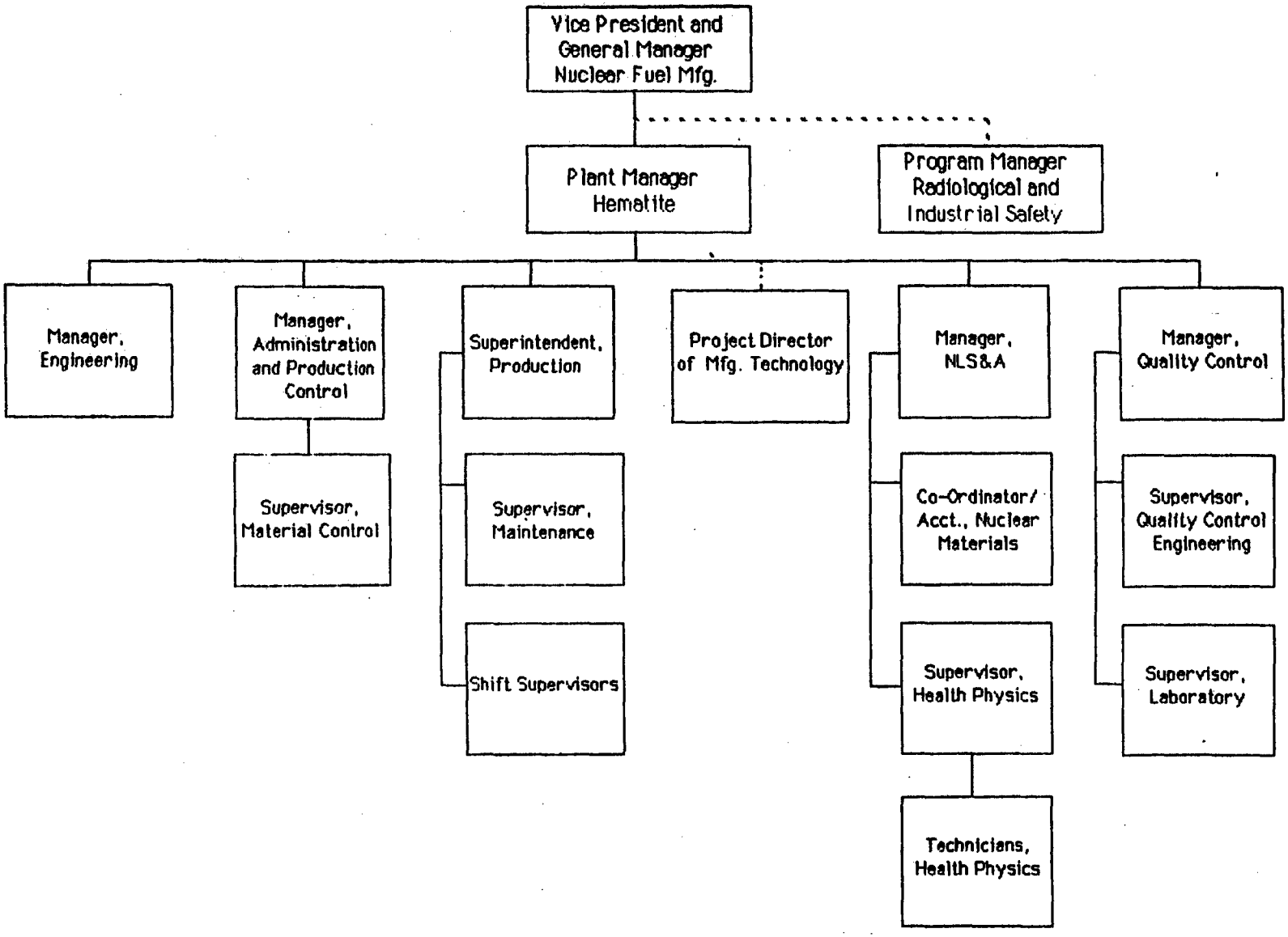
Position			
Described In Section No.	Title	Education	Experience (Years/Field)
II.3.1.1	Manager, Administration and Production Control	Bachelors, Science, Engineering or Business Management	5/Manufacturing production control or related
II.3.1.2	Manager, Quality Control	Bachelors, Math, Science or Engineering, with Statistics	5/Industrial quality control including statistical evaluations
II.3.1.3	Project Director of Manufacturing Technology	Bachelors, Science or Engineering	5/Nuclear manufacturing technology
II.3.1.4	Coordinator of Nuclear Materials Accountability	College level Math, Accounting and Science or Experience	College degree or 3/Related experience
II.3.1.5	Supervisor, Health Physics	High School Diploma	5/Nuclear measurement related, with 3/Supervisory
II.3.1.6	Supervisor, Material Control	High School Diploma	5/Manufacturing industry, with 3/Material control related
II.3.1.7	Supervisor, Quality Control Engineering	Bachelors, Math, Science or Engineering, with Statistics	3/Industrial quality control
II.3.1.8	Supervisor, Laboratory	Bachelors, Science or Engineering with chemistry or related college level courses	Degree plus 2/Analytical laboratory or 5/Analytical laboratory

FIGURE II.3-1
HEMATITE ORGANIZATION CHART
KEY POSITIONS IMPORTANT TO SAFETY AND LINE OF AUTHORITY



* Windsor Based Support Position

FIGURE II.3-2
HEMATITE PLANT ORGANIZATION CHART



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

ENCLOSURE III

COMBUSTION ENGINEERING, INC.

HEMATITE NUCLEAR FUEL MANUFACTURING FACILITY

REQUEST FOR LICENSE AMENDMENT

CHECK FOR APPLICATION FEE

JULY 07, 1989