

MAY 22 1987.

Docket No. 70-36

Combustion Engineering, Inc.
ATTN: Mr. H. V. Lichtenberger
Vice President
Manufacturing
Nuclear Power Systems
Windsor, CT 06095

Gentlemen:

This refers to the routine safety inspection conducted by Mr. G. M. France, III, of this office on April 20-24, 1987, and to the discussions held with members of your staff by telephone on May 7, 8 and 13, 1987, of activities at your Hematite facility authorized by NRC Special Nuclear Material License No. SNM-33, and to the discussion of our findings with Mr. J. A. Rode and others at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel. Also reviewed were the corrective actions described in your letter to us dated February 6, 1987, concerning weaknesses which were identified during the special team inspection we conducted on November 17-21, 1986. We will continue to monitor your progress in correcting these weaknesses during future inspections.

No violations of NRC requirements were identified during the course of this inspection.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

~~Original~~ Signed by W.D. Shafer

W. D. Shafer, Chief
Emergency Preparedness and
Radiological Protection Branch

Enclosure: Inspection Report
No. 70-36/87001(DRSS)

cc w/enclosure:
J. A. Rode, Plant Manager
DCS/RSB (RIDS)

RII
France/jaw

RII
Shafer

RII
Greger

M-15

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 70-36/87001(DRSS)

Docket No. 70-36

License No. SNM-33

Licensee: Combustion Engineering, Inc.
Nuclear Power Systems
Windsor, CT 06095

Facility Name: Hematite

Inspection At: Hematite, Missouri

Inspection Conducted: April 20-24, 1987 and May 7-8 and 13, 1987

Inspector: *MOrgan for*
G. M. France, III

5-22-87
Date

Approved By: *MOrgan*
L. R. Greger, Chief
Facilities Radiation
Protection Section

5-22-87
Date

Inspection Summary

Inspection on April 20-24, 1987 and May 7-8 and 13, 1987 (Report No. 70-36/87001(DRSS))

Areas Inspected: Routine, unannounced safety inspection, including organization, training, operations review, maintenance, surveillance, criticality safety, radiation protection program (audits, procedures, and surveys) and transportation activities. The inspection also involved a determination of the licensee's progress on corrective action measures to previous inspection findings.

Results: No violations or deviations were identified in the areas inspected.

DETAILS

1. Persons Contacted

- A. Abernathy, Operator (Control Room)
- H. Biehle, Operator (Red Room)
- *L. Deul, Manufacturing Engineer
- *H. Eskridge, Nuclear Licensing, Safety, and Accountability Supervisor
- *R. Fromm, Quality Control Manager
- *R. Griscom, Engineering Supervisor
- C. James, Operator (Red Room)
- *R. Miller, Manager, Administration and Production Control
- *R. Moore, Maintenance Supervisor
- A. Noack, Plant Superintendent
- *J. Rode, Plant Manager
- R. Sanders, Health Physics Technician (Training)
- R. Stokes, Health Physics Technician
- G. Uding, Quality Assurance Engineer

2. General

This inspection of onsite licensee activities, which began at 1:00 p.m. on April 20, 1987, was conducted to examine activities involving fuel fabrication at the Hematite site under Material License No. SNM-33. The inspector also reviewed the licensee's progress in correcting previous inspection findings, the radiation protection program, and transportation and environmental activities. An exit meeting was conducted on April 24, 1987, and further discussions were held on May 7-8, and 13, 1987, by telephone.

3. Licensee Action on Previous Inspection Findings

During this onsite inspection, the inspector reviewed the progress the licensee has made in correcting weaknesses and open items identified during a previous inspection. (Inspection Report No. 70-36/86004(DRSS))

- a. (Open) 70-36/86004-02: Lack of an alarm on the cold trap pressure sensor. A panel alarm ordered for this system is scheduled to arrive during the week of May 3, 1987.
- b. (Open) 70-36/86004-03: Heating of cold trap without pressure sensor online. A pressure sensor has been installed and tests for operability will be conducted in the near future.
- c. (Open) 70-36/86004-04: No periodic verification of operability of the cold trap load cell. Weights for dedicated use in checking the load cell span are scheduled for operability tests in the near future.

- d. (Open) 70-36/86004-05: No alarm on the cold trap load cell. A panel alarm for high level weight on the cold trap load cell has been installed. The operability of the panel alarm and verification of the load cell span of the cold trap will be determined during a future inspection.
- e. (Closed) 70-36/86004-06: Need to evaluate operating limitation on cold trap loading. The service pressure rating of the cold trap (an 8A Cylinder) is 200 psig. This limits the UF_6 temperature to 320°F which could only be achieved by heating with steam at a pressure greater than 75 psig. The liquid capacity of the 8A cylinders at 320°F is 108 kg of UF_6 which is well in excess of the 60 kg operational limit for the cold trap. The cold trap temperature is controlled with steam heated ethylene glycol. During the previous inspection it was noted that failure of the temperature controller to maintain a maximum ethylene glycol temperature of 208°F or a temperature setting error could allow 40 psig steam to the ethylene glycol. Also, failure of an upstream reducer could allow 90 psig steam (saturation temperature 320°F) to the ethylene glycol. In order to prevent introduction of the higher pressure steam downstream of the reducer, a 70 psig rupture disk was installed on the heat exchanger steam supply used for the cold trap. A rupture disk should assure that failure of the steam pressure regulator cannot produce a pressure inside the cold trap in excess of the service pressure rating of the cylinder.
- f. (Closed) 70-36/86004-07: No prohibition on movement of heavy objects over heated UF_6 cylinders in the vaporizers. The procedures have been modified to prohibit the movement of UF_6 cylinders (via crane hoist) and vaporizer lids over heated UF_6 cylinders. In addition, the inspector verified that a sign prohibiting movement of cylinders over heated cylinders was posted in the vicinity of the vaporizer.
- g. (Closed) 70-36/86004-08: No inspection program for incoming UF_6 cylinder damage. Provisions for documenting damage on incoming UF_6 cylinders have been included on the UF_6 receiving traveler.
- h. (Open) 70-36/86004-09: No airborne detectors to warn of UF_6 releases in the vaporizer area. An ionization type smoke detector for use in sensing airborne UF_6 (UO_2F_2) was installed in the vaporizer area. The licensee is currently testing this arrangement for spurious alarms. This matter will be reviewed during a future inspection.
- i. (Open) 70-36/86004-10: The use of automatic functions to minimize spread of HF and UO_2F_2 within the plant buildings. The licensee is investigating this matter.
- j. (Open) 70-36/86004-11: Need for improved training qualification program formal documentation. Effective September 1, 1987, the licensee plans to initiate a program to annually recertify operators as qualified based on their actual work during the prior year.

Initial qualification for oxide conversion and recovery operations will be based on written examinations followed by two months of on-the-job experience. In addition, employees will be tested by written examination in selected areas of radiation and nuclear criticality safety. Central files for employee qualification will be maintained by the QA/QC department. Typical skills which will require qualification, include:

Pellet Production

Agglomeration
Pressing
Furnaces
Grinding
Packaging

Recycle

Pyro Furnaces
Loading and Unloading Boxes
Concentration and Cementing
of Liquids

The licensee's training qualification program will be reviewed during a future inspection.

- k. (Open) 70-36/86004-12: Need to review procedure review and approval program. The inspector observed that procedures and/or revisions to procedures were issued by the Quality Assurance Engineer, acting as the document control custodian. Procedure reviews are submitted for staff review and approval by the document control custodian via document transmittal notice. All procedures examined (oxide production processing, nuclear criticality safety, and health physic controls) were reviewed for nuclear criticality safety, radiological health and safety, industrial safety, licensing concerns, engineering, and operability. The procedure review and approval process is scheduled for completion during August 1987. The licensee's progress in procedure review and approval will be monitored during a future inspection.
- l. (Open) 70-36/86004-13: Need to evaluate method for ensuring operators are aware of procedure revisions. The inspector observed that a document transmittal notice (Operating Sheet Acknowledgement Form) containing the names of production operators accompanied a revised procedure submitted by the document custodian for review and approval. Changes to the procedure were highlighted with an appropriate symbol (typed asterisk, etc). The production superintendent documented the operators on the O.S. Acknowledgement Form who needed to read the revisions and distributed the document/approved procedure to the appropriate production supervisor. During a tour of the scrap recovery operation the inspector observed an operator reviewing changes to a operating procedure that covered the equipment he was using in the production of ammonia diuranate. This method of alerting operators to procedure changes appeared to be functioning adequately. This matter will be reviewed during a future inspection.

- m. (Open) 70-36/86004-14: Need to ensure that safety parameters are correct on data sheets. During the course of this inspection the licensee was reviewing process parameter sheets to eliminate the likelihood of errors that could result in unsafe operation of equipment. Results of the licensee's actions will be reviewed during a future inspection.
- n. (Open) 70-36/86004-15: Need to expand QA/QC program to include those process components that may impact on onsite or offsite health and safety. During an interview with the Quality Control Manager it was noted that the licensee plans to organize an internal audit team comprised of staff members from engineering, production, maintenance, safety, and quality assurance. The team will review safety procedures, identify potential safety problems, conduct internal procedure reviews, review audits performed by others and document findings for appropriate management action. Progress on QA audits will be monitored during a future inspection.
- o. (Closed) 70-36/86004-17: Need to remove wooden pallets from proximity of ammonia tank and lines in order to minimize fire hazards. The wooden pallets have been relocated.
- p. (Open) 70-36/86004-18: Need to determine hydrostatic testing requirements applicable to the ammonia storage tank. An offsite vendor indicated that hydrostatic testing is only required for reinstallation of underground ammonia storage tanks. The licensee plans to test the distribution valves as scheduling permits. The licensee noted that Region 7 OSHA office has not responded to this matter, which was documented in Inspection Report No. 70-36/86004 and forwarded to the Region 7 OSHA office. This item will remain open for review during a future inspection.
- q. (Closed) 70-36/86004-25: Need to periodically test all fire alarms. The licensee presently tests fire alarms on a weekly rotating schedule. Tests are documented as a check list routine along with nuclear criticality alarms. No problems were noted.
- r. (Closed) 70-36/86004-28: Need to establish a formal cutting and welding procedure. Effective March 23, 1987, the licensee approved a cutting/welding permit for outlining general rules of welding for CE employees and outside contractors. The supervisor in the welding shop is required to reconnoiter the welding environment and ensure via checklist certification that he has checked the area for unshielded combustibles, toxic materials, dust or vapor concentration which might be explosive; appropriate respiratory equipment is available; a fire watch is established with fire extinguishers; the production supervisor has been notified of the work to be initiated; and the work permit is placed in the work area in plain view. No problems were reported. This system appears to be working according to procedure.

- s. (Open) 70-36/86004-30: Need to review maintenance procedures to ensure they are current. Seven items critical to safety were selected for formal maintenance procedures. A failure by any of the items could result in a potential hazard to the environs outside the plant boundary. The following items were selected for review:

- Ammonia Cracker
- Oxide Emergency Generator
- Main Emergency Generator
- Electrical Transformers (4)
- Fork Trucks (2)
- Stackers
- Man Lifts

The maintenance procedures will be reviewed during a future inspection.

- t. (Closed) 70-36/86004-32: Need to evaluate hoods for inadequate ventilation flow. The licensee noted that the hoods were not in use during the last inspection. This may have accounted for the inadequate air flow posting. By procedure inadequate air flow is normally posted to prohibit use until adequate ventilation is restored or a health physics evaluation is performed. Pre-filter material is changed as needed and air flow to the hoods is checked weekly. The inspector concluded that measurements on air flow to ventilation hoods is frequently evaluated by health physics technicians for operability.
- u. (Closed) 70-36/86004-40: Need to improve supply of operable radiological monitoring equipment. The licensee recognized the potential shortage for radiological surveillance equipment and submitted a purchase request for an additional alpha survey instrument. During the course of this inspection it was determined that two alpha survey instruments and a personnel contamination monitor have been repaired and made available for backup. The licensee has increased his radiological surveillance potential by returning the backup instruments to service.
- v. (Open) 70-36/86004-16: Need to index or clarify documentation of corporate audits and plant staff audits. The licensee had not addressed this item at the time of this inspection.
- w. (Closed) 70-36/86004-19: Need to replace the shut-off valve on the 300-gallon gasoline storage tank. The inspector verified by observation that the licensee has replaced the valve.
- x. (Closed) 70-36/86004-20: Need to properly ground and provide cover for the lube oil drums. The maintenance department completed installation of a ground line during the course of this inspection. There are no immediate plans to cover the drums.

- y. (Closed) 70-36/86004-21: Combustibles such as paper and wood should be removed from the paint locker. An inspection of the paint storage locker disclosed that housekeeping had improved and all extraneous material had been removed.
- z. (Closed) 70-36/86004-22: Procedures for reacting to electrical transformer fires or leaks should be consider the presence of PCBs. Transformer consultants were brought in to dispose of used oil containing PCBs. A quarterly inspection program that includes a form to document findings to guard against transformer leaks has been implemented.
- aa. (Closed) 70-36/86004-23: Need to perform base line air sampling of all hazardous chemicals used routinely in quantity at the facility should be considered. Ammonia and the disassociation of HF and UO_2F_2 from UF_6 are the hazardous chemicals used in greatest quantities. Ammonia and fluoride odors can be detected at concentrations well below the threshold levels recommended by OSHA. Cleaning solvents which are used in much smaller volumes than ammonia and fluoride compounds can be handled under properly ventilated conditions. Nonetheless, the licensee has a test kit available for estimating selected chemical concentrations when needed.
- bb. (Closed) 70-36/86004-24: Need to schedule fire extinguishers for hydrostatic testing. The licensee determined the number of fire extinguishers that need a five-year certification requirement. Two vendor prices were obtained to hydro test 40 extinguishers and recharge 42 extinguishers. This program was already in the implementation stage at the time of this inspection.
- cc. (Closed) 70-36/86004-26: Need to evaluate a policy on door positions (open or close) as they relate to the spread of fire. ANI's recommendation in view of the financial worth of stored SNM material, was to leave doors open. Open doors enable plant workers to better detect fires and potentials for fire. The licensee plans to follow the ANI recommendation.
- dd. (Open) 70-36/86004-27: NFPA Standard 491 indicates that uranium dioxide spontaneously ignites in finely divided form. The licensee doubts the authenticity of this reference compared to known physical and chemical properties of uranium oxides that address ignition from metal oxide shavings. In addition, the parameters for producing uranium oxides are similar to those used in other fuel fabrication facilities. The inspector decided to leave this item open until additional discussions can be held with fire protection personnel.
- ee. (Closed) 70-36/86004-29: Review the licensee's progress in making crane repairs. The inspector determined that the licensee had investigated and/or corrected all the consultant's findings relative to the 5-ton crane.

- ff. (Closed) 70-36/86004-31: Need to modify monthly crane inspection report form. The licensee has included the sixth crane in the inspection report form and oil changes for cranes are now considered checklist items.
- gg. (Closed) 70-36/86004-33: Need to evaluate the effects of an overheated incinerator on the nearby incinerator. The licensee indicated that the two units were not close enough (in proximity) for the overheated condition in one unit to have an effect on the operation of the other. The two incinerators share a common array of scrubber systems, but only one incinerator is operable at a time. This also requires the disengagement of part of the scrubber system dedicated to each incinerator. Hence, the nearby incinerator along with its dedicated scrubber system remained intact and operable. The corresponding scrubber blower and exhaust stack were also undamaged. After repairs were completed a series of 10 kilogram charges of combustible material was cycled through the incinerator facility. No problems were reported.
- hh. (Closed) 70-36/86004-34: Need to review licensee's corrective action concerning the overheated incinerator and subsequent report required under 10 CFR 20.405, and 10 CFR 20.403. On January 8, 1987, the licensee submitted a report to Region III concerning the incinerator overheating event, as specified in 10 CFR 20.405(a)(1)(iv). The licensee's reevaluation of the incident disclosed that the \$2,000 reporting limit required by 10 CFR 20.403 was slightly exceeded. The event description and discussions concerning radiation exposures and corrective action are discussed in Section 11.
- ii. (Open) 70-36/86004-35: Environmental water samples and a stack effluent sample were split between the NRC and the licensee for comparative analysis. The licensee's samples have been analyzed. This item remains open pending NRC sample results.
- jj. (Closed) 70-36/86004-36: Fill the position of Nuclear Industrial Safety Coordinator (NISC). The licensee has hired an HP Tech who perviously worked at the facility as a production operator for two years. He worked in health and safety during his last six months which occurred nearly two years ago. Presently, the HP Tech is undergoing on-the-job training. Other duties usually performed by the recently departed NISC are being shared by each of the HP Technicians assigned to monitor day shift activities. The licensee noted that a health physics qualified individual is assigned to pellet quality control work and could also be available to assist the health physics group. The inspector determined that the licensee has made adequate personnel assignments to overcome its manpower shortage in radiological protection.
- kk. (Open) 70-36/86004-37: Need to update the quality assurance program for environmental monitoring. The licensee has a tentative update completion scheduled for August 1987. This matter will be reviewed further during a future inspection.

- ll. (Open) 70-36/86004-38: Need to expand the corporate audit of Hematite operation. This matter will be reviewed further during a future inspection.
- mm. (Open) 70-36/86004-39: Need to install fixed orifices on the fixed air sample system. This item was not reviewed during the course of this inspection. This matter will be reviewed further during a future inspection.
- nn. (Closed) 70-36/86001- : Need to modify nuclear safety signs to eliminate the ambiguity between nominal and actual enrichment when comparing safe batch mass limits. The signs have been modified. The operating procedure was also changed. (See discussion in Section 7).

4. Prevention of Hydrocarbon Oils in UF₆ Cylinders

The presence of hydrocarbons in UF₆ cylinders and UF₆ process systems is of serious concern since the reaction of UF₆ with hydrocarbons, even in small quantities, may be quite vigorous and can result in explosion. The Department of Energy (DOE) is also concerned about the presence of hydrocarbons in licensee's cylinders because the cylinders may be emptied or filled at the DOE enrichment plants.

Because of these concerns US NRC/Division of Fuel Cycle and Material Safety (NMSS) requested Combustion Engineering, Inc. to provide an assessment of their controls which prevent or detect the introduction of hydrocarbons into the cylinders and the UF₆ systems during processing and transport. The licensee's assessment was required to cover procurement, recertification, and maintenance of cylinders; the UF₆ process systems for filling or emptying cylinders, including cold traps if used; and seals on cylinders during transport and storage.

NMSS also requested that the assessment should be presented in the form of a licensee amendment application, unless the above identified controls existed in the license.

The NLS&A supervisor noted that CE's assessment of controls to prevent or detect the introduction of hydrocarbons into UF₆ cylinders and UF₆ process systems were already in place and fully operable. Nearly a decade ago under DOE review, the licensee installed a cold trap system designed to prevent the introduction of hydrocarbons into the cold trap or UF₆ supply cylinders. According to this assessment and/or other controls (recertification of cylinder, cylinder seals, oil free vacuum system, chemical trap, nitrogen purge system) which were already in place and fully operable, the licensee responded to NMSS concerns, but did not apply for a licensee amendment. The inspector reviewed the NMSS concerns, the licensee's response, observed UF₆ controls in place, and concurred that the licensee had fully operable controls that cover procurement, recertification, and maintenance of cylinders; UF₆ process systems; seals on empty cylinders awaiting transport;

and seals on full cylinders in storage. It would appear that the licensee has controls in place to isolate small quantities of oil from UF₆ cylinders process systems.

No violations or deviations were identified.

5. Management Organization and Controls

The inspector reviewed the licensee's management organization and controls for radiation protection and operation, including changes in the organizational structure.

A former employee with two years plant operations and production experience was rehired to fill a position in the licensee's radiological health and safety program. During the last six months of his initial two year experience, the employee worked in the licensee's radiation protection program. The new employee is currently involved in an on-the-job training program in radiological health. He has had courses in physics, chemistry, and mathematics at the college level.

With the addition of the new Health Physics Technician the radiological health and safety department is now at full strength. Certain duty assignments have changed for the three remaining HP Techs. On a shift rotation basis each HP Tech (while assigned to the day shift) will document data and provide support for required written reports. The inspector determined that the licensee has an established organization with defined responsibilities and functions that administers the radiation protection program.

No violations or deviations were identified.

6. Radiation Protection

The inspector reviewed the licensee's internal and external exposure control programs, including the required records, reports and notifications, and the licensee's program for maintaining occupational exposures ALARA.

a. Internal Exposure Control

Bioassay records for the November 1986 through March 1987 operating period disclosed that the 40 MPC-hour intake limit for soluble uranium was not exceeded. The highest reported urinalysis was slightly above the action level of 25 µg U/liter. Subsequent sample data was less than 1 µg U/liter. A review of licensee airborne data and a review of operator performance failed to lead to any explanation of the high urinalysis value. This appeared to be the only anomalous value among bioassay samples. Whole body counts for plant workers were below the 130 µgm U-235 action level.

b. External Exposure Control

The inspector reviewed the licensee's exposure control program including adequacy of procedures used to evaluate, control, and minimize exposures and required records, reports, and notifications.

Out of 64 employees there were no exposures above 0.5 rem for the 1986 operating year.

c. Airborne Releases

The inspector selectively reviewed licensee records of air sample analyses. No MPC-hour assignment exceeding regulatory requirements was noted. The inspector noted that a procedure in health physics controls (Operating Sheet 202, dated February 1987) places emphasis on individual observance of good work rules, and the wearing of protective apparel to avoid generating airborne contamination. No problems were identified.

d. Source Leak Tests

The inspector examined licensee records for leak testing by-product material sealed sources. In compliance with a six-month test interval, licensee records disclosed that both cobalt-60 sources passed the leak test criteria. The tests were performed in accordance with the provisions of Materials License SNM-33.

e. Maintaining Occupational Exposures - ALARA

Because of monitored work practices, overall operator experience, and engineering controls occupational exposures remained less than the licensee's action levels. ALARA and contamination concerns are emphasized during radiation safety awareness training.

No violations or deviations were identified.

7. Criticality Safety

The inspector reviewed criticality safety audits and documentation of facility changes requiring criticality considerations.

The nuclear safety signs that govern the storage of SNM material have been modified to eliminate the ambiguity between nominal and actual enrichment when comparing safe batch mass limits. It was also noted that the operating procedure that provides instructions for storing SNM material in accordance with nuclear safety parameters had been revised and issued as Operating Sheet No. 201. The nuclear safety signs as posted and Operating Sheet No. 201 allow for enrichment not specified in the following list to use the next highest enrichment. For example:

Nominal EnrichmentMaximum Net Weight

	<u>Kg UO₂</u>	
	<u>Powder</u>	<u>Pellets</u>
Less than or equal to:		
3.6% U-235	41	38
3.8% U-235	36	36
4.1% U-235	35	33

According to the above table a container of 3.62% U-235 powder should be stored with a mass limit of 36 Kg which corresponds to a conservative value of 3.8% U-235.

During a tour of the three major SNM storage areas it was determined that all containers observed were stored in accordance with Operating Sheet No. 201. This item was previously identified as an open item in Inspection Report No. 70-36/86001(DRSS).

A Corporate audit of the nuclear safety program identified a 5-gallon can of UO₂ powder stored without a completed enrichment tag. The tag consists of two parts both of which must be completed for enrichment levels. Apparently, an operator turned in the tear off portion of the tag for accountability purposes and failed to fill in the enrichment value in the part remaining with the container. Appropriate management action was taken to assure that the infraction was corrected.

Neither the NRC inspection findings nor corporate plant criticality safety audits disclosed any infractions that involved more than one change in a process condition. The double contingency policy which requires at least two unlikely, independent, and concurrent changes in process conditions that may lead to a criticality accident was not violated. The inspector confirmed that management of the licensee's nuclear criticality safety program is commensurate with the administrative and technical requirements of the license.

No violations or deviations were identified.

8. Transportation of Radioactive Materials

The inspector reviewed the transportation activities to determine whether the licensee is maintaining an adequate program to assure radiological safety in the receipt, packaging and delivery of licensed radioactive material.

The licensee made two shipments of Class A unstable LSA waste to waste disposal sites without incident. Shipping papers appeared to be in order for a third shipment which occurred on April 24, 1987, the last day of the onsite inspection. The HP Supervisor of the waste disposal

site acknowledged by signature that the licensee's material (contained in two separate shipments) met all the license requirements of the disposal site. Each shipment contained contaminated soil from the evaporation ponds and solidified liquid waste. Contamination was comprised of mostly uranium-235 and technetium-99. No problems were noted concerning compliance with 10 CFR 20 and 10 CFR 61 for application to low level radwaste form, waste characterization and classification, or stabilization.

No violations or deviations were identified.

9. Evaporation Pond Decommissioning Project

In accordance with Material License SNM-33, the licensee is required to decommission the primary and secondary retention ponds as soon as reasonably achievable. The ponds were originally installed to receive lime filtrates from the low-enriched ammonia diuranide (ADU) conversion facility. However, previous licensees have used the ponds for disposing of both low and high enrichment recovery waste liquids. According to the current licensee (CE INC, Hematite) waste discharges to the ponds were discontinued in 1978. During 1986 decommissioning operations the licensee removed 2800 cubic feet of sludge, dirt and rock from the ponds and packaged the material for burial.

A report on the current status of the Hematite pond decommissioning project was forwarded to US NRC (NMSS) during February 1987. According to the licensee's report, the average radioactive contamination level of all samples is 200 picocuries per gram. This level is below the criteria of 250 picocuries per gram established by NRC. NMSS reviewed the report and requested additional information. NMSS is requesting that the licensee provide results of the solubility test on uranium in the ponds, isotopic analyses of core samples, isotopic analyses on well water to include gross alpha and beta, and provide the analysis of the Tc-99 concentrations in a composite sample for each pond, as specified in Amendment No. 3, License Condition 19, dated October 3, 1984. In response to the licensee's concerns, the inspector recommended that the licensee meet with NMSS representatives in order to establish a sampling and analysis program acceptable to NMSS in accordance with the Branch Technical Position. This matter was also discussed during the exit meeting.

10. Licensee Action on Lessons Learned Recommendations (NUREG-1198)

The licensee's status for the "Process and Facility Design" recommendations from NUREG-1198 were addressed in Inspection Report No. (70-36/86004(DRSS)). Because of increased interest in reviewing potentially significant events at fuel facilities, the inspector requested the licensee to respond to Section 7 Recommendation No. 2 of the Lessons Learned Recommendation.

Section 7 Recommendation No. 2

The requirements and guidance for reporting potentially significant events at fuel facilities and at certain other materials licensees should be reviewed to ensure that all potentially significant events are reported to NRC.

Licensee's Response

On May 13, 1987, via telephone, the licensee and the NRC Region III staff agreed to the following reporting criteria: A telephone notification will be made to NRC Region III for incidents which although below the threshold for regulatory required reports relate to plant safety or licensed material and are noteworthy because they have a low frequency of occurrence or cause activation of the plant evacuation alarm. The inspector stated that routine events that occur incidental to plant normal activities and have little or no safety significance are not included in these reporting criteria. The inspector noted that the licensee has always been very cooperative in ensuring good communications with the NRC.

11. Incinerator Overheat Incident

Incineration is used to reduce the volume of low level contaminated waste. The facility consists of two gas-fired incinerators, two scrubber systems, and an air-cooled heat exchanger. Wastes are dispositioned for incineration after gamma counting (passive NDA). Individual charges of about 10 kilograms of combustible waste are introduced into the operating incinerator on 15-minute intervals by an MCO operator. The operator monitors and maintains the proper liquid level in the scrubbers.

At 1445 hours on October 20, 1986, the day shift operator introduced the last charge into the No. 2 incinerator. At 1600 hours the MCO Supervisor checked the scrubber liquid level prior to leaving the plant. The evening shift operator had reported that he would be late; however, the evening Shift Supervisor was not informed that the incinerator was operating. When the operator reported for work 1.7 hours late, neither he nor the Shift Supervisor were aware that the incinerator was operating.

At 1815 hours a maintenance operator, walking up the roadway east of the facility, noticed heavy black smoke discharging from the incinerator stack and notified the Supervisor. The bottom part of the No. 2 scrubber was glowing red. The incinerator burners and the scrubber blower were turned off, and CO₂ fire extinguishers were used in an attempt to cool the scrubber. The scrubber water fill valve was subsequently opened to add water to the scrubber. Cooling was completed by 1930 hours.

Later inspection of the scrubber showed that the rubber lining of the scrubber bottom and about 60% of the straight wall section lining were destroyed. The ceramic packing was reduced to small pieces, but the upper

portion of the straight wall section lining and the demister were intact. The scrubber blower and exhaust stack were also undamaged. The No. 1 scrubber system remained operable and was unaffected.

No radiation exposures above normal operating levels resulted from this event. The fixed room air sample collected near the incinerator for the evening shift showed a concentration of 0.11×10^{-10} microcuries/ml (11% MPC). The exhaust stack sample was 0.14×10^{-12} microcuries/ml (4% MPC). Removable alpha contamination on the inside of the scrubber vessel was less than 200 dpm/100 cm².

To prevent recurrence of a similar event, use of a log book for MCO operators has been initiated. Incoming operators review the log which contains instructions, notes, and operational status of equipment. This system has been used successfully in other areas of the plant.

The inspector determined that all system associated with the incinerator facility have worked according to specification and are fully operable since repairs were completed.

Inasmuch as the monetary damage due to the fire exceeded \$2000 (relining - \$1835 and packing replacement - \$211) a report per 10 CFR 20.405(a)(1)(iv) was required when the costs became known. The licensee has met the regulatory reporting requirements and implemented appropriate corrective action to resolve Region III NRC concerns about this matter.

12. Exit Meeting

The inspector met with licensee representatives (denoted in Section 1) at the conclusion of the onsite inspection on April 24, 1987. The inspector summarized the scope and findings of the inspection. In response to certain items discussed by the inspector, the licensee:

- a. Acknowledged that the staff had considered visiting US NRC HQ to finalize plans for decommissioning the ponds.
- b. Acknowledged that most of the NRC concerns addressed in the November 1986 team inspection have come under staff review.

During the course of the inspection and the exit meeting, the licensee did not identify any documents or inspector comments and references to specific processes as proprietary.