U. S. NUCLEAR REGULATORY COMMISSION

Region I

Docket/Report: 50-184/84-01 License: TR-5

Licensee: U. S. Department of Commerce

Facility : NBS Reactor

Inspection At: Gaithersburg, Maryland

Dates: July 11-12, 1984

Inspector: for D. C. Trimble, Resident Inspector — 8/1/84 date

Approved: T. C. Elsasser, Chief, Reactor Projects Section 1B — 8/1/84 date

Summary:
July 11-12, 1984: Inspection Report 50-184/84-01).

Areas Inspected: Routine, unannounced inspection by a resident inspector (16 hours) of licensee organization, logs and records, reviews and audits, equipment condition, experiments, surveillance activities, and engineering changes. Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

*R. S. Carter, Chief, Reactor Radiation Division
*T. M. Raby, Chief, Reactor Operations
J. F. Torrence, Deputy Chief, Reactor Operations
N. Bickford, Reactor Supervisor
J. Wang, Supervisory Health Physicist-Reactor

The inspector also interviewed reactor operators during the inspection.

*Denotes those present at the exit interview.

2. Facility Tour

The inspector and a licensee representative toured the facility immediately after the entrance interview. The reactor was shutdown for modification of the thermal shield cooling system at the time.

3. Facility Organization

The organizational positions and the incumbents providing management and operational control of the reactor are shown below.

Position	Incumbent
Chief, Reactor Radiation Division	R. S. Carter
Chief, Reactor Operations	T. M. Raby
Deputy Chief, Reactor Operations	J. F. Torrence
Reactor Supervisors	R. Beasley
	N. Bickford
	A. Chapman
	H. Dilks
	J. Ring
	R. Stiber

The incumbents of the positions meet the qualifications listed in Technical Specification 7.1, Operations.

The licensee operates the reactor continuously using a four shift schedule with a total staff of 15 operators. The licensee currently has 13 licensed senior reactor operators, including the reactor supervisors. At the time of inspection two additional operators were preparing to take their operator license examination in August 1984. There is one reactor supervisor and two reactor operators on each shift.

4. Logs and Records

The inspector reviewed the Shift Supervisor's Log for the period of January 11 through July 11, 1984. The operators had entered pertinent information about reactor operations, experiments, surveillances, and maintenance performed.

The inspector performed a sampling review of Reactor Control Room and Reactor Area Inspection log sheets completed since November 1, 1983.

No discrepancies were identified.

5. Reviews and Audits

a. Safety Evaluation Committee

Through Technical Specification revision the Hazards Evaluation Committee (HEC) has been renamed the Safety Evaluation Committee (SEC). With one exception committee membership has remained the same. The SEC has the following membership:

Member	Alternate
J. M. Rowe, Chairman	
E. Prince, Vice-Chairman	
J. F. Torrence,	Reactor Supervisor on Duty
J. H. Nicklas	J. B. Sturrock
P. R. Cassidy	J. Wang (newly appointed 6/20/84)
R. L. Zeisler	R. M. Lindstrom
R. S. Conway	R. P. Hayes

The inspector reviewed the minutes of the following SEC meetings held since February 15, 1984.

Meeting No.	Date	Present Members	Alternate Members	Others
268	2/15/84	5	1	3
269	3/20/84	4	1	3
270	4/24/84	5	0	3
271	5/16/84	7	0	2
272	6/20/84	6	0	3
273	6/29/84	5	1	1

The items reviewed by the SEC during these meetings included proposed experiments, an Engineering Change Notice (ECN) for a modification to the thermal shield cooling system (ECN 286), circumstances surrounding a reactor scram on April 3, 1984 (walkie-talkie radio transmission induced false reactor Delta T indication causing reactor scram), ECN 276 regarding a primary system pump check valve modification, a March 29, 1984 report to

NRC regarding a shim arm that did not fully scram on one occasion, and a January 26, 1984 report of the Safety Review Committee.

The membership and activities of the SEC meet Technical Specification requirements.

6. Safety Auditing Committee (SAC)

Through TS revision the Safety Review Committee was renamed the Safety Auditing Committee. Committee membership remained the same. The SAC performed its last annual audit of the National Bureau of Standards Reactor (NBSR) facility operations on October 5-6, 1983. Each topic of the 1982 report was addressed and a status given. The SAC audit appeared thorough. Committee findings included:

1) options for improvements in fuel handling equipment (to prevent dropped fuel assemblies) should be given continued emphasis;

2) the SEC should review personnel exposure records annually for trends;

3) the L&N Nuclear Power Panel should not be replaced piecemeal;

4) job analysis should be performed for experimenters and used in improving their training program; and

5) a power change resulting from manipulation of thermal shield cooling system valves was adequately understood by operators.

The licensee has initiated actions to implement these committee findings.

7. Experiments

The inspector examined three proposed experiments (S315, 312, and 313) regarding irradiations of CaCO subscript 3, graphite, and gold and discussed the licensee's procedures for control of experiments with operations and staff personnel.

Appropriate technical information was being obtained from experimentors. The SEC or its subcommittee then evaluated these proposals as required.

8. Surveillance Activities

The inspector performed a sampling review of the records of performance of the following surveillance activities during the period of July 1983 to July 11, 1984.

Tech. Spec.	Description	Frequency
5.6A	Operability Check of N-16 Monitor	Monthly
5.7B	Operability Test of the Controls in the Emergency Control Station	Monthly
5.8A	Area Monitors Operability Test	Monthly
5.9A	Diesel Generator Testing	Monthly
5.1B	Channel Trip Test of Confinement Closure System	Quarterly
5.1C	Integrated Leak Test of Confinement	Annual
5.2B	Test of Primary System Relief	Annual
5.4D	Test of Reactor Safety System Channels	Annual

These surveillance activities were performed as required by technical specifications.

9. Upgrade From 10MW to20MW

The inspector discussed the licensee's planned actions for upgrading from 10 MW to 20 MW (scheduled for August 1984). The inspector reviewed associated draft test procedures (power escalation, thermal power calibration, and Radiation/Environmental Surveys). The licensee appeared to be adequately preparing for this transition.

10. Engineering Changes

The inspector reviewed ECN's 285, "Modification to the Rabbit System", and 286, "Modification to Thermal Shield Cooling Piping" and confirmed that adequate safety evaluations and appropriate reviews were conducted.

11. Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on July 12, 1984. The inspector presented the scope and findings of the inspection.