



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

OCT 05 1990

Report No.: 50-160/90-04

Licensee: Georgia Institute of Technology
225 North Avenue
Atlanta, GA 30332

Docket No.: 50-160

License No.: C-97

Facility Name: Georgia Institute of Technology -
Neely Nuclear Research Center (NNRC)

Inspection Conducted: September 19-20, 1990

Inspector: James L. Kreh 10-4-90
J. L. Kreh Date Signed

Accompanying Personnel: C. H. Bassett

Approved by: William H. Rankin 10-4-90
W. H. Rankin, Chief Date Signed
Emergency Preparedness Section
Emergency Preparedness and Radiological
Protection Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, announced inspection was conducted to assess the operational readiness of the licensee's emergency preparedness program and to evaluate the annual emergency response drill.

Results:

In the area inspected, no violations or deviations were identified. The licensee was maintaining an adequate and responsible level of operational readiness for managing emergencies. No significant response problems were observed during the drill.

REPORT DETAILS

1. Licensee Employees Contacted

- B. Copcutt, Manager, Office of Radiation Safety
- *R. Karam, Director, NNRC
- *B. Revsin, Associate Director, NNRC
- B. Statham, Manager of Operations/Reactor Supervisor
- J. Taylor, Senior Safety Engineer

Other licensee employees contacted during this inspection included operators, technicians, and administrative personnel.

*Attended exit interview

2. Emergency Plan and Implementing Procedures (82745)

The Emergency Plan and associated implementing procedures (known as Emergency Procedures) were reviewed to note changes made since the last inspection in this area (September 1989) and to assess the impact of any such changes on the overall state of emergency preparedness. The inspector determined that no revisions had been made to the Emergency Plan (currently Revision No. 2, approved by NRC on June 8, 1989) or Emergency Procedures since the last inspection.

The inspector reviewed selected Emergency Procedures to determine whether they adequately implemented the Emergency Plan. No specific discrepancies were identified in this respect. However, it was noted that Emergency Procedure 6100 (Revision 1, dated February 2, 1989, with Minor Change Number A, dated September 28, 1989), "Emergency Notification," contained varying requirements in Section 5.9 for notification of the NRC upon declaration of a Notification of Unusual Event (NOUE). Of the five Action Levels (or event categories) for NOUE listed in Table I of the Emergency Plan and reiterated in Emergency Procedure 6100, one required notification of the NRC within 15 minutes, three required notification within 48 hours, and one required no notification. The Action Level for the latter was "prolonged fire or minor explosion within facility but nonspecific to the reactor or its control systems." The inspector discussed with licensee representatives the possibility of applying a uniform one-hour requirement for NRC notification of an NOUE declaration. Licensee representatives agreed to review the feasibility of this possible modification and to change the procedure as appropriate. This matter will be tracked as an Inspector Follow-up Item (IFI).

IFI 50-160/90-04-01: Considering a uniform one-hour NRC notification requirement for the NOUE classification.

The inspector also noted that Emergency Procedure 6100 contained specific agency notification lists for each event category within each emergency classification level (viz., NOUE, Alert, and Site Area Emergency). However, all required telephone numbers for onsite and offsite notification were also found on the Emergency Notification Roster, which was updated at least quarterly (in accordance with Section 8.5 of the Emergency Plan) and was readily available within the NNRC, including wall postings in a number of locations. Some telephone numbers in Emergency Procedure 6100 were inconsistent with those on the Emergency Notification Roster because the numbers in the procedure were not kept current. The inspector noted during the drill that the Emergency Director used Emergency Procedure 6100 to determine which agencies should be notified but obtained the telephone numbers from the Emergency Notification Roster. Following a discussion of this matter, the licensee proposed to delete telephone numbers (but not organizational names) from the notification lists in Emergency Procedure 6100 in view of the availability and currency of the Emergency Notification Roster. Also discussed was the need to make notification of any emergency declaration to the NRC Operations Center (Bethesda, MD) rather than the NRC Region II office; the licensee agreed to revise the Emergency Notification Roster accordingly.

No violations or deviations were identified.

3. Emergency Response Training (82745)

Pursuant to Section 10.1 of the Emergency Plan, this area was inspected to determine whether the licensee had provided training to the onsite emergency organization.

Licensee records documented appropriate training of the three designated alternate Emergency Directors on August 3, 1990, and of other emergency response personnel on September 14, 1990. Although no written lesson plans or training outlines were used and no examination was given, interviews with NNRC staff and performance of licensee personnel during the drill indicated that emergency response training was effective. A computerized tracking system for NNRC activities served to insure that annual emergency training was scheduled.

No violations or deviations were identified.

4. Emergency Facilities, Equipment, and Supplies (82745)

This area was reviewed to determine whether the licensee's Emergency Command Center (ECC) and other equipment, instruments, and supplies were maintained in a state of operational readiness and as required by Section 10.5 of the Emergency Plan.

The licensee had designated two kits for emergency use. One kit, located in the vestibule of the Reactor Building, contained primarily protective clothing, decontamination supplies, barrier ropes, etc. A second kit, located in the ECC, contained portable survey instruments, protective

clothing, sampling material, dosimetry, etc. In addition, two air packs were available in the ECC. Selective inspection of these emergency kits disclosed no inventorial discrepancies or inoperable equipment.

Documentation for the emergency kits was reviewed to verify that periodic inventories were being conducted. According to this review, quarterly inventories were being done as required. Records were reviewed covering the period October 1989 through July 1990. No problems were noted.

The inspector checked eight fire extinguishers at randomly selected locations throughout the facility. All units examined had been checked every 2-3 months (exceeding the requirement for semiannual checks) by the institution's Environmental Safety Office, and appeared to be in good working condition.

During the September 28, 1989 drill, an inspector observed failure of the NNRC front entrance door to automatically lock upon initiation of the building evacuation alarm, resulting temporarily in a lack of access control. Licensee records indicated that this problem had been corrected; the inspector verified the claimed correction by direct observation during the drill.

No violations or deviations were identified.

5. Coordination with Offsite Support Groups (82745)

Section 10.1 of the Emergency Plan specified biennial training of the Georgia Tech Police and the Atlanta Fire Department in radiation safety and NNRC Emergency Procedures. As documented in NRC Inspection Report No. 50-160/89-04 (Paragraph 3), this training was given during 1989 and will therefore be due again in 1991.

Section 8.3 of the Emergency Plan required biennial updating of agreement letters with respect to arrangements made for hospital, medical, and other emergency services. The only such agreement currently maintained was with Grady Memorial Hospital, and had been renewed on September 12, 1990.

The inspector's telephone inquiry to the Georgia Tech Police disclosed that the current edition of the NNRC Emergency Notification Roster (dated August 20, 1990) was available at Police Headquarters, principally for the purpose of contacting NNRC personnel during periods when the facility is unattended.

No violations or deviations were identified.

6. Emergency Response Drill (82745)

The licensee's Emergency Plan required that an annual onsite emergency drill be conducted to test the adequacy of Emergency Procedures and to ensure that emergency organization personnel are familiar with their duties. In addition, at least biennially, a drill must contain provisions

for testing communications and notification procedures with offsite support groups.

On September 20, 1990, the licensee conducted the annual emergency drill. The scope and objectives of the drill are delineated in the attachment to this report. The inspector received detailed verbal information regarding the scenario from the NNRC Director prior to the drill. Since no written information on the scenario was made available to the inspector, the scenario details are documented in the following discussion.

The scenario involved response to a low-level signal from the water-level monitor for the source storage pool. This signal (by design) actuated the criticality alarm, mandating an evacuation of the NNRC. Personnel accountability was conducted at the designated assembly area immediately after building evacuation, and identified one missing person. The activation and operation of the ECC by an alternate Emergency Director (ED) and staff were evaluated by the inspector and determined to be effective in accident investigation and mitigation.

The inspector observed the response by Health Physics personnel in surveying the facility for abnormal radiation levels. The response to the simulated accident was prompt, and personnel demonstrated good survey techniques in accordance with standard Health Physics practices.

Communications between the ECC and the emergency investigators were by portable transceivers. In spite of previous reception surveys which indicated good radio communications between the ECC and most areas of the NNRC, the radio link with the repair team was undependable using licensee equipment. Following arrival of Georgia Tech Police, their radios were used with good results. (This contingency arrangement had been made in advance.) The licensee planned further evaluation of radio communications within the facility in order to resolve this recurring problem with the existing equipment (see also Paragraph 7.b.).

The source storage pool was actually drained down several inches (to the Suspect Waste Retention Tank) to add realism to the drill. The operator who "erroneously" opened the two valves which allowed this drainage suffered a heart attack immediately thereafter and was rendered unconscious when he fell and struck his head (simulated medical conditions). This contaminated, injured patient was located by the response team and was transported by ambulance to Grady Memorial Hospital for treatment. (The inspector did not observe activities at the hospital.)

The scenario was intended to provoke an emergency classification of Alert based on the following Action Level found in Table I of the Emergency Plan: "Pool level alarm and visual observation indicating abnormal loss of water at a rate exceeding backup capacity." Although the pool level alarm was received and visual observation by the response team indicated abnormal loss of water, the rate of loss was not observed as "exceeding backup capacity," especially after makeup water was introduced and the

pool level began to rise. Consequently, the ED did not declare an Alert, although, as a precaution, she made the notifications to offsite agencies that would have been required at Alert and informed them that there existed a situation that could escalate to a classified emergency. Because emergency response actions by the licensee were essentially identical to those which would have been associated with an Alert declaration, the absence of a (simulated) formal emergency declaration did not significantly detract from drill play or the fulfillment of drill objectives.

As required by the Emergency Plan, a critique was conducted after the drill and was observed by the inspectors. The critique was judged to be thorough, with pertinent input from drill participants as well as evaluators. The desirability of first-aid training for the NNRC staff was highlighted; the inspector's observations led to the same conclusion. The licensee's follow-up on critique findings will be reviewed during a future inspection.

No violations or deviations were identified.

7. Action on Previous Inspection Findings (92701)

- a. (Closed) Exercise Weakness 50-160/89-04-01: Failure to conduct the annual emergency drill in a manner that would fully test implementation of the Emergency Plan.

This finding focused upon the unacceptable past practice of providing scenario details to participants in advance of the drill. Interviews with designated players prior to this year's drill indicated that they had knowledge of the date, time, scope, and objectives of the drill (same information as in attachment to this report), but not of the nature of the accident postulated by the scenario.

- b. (Closed) IFI 50-160/89-04-02: Conducting an evaluation of radio transmission over the entire emergency planning zone to identify areas of impeded reception.

The basis for closure of this item is discussed in Paragraph 6.

- c. (Closed) IFI 50-160/89-04-03: Conducting a full-scale exercise which includes an accident scenario that will test all onsite and offsite components of the emergency organization.

The drill conducted on September 20, 1990 acceptably addressed the intent of this IFI (refer to Paragraph 6).

- d. (Closed) IFI 50-160/89-04-04: Proceduralizing the emergency response training program to ensure documented compliance with Section 10.1 of the Emergency Plan.

Procedure 0150, "Training on Procedures - Routine and Emergency," formalized the provision and documentation of emergency response training for the NNRC staff. Documentation of such training for the current calendar year was adequate.

- e. (Closed) IFI 50-160/89-04-05: Reviewing Procedure 6100 to ensure that all required notifications are included and made in a timely manner.

This IFI is closed based on the licensee's statement that the subject review was performed. However, a new IFI, closely related to this previous matter, is being opened (see Paragraph 2).

8. Exit Interview

The inspection scope and results were summarized on September 20, 1990, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

<u>Item Number</u>	<u>Category, Description, and Reference</u>
50-160/90-04-01	IFI - Considering a uniform one-hour NRC notification requirement for the NOUE classification (Paragraph 2).

Attachment:
 Scope and Objectives for the
 September 20, 1990 Emergency
 Drill

EMERGENCY DRILL

2:00 P.M. September 20, 1990

- Objective: To demonstrate the following:
- (1) Alternate Emergency Directors can handle emergency situations
 - (2) That the response of support organizations such as GT Police, NRC, GEMA, and Grady to emergency conditions is adequate
 - (3) That appropriate surveys (radiological or otherwise) are made
 - (4) That procedures are adequate
 - (5) That procedures are followed
 - (6) That emergency equipment are used properly and that such equipment function properly
 - (7) Emergency organization can restore emergency situation back to normal

Scope: The Emergency Drill of 1990 applies to the testing of the emergency organization of the Neely Nuclear Research Center with regard to adequacy and effectiveness.