

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION IV

Report No. 99900004/80-01

Program No. 51500

Company: General Atomic Company
Post Office Box 81608
San Diego, California 92138

Inspection Conducted: January 7-11, 1980

Inspector:

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Components Section I
Vendor Inspection Branch

1/18/80
Date

Approved by:

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Vendor Inspection Branch

1/18/80
Date

Summary

Inspection on January 7-11, 1980 (99900004/80-01)

Areas Inspected: Implementation of 10 CFR 50, Appendix B, including fuel rod manufacture, graphic fuel blocks, and action on previous inspection findings. The inspection involved twenty-eight (28) inspector hours on site by one (1) NRC inspector.

Results: In the three (3) areas inspected, the following one (1) deviation and three (3) unresolved items were identified.

Deviation: Action on Previous Inspection Findings - review of documents did not assure all requirements stated in procedures and approval indicated on documents as required by the QA Manual (See Notice of Deviation).

Unresolved Items: Fuel Rod Manufacture - (Details Section, paragraph C.3.b), Graphite Fuel B locks - (Details Section, paragraph D.3.b), Action on Previous Inspection Findings (Details Section, paragraph B).

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DETAILS SECTIONA. Persons Contacted

- *D. S. Brush, QA Project Engineer
- M. A. Careinale, Supervisor Accountability and Material Control
- T. R. Colandrea, Director of QA Division
- T. Cramer, Engineer
- D. Kowal, Project Engineer
- W. V. Goeddel, Fuel Operations Manager
- F. H. Lofftus, Quality Engineer
- *J. Lutz, Manager of Material Control
- *R. C. Noren, Manager Fuel Manufacturing Department
- J. M. Obenschain, Quality Engineer
- *D. Pettycord, Sr. Project Engineer
- G. W. Rankin, Manager of Fuel Manufacturing Quality Assurance
- *J. H. Rusk, Quality Operations Branch Manager
- R. P. Vanek, Fuel Production Branch Manager
- W. Wadham, QA Data Analyst

*Denotes those attending exit interview.

B. Action on Previous Inspection Findings

1. (Closed) Deviation (Report No. 79-02): Document control requirements were not fully followed. A review of a sample of work stations found all documents uniquely numbered, with a unique issue letter or number, distributed to the work stations, and in use at the work stations.

2. Deviation

During this review the following deviation was identified:

At one of the four work stations inspected, the coating station, an operating procedure OP-431401, Revision A, was found which did not reference the applicable parameter sheet for that operation. In addition, the procedure referenced procedure OP-431402 which did not exist. Also it was noted that the parameter sheets (3) for that operation did not have approvals indicated on them.

3. Unresolved Item

During this review, the following unresolved item was identified:

The inprocess inspection procedure QDI 23-1, Fuel Manufacturing Process Control, was revised to address review of documents at

work stations. However, the current revision C contains an inconsistency on the reporting of findings between paragraphs 6 and 8. Paragraph 6 requires an NR form to be used and paragraph 8a Potential Reject Condition form. Currently the later form is being used.

4. (Closed) Deviation (Report No. 79-02): A planning document was not prepared based on the specification. A study has been performed to demonstrate conformance to the specification requirements.
5. (Closed) Unresolved Item (Report No. 79-02): An inconsistency in the specification or electrical resistance. The specification G.A. 10600 5.2.3.2 paragraph 3.2 has been corrected.

C. Fuel Rod Manufacture

1. Objectives

The objectives of this area of the inspection were to verify that:

- a. The fuel rod assembly and quality control practices and procedures are sufficient to give assurance that manufactured fuel rods meet specifications and contract requirements.
- b. The manufacturer's system is capable of producing quality fuel rods.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the Quality Assurance Manual dated November 17, 1978, Sections 5, 10, 11, and 14, which establishes the general requirements for fuel rod manufacture controls.
- b. Review of the HTGR Fuel Specifications, GA 10600, Revision W, which establishes the specific requirements for fuel rod manufacture controls.
- c. Review of the following detailed procedures for the evaluation of fuel rod manufacture:
 - (1) QDI-30-4, Sampling Plan for Fuel Rods, Revision C, and
 - (2) QDI-30-II, Preparation for Fuel Rod Release Sheets, Revision A.

- d. Inspection of the record of five (5) lots of fuel rod and their inspection records. This inspection verified the above requirements.

3. Findings

- a. Deviations

None.

- b. Unresolved Item

Several recent changes in the specification have yet to be incorporated into procedures. For example, QDI 30-11 did not reflect the current specification requirements for impurities; QDI 30-4 did not reflect the current sampling requirements for iron content. Lots of fuel rods are currently being reviewed and released based on the new requirements of the specification.

- c. Comments

This inspection scoped the sampling plans and reports necessary for lot acceptance. This scope was not covered during the previous inspection.

- D. Graphite Fuel Blocks

1. Objectives

The objectives of this area of the inspection were to verify that:

- a. The manufacturing and quality control practices and procedures for Graphite Fuel Blocks are sufficient to give assurance that these components meet specifications and contractual requirements.
- b. The manufacturer's system is capable of producing quality components.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the Quality Assurance Manual, dated November 17, 1978, Sections 5, 10, 11 and 14, which establishes the general requirements for graphite fuel blocks.

- b. Review of the HTGR Fuel Specifications, GA 10600, Revision W, which establishes the specific requirements for graphite fuel blocks.
- c. Review of the following procurement specification which establishes additional specific requirements:
 - Purchase Specification for Fuel Element and Replaceable Reflector Graphite Log, 18-R-51, Revision A,
 - PSC Fuel Element and Reflector Graphite, 396-FO-1M, Revision E8, and,
 - PSC Machined Fuel Element Graphite, 396-FO-2M, Revision B.
- d. Review of drawing Block Fuel Element, 90R 1801-101, Revision H.
- e. Inspection of four (4) graphite blocks and review of the quality records on the sampled blocks and verification of the above requirements.

3. Findings

a. Deviations

None.

b. Unresolved Item

The design call outs for the material specification for the graphite are contradictory. The drawing call out is for a new material specification 18-R-51 but the fuel specification leads to an older generation material specification 396-FO-1M. Current material on hand that is to be used for segment 8 reload will comply only with the older specification.

E. Exit Interview

The inspector met with management representatives (denoted in paragraph A) at the conclusion of the inspection on January 11, 1980. The inspector summarized the scope and findings of the inspection. The management representatives had no comment in response to each item discussed by the inspector.