SCHOOL OF
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February 17, 1996

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Mr. Edward J. McAlpine, Chief
Fuel Facilities Branch
Division of Nuclear Materials Safety
United States Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia
30323-0199

Subject: Licensee Reply to NRC Inspection Report No. 50-62/96-03. [University of Virginia Reactor (UVAR), Docket No. 50-62, License R-66]

Dear Mr. McAlpine:

In its inspection report issued December 20, 1996, the NRC requested that it be notified (within sixty days) of the corrective actions taken, or planned to be taken, in response to emergency exercise weaknesses cited in the report. In addition, it was requested that an estimate of the date for completion of these corrective actions be provided. Please find our response in attachment.

Sincerely,

Robert U. Mulder, Director
U.Va. Reactor Facility &
Assoc. Prof. of Nuclear Eng.

City/County of Albemarle
Commonwealth of Virginia

I hereby certify that the attached document is a true and exact copy of a letter (type of document), presented before me this 17th day of Feb, 1997.
by Robert Mulder (name of person seeking acknowledgement)

Vickie S. Thomas
Notary Public

My commission expires 2/28, 1998.

enc: Response to NRC Emergency Drill Inspection Report
Emergency Drill Scenario

cc: Mr. Craig Basset, NRC Region II, Atlanta, Ga.
Mr. Al Gooden, Radiation Specialist, NRC Region II, Atlanta, Georgia.
Document Control Desk, NRC, Washington, D.C.

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IE01

RESPONSE TO NRC EMERGENCY DRILL INSPECTION REPORT

NRC Observations and Findings

The following findings were extracted from the NRC inspection report No.50-62/96-03 and have been summarized. The NRC inspector identified an Exercise Weakness (EW) for failure by the Emergency Director (ED) to upgrade the drill event from a Notification of an Unusual Event (NOUE) to a General Emergency (GE), rather than an Alert, as was done. An Inspector Follow-up Item (IFI) was identified which will track corrective actions taken to improve performance in the area of communications and timely updates from the incident command post to the backup Emergency Support Center (ESC). The inspector judged the response by the University Relations to activate personnel and prepare press releases to have been untimely.

Comments

The principal weakness identified by the NRC in the past drill involved the failure of the Emergency Director (ED) to upgrade the event from a Notification of Unusual Event (NOUE) to a General Emergency (GE). The inspector contends that the criterion for a GE was met in accordance with EPIP 4.4 which lists *Loss of Physical Control of the Reactor Facility or UVAR.*

The "facts" developed during the drill were: 1) a potential bomb device was found in a corner of the building (far from the UVAR room), 2) a staff member was found injured, possibly assaulted by the bomb perpetrator(s), 3) the facility was evacuated to await bomb squad arrival, 4) a police search of the building following the evacuation for additional devices and intruder(s) yielded negative results, 5) the ED was a witness to the UVAR room having been unoccupied and locked shut at the time of evacuation, 6) no sounds were heard coming from the reactor room on a remotely activated sound monitor following the evacuation, 7) no unauthorized individuals were observed in, or calling from, the building during the drill.

The ED interpreted fact (1) to constitute a *breach of security*, which by EPIP 1.3 is a NOUE. Fact (2), covered under EPIP 1.6 *Personnel injuries...* also is a NOUE. The ED upgraded the NOUE to an Alert because there were two instances corresponding to a NOUE. The ED considered the facts known or communicated to him against criteria listed in EPIP 3 for Site and EPIP 4 for GE. In view of facts (4) through (7), the ED did not associate facts (1) and (2) with "loss of physical control of the facility" for numerous reasons. First, it is unlikely that individuals who set bombs remain in their vicinity. The police search for other devices and perpetrators had negative results (the role of saboteur had not been cast in the drill scenario). The device which had been found had not detonated. The bomb squad had been called and was on the way. Facility reentry could await their arrival, and police and staff were in control of the site. The information provided to the ED did not rule out a reentry into the facility by the bomb squad and the licensee. The hypothetical intruder(s) made no phone calls from the facility and there was no evidence to indicate that intruder(s) had assumed physical control of the building or the UVAR.

Had the drill masters provided the staff with definite information that the building had been taken over, the NRC should not doubt that the required emergency classification upgrade would have been made by the ED. The ED was checking EPIPs 1 through 4, which list criteria for the appropriate classification, on a periodic basis.

Actions and Time-line for Completion

The reactor staff will request approval from the U.Va. Reactor Safety Committee (ReSC) for changes to the UVAR Emergency Plan and its Implementing Procedures necessary to correct weaknesses arising from this drill, by May 1, 1997. The use of global terms such as "loss of physical control" which require subjective interpretation will be reviewed and clarified as much as possible in the EPIPs. Revised EPIPs will be presented to the ReSC for approval by July 1, 1997, and made effective once approved.

At the next scheduled licensee emergency drill desktop training session, the NRC inspection report will be discussed and lessons learned reviewed. Staff members assigned to preparation of confidential drill scenarios will be urged to write "close-ended" drills to be carried out in real, not compressed, time. In future drills an attempt will be made to reach agreement with the NRC inspector before the drill regarding the correlation between information played out to the drillers and the expected responses. Drill participants will be advised to relay information to the ED as accurately as possible. They will be encouraged to interrogate the drill masters whenever the information played out to them appears ambiguous or incomplete.

The University Relations office has been made aware of the NRC's desire to see it fully implement mock actions, such as issuing drill press releases. A number of memoranda were exchanged between the facility, UR and the U.Va. Police about procedures for releasing notices. Prior to the next drill, the UR personnel will be reminded to follow the agreements with regard to emergency drilling.

The UVAR Reactor Safety Committee recently completed an audit of the Emergency Plan and the Implementing Procedures. The staff will submit its response to this audit to the ReSC, following which the committee will decide on all corrective measures to be carried out by the staff in the emergency preparedness area. These measures will be completed by July 30, 1997.

University of Virginia
Nuclear Reactor Facility
1996
Emergency Preparedness Exercise Scenario
for
Tuesday, November 19, 1996

for
Exercise Evaluators only
Not for General Distribution

University of Virginia
School of Engineering and Applied Science
Department of Mechanical, Aerospace, and Nuclear Engineering
Nuclear Reactor Facility
Charlottesville, VA
22903-2442

Objectives:

1. Test emergency situation assessment, job familiarity, and decision-making ability of facility personnel;

2. Functionally test communication systems and the ability of personnel to use them;

3. Test contamination identification and control abilities of staff, if it occurs;

4. Test adequacy and appropriateness of the Emergency Plan and Implementing Procedures;

5. Test response time and performance of university- and community-based emergency aid organizations and staff interactions with the USNRC Emergency Operations Center.

Scope:

The 1996 Emergency Exercise for the University of Virginia Nuclear Reactor Facility is scheduled for Tuesday, November 19, 1996, starting at about 0800 hours and expected to last 1 or 2 hours.

The scenario includes a breach of security by an intruder, a staff member injured by the intruder, and a bomb placed on-site. Local police, fire and rescue personnel are expected to respond appropriately.

The exercise will be terminated soon after the bomb is demonstrated to be a hoax.

All initial, follow-up, and close-out communications will be actually made, by telephone, radio, FAX, e-mail, or other means. None will be simulated.

The response team may request state emergency services aid in:

1. radiological monitoring;

2. notification and evacuation of community personnel in surrounding areas.

If state emergency assistance is deemed necessary, any request for same will be noted, and state personnel will be deemed to have arrived immediately and be available for action.

Any notification or evacuation of persons in the surrounding community will be simulated only.

Scenario victim's transport to the UVA Hospital will be simulated, if it occurs.

Scenario:

Before drill action begins, a fictitious ticking bomb package will be placed on top of the CAVALIER Room pit grate. The room door lock will be placed nearby on the floor and labeled as having been cut.

A student or other person will be made-up as a fictitious, unconscious head-wound victim and placed in the Counting Room hallway, within likely view of intrusion-alarm responders.

The UVAR is expected to be started-up for normal Tuesday operation, with Reactor Supervisor, Paul Benneche, as the normally scheduled operator at the console.

Scenario Events	Local Action Expected	ESC Action Expected
T-10 minutes Tuesday morning, UVAR operating normally at 2 MW.	Reactor operation is actual. Staff and faculty arriving, performing normal activities.	None
T=0 minutes Announcement is made that E-drill is beginning.	Normal activities until some indication of trouble.	None
T=5 minutes Perpetrator gains access to facility through rear door.	None	None
T=7 minutes Perpetrator is in interrupted by a student, who is rendered unconscious, in the Counting Room Hallway, with a head wound, which is bleeding steadily.	None	None
T=10 minutes Perpetrator cuts lock on Cavalier Room door, deposits bomb on top of pit grate, then leaves. Silent door alarm is triggered.	Staff respond to locate cause of alarm at T=10 minutes, or after police arrive.	None
T=15-20 minutes Police arrive at front UVAR door, if silent alarm has not yet been noticed.	Staff surveying scene	
T=25 minutes Staff find Cavalier Room door open, lock cut. Staff find injured person, either immediately or later through accountability exercise.	Recognizing an apparent intrusion, staff discuss further action with police responders. Reactor is shut down, Director is called, and Supervisor takes charge of scene. An Emergency Communicator at the scene is designated. Communications established Call Medic-5 for assistance, activate EPIP 13 when victim is found, render first aid.	Reactor Director enters EPIP 1, sets up ESC, begins event classification. Open EPIP 1, Attachment 3 (Activation/Termination Log) For intrusion only, consider "Unusual Event", which requires initiation of EPIP 2. Activate EPIP 7, Notifications. Consider evacuating all or non-essential personnel and searching for perpetrator. Make initial notifications ASAP.

FOR ANY EVENT THE "ED" WILL CONSIDER UP TO G.E. BUT NOT NECESSARILY DECLARE !

T=30 minutes Ticking bomb is found on top of pit grate.	Relay bomb information to ESC. Sound evacuation alarm and announce. Search for missing person, if necessary. Call for medical assistance and activate EPIP 13 if not yet done, continue first aid.	Consider classification as up to a General Emergency, which requires activation of EPIP 5. Initiate Personnel Accountability, EPIP 11. Missing person (victim) should be discovered no later than this. Make initial or follow-up notifications.
T=<75 minutes Fictitious bomb timer continues to tick.	Possible search for Perpetrator. Set up air sampling, monitoring, and contamination control equipment, in lieu of possible explosion and dispersion of radioactive material. Continue to aid and/or evacuate victim. Follow ESC directions and continue to relay information.	Consider appropriate site responses to the intrusion, bomb, and victim rescue. Pass emergency personnel instructions to on-site staff about what to do about the bomb. Make follow-up notifications.
T=75 minutes (Option 1) Bomb detonates with just a puff of smoke. It will be announced that the bomb was obviously a hoax. Drill terminated when: 1. victim is evacuated; 2. building declared intruder-free; 3. emergency-drill closed-out.	Evacuate victim, if not done yet. Search building for intruder. Assist EPIP close-out actions.	Begin to take recovery actions, as practical, via EPIP 20. Recovery is accomplished via EPIP 20 Re-entry accomplished via EPIP 19 Closed-out and document drill via EPIP 23.