

GENERAL ELECTRIC

WILMINGTON MANUFACTURING DEPARTMENT  
GENERAL ELECTRIC COMPANY • P.O. BOX 780 • WILMINGTON, NORTH CAROLINA 28402

March 7, 1984

Mr. J. Philip Stohr, Director  
Division of Emergency Preparedness  
& Materials Safety Programs  
U. S. Nuclear Regulatory Commission, RII  
P. O. Box 2203  
Atlanta, Georgia 30301

Dear Mr. Stohr:

References: (1) NRC License SNM-1097, Docket 70-1113  
(2) NRC Inspection Report 70-1113/84-02  
dated 3/2/84, received 3/7/84

Thank you very much for your letter reporting the results of the inspection conducted at our licensed fuel fabrication plant by Mr. E. L. Clay of your office on February 6-10, 1984.

As stated in your letter, General Electric Company agrees with your intention not to place the subject inspection report (with the exception of the cover page) in the Public Document Room pursuant to 10 CFR 2.790(d).

Very truly yours,

GENERAL ELECTRIC COMPANY

*Charles M. Vaughan*

Charles M. Vaughan, Manager  
Licensing & Nuclear Materials Management  
M/C J26

CMV:bsd

SGD-I

Information in this record was deleted  
in accordance with the Freedom of Information  
Act, exemptions 4

FOIA- 87-28



N-6

(Portions 2.790(d) Ex 4

(2)



CONTAINS SENSITIVE INFORMATION  
 UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 C-80KWH  
 161 MARIETTA STREET, N.W.  
 ATLANTA, GEORGIA 30303

MAR 02 1984

Report No. 70-1113/B4-02

Docket No. 70-1113

License No. SNM-1097

Safeguards Group No. III

Licensee: General Electric Company  
 P. O. Box 780  
 Wilmington, NC 28402

Date of Inspection: February 6-10, 1984

Type of Inspection: Unannounced Material Control and Accountability

Inspector: E. L. Clay 2/23/84  
 E. L. Clay, Safeguards Engineer Date Signed

Approved by: E. J. McAlpine 2/29/84  
 E. J. McAlpine, Chief, Material Control and  
 Accountability Section, Safeguards Branch  
 Division of Emergency Preparedness and Materials  
 Safety Programs Date Signed

Inspection Summary

Areas Inspected: MC 85206B - Measurements and Statistical Controls (Magnetic/  
 Passive Rod Scanner - MAPS)

The inspection involved 33 inspection hours on site by one NRC inspector and was  
 begun during the regular hours.

Results: The licensee was found to be in compliance with NRC requirements in the  
 areas examined during the inspection.

~~8511274-60~~ 7 pp

REPORT DETAILS

Report No. 70-1113/84-02

1. Key Persons Contacted

- [Redacted] Manager, Materials Operations
- [Redacted] Manager, Financial Operations
- [Redacted] Acting Manager, Regulatory Compliance
- [Redacted] Acting Manager, Fuels Manufacturing
- [Redacted] Acting Manager, Fuels Fabrications Operations
- [Redacted] Acting Manager, Manufacturing Technology and Engineering Operations
- [Redacted] Fuel Quality Control Engineer
- [Redacted] Quality Control Engineering
- [Redacted] Nuclear Materials Management Analyst
- [Redacted] Standards Inspector

The inspector also interviewed several other licensee employees.

\*Denotes those present at the exit interview

2. Licensee Action on Previous Inspection Findings

(82-21-01) (Closed) From previous examination of the MAPS operation log book, the inspector was unable to establish whether or not production rods had been measured between standards verification measurements and could not account for all operating times for the system.

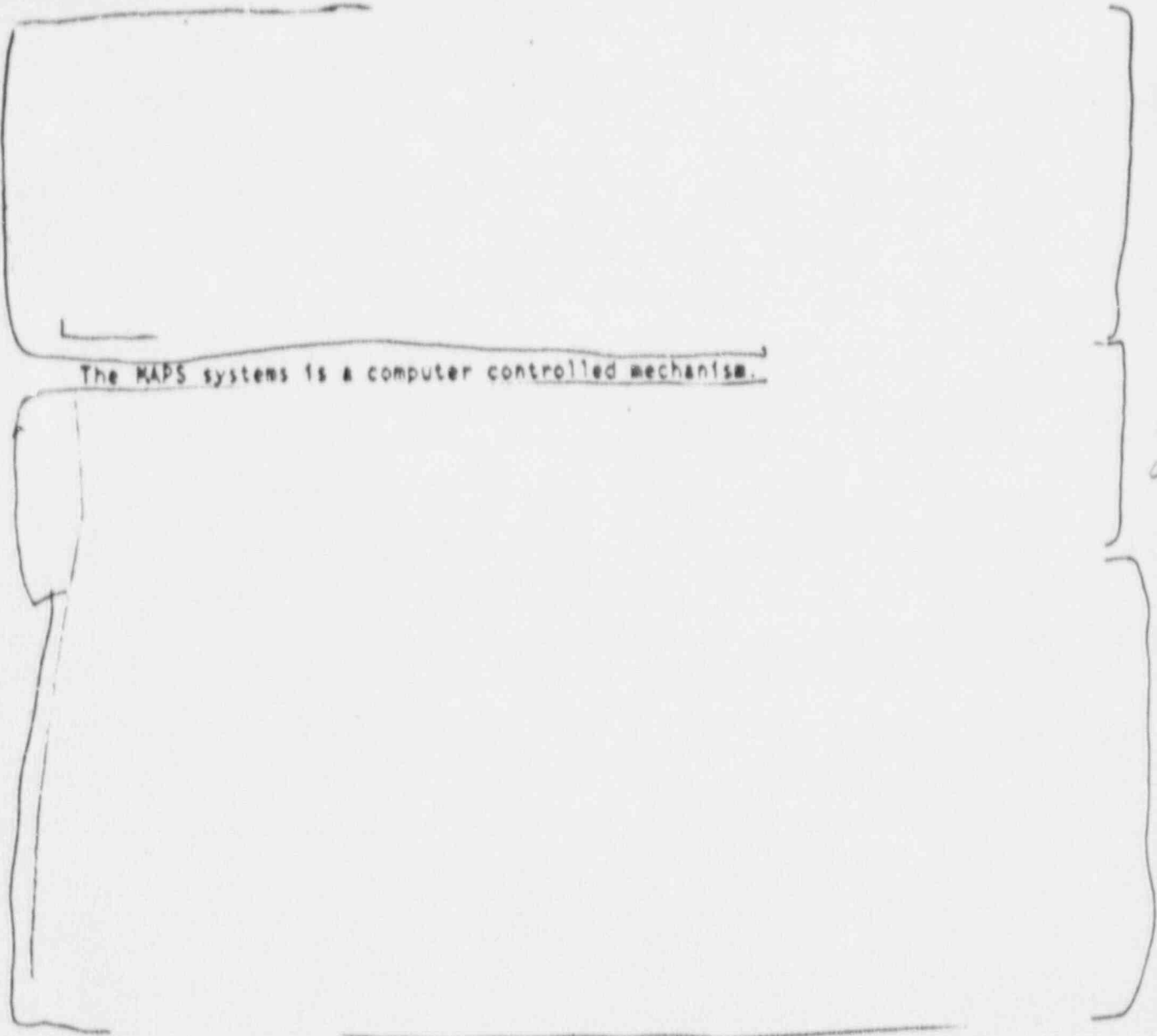
The licensee has recently revised and implemented changes in the operations of the MAPS NDA measurement system to account for all operating and down times between standards autocal and verification measurements. The inspector's examination of MAPS operating data indicated that all production operating and down time could be accounted for and that autocal and verification standards were being measured at prescribed frequencies.

3. MC 85206 - Measurements and Statistical Controls (Magnetic/Passive Rod Scanner - MAPS)

The GE, Wilmington, North Carolina facility is using a [Redacted] This system has been tested, approved and is currently being used to perform accountability measurements by nondestructive analysis (NDA) of all (100%) Gad fuel rods produced. In addition to official accountability measurements, the MAPS system measures [Redacted] that are used to establish [Redacted] for each fuel rod measured. The MAPS NDA system is comprised of four distinct operations [Redacted]

E44

B-6



The MAPS systems is a computer controlled mechanism.

All Gad bearing fuel rod measurements by the MAPS measurement system, are compared to standards which have been thoroughly analyzed. The analytical values of Gad bearing fuel standard fuel rods were based upon analytical data of pellets from two outside laboratories and the facility laboratory. The standard fuel rod analytical data were collected over a period of

At the time of this inspection, the licensee was using eighteen NDA standards that had been thoroughly analyzed for uranium and U-235 values, tested and certified for use in performing accountability measurements. Traceability of these standards to a National Measurement System has been accomplished through comparisons of analytical techniques employed by each measuring laboratory to measure NBL standard UO2 material.

Using approved <sup>242</sup>Pg bearing fuel rod standards, the MAPS system is calibrated for all measurement functions after each 24 hours of continuous operation or after each extended downtime period. This is as

The inspector's examination of the January 1, 1984 through February 9, 1984 data indicated that autocalibration were being performed within SOP prescribed frequencies.

Additionally

The inspector's examination of January 1, 1984 through February 9, 1984 verification data indicated that verification measurements were performed within SOP prescribed frequencies.

The MAPS system's qualifications for measuring [redacted] of UO<sub>2</sub> fuel rods are required prior to measurement of production fuel rods. The MAPS system has been qualified for all measurements and the results of the qualification tests and certification results have been documented.

The MAPS system requalification for measurements is required when changes in

[redacted] To date, no major operating changes have occurred. However, the licensee completed requalifications of the MAPS system capabilities, except SNM, on November 8, 1979. The system's operational characteristics were requalified in segments by initiating a requalification test plan, carrying out the test plan, evaluating the data, and documenting the plan results. As a result of this requalification test, the MAPS measurement system is currently qualified to measure <sup>242</sup>Pg bearing fuel rods in accordance with the following measurement specifications.





4

Requalification of the MAPS system quantitative measurement capabilities for uranium and U-235 contained in Gas bearing fuel rods has not been performed since its original qualification. However, the licensee has completed a bias study of the MAPS system capabilities for performing acceptable SNM measurements. The test consisted of a documented plan (QN-F-G-1195, dated May 24, 1983) for repetitive MAPS measurements of enriched zones from three types of acceptably measured fuel rods.

similar test during CY-84.

The licensee plans to conduct a

A test of the MAPS system to reproduce measured quantities of SNM contained in Gas bearing UO<sub>2</sub> fuel rods was conducted during this inspection. The test consisted of remeasuring twenty-one fuel rods, containing three different enrichments and weight percent gadolinia, which had previously been measured to acceptable measurement values. Facility equipment and measurement techniques used to produce the original rod values were used to remeasure the test rods. The licensee's original value on these rods amounted to

These differences are within the intervals established for acceptable accountability measurements for this measurement system.

At this time, the following five groups provide input to establish and/or change "rod map" parameters and are responsible for all measurement and accounting operations associated with the MAPS measurement system.

Standard Operating Procedures (SOP) applicable to the operations of the MAPS NDA measurement system were examined during this inspection. The licensee was determined to be practicing the requirements of the following procedures.

- a. Product/Process Quality Plan (P/PQP) 4.4.15, Revision 5, Scanning Gadolinia Bearing Fuel Rods on the Magnetic/Passive Rod Scanner (MAPS), dated December 12, 1983.
- b. Quality Control Inspector Instructions (QCII) 9.2.1, Revision 6, Gadolinia Bearing Rod Scanning - MAPS, dated December 12, 1983.
- c. Practices and Procedures (PP) 70-32, Revision 9, Qualification of Q.C. Inspection, Examination and Test Personnel, dated February 9, 1983.
- d. PP 140-09, Revision 2, SNMC Measurement Training and Qualification, dated January 10, 1983.

A review of the facility FNMC plan applicable to NDA measurement by the MAPS NDA measurement system was conducted during this inspection. Section 1.0 Organization, 3.0 Measurements, 4.0 Measurement Control Program, 8.0 Management and Appendix C-3, Specially Accepted Safeguards Systems, provide descriptions and methods used to determine the U-235 content of SNM measured by NDA techniques at the facility. To the extent examined, this review indicated that the licensee was following his current FNMC plan for performing accountability measurements by the MAPS NDA measurement system.

Docket 70-1113 License Conditions to Materials and Plant Production Amendment MPP-3 revised and amended October 6, 1983, for License No. SNM-1097 were reviewed during this inspection. The licensee was determined to be complying with the four license conditions applicable to SNM measurements by the MAPS NDA measurement system.

The licensee is following SOP PP 70-32, Qualification of Q.C. Inspection, Examination and Test Personnel, Revision 9, dated February 9, 1983, requirements for qualifying and requalifying MAPS measurement personnel. This SOP requires that MAPS measurement operators be trained in accordance with the criteria specified in: (1) ANSI 45.2.6, American National Standard Institute standard covering qualifications of inspection, examination and testing personnel for manufacture of products for nuclear power plants; and (2) ANST (American Society for Nuclear Testing), Section SNT-TC-1A guidelines for training, qualification and certification of personnel performing nondestructive measurement. Each MAPS operator is trained by emphasizing on-the-job training and must continuously demonstrate measurement qualifications for MAPS operations. Requalifications are performed, by identical training techniques employed during the original training, at intervals not to exceed three years. Requalifications are required more frequently should the operator: (1) not perform certified measurements for a period of one year; and (2) not perform in accordance with the measurement qualifications for MAPS operations. At this time, four operators are qualified and certified to perform MAPS measurements for accountability purposes. All training techniques, procedures and evaluation results are documented.

4. Exit Interview

The inspection scope and findings were summarized on February 10, 1984, with those persons indicated in paragraph 1 above.