



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
101 MARIETTA ST. N.W.  
ATLANTA, GEORGIA 30334

MAR 9 1983

Report No. 70-1113/83-05

Report No. 70-1113

License No. SNM-1057

Safeguards Group No. 111

Licensee: General Electric Company  
Washington, NC 28401

Date of Inspection: February 8 - 11, 1983

Type of Inspection: Unannounced Material Control and Accountability

Inspector:

J. W. Sabers  
Safeguards Chemist

3/9/83

Date Signed

Approved by:

F. J. McAlpine  
F. J. McAlpine, Chief, Material Control and  
Accountability Section, Safeguards Branch  
Division of Emergency Preparedness and  
Materials Safety Programs

3/9/83

Date Signed

Inspection Summary

Areas Inspected: MC-85206B Measurements and Statistical Controls, and follow-up on previous inspection findings.

The inspection involved 28 inspector hours on site by one NRC inspector and was completed during the regular hours.

Results: The licensee was found to be in compliance with NRC requirements in the two areas examined during the inspection except for the following items:

1. Failure to follow the procedure for the verification of sample reports (83-05-01).
2. Failure to verify each assigned value for the reference standards used for a uranium accountability method (83-05-02).

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REGION II  
101 MARETTA ST., N.W. SUITE 3100  
ATLANTA, GEORGIA 30303

REPORT DETAILS

Report No. 70-1113/83-05

1. Key Persons Contacted

- \*E. A. Lees, Manager, Quality Assurance
- \*B. F. Bentley, Acting Manager, Fuel Manufacturing
- \*R. G. Patterson, Manager, Fuel Fabrication Operation
- \*D. W. Brown, Manager, Powder Production
- \*D. A. Burns, Manager, Material Services
- \*L. A. Sheely, Manager, Fuel Quality
- \*T. P. Winslow, Manager, Fuel Quality
- \*C. M. Vaughan, Manager, Licensing and NMM
- \*H. Stern, Manufacturing Technology and Engineering Operation
- \*W. B. Sinalley, Manager, Environmental Protection
- \*G. M. Bowman, Senior Nuclear Safety Engineer
- \*S. P. Murray, Nuclear Safety Engineer
- \*G. R. Mallet, Senior Engineer, Measurements and Statistics
- \*P. L. Torres, Manager, Radiation Protection
- \*W. B. Haverty, Analyst, Licensing and NMM
- R. G. Miller, Instrumentation Technician

The inspectors also interviewed several other licensee employees.

\*Denotes those present at the exit interview

Licensee Action on Previous Inspection Findings

(Closed) Inspector Follow-up Item (82-12-01): Samples taken to verify the acceptability of the licensee's measurements for an overseas shipment.

A review of the analytical data did not reveal a discernable difference between NBL's and the licensee's values for the samples.

(Closed) Inspector Follow-up Item (82-15-01): Samples taken to verify the acceptability of the licensee's measurements for an overseas shipment.

A review of the analytical data did not reveal a discerable difference between NBL's and the licensee's values for the samples.

3. MC-85206B - Measurements and Statistical Controls

Scales and balances were checked to verify identity, function, and calibration tags. This included the following:

- a. Noting the identification/type, location, and function for each scale and/or balance used for accountability and verifying the availability of certified standard weights (weights calibrated by the North Carolina

Department of Agriculture, Raleigh, N.C., National Bureau of Standards directly or other organizations traceable to NBS) which are used for the routine calibration of accountability scales and balances.

- b. Reviewing standard certificates and calibration data in order to substantiate the assigned values for certified standard weights.
- c. Noting that the recalibration criteria for scales and balances, and certified standard weights was being followed as set forth in the licensee's recertification procedures.

A tour was made accompanied by licensee personnel covering all applicable scales and balances for the three preceding points.

It was found that working standards remain in service for a period of one year and are then recertified by the North Carolina Department of Agriculture. The only exception noted was the artifact standard #166 and #192 used for U<sub>F</sub> that are recertified in-house, in which the licensee issued a deviation extending the period to 18 months due to a difficulty in attaining the recertification standards. The licensee is presently in possession of these standards and will attempt to recertify the artifact standards within the next month.

UNH trucks are weighed on a truck scale that is recertified annually by the State of North Carolina, Department of Agriculture, Raleigh, N.C. Weight measurements are performed by Toledo Scales with a GE weighmaster over-checking for linearity.

The review of the licensee's program for scales and balance was found to be satisfactory.

Technicians are initially trained and recertified every two years using S.O.P.'s as the training criteria. A certification evaluation statement is documented for each technician certified. This information is input to a computer program referred to as Remtrac which then monitors the training status for each individual.

The training records of five technicians that were identified in the UO<sub>2</sub> processing area were examined. Table I identifies the technicians and the overall training received. Records for several other technicians were also chosen at random for review and were found to be satisfactory.

The licensee's system for handling analytical measurement data was reviewed for data generated from the "Uranium by K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> Titration" and the "Uranium by Lum Direct" methods. Standard and sample data are recorded on bench worksheets and subsequently entered into the computer system providing retrievable documentation through the generation of sample reports, control logs and/or control charts.

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12. The verification of sample reports required that work-  
sheet data be checked off after entry into the computer system and  
before printing sample reports in order to maintain ID  
accuracy in the processing of accountability records. As of  
February 11, 1983, it was noted that the licensee had failed to follow  
this procedure so that data was not being satisfactorily checked off  
for the aforementioned methods. This is a violation (83-05-01).

The licensee has recently qualified the use of an Inductively Coupled  
Plasma Atomic Emission Spectrometer for measuring microgram quantities  
of various elements including the accountability analysis of uranium in  
liquid effluent. In examining the licensee's preparation and use of  
reference standards for the new uranium procedure, it was determined  
that although the reference standards had been overchecked in  
accordance with a calibration and operating instruction (COI 17,  
Rev. 1), the licensee had failed to verify each assigned value for the  
reference standards as required by section 4.2.1.2 of the FNMC Plan.  
This is a violation (83-05-02).

The inspector accompanied by licensee personnel examined the measure-  
ment systems for waste effluents. The licensee monitors the volume of  
fluoride, nitrate, and rad waste streams through the use of calibrated  
differential pressure orifice flow meters. An orifice plate is  
installed in each liquid transfer line, liquid flow generates a  
pressure differential across the orifice which is proportional to the  
volume of flow. The pressure differential is detected electronically  
producing a signal which is integrated to determine total volume.

Although there is no specific recalibration frequency for these plates,  
they were recently calibrated by NBS on September 8, 1981. This was  
performed in conjunction with an evaluation of all key measurement  
points as a result of having experienced an inventory in which the ID  
had exceeded the LEID. The calibration was performed through the use  
of an NBS calibrated prover tank in which a certified volume is pumped  
through an orifice plate which also established the calibration of the  
differential pressure cell and associated electronics. NISAC then  
performed an overcheck study using the still available NBS equipment.  
The study suggested a possible measurement improvement by modifying the  
current sampling system. The licensee intends to resolve this item  
when recovery operations are implemented in the near future.

#### 4. Exit Interview

The inspection scope and findings were summarized on February 11, 1983, with  
those persons indicated in paragraph 1 above.

TABLE I

<u>NAME</u>	<u>PERSONNEL NUMBER</u>	<u>TRAINING RECEIVED</u>
D. Hucks	22496	Perform weight measurements on the UF <sub>6</sub> cylinder scale and scale load cells, make liquid volume measurements, sampling UO <sub>2</sub> powder and uranium-bearing liquids.
S. Smith	23877	Perform weight measurements on the UF <sub>6</sub> cylinder scale and scale load cells, make liquid volume measurements, sampling UO <sub>2</sub> powder and uranium-bearing liquids.
H. Burgess	24106	Perform weight measurements on the UF <sub>6</sub> cylinder scale and scale load cells, make liquid volume measurements, sampling UO <sub>2</sub> powder and uranium-bearing liquids.
R. Scott	27033	Perform weight measurements on the UF <sub>6</sub> cylinder scale and scale load cells, make liquid volume measurements, sampling UO <sub>2</sub> powder and uranium-bearing liquids.
J. Smith	15442	Perform weight measurements on rod loading scales and load cells, sampling UO <sub>2</sub> pellets.