



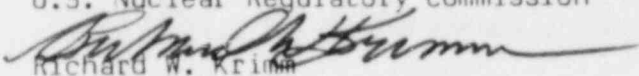
Federal Emergency Management Agency

Washington, D.C. 20472

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JUN 2 1982

MEMORANDUM FOR: Brian Grimes
Director
Division of Emergency Preparedness
U.S. Nuclear Regulatory Commission

FROM: 
Richard W. Krimm
Assistant Associate Director
Office of Natural and Technological Hazards

SUBJECT: Sequoyah Nuclear Power Plant
Exercise Evaluation of Offsite Emergency
Preparedness for the June 16-17, 1980 Exercise

Attached herewith (Attachment 1) is a report prepared by the Tennessee Office of Civil Defense and Emergency Preparedness regarding the June 16-17, 1980, exercise at the Sequoyah Nuclear Power Plant. This report dated August 1, 1980, includes the observations of the FEMA Regional staff and the Radiological Assistance Committee (RAC) members. The State's schedule for deficiency corrections is also included. This material was included in the "Formal 350 Submission" resulting in FEMA's approval of the Plan on August 7, 1980.

Although the utility did not participate, an exercise of the offsite preparedness was held at the Sequoyah Plant on July 7-8, 1981. A letter describing the deficiencies from the RAC Chairman to the Director of the Tennessee Emergency Agency dated July 24, 1981 (Attachment 2) is furnished for your information. Also, another exercise is scheduled for July 1982.

If you have any questions on this matter please contact Mr. Vernon Adler, Chief, Technological Hazards Division, at 287-0200.

Attachments



MILITARY DEPARTMENT OF TENNESSEE
OFFICE OF CIVIL DEFENSE AND EMERGENCY PREPAREDNESS
EMERGENCY OPERATIONS CENTER
3041 SIDCO DRIVE
NASHVILLE 37204
PHONE (615) 741-5181

01 August 1980

Mr. Frank Newton
Regional Director
Federal Emergency Management Agency
Region IV
1375 Peachtree Street NE
Atlanta, Georgia 30309

Dear Mr. Newton:

We in the State of Tennessee have reviewed the findings of the RAC and the observations which they have made on the Sequoyah Exercise which we conducted with TVA on June 16-17, 1980. In addition to the RAC observations (Inclosure No. 1) we have reviewed the comments of the State observers and the observations made by participants in the exercise.

Observations of the exercise from all sources have been analyzed and specific action taken to correct deficiencies. The Exercise Report (Inclosure No. 2) contains background information on the exercise, a Scenario Abstract, Objectives, Summary of Observer Procedures, a list of participating agencies, the Critique Agenda, a listing of comment sources and twenty-six (26) specific findings. Each finding includes brief discussion of the problem and a recommendation for resolving the deficiency. Responsibility and a completion date have been assigned to each one, and we will follow up on these until they have been resolved. (Inclosure No. 3)

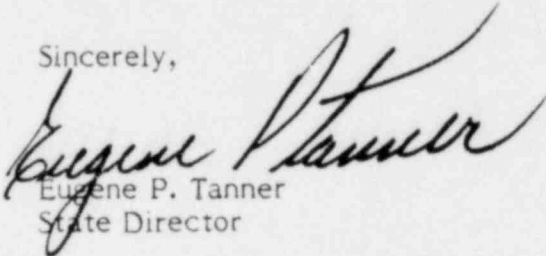
The deficiency in the Tennessee procedures for utilization of Radiological Monitoring Teams which was identified by Mr. Ed Williams and others has been given special attention. We have concluded that an additional Appendix to Annex F of the Plan is necessary to establish and maintain direction and control of these teams. I have attached a draft copy of the Radiological Monitoring Team Utilization Appendix for your information. (Inclosure No. 4) This outlines the procedures which we will use in any future exercise or emergency.

ATTACHMENT 1

Mr. Frank Newton
Page 2
01 August 1980

Let me assure you that we will follow up on all deficiencies which the RAC and we identified in the Exercise. I will keep you advised of progress in their resolution.

Sincerely,



Eugene P. Tanner
State Director

/luc

Inclosures (4)
RAC Observations
Exercise Report
Completion Date and responsibility
Draft of Radiological Monitoring Team
Utilization Appendix



FEDERAL EMERGENCY MANAGEMENT AGENCY
Region IV 1375 Peachtree Street, NE Atlanta, Georgia 30309

(Handwritten initials)

JUN 25 1980

Mr. Eugene P. Tanner
Director of Civil Defense
Military Department of Tennessee
Tennessee Emergency Operations Center
Sidco Drive
Nashville, Tennessee 37204

Dear Mr. Tanner:

I have enclosed observer and participant reports on the State/Sequoyah exercise conducted June 16-17, 1980.

It is my understanding State and local participants and observers did an excellent job of critiquing the exercise and have, in fact, identified most of the problem areas discussed in our reports. While I am aware you have made a number of corrections in your Plan as a result of the exercise critique, I must ask special attention be given to critique items which specifically address off-site radiological monitoring team procedures and capability. We must assure ourselves, prior to submitting the Plan to FEMA National for review, these problem areas are resolved.

Your State has done much in a short period of time to accomplish what you have on the REP Plan. I compliment you for the excellent effort and assure you that RAC IV members and FEMA IV staff look forward to supporting future REP activities in your State.

Sincerely yours,

Harris M. Pope
Chairman, RAC IV

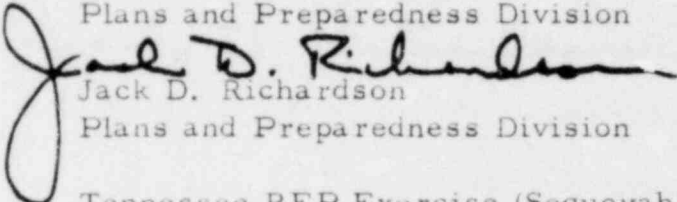
Enclosure



FEDERAL EMERGENCY MANAGEMENT AGENCY
Region IV 1375 Peachtree Street, NE Atlanta, Georgia 30309

JUN 25 1980

MEMORANDUM FOR: Harris M. Pope
Director
Plans and Preparedness Division

FROM: 
Jack D. Richardson
Plans and Preparedness Division

SUBJECT: Tennessee REP Exercise (Sequoyah)

I have attached copies of subject exercise observer and participant reports for your review. In my opinion these should be forwarded to the State as written.

The State and local exercise participants did an excellent job of critiquing themselves and, in fact, pinpointed the items discussed in our reports. In an effort to avoid repetition, I have only three areas to recommend for plans improvement:

- (1) State should plan to notify FEMA Region of situation when "Alert" emergency classification is reached.
- (2) Adjacent state notifications should be handled by FEMA Region rather than State.
- (3) State should reconsider and better define the functions and responsibilities of the State Command Center (forward) located in Chattanooga.

Exercise Observer and Participant Assignments were as follows:

	<u>Observers</u>
TVA CECC	Dick Van Neil
State EOC (Nashville)	Jack Richardson
State CC (Chattanooga)	Ray Boyett
	Bob Trojanowski
Hamilton Co. EOC	Vernon Darley
	Frank Vogel
Bradley Co. EOC	Don Hammonds
State Rad Health (Mobile Team)	Ed Williams

Participants

State EOC (Nahsville)

Bob Gantt

State CC (Chattanooga)

Martin Bevans

Attachment

FEDERAL EMERGENCY MANAGEMENT AGENCY

Plans and Preparedness Office
Radiological Test Facility
Bldg. 22, Washington Navy Yard
Washington, D.C. 20374

June 20, 1980

MEMORANDUM FOR: Frank Vogel, Director, S&L Operational Systems
Division

FROM: *epw* Edward F. Williams Jr. Chief, Radiological Test Facility

SUBJECT: Comments on the Sequoyah Nuclear Plant Exercise

I served as an observer at the State Command Center in Chattanooga, Tennessee on June 16, 1980. I also traveled with one of two radiological monitoring teams deployed from Nashville to Chattanooga after they arrived on the scene. During this observation the following deficiencies were noted in the Tennessee response and in particular in the radiological monitoring program:

1. There appeared to be no plan by the Tennessee Department of Radiological Health (TDRH) personnel for mobile monitoring and deployment of the teams appeared to be without purpose. The team with which I traveled was only assigned to make the measurements during the entire deployment of ~ 3 hours.
2. Communications were grossly inadequate in that the TDRH Director of the radiological monitoring was not in direct contact by radio with his teams and had to relay his instructions through a communicator who was not familiar with the radiological jargon or technical terms.
3. There was no direct communication between the TDRH radiological monitoring program and the radiological monitoring program of the TVA at the State Command Center in Chattanooga. These two elements appeared to be operating independently of each other.
4. The map system and the technique used for deploying TDRH monitoring teams to a particular location was inadequate. Preplanned monitoring points should be employed. This deficiency caused the team which I observed to be lost on a number of occasions.
5. The total number of monitoring teams deployed for this application (two) is not adequate and the deployment time for the State teams was too long ~ 3 hours.

6. The team did not report monitoring information back to the Command Center. However, Mr. West of TDRH says that he instructed the teams not to report monitoring data during the exercise.
7. The air sample instrumentation essential for this kind of monitoring appears to be quite limited requiring the use of an AC generator. It is recommended that air movers that can be operated directly off the automobile electrical system be procured.
8. The team turned in their ID badges to the State Command Center when they deployed to Command Post West and therefore had no means of identification. Once identification is issued to emergency personnel it should be carried by them throughout the exercise or accident.
9. Communications to State Command Center in Chattanooga were extremely poor. Their knowledge of what was happening in the field and at the site were limited and often ran from 30 minutes to 1 1/2 hours behind the time of the actual events.
10. The TDRH monitoring team did not use good monitoring or measuring techniques. Most of the measurements were made inside the vehicle which is not acceptable. However, Mr. West stated that he had not asked the teams to take and transmit readings or to actually go through their monitoring procedures. This was done because he felt that they were well versed of what they would be required to do.

Summary of Observations at SCC and Hamilton County EOC - June 16, 1980 - Frank Vogel

- Most of the comments I would have submitted were covered by others in the critiques. Therefore, only a few points which I feel needed repetition.
- For a no-notice exercise there were alot of people on station prior to the start.
- The scenario adequately exercised the plans of the participants.
- The SCC was behind the scenario some 1 1/2 to 2 hours in the middle of the morning. State must either develop procedures to keep the SCC up to date or decide whether SCC is needed in the early period of an incident since control is exercised from Nashville.
- Rad Health must develop procedures for closer liaison with TVA monitoring activities.
- The Hamilton County EOC was very adequately manned by local government agencies and voluntary agencies operated efficiently and procedures appeared to be adequate.
- Voice communications need to be reviewed and reports more closely monitored for correctness; for example, at 1523 the following message was circulated in the Hamilton County EOC: "Puff released 1200 Rims at 1 mile and 37 Rims at 10 miles." This message was not questioned, yet it had to be incorrect for two reasons; there is no such thing as Rim and 1200 Rems at 1 mile plus 37 Rems at 10 miles would be a major event.
- NOAA Weather Radio and EBS were effectively used.
- The Lovell Field flight pattern places aircraft in potential danger from a release at the Sequoyah Plant. Hamilton County kept the FAA informed concerning exercise releases. This is an action which could be overlooked and should be stressed in all local plans.

OPS

RAD HEALTH

OPS

OPS

Summary of Observations - Emergency Operations Facility (EOF) of TVA
at Chestnut Tower, Chattanooga, Tennessee, June 16, 1980 - C. R. Van Niel

- OPS*
1. TVA personnel performed in a professional manner.
 2. There was some delay and difficulty with the dissemination of information within the EOF.
 3. EOF is on Eastern time while all of the TVA plants, including Sequoyah, are on Central time. Some confusion might result.
 4. NOAA Weather Radio alert reported status of exercise at 1100 and 1550 hours. Good use of system.
 5. Site and General Emergencies confused because of different numbering system (IP-4 & IP-5) for Division of Nuclear Power (DNP) and Sequoyah procedures.
 6. Some confusion on part of EOF personnel as to when to terminate exercise on Monday afternoon.
 7. Some question if EOF received last scenario message (change of wind to 030°).
 8. Status board not utilized effectively.
 9. Good telephone communications system with ring down capability to States, counties and reactor plants.
 10. There may be some delay in coordinating plant data with Muscle Shoals and Nashville.
- TVA*
- OPS*

NOTE: Copy of log being sent separately.



FEDERAL EMERGENCY MANAGEMENT AGENCY
Region IV 1375 Peachtree Street, NE Atlanta, Georgia 30309

June 24, 1980

MEMORANDUM FOR: DIRECTOR, PLANS AND PREPAREDNESS DIVISION

FROM: Rayford H. Boyett, Health Physicist

SUBJECT: Tennessee REP Exercise (Sequoyah)

The Tennessee Sequoyah exercise held on June 16-17 was applauded as a successful exercise by local, State and Federal observers. The Regional Health Physicist observed the exercise from the State forward command center at Lovell Field in Chattanooga, Tennessee.

It is the opinion of this observer that the State and local officials have exercised the major parts of the Tennessee REP plan (i.e., Warning, Protective Response, Communications, Public Information, Notification, Accident Assessment, Radiological Exposure Control, and Medical Support). Due to time constraints, recovery and reentry was not exercised.

Two minor criticisms were observed from the forward command center:

1. The lag of information flowing to the decision makers at Lovell Field, and
2. Slowness of response of State agency personnel to the facility.

These are classified as minor by this observer because they, in fact, may be entirely real in an actual emergency.



FEDERAL EMERGENCY MANAGEMENT AGENCY
Region IV 1375 Peachtree Street, NE Atlanta, Georgia 30309

June 20, 1980

MEMORANDUM FOR: JACK D. RICHARDSON
FROM: *Martin J. Bevens*
Martin J. Bevens
Robert J. Gantt

SUBJECT: Sequoyah Nuclear Power Plant Exercise

Based upon our participation in the Sequoyah Nuclear Power Plant exercise at the Emergency Control Center (ECC) in Chattanooga, and in the State EOC in Nashville on the 16 and 17 of June 1980, the following recommendations are provided.

1. An initial briefing should be conducted by the responsible individual outlining how the situation developed. Thereafter periodic updates should be given indicating whether the situation is improving or deteriorating at the plant.
2. One of the functions of the FEMA position in the ECC in a real emergency would be to prepare periodic SITREPS to be forwarded through the State EOC in Nashville to the National Office. The information that was available was not current. In discussing this with my counterpart at the State EOC he had most information well in advance of the time we received it in Chattanooga. If the ECC is to be of value in an emergency then some system has to be devised to obtain current information for more timely decisions.
3. The configuration of the ECC was not set up properly for an efficient operation. Better separation of elements would be needed in an actual operation.
4. The display system in the State EOC needs revision to provide a better visual description of the developing emergency situation. Maps were the only displays used and could not adequately present all information in a clear manner that could be seen by all participants.
5. The tripartite system worked very well but they were too involved with operations in the State EOC. A location away from the operations tables should be selected for their use which provides some degree of privacy.
6. The FEMA representative needs a position from which to operate in the State EOC that includes access to the FTS system.
7. The front table arrangement in the State EOC needs some thought. A better information display system would have reduced this problem by allowing participants to keep up without moving to the front of the room.

OBSERVER WORK SHEET

For a State and Local exercise in conjunction with

SEQUOYAH NUCLEAR PLANT

on 16-17 June 1980

Team leader is JACK Richardson, FEMA

(Please do not divulge the exercise date, since a number of participants wish to be uninformed on this point in the interest of realism).

POST EXERCISE EVALUATION SESSION WILL BE HELD

on 6-17-80; 1:30 p.m. at Lovell Field, Tennessee
(Date/Time) (Location)

1. OBSERVER DATA:

a. Name VERNON O. DARLEY

b. Organization U.S. DOT/FAA

c. Title Regional Emergency Transportation Representative

d. Business Address P. O. Box 20636

Atlanta, Georgia 30320 Phone: 404 763-7595
246-7595 FTS
(Comm.)

2. GENERAL ASSIGNMENT. You are requested to participate as a Federal Observer in the above listed exercise and attend the Post Exercise Evaluation.

Please be present at Hamilton County EOC, Chattanooga
(Location)

by 0800 o'clock, on June 16, 1980 FOR DUTY.
(time) (date) ~~1978, for the--~~

3. SPECIFIC ASSIGNMENT. (To be completed by Team Leader)

Your specific location/area of interest during the exercise will be
See above.

Return these original worksheets (or readable copy) directly to H. W. Gant - USARC not later than _____ for compilation into a final report. (Please write in complete statements since, in the interest of prompt response, editing of sections 5 and 6 will be almost non-existent.)

As an observer you should be prepared to:

- a. Observe the operational response activities of the Organization/ Area to which you are assigned and record your observations and evaluations and recommendations on the attached forms during or immediately after the Exercise.
- b. Provide a copy of the completed sections 4, 5 and 6 to the State Exercise Coordinator (or his designee) after the Exercise (if requested).
- c. Report orally on Exercise activities during the Critique if called upon to do so.

Attached - Section 4 - Factual observation sheets
Section 5 - Evaluation sheets
Section 6 - General comment sheets

Date 6-19-80

4. ACTUAL OBSERVATIONS. To the extent feasible, record your observations on the following subject areas in the spaces provided. Please be as concrete, detailed and objective as possible. (Preface all comments with an effective time if relevant).

- a. Warning. (Indicate times received and disseminated, from whom, warning means, warning format, etc.)

Notice of unusual event received by telecon from state EOC at 0826.

- b. Emergency Communications. (Indicate methods of communications, effectiveness of equipment, control measures employed, etc.)

Telephone and radio--both effective.

Emergency Medical Actions. (What occurred and when; how handled and by whom; hospitals, ambulances and medical personnel involved, etc.)

Well directed from the EOC by a Dr. Clark, local orthopedic surgeon serving as a volunteer. He and a volunteer assistant did an outstanding job in that they kept on top of the situation by maintaining a running account of available hospital beds and other medical services. Incidentally, during the simulation of responding to an emergency call there occurred an actual emergency in which medical services people actually picked up a heart attack victim who was DOA at hospital.

d. Public Information. (Indicate what public information was disseminated, when, by what means, by whom, on whose authority, etc.)

Excellent cooperation from the press. County CD Director used them effectively to keep public informed. Local emergency broadcast stations carried the simulated emergency six or eight times throughout the day.

Date 6-19-80

- e. Technical Advice. (Indicate what technical advice, when, by whom, to whom, means of communication, etc.)

Not observed.

- f. Team Response. (Indicate what Team; how organized; when notified, when responded; how transported, equipment; communications; actions upon notification, en route, at site, etc.)

All county teams were being competently directed from the county EOC; either employees from the respective response organizations or volunteers with skills in those areas were present to effect coordination of each required effort or response.

Date 6-19-80

4. Actions in Threatened Areas.

- (1) Road blocking activities. (Indicate when, where, on what advice, by whom, how simulated, etc.)

Not observed directly but it was apparent from telephone reports from the "field" that roadblocks were established at the proper places on a timely basis.

- (2) Protection Actions. (Indicate when, what, where, on what advice, by whom, how simulated, etc.)

Not observed directly but it was apparent from control room status reports that all protective actions were taken on a timely basis--including simulated evacuation.

g. Actions (Continued)

- (3) Reception Centers. (Indicate when, where, by whom (organization), procedures employed, how simulated, etc.)

Not observed directly but it was apparent that all county centers designated in the plan were established in a timely manner.

- (4) Other. (Area Control, protective actions other than evacuation, etc.)

Apparently adequate.

- n. Coordination of Support Effort. (Who coordinated what activities, how, when, etc.)

Very effective. Coordination was effected by EOC director, his staff, assigned departmental representatives and volunteers.

- i. Other actions.

5. EVALUATION. According to your best judgment, please provide a summarized account and evaluation of the response activities observed:

- a. Summary. (Summarize the response actions noted in one or two paragraphs.)

All required or appropriate actions were taken. No further elaboration is needed.

- b. Conformance to Plan. (Did the organization observed adhere to the plan? If not, in what respect? Should the plan be changed?)

The company adhered to the plan. An excellent job.

- 10 -

c. Major Strengths and Weaknesses. Bearing in mind the intended participation of the organization, what were the major strengths and weaknesses noted?

(1) Major Strengths.

- (a) Professionally directed.
- (b) Adhered to the plan.
- (c) Excellent cooperation on the part of all participants.

(2) Major Weaknesses.

- (a) None noted in the county.
- (b) Positive and timely direction from the state Control Center at Lovell Field was not apparent in the county EOC.

Date 6-19-80

II

- d. Suggested Corrective Measures. The following means for improving the organization's response capabilities are suggested:

No specific recommendations.

- e. Exercise Objectives. (Indicate degree of accomplishment of Exercise Objectives).

I think that all objectives were met at the county level.

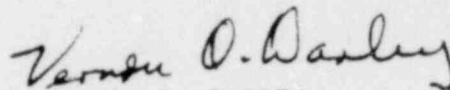
Date 6-19-80

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c. Comments.

Overall, I would grade the exercise play at the county level as very effective. In my opinion, all objectives were met at the county level.

However, I got the distinct impression that some of the participants had advance knowledge of the scenario--especially the timing.



VERNON O. DARLEY

Regional Emergency Transportation Representative
DOT Region IV



FEDERAL EMERGENCY MANAGEMENT AGENCY
Region IV 1375 Peachtree Street, NE Atlanta, Georgia 30309

June 25, 1980

MEMORANDUM FOR: Director, Plans & Preparedness Division
FROM: *Donough C. Hammonds*
Donough C. Hammonds
Plans and Preparedness Division
SUBJECT: Bradley Co., Tennessee, Sequoyah Exercise Report

ACCOMPLISHMENTS

The county response was complete and timely. All key city and county organizations and volunteer service groups were represented in the Emergency Operations Center (EOC). These representatives had evidently been thoroughly briefed on their emergency roles and responsibilities and performed enthusiastically and effectively. The Mayor of Cleveland was present in the EOC throughout the exercise. The County Judge was present during the crucial stages.

All response organizations were activated to the degree necessary to determine that a viable capability exists. Two of the planned five evacuee centers were activated and staffed by red cross, public health, civil preparedness and school board personnel. Emergency Medical Services (EMS) ambulances were coordinated by the service supervisor and were positioned at forward duty locations. Bus runs were actually conducted to simulate evacuation of persons who have no private means of transportation. Monitoring instruments were distributed to emergency workers. Police, sheriffs and fire units participated by deploying and sub-sector command posts were established.

Bradley County is obviously capable of initiating and controlling an evacuation on relatively short notice.

SHORTCOMINGS

K1 is to be pre-distributed to all families within the 10 mile EPZ with instructions to bring the drug with them when they evacuate. It is obvious that in the haste and anxiety of an evacuation many families will fail to do this. There are no provisions for coping with this situation.

Evacuee shelters are to be linked by amateur radio operators. This system was not exercised. County emergency management officials should examine alternatives in the event the system cannot be activated during an actual emergency. County officials should also investigate phone company "line load control" provisions to determine whether they would benefit emergency communications.

The county evacuation plan makes the director of each participating organization responsible for maintaining radiation exposure records for their workers. During the exercise, however, the county RADEF officer explained that he would maintain all exposure records. This conflict should be reconciled. It is recommended that the planned procedure be adhered to.

HEALTH
There is no provision for handling contaminated evacuees except segregation within the evacuee centers. Neither are there provisions for decontaminating emergency workers and vehicles. The county is relying upon State personnel and other resources to cope with contamination. In at least one evacuee center (Oak Grove School) there are no showers. It is unrealistic to expect the State to undertake all decontamination. Local resources must be employed, possibly under state guidance/supervision.

CO
The county EOC is not well suited to support emergency operations. The area (parking garage under courthouse) is poorly ventilated and small. This is particularly true of the communications equipment area. Arrangement of tables and chairs does not leave wall space available for good information display. During the exercise there was little information display and no easily visible posting of wind directions on operations maps.



WMM
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Department of Energy
Oak Ridge Operations
P.O. Box E
Oak Ridge, Tennessee 37830

JUN 20 1980

E. P. Tanner, Director
Division of Civil Defense
and Emergency Preparedness
State of Tennessee
3041 Sidco Drive
Nashville, TN 37204

DOE COMMENTS ON JUNE 16-17, 1980 SEQUOYAH EXERCISE

The June 16-17 Sequoyah Nuclear Plant emergency exercise required relatively little actual and/or simulated response by Interagency Radiological Assistance Plan, IRAP, signatories. Emphasis appeared to be heavily weighted toward evacuation decisions and related actions. We were pleased to hear the positive comments during the June 17 critique held in the SCC at Lovell Field relative to the successful demonstration of this highly important activity. On the other hand, we were disappointed with the communications problems that once again arose and the lack of a clear understanding as to the role of the SCC.

Focusing more directly on IRAP concerns, three needs were particularly evident. The first need is space. During an actual emergency, we can easily envision directing the monitoring activities of four mobile laboratories, one field laboratory, 10-20 monitoring teams, and aerial surveillance. Sufficient space must be provided for this effort.

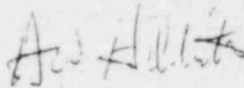
The second need is for a clearly defined goal and local (SCC) State direction for these monitoring activities. Additional preplanning would reduce the associated uncertainties evident during this exercise.

The third need is for direct communication between counterparts. (This point was addressed at the critique by Bill Graham.) With the various operating centers, this could be a formidable problem;

ORIGINAL

JUN 20 1980

however, good decision making demands an interchange of data and insights. The ability to accomplish this goal may rest with the participants rather than with the system; nevertheless, the plan should reflect the desirability of this type of communication and, where possible, facilities should be oriented toward this goal.



H. W. Hibbitts
Health Physicist
Environmental Protection Branch

MS-331

CC:
Bill Graham, TN/Rad. Health
V. J. D'Amico, MS-30
W. H. Travis, MS-33
W. L. Smalley, MS-30



MILITARY DEPARTMENT OF TENNESSEE
OFFICE OF CIVIL DEFENSE AND EMERGENCY PREPAREDNESS
EMERGENCY OPERATIONS CENTER
3041 SIDCO DRIVE
NASHVILLE 37204
PHONE (615) 741-5181

07 July 1980

Major General Carl D. Wallace
The Adjutant General
Military Department of Tennessee
Sidco Drive, National Guard Armory
Nashville, Tennessee 37204

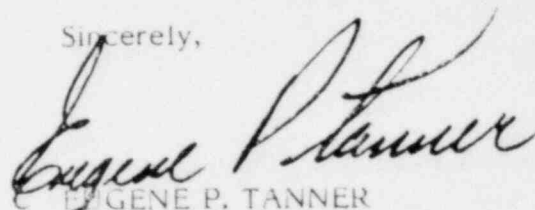
Dear General Wallace:

Attached hereto is the Exercise Report for the Tennessee Multi-Jurisdictional Radiological Emergency Response Plan for the Sequoyah Nuclear Power Facility. The exercise was conducted successfully on June 16-17, 1980. Minor changes have been made to the plan, and it has been forwarded to FEMA by Region IV with their recommendation that it be accepted.

I have designated Gilbert Smith as the individual in civil defense to follow-up on actions which are necessary as a result of the observer and participant comments on the Exercise.

We have a fine working relationship with the utility operator - TVA, and I am confident that if an emergency arises, Tennessee will handle it expertly to protect all of the citizens.

Sincerely,


EUGENE P. TANNER
State Director

/luc

Attachments

SEQUOYAH NUCLEAR POWER FACILITY
EXERCISE

16-17 JUNE 1980

REPORT

PREPARED BY
DIVISION OF CIVIL DEFENSE AND EMERGENCY PREPAREDNESS

BACKGROUND

The Tennessee Multi-Jurisdictional Radiological Emergency Response Plan which was tested by this Exercise was written during the past three (3) months. When new criteria were published in NUREG 0654/FEMA-REP-1, the plan which was tested by Tennessee/TVA last October (October 1979) was no longer adequate. Approval and exercising of the plan was required prior to TVA receiving an Operating License from NRC for the Sequoyah Facility.

Although this was the first Exercise of the Tennessee Plan for Sequoyah under the criteria specified in NUREG 0654/FEMA-REP-1, three (3) previous test exercises had been conducted involving the Sequoyah Facility. They were on March 30, 1977, July 6, 1978, and October 28-29, 1979.

Planning sessions between the State and TVA officials were held to prepare the Scenario and the plan for conducting the Sequoyah "80" Exercise. The details of the Scenario and Exercise were discussed on May 6, in Chattanooga and May 15, at Watts Bar. On June 6 in Nashville, the Exercise Plan was finalized. An observer's briefing was conducted in Chattanooga on June 10, 1980. Observers from the Tennessee Valley Authority, State Civil Defense, Federal Emergency Management Agency, and Nuclear Regulatory Commission attended the briefing.

SCENARIO ABSTRACT

The exercise was initiated from the Sequoyah Nuclear Power Facility at 0715 CDT, June 16, 1980, by simulating severe weather damage to the SQH switchyard which caused loss of off-site A-C power supply. On-site A-C power was lost due to diesel generator malfunction. At 0920 a leak developed in a subsystem of a reactor coolant system loop. An obstruction in the loop caused reduced coolant flow and elevated fuel rod temperatures. The temperature increase caused fuel cladding damage and release of the fuel element gap radioactivity into the primary coolant and subsequently into the containment building. Containment radiation continued to increase and by 1335 EDT, the projected dose rates were 1 Rem/Hr (whole body) and 5 Rem/Hr (thyroid) based on containment activity. Declaration of a General Emergency was indicated. At 1400 EDT a earth-moving pan was pulled away from the reactor containment revealing a containment building crack. A Health Physics survey indicated a gamma radiation level of 100 R/Hr. at 200 meters from the containment building.

Containment activity was released in a short time. The exercise continued until 1630 EDT when evacuation of the risk counties was completed. The exercise was halted until 0800 EDT/17 June when sampling in the Ingestion Pathway was resumed until 1200 EDT, when the Exercise was terminated.

OBJECTIVES

The objectives of the Exercise are covered in the Scenario and are listed as functions of the Scenario. Each response organization had pre-planned specific objectives which they wanted to achieve. The following objectives were provided in accordance with Para N.3.a of NUREG-0654.

1. Ensure activation of State of Tennessee Emergency Operations Center (EOC), local EOC's, State Control Center and TVA - Central Emergency Control Center (CECC).
2. Activate alerting, notification and warning procedures for State, TVA, Hamilton, and Bradley Counties.
3. Include events that will activate the site Radiological Emergency Plan (REP).
4. Ensure that communication links are exercised. These include TVA ECC's, State EOC, Hamilton and Bradley County EOCs', and all Command Posts.
5. Test the emergency response capabilities of TVA, State Organizations, local support agencies, and appropriate Federal Agencies.
6. Require certain protective actions be taken for the plume exposure and ingestion pathways. This includes evacuation (simulated or actual) of off-site areas.
7. Ensure periodic public information releases.
8. Acquire the use of designated off-site emergency medical facilities and ambulance services.
9. Test recovery procedures.

OBSERVER PROCEDURES

Staff planners from the Division of Civil Defense, Tennessee Department of Agriculture, and Tennessee Department of Public Health were designated as Exercise Observers with the following general responsibilities.

Observers planned to be in-place at their designated locations prior to declaration of the unusual event. They were instructed to keep a record of directions given, when and by whom, so that operation and control of the emergency could be evaluated. Observers were also furnished situations and problems which were pre-numbered to be introduced at a specific time. These situations were intended to "add to the problems", which would occur in an emergency. Evaluation of the adequacy of Planning, Manning, Training, Communications, Facilities, Operations, and Logistics were to be provided by the observers.

Observers were also instructed to evaluate the planning which was done to provide coverage over an extended period of time if that became necessary. Since the Exercise was planned to be no-notice, observers were directed to keep the date and time confidential and not let participants know when the exercise would be conducted.

Self-evaluation is an important part of any Exercise, and participants were requested to provide comments on the exercise. Written comments from participants and State Observers are available at the Tennessee Civil Defense Division. Specific Findings and Recommendations are included in this report.

An oral critique was conducted at 1330 on 17 June 1980 at the State Control Center, Lovell Field, Chattanooga, Tennessee. A transcript of the oral critique is available at the Tennessee Civil Defense Division. Highlights of the critique are included in Findings and Recommendations.

PARTICIPATING STATE AGENCIES

OFFICE OF THE GOVERNOR
DEPARTMENT OF AGRICULTURE
DEPARTMENT OF CONSERVATION
DEPARTMENT OF HUMAN SERVICES
DEPARTMENT OF MILITARY
DEPARTMENT OF PUBLIC HEALTH
DEPARTMENT OF SAFETY
DEPARTMENT OF TRANSPORTATION
TENNESSEE WILDLIFE RESOURCES AGENCY
DIVISION OF CIVIL DEFENSE AND EMERGENCY PREPAREDNESS
HAMILTON AND BRADLEY COUNTIES

PARTICIPATING FEDERAL AGENCIES

DEPARTMENT OF ENERGY
FEDERAL EMERGENCY MANAGEMENT AGENCY
U. S. COAST GUARD
NUCLEAR REGULATORY COMMISSION
NATIONAL WEATHER SERVICE

PARTICIPATING **PRIVATE/SEMI-PRIVATE** AGENCIES

AMERICAN RED CROSS
TENNESSEE VALLEY AUTHORITY

ADVISORS

SAMUEL E. BEALL, JR.
Consultant to the Governor

SEQUOYAH "80" CRITIQUE

Tuesday, 17 June 1980 1330

State Control Center

AGENDA

Invocation	H. H. Bixler
Opening Remarks	Gilbert Smith
Acknowledgements	
Scenario Preparation Team	
State Observers	
FEMA Support	
TVA Cooperation	
State Emergency Operations Center	Lacy Suiter/ David Inman
State Control Center	John Keese
Hamilton County	Bill DeBrocke
Bradley County	Don Gardner
TVA	John Lobdell/ Ed Webb
State Observer Comments	
Ray Bird - BC EOC	Harold Fuque -- HC EOC
Jake Brooks - BC CF	Don Dallenbach - SEOC
Charles Edwards - Mobile	Charles West --Rad. Health
Gil Smith - SCC	Jimmy Cagle - Agr.-SCC
Radiological Health	Bill Graham
FEMA	Jack Richardson/ Bob Trojanowski
NRC	John Sears/ Don Cameron/ Joe Neudecker
Tripartite Comments	Samuel Beall
Closing Remarks	Col. Eugene P. Tanner

NOTE: Complete tape of Critique available at Tennessee State Division of Civil Defense.

**LISTING OF COMMENTS
FROM SEQUOYAH "80" EXERCISE**

Tennessee Valley Authority
U. S. Department of Energy
State of Georgia
State Emergency Operations Center
 Operations
 Public Information
Department of Public Health
 Water Quality Control
Department of Agriculture
Hamilton County EOC
Bradley County EOC
State Liaison Officer (Hamilton, Bradley, TVA)
Department of Transportation
Department of Military
State Control Center (2)
 Information
Department of Safety
Communications
 State EOC
 State Control Center
State Observers
 State EOC (CD, RAD Health, AGR.)
 State Control Center (CD, AGR.)
 Hamilton County EOC
 Bradley County EOC
 Command Post
 Mobile
 Transcript of Critique
Federal Emergency Management Agency

NOTE: Findings and recommendations are included in this Report. Complete file of comments is available at Tennessee Division of Civil Defense.

FINDINGS BY SUBJECT AREA

1. Arrangement and Procedures in EOC's
2. Standardize Display Boards
3. Message Handling within EOC's
4. "Get Ready" Warning Messages
5. Update Briefings in EOC
6. Requirements for State Control Center
7. Recommended EOC Layout for Counties
8. Keeping all Informed
9. TVA Representation at SEOC & SCC
10. Adequacy of Warning System
11. Hard Copy Information on Facility Status
12. Requirement for "as of" Time of Events
13. Timing of Meteorological Data
14. Using Assistance Available
15. Timely Dose Projections
16. Control of Radiological Monitoring Teams
17. Sample Size Information in Plan
18. Public Information
19. Agriculture Extension Agent & TDA Agents
20. Chattanooga Water Storage Capacity
21. Communications Equipment Requirements
22. Training Radio Communicators
23. Requirement for No-Notice
24. Planning for FAA Support
25. Risk Counties Coordinating Assistance
26. Test Recovery and Restoration Procedures

FINDING

No. 1

The Emergency Operations Center (EOC) arrangements did not provide optimum conditions for utilization of personnel.

DISCUSSION

Congestion around status maps, tables, and controller's telephones caused some problems because of interference from noise and the crowded conditions. EOC staff personnel were not located adjacent to other personnel with whom they needed to coordinate various actions. For example, Rad Health, Air Pollution Control (Metro), Agriculture, TVA Radiation Specialists, and Water Quality Control all are involved in the same kinds of activity. They should be physically located near each other. Other agencies have the same requirement.

RECOMMENDATION

Review the job to be done by each member of the EOC staff and locate those within a specific area of responsibility adjacent to one another insofar as possible. Review EOC arrangement and procedures and change to increase efficiency.

Action Agency: Tennessee State Civil Defense

Action Official: Lacy Suiter Completion Date: 1 October 1980

FINDING

NO. 2

Visual display boards did not provide sufficient information in some of the Emergency Operations Centers (EOC's).

DISCUSSION

As much of the area situation, both static and active, as can be displayed, needs to be shown on situation maps and status display boards. This information is absolutely essential in a real emergency because personnel must be able to grasp the status changes readily especially when a personnel change takes place. Such information as location of Traffic Assist Teams, Command Posts, Shelter Information Points, Road Blocks, Mass Care Shelters, and Radiological Laboratories should be displayed for all to see. Sector designations and the status of evacuation from each area, plume location, weather information (wind direction and velocity, and atmospheric stability), and current Emergency Classification are essential items of information for several agencies in the EOC to have available to them. A tone alert system may be necessary to indicate that a change in status is being posted. Status of some items may be indicated by a magnetic miniature of one (1) color for the planned location and another color when it is activated. Each Department can provide information on status boards affecting them.

RECOMMENDATION

Require input from all personnel who have any EOC responsibility and determine what display information will be available in each Operations and Control Center. Standardize displayed information.

Action Agency: Tennessee State Civil Defense.

Action Official: John White Completion Date: 1 October 1980

FINDING

NO. 3

Message handling and distribution within the Emergency Operations Centers (EOC's) were not entirely satisfactory. A message-handling system which will keep all people in the EOC informed is required.

DISCUSSION

Message traffic involved many agencies. Some were operational and others were of a technical nature. Personnel who are unfamiliar with technical terms have difficulty copying the information if it is given over telephone circuits. Accuracy of technical information can be very critical in the decision process. Hamilton County Civil Defense has developed a message-handling system which worked extremely well during the Exercise. Well informed participants are better prepared to handle problems effectively.

RECOMMENDATION

Review the Hamilton County Civil Defense EOC message-handling system, and adapt it as necessary for use in all EOC's.

Action Agency: Tennessee State Civil Defense

Action Official: Gilbert Smith Completion Date: 1 September 1980

FINDING

NO. 4

Get-ready warnings were provided by the State Emergency Operations Center (EOC) to subordinate units. This helped them be prepared to execute directions more expeditiously.

DISCUSSION

The Plan does not require that "get ready" messages be sent to the State Control Center (SCC) and County EOC's prior to a change in Emergency Classification. When the system provides hard copy information to all EOC's and the SCC, they will be aware of a stable, improving, or deteriorating condition at the facility and can prepare accordingly.

RECOMMENDATION

Discuss the advantages as well as the problems in providing "get ready for" messages, and if it is determined they are helpful, establish procedures.

Action Agency: Tennessee Division of Civil Defense

Action Official: Larry Suiter Completion Date: 1 October 1980

FINDING

NO. 5

Procedures for providing information to be included in up-date briefings should be reviewed.

DISCUSSION

Various procedures were used at the Emergency Operations Centers/State Control Center (EOC's/SCC) to keep personnel informed of status changes periodically. In some cases, the person in charge attempted to bring everyone up to date while in others, a microphone was passed around for each agency to report updated information.

RECOMMENDATION

A standard method of receiving and giving updated information to all personnel in the EOC/SCC should be developed. Develop a Standard Format.

Action Agency: Tennessee State Civil Defense.

Action Official: Gilbert Smith Completion Date: 1 September 1980

FINDING

NO. 6

The functions of the State Control Center (SCC) as currently planned at Lovell Field was questioned by a number of observers.

DISCUSSION

Personnel at the SCC were highly motivated. The SCC is envisioned as a command and control agency near the site. The current facility cannot provide such capability due to physical layout and communications limitations. It is generally agreed that there is a requirement for media handling in the Sequoyah area. The SCC, as currently set up, cannot perform that function. A near-site facility to coordinate utilization of various State resources is considered necessary. Plant information available to the SCC was late and inaccurate which made it impossible to be in a position to control activity.

RECOMMENDATION

Determine the requirements for a State near-site facility and its functions. Consider a location adjacent to the Central Emergency Control Center (CECC) where media information can be provided and essential functions in the near-site area can be coordinated.

Action Agency: Tennessee State Civil Defense and TVA

Action Official: Elgan Usrey Completion Date: 1 October 1980

FINDING

NO. 7

Some counties have inadequate facilities to manage an emergency which can occur from a Nuclear Power Facility.

DISCUSSION

It was reported that some facilities lacked water, sanitation, adequate room and comfort for extended operations.

RECOMMENDATION

Prepare a document which lists the recommended Emergency Operations Center (EOC) layout and requirements for those counties involved in the Emergency Planning Zone (EPZ) of Nuclear Power Facilities.

Action Agency: Tennessee State Civil Defense and Risk Counties

Action Official: John Keese Completion Date: 1 April 1981

FINDING

NO. 8

The Bradley County Emergency Operations Center (EOC) was not kept fully informed of plans conditions until late in the Exercise.

DISCUSSION

Since information on a radiation release from Sequoyah was slow arriving at the State Emergency Operations Center (SEOC), wind information from Muscle Shoals did not arrive when it should to coincide with the radiation release information. This caused a problem in plotting the direction in which the plume traveled initially. Since the plume was not plotted to travel toward Bradley County, they were not involved. Subsequent action in the form of a "puff" did get them involved. Radiological Monitoring crews did not send information which verified where the simulated radiation was located.

RECOMMENDATION

All EOC's should receive a hard copy of what's happening at the facility. RAD Health should provide simulated radiation readings for monitoring crews to send to the SEOC.

Action Agency: Tennessee State Civil Defense, TVA, and RAD Health

Action Official: Elgan Usrey Completion Date: 1 October 1980

FINDING

NO. 9

Validity of need for TVA representation at the State Emergency Operations Center (EOC) and State Control Center requires review.

DISCUSSION

A TVA representative was not assigned to the State Control Center when specified in the Plan. Although TVA stated that a representative would be assigned in an actual emergency, it is important to have one during an Exercise to work out procedures which will be used during an actual emergency. The State needs to know the significance of problems which are reported concerning the facility. Decision makers should also be advised whether the problem is stable, deteriorating, or improving.

RECOMMENDATION

State Civil Defense and TVA discuss the need for TVA representation at the SEOC and SCC. If the need is valid, a representative knowledgeable with the plant operation should be in place at Site Emergency or General Emergency.

Action Agency: Tennessee State Civil Defense and TVA

Action Official: John Keese Completion Date: 1 October 1980

FINDING

NO. 10

The warning system is not adequate to alert all people within the ten-mile (10) Emergency Planning Zone (EPZ) within fifteen (15) minutes.

DISCUSSION

The primary warning system is the use of emergency vehicle sirens. If the counties are given adequate warning so that the vehicles can be prepositioned at the start of their warning route, they can cover the area within fifteen (15) minutes. Without prior notification, it will take 30-45 minutes to alert the population-at-risk. This does not meet the warning criteria.

The design objective in NUREG 0654 specifies notification of all people within five (5) miles of the facility and ninety percent (90%) of these located between five and ten miles (5-10) within fifteen (15) minutes. The remaining ten percent (10%) must be notified within 45 minutes.

The expected frequency of incidents/accidents at a nuclear power facility are as follows according to NUREG-0610.

Unusual event -- Once or twice per year per unit.

Alert -- Once in 10 to 100 years per unit.

Site Emergency -- Once in 100 to once in 5,000 years per unit.

General Emergency -- Less than once in about 5,000 years per unit.

Life-threatening doses off-site (within 10 miles) once in about 100,000 years per unit.

RECOMMENDATION

Question the validity of the requirement for all people living within five (5) miles and ninety percent (90%) of those within 5 - 10 miles to be notified

within 15 minutes. When the cost of notification within 15 minutes, compared to the cost in 30-45 minutes is considered, according to the risk, the shorter time appears unjustifiable.

Action Agencies: Tennessee State Civil Defense, Tennessee Valley Authority, Federal Emergency Management Agency, and Nuclear Regulatory Commission

Action Official: Truett Frazier Completion Date: Open

FINDING

NO. 11

A report of the conditions at the Sequoyah Facility was not forwarded to all activities who needed the information on a timely basis.

DISCUSSION

If timely decisions are to be made to handle an emergency situation and to protect the public, decision makers must have information accurately and as soon after the condition occurs as possible. Dedicated telephone circuits were available to provide this information. Simulated conditions were introduced by a TVA Observer at the Sequoyah Facility starting at 0715 EDT on 16 June 1980. Delays from several minutes to over an hour were common in getting the information to some Emergency Operations Centers. Although the plant information may not be essential for decision making at the county level, it does help keep the county officials informed so that they are more nearly ready to respond when directed by the State EOC.

RECOMMENDATION

A system should be provided which will transmit plant condition information and other critical data to the State EOC, County EOC's, and State Control Center simultaneously with the flow of data to TVA. This information should be in "hard copy" form so that the chance for error is minimum.

Action Agency: Tennessee Division of Civil Defense and Tennessee Valley Authority.

Action Official: Elgan Usrey/David Inman Completion Date: 1 October 1980

FINDING

No. 12

The "as of" time of events at the facility could not be determined.

DISCUSSION

In the Exercise, simulated conditions and events were introduced at the Sequoyah Facility at times specified by the Scenario. This information was passed by voice over a dedicated circuit to the TVA - Central Emergency Control Center (CECC) in Chattanooga where it was then passed to the State Emergency Operations Center (EOC). It was not possible to determine when the event took place at the facility. In a real emergency, this information would be critical.

RECOMMENDATION

Include message number and time of event in a hard copy of information concerning facility conditions.

Action Agency: TVA and Tennessee State Civil Defense

Action Official: Elgan Usrey/David Inman Completion Date: 1 October 1980

FINDING

NO. 13

Meteorological data did not arrive at the Agencies where it was needed in a timely manner.

DISCUSSION

The Metro Tower near the facility normally sends weather information directly to Muscle Shoals. This weather information is furnished to Health Physics personnel for them to calculate projected dose rates to be forwarded to the State Emergency Operations Center (EOC). Since the Exercise Plan called for weather data to be introduced as specified (not current actual weather) it was important that the timing of weather condition coincide with reported conditions at the plant for that same time. Delays in furnishing plant information to the State EOC caused decisions to be made from out-of-phase weather data. In some cases, the weather data was introduced from the TVA-Central Emergency Control Center (CECC) at Chattanooga, further complicating the problem.

RECOMMENDATION

TVA Metro at Muscle Shoals should use the simulated weather data for their report to State Rad Health and to TVA Health Physics in an exercise. In an actual emergency, use the weather data from the Metro Tower at Sequoyah to Metro-Muscle Shoals, then to all concerned agencies.

Action Agency: TVA.

Action Official: Elgan Usrey Completion Date 1 October 1980

FINDING

NO. 14

Some Agencies coordinated extremely well with their counterparts, while others tried to handle every problem themselves and failed in some cases.

DISCUSSION

The Division of Water Quality Control personnel at the State Control Center (SCC) worked closely with their counterparts at the State Emergency Operations Center (SEOC) and recommended timely action to prevent simulated radiation of the water systems downstream from Sequoyah. A situation was given to the Hamilton County EOC and the SCC requesting information on the extent of radiation five (5) miles from Sequoyah. Hamilton County contacted the SCC. This question was never answered. In an actual emergency situation, many people can call requesting information on the emergency. Timely response to queries is necessary. If the answer is not available at one level, it should be passed on to the next Agency for reply.

RECOMMENDATION

Each response organization indoctrinate its personnel to handle problems expeditiously and not hesitate to contact other individuals for assistance.

Action Agency: All participating agencies

Action Official: David Inman/Anne Stringham Completion Date: 1 September 1980

FINDING

No. 15

Accurate and rapid calculation of projected dose exposure was not provided.

DISCUSSION

In order for the Tripartite Committee and other decision makers to make accurate, timely decisions, they must have accurate, timely information on the radiation dose projection involving the population-at-risk. TVA has the capability at the facility and at Muscle Shoals to make these calculations. The dose rates can be validated by Tennessee Division of Radiological Health (TDRH). If an emergency develops at Sequoyah, and the problem deteriorates to a General Emergency Emergency Classification - 4 (EC-4), prompt action must be taken to protect the people. There may not be time to discuss the calculations when the public is endangered. Action is necessary.

RECOMMENDATION

TVA provides the State EOC projected dose information. The TDRH should calculate dose projections to confirm the TVA figures. The State Emergency Operations Center (EOC) and TDRH should present the information to the Tripartite for their recommendations to the Governor concerning evacuation.

Action Agencies: TVA, TDRH, Tennessee State Civil Defense

Action Official: Anne Stringham - TDPH Completion Date: 1 September 1980

FINDING

NO. 16

Coordination of Radiological Monitoring Team Activities was not conducted by Tennessee Division of Radiological Health (TDRH) personnel.

DISCUSSION

Some Divisions of Public Health were not aware of support available from TVA, Department of Energy (DOE), Southern Mutual Radiation Assistance Plan (SMRAP), and other State Agencies in monitoring teams and laboratories. Control of teams available was not coordinated so that Rad Monitoring Team location in the field was known at all times or so that sample collectors could be directed to the nearest laboratory with field samples. Location of laboratories is necessary so that any agency which collects samples can be directed quickly and safely to the lab. The primary responsibility of Radiological Monitoring Teams is to provide radiation information from various pre-selected locations to verify projected dose calculations.

RECOMMENDATION

The appropriate Division of Public Health should establish a grid system with easily located landmarks or crossroads for Rad monitoring teams to be directed to for sampling, primarily within the ten-mile (10') Emergency Planning Zone (EPZ). Rad Health predetermines where mobile and fixed laboratories should be located for expedited analysis of samples. Identify these locations on a map for ease in locating them. Several suitable locations for mobile labs should be selected so that the safest can be utilized depending upon the wind conditions.

Action Agency: TDRH.

Action Official: Anne Stringham-TDPH Completion Date: 1 September 1980

FINDING

NO. 17

Sample size requirements were not provided Tennessee Department of Agriculture (TDA) personnel by RAD Health.

DISCUSSION

Agriculture Department personnel were ordered to the Ingestion Pathway area to collect samples to be checked for radiation. When they returned with the samples of milk, produce, and grain; they were told that the samples should have been larger.

RECOMMENDATION

Tennessee Division of Radiological Health (TDRH) provide the TDA specific information to be included in Part III of the Plan on sample requirements.

Action Agency: TDRH and TDA

Action Official: Anne Stringham - TDPH Completion Date: 1 September 1980

FINDING

NO. 18

Release of Public Information appeared to be handled very effectively.

DISCUSSION

The Plan does not require a Public Information representative at the State Control Center (SCC) in Chattanooga. One was assigned there during the Exercise. News Media will arrive at various places to obtain information on the emergency. The Plan is specific in the guidance on who may release off-site information. The release of off-site information by the Emergency Broadcast System (EBS) (WDOD) and National Oceanic and Atmospheric Administration (NOAA) Radio was very effective for Hamilton County. However, Bradley County was not covered with evacuation announcements by their EBS Radio Station (WBAC). A primary function of the State near-site location is to handle news media representatives in the area. Most of this function was assumed by Hamilton County Emergency Operations Center (EOC). It was handled very effectively. However, the Plan does not specify that method.

RECOMMENDATION

The Emergency Information Officer should review the procedures specified in the Plan, the procedures used during the Exercise, and in coordination with other information personnel determine what changes to the Plan are appropriate.

Action Agency: Emergency Information Officer

Action Official: Keel Hunt Completion Date: 1 September 1980

FINDING

NO. 19

Responsibilities of the University of Tennessee Agriculture Extension Service personnel is not generally understood by Non-Agriculture Department personnel. Tennessee Department of Agriculture (TDA) agents are difficult to contact in the field.

DISCUSSION

Extension Service personnel are not employees of the Tennessee Department of Agriculture. They have, however, been very helpful in surveying farms to obtain information which is included in the Plan. With prior coordination, they would be available to assist, if required, during an emergency. The TDA agent in the area could not be contacted until over five (5) hours after the Exercise started. Although this was soon enough to handle Ingestion Pathway matters, it did not satisfy coordination requirements for Agriculture sampling in the Emergency Planning Zone (EPZ). Overall, the responsibilities of the TDA were carried out exceptionally well.

RECOMMENDATION

TDA provide information to all county Civil Defense Directors in the 50-mile radius around the Nuclear Power Facilities concerning the functions and responsibilities of Extension Agents. Also, that TDA take action to establish a system to get in touch with TDA personnel in the EPZ within a reasonable period of time.

Action Agency: Tennessee Department of Agriculture

Action Official: Jim Thomas Completion Date: 1 September 1980

FINDING

NO. 20

Water storage capacity for the City of Chattanooga is sufficient for less than one (1) day at normal consumption rate.

DISCUSSION

Downtown Chattanooga is supplied with finished water directly from the high service pumps operated by Tennessee Water Company without benefit of storage capacity in addition to the clear well which supplies the high service pumps. If a radiation release from Sequoyah made it necessary to close the intakes from the Tennessee River, the water supply to the city would be critical.

RECOMMENDATION

Determine whether the risk is so great that additional water storage capacity for the City of Chattanooga is essential for the safety and well being of its citizens.

Action Agency: Tennessee Department of Public Health.

Action Official: Terry Cothern Completion Date: 1 September 1980

FINDING

No. 21

Telephone lines failed and were not immediately repaired. Communications requirements should be reviewed.

DISCUSSION

The person who normally expedites resolution of telephone problems for the State Emergency Operations Center (SEOC) was on vacation when the Exercise started. Two (2) critical (TVA Chairman and RAD Health) ringdown circuits failed at the SEOC. The circuit to Signal Mountain from the State Control Center (SCC) was also inoperative. Some of these circuits were out for over six (6) hours. One (1) member of the Tripartite Committee was located at the TVA - Central Emergency Control Center (CECC). He utilized the dedicated circuit to SEOC to discuss Tripartite matters with the committee members there. This was necessary and important for the job, but it prevented the State Liaison official at the CECC from talking over the line to his counterpart at the SEOC.

RECOMMENDATION

Analyze total communications requirements. Schedule system and line changes based upon the analysis. Indoctrinate all concerned personnel with changes and publish change to Annex G of the Plan.

Action Agency: Tennessee State Civil Defense and TVA.

Action Official: Truett Frazier Completion Date: 1 September 1980

FINDING

NO. 22

Some personnel who needed to receive and transmit information via radio had little or no training in radio procedures.

DISCUSSION

The Civil Defense radio net was set up with network control at the State Control Center. The individual who handled the base station was well qualified and maintained control of radio traffic. The two (2) channels planned for the exercise were inoperative until about six (6) hours after the exercise started. The THP radio net was used during this time. RAD Health should have had a person near the radio net controller to talk to the Radiological Monitoring Teams and to guide and coordinate their efforts. Any personnel who operate radio equipment need some training in proper procedures.

RECOMMENDATION

All response organizations should arrange to receive training in radio procedures from Civil Defense personnel unless they have qualified radio operators to provide their own training.

Action Agency: Tennessee State Civil Defense

Action Official: David Inman Completion Date: 1 June 1981

FINDING

NO. 23

Some participants were aware of the date of the Exercise although it was no-notice.

DISCUSSION

When many Agencies take part in an Exercise of this nature and the public needs to be notified, it is difficult to conduct it on a no-notice basis. Although every effort was made by the Exercise Planners to keep the date confidential, some participants knew ahead of time when it would occur. It is understandable that all response organizations want to do an outstanding job. In an exercise, several individuals who would take an active part in an emergency are not available because they are observers of the exercise. Several agencies had to be ready if they were to participate. These included the Governor's Office, Federal Emergency Management Agency (FEMA), Nuclear Regulatory Commission (NRC), as well as State and local organizations, TVA, and the news media. The period of 7-21 June was published as the liability period for the Exercise. Although the State was not criticized for some people knowing ahead of time and being "set on go" when the Exercise starts, realistically in an actual emergency, there would be no advance warning.

RECOMMENDATION

All agencies which "need to know", select a person to be contacted by the Exercise Planner. This person will be given the specific date, time, and scope of the Exercise. FEMA, NRC, and TVA appoint a "trusted agent" who will be contacted by the State Exercise Planner. The liability period should cover a thirty (30) day time span.

Action Agencies: All participating organizations

Action Official: Gilbert Smith Completion Date: 1 September 1980

FINDING

NO. 24

Federal Aviation Administration (FAA) support was not pre-planned although it was handled effectively when the requirement was presented.

DISCUSSION

If an emergency occurred at the Sequoyah Nuclear Power Facility, general aviation aircraft could be a problem if not restricted from the area. Passengers of commercial aircraft landing at Lovell Field could also be endangered if flown through the Plume Exposure Pathway. A simulated problem was introduced at the SCC and was handled well by local FAA control personnel when contacted.

RECOMMENDATION

Include appropriate FAA Agencies as Task Organizations to handle air traffic matters during an emergency at Sequoyah.

Action Agency: Tennessee State Civil Defense.

Action Official: Gilbert Smith Completion Date: 1 September 1980

FINDING

NO. 25

The plan requires various State Agencies to provide support to the counties. It does not specify how the counties and State Agencies will coordinate requirements.

DISCUSSION

Departments of Safety, Transportation (TDOT), Agriculture (TDA), Military, etc., will be required to furnish some resources to the risk counties, especially if the emergency is prolonged. All requirements may not be known until the actual emergency arises. Some Departments have coordinated with the counties, and specific requirements have been identified. Others expect to provide assistance but contact was not made with them during the exercise. For example, TDOT was never contacted to help the counties block roads after the evacuation was ordered.

RECOMMENDATION

Risk counties determine, so far as possible, what various departments will be called on to furnish. Appropriate parts of the county procedures should be coordinated with the applicable department.

Action Agency: Risk Counties and State Departments as applicable.

Action Official: Lacy Suiter

Completion Date: 1 October 1980

FINDING

NO. 26

Recovery and restoration procedures were not exercised.

DISCUSSION

After an area has been evacuated, the emergency terminated and radiation release stopped, the evacuated area must be checked so that people may return to their homes safely. Procedures for recovery and restoration are included in Part IV of the Sequoyah Plan. However, no recovery actions were exercised.

RECOMMENDATION

Review procedures outlined in Part IV of the Sequoyah Plan and determine their adequacy. Insure that recovery procedures are tested in all future exercises.

Action Agency: Tennessee State Civil Defense and Tennessee Division of Radiological Health

Action Official: Gilbert Smith

Completion Date: 1 December 1980



MILITARY DEPARTMENT OF TENNESSEE
OFFICE OF CIVIL DEFENSE AND EMERGENCY PREPAREDNESS
EMERGENCY OPERATIONS CENTER
3041 SIDCO DRIVE
NASHVILLE 37204
PHONE (615) 741-5181

01 August 1980

TO: See Distribution Below
FR: Eugene P. Tanner *E.P.T.*
Director, Civil Defense
SJ: Follow-Up Action on Sequoyah Exercise

The Exercise Report for Sequoyah dated 7 July 1980 has been forwarded to your Department. In order to correct those deficiencies which were identified in the exercise, I appointed Col. Gilbert Smith to follow up with the responsible agency.

As a part of the follow-up action, a schedule has been prepared which indicates the individual, by name, responsible for the follow-up action and a scheduled completion date when the deficiency should be resolved. Attached hereto is a copy of the schedule and a Report Form on which progress in correcting each deficiency may be recorded.

Please keep Col. Smith informed of the status of the finding for which you are responsible. His phone number is 741-5181.

/luc

xpc: Mr. Lacy Suiter
Mr. John White
Mr. Elgan Usrey
Mr. John Keese
Mr. Truett Frazier
Mr. David Inman
✓ Mr. Gilbert Smith
Ms. Anne Stringham, Tenn. Dept. of Public Health
Mr. Terry Cothem, " " " "
Mr. Jim Thomas, Tenn. Dept. of Agriculture

ACTION OFFICIAL FOR COMPLETION OF DEFICIENCIES

COMPLETION DATES

FINDING NO.	ACTION OFFICIAL	COMPLETION DATE
1	Lacy Sutter	1 October 1980
2	John White	1 October 1980
3	Gilbert Smith	1 September 1980
4	Lacy Sutter	1 October 1980
5	Gilbert Smith	1 September 1980
6	Elgan Usrey	1 October 1980
7	John Keese	1 April 1981
8	Elgan Usrey	1 October 1980
9	John Keese	1 October 1980
10	Truett Frazier	Open
11	Elgan Usrey/David Inman	1 October 1980
12	Elgan Usrey/David Inman	1 October 1980
13	Elgan Usrey	1 October 1980
14	David Inman/Anne Stringham	1 September 1980
15	Anne Stringham - TDPH	1 September 1980
16	Anne Stringham - TDPH	1 September 1980
17	Anne Stringham - TDPH	1 September 1980
18	Keel Hunt	1 September 1980
19	Jim Thomas	1 September 1980
20	Terry Cothran	1 September 1980
21	Truett Frazier	1 September 1980
22	David Inman	1 June 1981
23	Gilbert Smith	1 September 1980
24	Gilbert Smith	1 September 1980
25	Lacy Sutter	1 October 1980
26	Gilbert Smith	1 December 1980

TENNESSEE MULTI-JURISDICTIONAL RADIOLOGICAL EMERGENCY RESPONSE PLAN

DEFICIENCY CORRECTION REPORT

FINDING NO. _____ FIXED NUCLEAR POWER FACILITY _____

SUBJECT:

ACTION AGENCY: _____

ACTION OFFICER: _____

TELEPHONE NO. _____

COORDINATING AGENCY: _____

PLANNED COMPLETION DATE: _____

STATUS OF PROGRESS

APPENDIX 22, ANNEX F
RADIOLOGICAL MONITORING TEAM UTILIZATION

I. PURPOSE

This Appendix provides the procedures to be used to control and direct the efforts of radiological monitoring teams (RADMONT) to be used in off-site monitoring.

II. SCOPE

The Radiological Monitoring Teams are the mobile sensors for the agencies which determine the radiation risk to people located in the Emergency Planning Zone. Control of the teams assigned and made available to the State is a responsibility of the TDRH.

III. EXECUTION

When an Unusual Event occurs at a nuclear power facility, RADMONT control personnel from TDRH will prepare to proceed to the TVA Environmental Data Station (EDS). When the Alert Emergency Classification (EC-2) is declared, the personnel will proceed to the EDS. The EDS is located at the TVA Met Tower near the Sequoyah NPF. Facilities are available at the EDS for team control personnel from TDRH to work alongside TVA personnel during an exercise or an emergency. The EDS is equipped with radio equipment to maintain contact with and control each team's movements. The EDS also has ringdown telephones for contact with the MSECC and the SEOC.

RADMON teams will be provided by Agencies listed in Tab A. With the exception of TVA teams who are dispatched from the Nuclear Power Facility, all RADMON teams will report to the Field Team Control Center (FTCC) at Lovell Field. The teams will be issued maps of the area which shows the specific monitoring points, radio procedures and frequencies, data forms, and any other materials needed for them to function in that area. Equipment and training for the field teams is a responsibility of their parent organization.

IV. DATA TRANSMISSION

Radiation data will be sent by radio from each field team to the EDS. From the EDS, it will be passed to the nuclear power facility and to Muscle Shoals. Field data will be consolidated with data generated at the facility and dose projections calculated at Muscle Shoals. The TDRH will validate TVA calculations and advise the Tripartite Committee of their concurrence in the TVA findings.

TAB A, APPENDIX 22, ANNEX F
SOURCE OF RADIOLOGICAL MONITORING TEAMS

I. PURPOSE

This Tab lists the Radiological Monitoring Teams to be provided by all Agencies to support Tennessee in case of an accident at a Nuclear Power Facility.

II. RADIOLOGICAL MONITORING TEAMS (RADMONT)

SOURCE	RESPONSE TIME
TVA (Facility)	.5 HR.
State	4.0 HR.
TVA (Muscle Shoals)	4.0 HR.
IRAP (DOE)	2 - 24 HR.
SMRAP	8 - 24 HR.
Universities	12 - 24 HR.

JUL 24 1981

Colonel Eugene P. Tanner
State Director
Tennessee Emergency Management Agency
3041 Sisco Drive
Nashville, Tennessee 37204

Dear Colonel Tanner.

The following deficiencies were noted during RAC IV/FEMA staff participation in an evaluation of the Sequoyah Nuclear Power Plant exercise July 7-9, 1981.

General Comments:

1. Time (CDT vs. EDT) caused problems throughout the exercise.
2. There was confusion on wind direction as it affects plume travel. A firm decision should be made on using wind direction "from" or "to" in future exercises.

Specific Comments:

1. Notification and Alerting of Staff

Adequate.

2. Notification and Alerting of the Public

The warning system utilized in this exercise did not meet the requirements of 0654.

3. External Communications Capability Between Sites

Communications break-downs with Bradley County during the exercise caused delays in message transmission.

There were several instances where messages were garbled in transmission causing figures to be reported in error and unit terms to be confused. Training should be conducted to familiarize both operations and communications personnel with the appropriate terminologies used in these operations.

4. EOC Facility

The Bradley County EOC needs improvements in space, ventilation, and communications.

ATTACHMENT 2

5. EOC Internal Communications and Displays

Improvements in plotting procedures, message handling, and logging are needed.

Bells on some phones were disconnected in the FCC causing calls to be missed when flashing lights were not noticed.

The FCC status boards were not updated to reflect the current situation as of 8:00 a.m. 7/6 when the exercise resumed.

The plume was not plotted on the FCC maps.

6. Adequacy of Staffing

Recommend a review of staffing over a sustained period.

7. Facility Access/Control

The functions of security and dosimetry should be separated.

8. Support by Responsible Elected or Appointed Officials

Adequate.

9. Direction and Control

Two members of the tripartite operated from the CECC which limited their ability to function by removing them from immediate and direct contact with their support staff and thus hampered the Direction and Control function of the State EOC.

There was a lack of information exchange between Hamilton and Bradley County EOC's and the State EOC in Nashville. Coordination between the State EOC and the FCC was lacking at times. Delays were experienced in implementing decisions because of limited information.

Direction and control of monitoring teams needs improvement in these areas:

a. Pre-assignment briefings were not complete in that expected exposure rates, types of release, plant conditions, mission exposure limits and recommended protective measures were not discussed.

b. Monitors did not refer to nor follow SOP's.

c. Backup monitoring teams were not assigned to assist teams following the plume.

d. Assigned monitoring team identification numbers did not follow the SOP.

10. Coordination

The State EOC/FCC relationship and functions should be better defined. At times information by-passed the FCC as it went from State to local governments.

11. Emergency Plans

Adequate.

12. Public Information

The FCC did not receive press releases from the CECC or the State EOC. There were no arrangements made for press briefings at the FCC.

13. Accident Assessment

Radiological teams were not instructed nor did any teams conduct monitoring en route to pre-designated monitoring points.

Team members were not asked for personal exposures during missions.

TVA and Rad Health used different population dose projection models which created a significant difference in projected exposures offsite. Field monitoring data was not used for verification of projections.

Use of Public Service Commission personnel as members of monitoring teams was good. This capability and trained resource can be immediately utilized when needed and should be further explored.

14. Protective Actions

Reasons for evacuation and sheltering decisions were not made clear to field locations.

Shelter personnel should be aware of decontamination procedures. Plans should be developed for implementation of decontamination as a protective action for shelterees.

Evacuation was ordered for some areas where monitoring teams were reporting background readings only.

15. Exposure Control

The decision to administer potassium iodide was not explained satisfactorily at all field locations.

Decontamination stations and procedures to be followed for personnel and emergency vehicle decontamination were not established during the exercise.

16. Recovery and Re-entry

Much work and planning remains to be done in the areas of recovery and re-entry.

17. Adequacy of the Scenario to Test the Plan

Deviation from the scenario caused much confusion for exercise observers and staff alike.

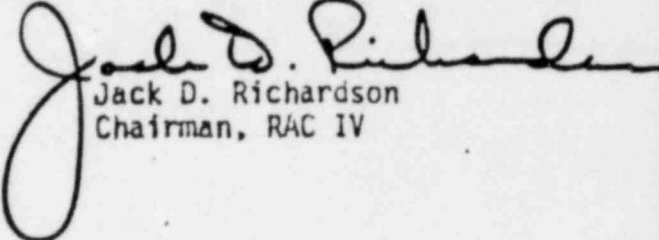
76. Benefits of the Exercise to Participants

Self critique brought out benefits of exercise to the participants.

19. Capability of Observed Jurisdiction to Execute Plans

Adequate.

Sincerely,


Jack D. Richardson
Chairman, RAC IV

cc:
RAC Members ✓