Federal Emergency Management Agency
Region IV 1371 Peachtree Street, NE Atlanta, Georgia 30309

WATTS BAR NUCLEAR PLANT

EXERCISE

Conducted on July 25, 1985

Exercise Report August 14, 1985

Utility: Tennessee Valley Authority
Plant Location: Spring City, Rhea County, Tennessee

Participating State and local governments:

State of Tennessee
McMinn County
Meigs County
Rhea County
Roane County

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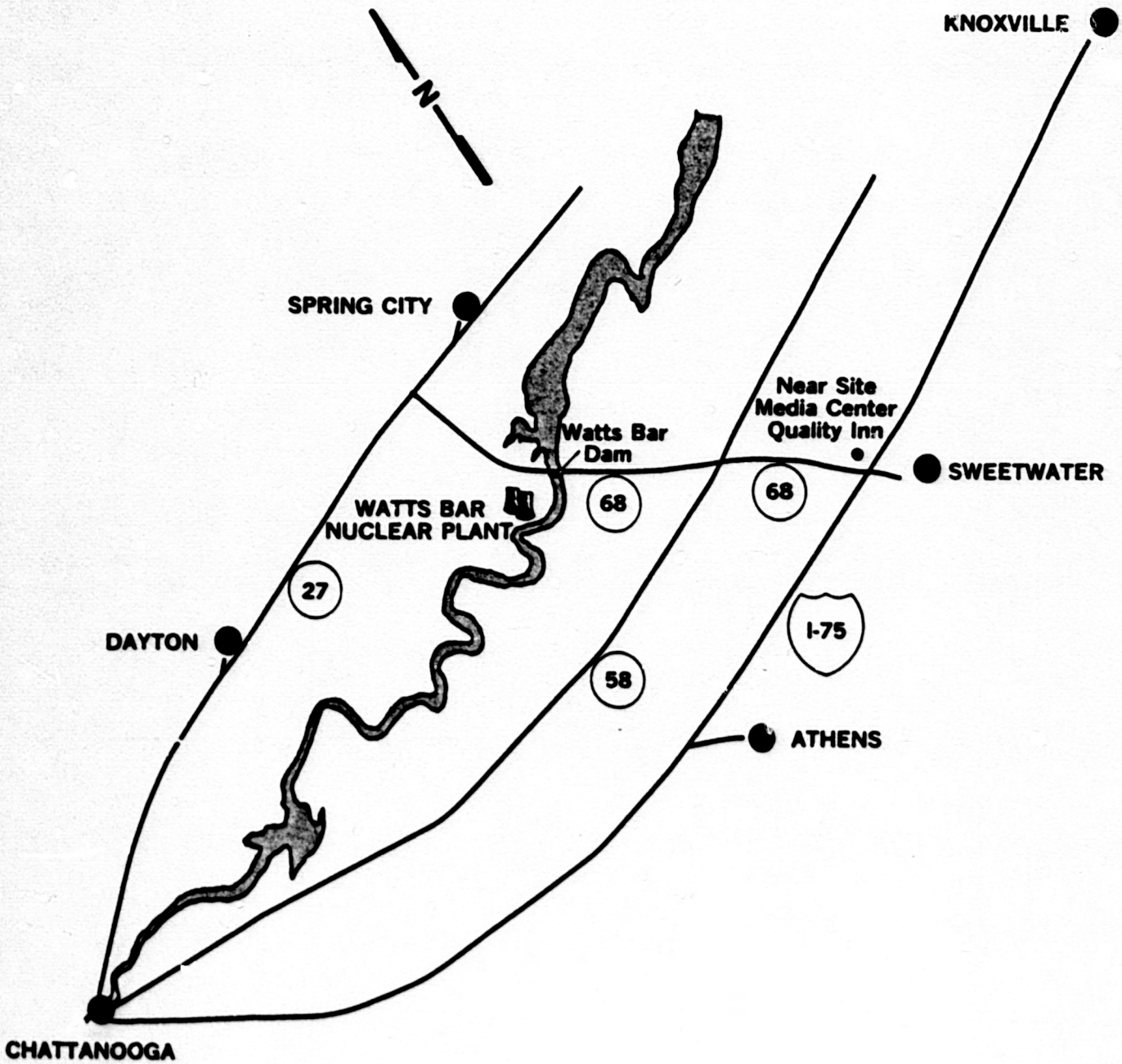
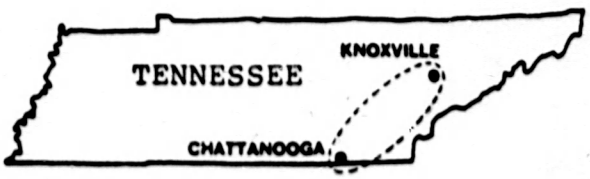
AREA LOCATION MAP

WATTS BAR NUCLEAR PLANT

STATE OF TENNESSEE

NOT TO SCALE





DETAIL OF AREA

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I. EXERCISE SUMMARY

On July 25, 1985, the second exercise was conducted at the Watts Bar Nuclear Plant in Tennessee. This full participation exercise was observed by twenty Federal evaluators representing seven Federal agencies (FEMA, EPA, DOE, DOT, FDA, NRC, and USDA). The State of Tennessee and local governments demonstrated their off-site preparedness by implementng the Multi-Jurisdictional Radiological Emergency Response Plan for the Watts Bar Nuclear Plant.

The Watts Bar Nuclear Plant is located near Spring City in Rhea County, Tennessee. The 10-mile Emergency Planning Zone (EPZ) includes McMinn, Meigs and Rhea Counties. Host Counties include Hamilton, Cumberland and Roane. The 50-mile ingestion pathway was not tested during this exercise.

The following is a brief summary of the exercise activity of the State and local governments.

State of Tennessee

State Emergency Operations Center (EOC)

The State EOC in Nashville directed the emergency management response in a well controlled and effective manner. Areas for improvement recommended following the 1984 Exercise have received attention. Message control, Prompt Notification System sequence and procedures, and briefings have all improved. The physicial facility is "second-to-none".

Accident assessment was peformed in a professional and efficient manner by the Radiological Health staff. Protective action decision-making was outstanding and the public would have been well protected in this complex simulated accident. Minor problems concerning the activation of Federal resources and instructions for field teams on when to take KI need to be improved.

Public Information

The Joint Information Center (JIC) was fully activated and staffed with State, local and utility representatives. All staff were well trained and professionally managed their responsibilities. Procedures are needed in the operation of rumor control and the coordination of this effort between the State and TVA. The JIC coordination and support for the development of emergency information for EBS was demonstrated.

Central Emergency Control Center (CECC)

The State dispatched one representative to the TVA Central Emergency Control Center (CECC) to act in a liaison capacity.

This liaison enhanced the overall coordination and communication between TVA and the State EOC in Nashville.

Field Coordination Center (FCC)

The Field Coordination Center (FCC) serves as a staging area for State and Federal resources. This is an excellent facility and meets all requirements for a Field Coordination Center. Primary and backup communication systems are installed and were determined to be adequate. FCC participants were notified at the "Alert" and assembled and activated the FCC at the "Site Area Emergency". Thirty-seven individuals representing 11 State Departments/Agencies along with 29 Federal Agency Representatives occupied the FCC. All FCC occupants were issued FCC badges, dosimeters, film badges and Potassium Iodide (KI).

Radiological Monitoring Control Center (RMCC)

The Radiological Monitoring Control Center (RMCC) adequately performed its function of direction and control of three State, two TVA, and three DOE radiological monitoring teams.

Staffing was optimal although less than stated in the plan. Facilities were excellent.

Operations were hampered by a lack of data and information from the State EOC in Nashville. This was circumvented by developing an ad hoc information link with the TVA representatives in the RMCC. This is a recurrent problem and should be strongly addressed.

Field Monitoring Teams

Field teams were well trained and equipped with the proper instrumentation. Written procedures were followed. Teams were trained in exposure control and had proper personal dosimetry and KI. Team members were familiar with the area, and radio communications were maintained throughout the exercise. Recommendations from the previous exercise have been incorporated.

Risk Counties

Medical Services

During the medical drill, too many activities were simulated for a first time exercise, and consequently no evaluation and or finding could be made. Hence, the exercise objective was not met. From the limited activities that were observed, it appeared that the EMS and hospital staffs had a good understanding of the appropriate procedures and knew what had to be done, but the extensive simulation as noted did not allow for a demonstration of the capability to manage a contaminated casuality. While this does not constitute a deficiency, this item will be carried as an outstanding item which will require future supplemental

actions to include an adequate demonstration of the medical capability.

Transportation/Evacuation

This exercise satisfied the U.S. Department of Transportation requirements concerning the safe evacuation or embargo of road, air, rail, and water modes of transportation. Special emphasis was concentrated on the safe and timely evacution of residents in the effected areas around Watts Bar.

McMinn County

The McMinn County EOC is an efficiently run operation. The facility is spacious and well arranged. Leadership and staff are quite capable. Outstanding traffic control and rescue capabilities were demonstrated by the Union Grove Fire Group. The Etowah Elementary School has very good reception center facilities and the staff, especially the public health nurses, were well trained. The use of a school bus for evacuating the general population was adequately demonstrated. Route alerting and use of the Shelter Information Point (SIP) were demonstrated. Exposure control measures for Sheriff's Deputies should be clarified and discussed with them.

Meigs County

The Meigs County EOC demonstrated their ability to protect the public during an emergency situation that required both sheltering and evacuation. The EOC facility and management structure have been substantially improved since the last exercise. Meigs County demonstrated the ability to effectively alert residents by mobile Law Enforcement and Fire and Rescue Units in the event of an accident at Watts Bar Nuclear Plant. Procedures to control traffic and protect personnel involved in these activities were properly demonstrated.

Rhea County

Rhea County gave a good demonstration of radiological emergency response capability. A full complement of county organizations and officials participated. Measures to protect the public were well coordinated at the EOC and well demonstrated in the field.

The field activities in Rhea County were adequately demonstrated. In no instance did the actions taken fail to meet the prescribed standards.

Roane County

Roane County showed a marked improvement in their sheltering capabilities this year. All weaknesses pointed out in last year's exercise have been addressed during the past several months, and although more attention is needed in planning for decontamination, the county did demonstrate the capability to care for incoming evacuees.

II. DETAILED DISCUSSION

Introduction

The Tennessee Valley Authority (TVA) began building Watts Bar in 1972. TVA owns and operates three nuclear power facilities. One is located in Alabama - Browns Ferry. The other two, Sequoyah and Watts Bar, are located in Tennessee.

The State and local governments in the Watts Bar area prepared the "Tennessee Multi-Jurisdictional Radiological Emergency Response Plan for the Watts Bar Nuclear Plant". The first draft plan was prepared in September of 1980, and revised in 1983. It was formally reviewed by the Regional Assistance Committee (RAC) on March 20-21, 1984, and comments were provided to the State of Tennessee on April 18, 1984. The plan and its review have been based on NUREG-0654-FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants". The plan has been revised to incorporate all corrections as a result of the plan review and the September 1984 exercise. On July 8, 1985, the State of Tennessee formally submitted the revised plan for review and approval as established in 44 CFR 350.

The Watts Bar Nuclear Power Plant is located on 967 acres on the west bank of the Tennessee River near Spring City, Tennessee. The TVA plant is a 2-unit facility utilizing Westinghouse pressurized water reactors. The nuclear plant's proximity to TVA's Watts Bar Dam and Watts Bar Steam Plant is the only place in the Nation where these three major electrical generating sources are within sight of each other.

The 10-mile Emergency Planning Zone (EPZ) for the Watts Bar site includes the counties of McMinn, Meigs and Rhea. Three counties are identified as host counties to receive evacuees. These are Hamilton, Cumberland and Roane. The 50-mile ingestion pathway counties are Anderson, Bledsoe, Blount, Bradley, Meigs, McMinn, Monroe, Morgan, Overton, Polk, Putnam, Rhea, Roane, Scott, Sequatchie, Van Buren, Warren and White.

All risk counties participated in the Watts Bar Exercise. Roane County participated as a host county and demonstrated the reception of evacuees from the risk counties. Hamilton County is a host county for Watts Bar but is also a risk/host county for the Sequoyah Plant. Hamilton County demonstrates its response capability during the Sequoyah exercises. Therefore, it was not necessary for the county to participate at this time. No activities were conducted in the 50-mile ingestion pathway.

This full participation exercise was conducted on July 25, 1985, and was observed by twenty Federal evaluators representing seven Federal agencies (FEMA, EPA, USDA, DOE, NRC, DOT and FDA). The

exercise was the second test for State and local governments in the Watts Bar area. The off-site emergency response was conducted in accordance with the "Tennessee Multi- Jurisdictional Radiological Emergency Response Plan for the Watts Bar Nuclear Plant".

Criteria used to evaluate the exercise are contained in the "Modular Format for Uniformity of Radiological Emergency Preparedness Exercise Observations and Evaluations" issued by FEMA on August 5, 1983. (For a detailed listing of evaluators and assignments, see Appendix A).

The exercise objectives established a full-system test for the off-site response plan. (See Appendix B - Exercise Objectives). All objectives were incorporated in the exercise scenario. The scenario established exercise activities on July 25th beginning at 8:00 a.m. CST and terminating at 6:00 p.m. CST. (Refer to Appendix C for a more detailed time line of the scenario).

The exercise activity included the following participants:

Watts bar Nuclear Plant - Spring City, Tennessee

Tennessee Valley Authority Emergency Centers -Muscle Shoals, Alabama, Chattanooga and Knoxville, Tennessee.

Tennessee Emergency Management Agency (TEMA)

Tennessee Department of Health and Environment

McMinn County Government

Meigs County Government

Rhea County Government

Roane County Government

Tennessee Department of Agriculture

Tennessee Wildlife Resources Agency

Tennessee Department of Conservation

Tennessee Governor's Office

Tennessee Department of Safety (Highway Patrol)

Tennessee Public Service Commission

Tennessee Department of Tourism Development

Tennessee Department of Transportation

American Red Cross

National Weather Service

U.S. Coast Guard

Emergency Broadcast System

Federal Emergency Management Agency

Nuclear Regulatory Commission

Department of Energy

Department of Transportation

Environmental Protection Agency

Food and Drug Administration

U.S. Department of Agriculture

The following detailed discussion highlights the specific activities demonstrated during the Watts Bar Nuclear Plant Exercise. Activities are discussed by the location of the demonstration, beginning with the State of Tennessee and concluding with the local governments.

State of Tennessee

State Emergency Operations Center (SEOC)

The activation and staffing was conducted in a timely manner with approximately 50 representatives from 20-25 agencies. A call list was used for notification. A roster was presented to evaluators giving locations and phone numbers of representatives to contact for shift changes.

The management of the EOC was conducted in a smooth, efficient and effective manner. The individual in charge is normally second in command and was placed in the chief position for training purposes. Briefings were given nearly every hour with all agencies contributing. Several problem areas observed in the 1984 Watts Bar Exercise were corrected:

The message handling procedure was much improved through added equipment (telecopy), eliminating backlog. Also, a central log was utilized.

The problem of insufficient agency interface was solved through additional briefings, requiring each agency to provide updates.

The facility is indeed an outstanding one with all state-of-the-art equipment to facilitate each agency's performance. Special microphones at each desk allowed agencies to respond throughout the exercise and particularly during briefings. It is suggested that emergency classification levels be posted continuously and in a prominent position.

The communications center, which is part of the overall operation, yet separate, is the 24-hour wa ing point. It contains all first line and back-up communication systems. Siren activation is also conducted in this area. Pager activation is utilized for all staff and agency representatives. Protective action recommendations were made for plume and ingestion pathway EPZ's through coordination of the utility, State RAD Health, and TEMA. These recommendations were based on plant status and environmental factors. When plant conditions and wind direction changed, the use of KI was ordered for all emergency workers and was based on expected radioiodine releases.

Sirens were activated by the SEOC at Site Area Emergency and General Emergency. EBS followed each activation. Messages were simulated. Instructions were prepared at the SEOC as well as prescripted messages. Sectors involved in evacuation and sheltering were defined by traffic routes and other landmarks. Much of this was prepared by the PIO staff at the SEOC. 1984 deficiencies in public alerting were corrected.

The Department of Agriculture used prescribed messages as well as formulated messages. These messages contained instructions concerning the sheltering of farm and dairy animals. Information on names and locations of farms, dairies and processing plants were available for ready reference. Agricultural workers were available to implement actions to be taken. These workers were on standby and available through State offices, the University of Tennessee, and local USDA personnel.

Throughout the exercise roads were blocked as each sector threatened was identified. Air traffic was diverted or halted as well as water and rail. There was a brief period when phones were inoperable when trying to contact the railroad. Local personnel were utilized to stop rail traffic until phones were operable.

Accident assessment was performed in a professional and efficient manner by Radiological Health personnel. In contrast to exercises in the past few years, radiological data transmitted from TVA at the CECC to Radiological Health personnel at the SEOC

was accurate and prompt. This was accomplished through a computerized "hard copy" system.

An outstanding feature of the entire exercise was the rationale and approach upon which protective actions were based. Decisions were reached only after a complete analysis of all the facts were considered. Excellent leadership was demonstrated.

KI recommendations for field monitoring teams were premature by approximately two hours. The SEOC staff was not consulted and instructions were not in accordance with the State Plan. Instructions for taking KI are not adequately covered in the State Plan, and while actions taken were probably appropriate, the message to voluntarily take KI was not clear. It was not clearly documented and was not transmitted to field team personnel arriving later.

Suggestions for Improvements:

1. The railroad notification to a terminal in Kentucky was slow and unreliable. A specific office of the railroad needs to be identified with an accurate telephone number and backup number mutually agreed upon.

2. A few telephone numbers on the agency call-down list were inaccurate. Updating of names and telephone numbers should be done more often.

3. The emergency classification was mixed in with other status board information, did not stand out and was eventually erased. A separate area needs to be identified for the continous posting of the current emergency classification. This would allow individuals, particularly agency representatives, to immediately ascertain the level of emergency and thus the level of response necessary.

4. Basic radiological information and meteorological data, occurring and/or projected, should be posted for all to see.

5. Briefing and instruction packets for incoming field teams (i.e., Federal or other State Support) on proper radio procedures, data forms and maps would be helpful.

6. Written KI instructions should be developed to clearly explain when KI should be taken.

7. Scenario environmental data should include data for laboratory analysis of soil, water, vegetable, air and other samples to be collected by field teams.

8. Hard copy transmission devices should be compatible with RMCC machine to avoid delays.

Public Information

The Joint Information Center (JIC) was declared operational at 0908 CST. The JIC was operational approximately eight hours for the Watts Bar Nuclear Plant Exercise. During the JIC operations, the State of Tennessee released 18 press statements informing the media and public of the emergency operations underway and necessary actions to take.

For purposes of this exercise, all public information staff were prepositioned.

The JIC operation included active participation by representatives of the Tennessee Valley Authority (TVA), the State of Tennessee, McMinn, Meigs, and Rhea counties. Although the JIC operation was staged, there were notification procedures in place to activate this operation at any time. The staff demonstrated thorough knowledge of the plan and clear understanding of job responsibilities. All staff, as identified in the plan, participated and effectively carried out their responsibilities. The mock media from the University of Tennessee was excellent and added realism to the exercise play.

The JIC facilities are generally adequate, especially considering the location of Watts Bar Plant and the limited facilities in the area. One problem is the limited space for the work area of the State and local government's public information officers. Additional resources needed for the State work area include a T.V. and radio to monitor information going to the public, a clock, and maps. Large maps of the 10 and 50-mile emergency planning zones are needed in all the work areas as well as the coordination room. Some consideration should be given to improving the techniques for posting maps in the briefing room. The current method, although visibly effective, takes much too long to update and keep current. It is suggested that security and staff identification be tested in the next exercise.

During the eight hours of the JIC operations, four media briefings were conducted and one statement was presented by the State. Two of these media briefings did include local government participation.

The coordination with all participants improved throughout the day, and at the closing moments of the exercise, coordination began to include strategy development as well as better organization of the briefings.

Public information was consistent and well coordinated. It is suggested that evacuation announcements include more information for transients, especially since summer is an active season for this resort area. More information about sheltering is needed in press briefings. Evacuation areas should be delineated by readily identifiable physical boundaries.

Rumor Control is an area which needs to be reviewed. Procedures are needed for coordination between TVA and the State. The use of the "toll-free" number needs to be clearly established.

Overall, the public information effort was a major improvement. The operation of the JIC fully demonstrated that the previously noted deficiencies have been corrected.

Suggestions for Improvements:

1. Limited work space for the State and local PIOs needs to be expanded.

2. Additional equipment in the work area such as T.V., radio and a clock would be helpful.

3. Large maps of the 10-mile and 50-mile Emergency Planning Zones need to be posted and kept current.

4. Identification of evacuation areas by physical boundaries.

5. Develop procedures for rumor control.

Central Emergency Control Center (CECC)

The State dispatched one representative to the TVA CECC to act in a liaison capacity. This liaison enhanced the overall coordination and communication between TVA and the State EOC in Nashville, Tennessee.

The TVA CECC Director and the State Emergency Management Director communicated directly by telephone concerning important matters such as protective action recommendations. The TVA State Liaison coordinator was also effectively utilized to exchange routine information with the State EOC.

Technical information and data were promptly transmitted to the State EOC, which allowed the Division of Radiological Health to perform independent accident assessment quickly.

Field Coordination Center (FCC)

Thirty-seven State and twenty-nine Federal agency representatives participated in the exercise from the Field Coordination Center (FCC). The FCC was activated at the "Site Area Emergency". Participants were issued FCC badges, dosimeters, Film Badges and fourteen potassium iodide (KI) tablets. The FCC is an excellent facility, has good security and meets all requirements for a FCC. Telephones and radios are stored at the FCC at all times and checked for operational capability frequently. Primary and secondary communications systems were installed and

proved to be adequate. Initial briefings were provided as agency personnel arrived. Subsequent briefings were conducted throughout the exercise. The FCC was effectively managed; however, coordination with the Radiological Monitoring Control Center (RMCC) would have been more effective if radiological information from the RMCC had been provided to all FCC representatives.

It is suggested that the RMCC person in charge participate in all briefings conducted in the FCC. That person should provide the current number and status of the Federal, State, and TVA teams, where they have been sent, current plant status, projected or actual off-site doses, and other related information.

Radiological Monitoring Control Center (RMCC)

The Radiological Monitoring Control Center (RMCC) is located in the Athens, Tennessee National Guard Armory. Its primary function is, in coordination with the State EOC, to provide direction and control of radiological monitoring teams supplied by the State, TVA and Federal agencies. The various teams report to the RMCC and are deployed from there after being briefed by the Radiological Monitoring Coordinator (RMC).

According to the State Plan (p. E-7) the RMCC is to be staffed with five (5) persons from the Division of Radiological Health (DRH). However, the DRH Procedures (p. B-4) in the RMCC specified a staff of two. In reality, the staff was three persons. The alternate RMC, the supervisor of the licensing and registration section, headed the operation; he was accompanied by the assistant and alternate assistant RMC specified in DRH procedures.

In actual practice, the three staff members proved to be optimum. Two people would be overworked in carrying out RMCC tasks, while the five people specified in the plan would be underutilized. We recommend that the staffing of three be formalized in the plan and DRH SOPs and the present conflict eliminated.

Mobilization of the staff was not an objective of this exercise and was not demonstrated. The staff of the RMCC was prepositioned and activated the RMCC at Site Area Emergency at 10:08 a.m. as required in the plan.

The RMCC facility is excellent for its function, with adequate room and equipment for coordination with the various agencies.

There was a dedicated phone to the SEOC and a back-up radio link as well as a telefax system. The telefax system was limited because the machine in the SEOC in Nashville was an older, slower model. This largely negated the value of the newer, faster model in the RMCC. We recommend that a more compatible model be installed in the SEOC to facilitate more rapid transmittal of field data.

The radio communications to the field teams was generally adequate, although there were occasional lapses.

Large-scale maps of the plume and ingestion EPZs were available and were excellent. A status board, as recommended in the earlier exercise, would be helpful, particularly in a real event with several agencies present.

The RMCC was managed effectively and carried out its primary task of direction and control of the monitoring teams. Three State, two TVA, and three DOE teams were utilized.

Operations were hampered by a lack of prompt and periodic data from the SEOC in Nashville on weather conditions and plant status. To circumvent this problem the RMCC and the TVA representatives established an ad hoc communication flow that allowed the RMC to obtain TVA information directly. However, because this link was not formalized, it often failed to insure that critical information was always provided to the State promptly. For example, data on an impending major release was only inadvertently passed on. Moreover, the TVA representatives themselves were not always fully appraised of the situation promptly. At one point they were told that the core might be uncovered in 30 minutes, but additional information concerning this situation was not received until 90 minutes later.

This ad hoc relationship was noted in the previous Watts Bar exercise as well as in the previous Sequoyah exercises. We recommend that either the SEOC provide the required data promptly and periodically or that the current ad hoc situation be formalized and improved.

The DRH SOPs require that the RMC brief the FCC. This was never done throughout the day although the FCC director did come to the RMCC on occasion. However, periodic briefings of the RMCC personnel would be helpful to insure good communications flow between agencies and help preclude some of the lapses noted earlier.

Direction and control of the various teams was generally effective. Some specific suggestions for improvement were discussed with the RMC at the close of the exercise. These included greater use of field team traverses, anticipation of the effects of wind speed, and the need to plot or display the field team readings in some way.

Radio protocol was generally adequate. We recommend that when the RMCC informs the field teams of major instructions that they get a team-by-team confirmation. This is especially important when use of KI is recommended, or when teams leave the area for protection. This was not done consistently.

We also recommend that teams stay in radio contact at all times, even during breaks. On one occasion, one team could not be reached because they were having lunch. In an emergency situation they might have to move quickly.

Field Monitoring Teams

Field teams were prepositioned and a time delay was used to simulate travel time. Six field teams have been trained; three were used during the exercise. Equipment for each team is contained in three cases and is available for rapid deployment. Team members were apprised of plant status and meteorological conditions in the area. Field team monitoring kits contained equipment described in the plan. Spare equipment was available at the RMCC. Instruments were checked for operability before the teams were deployed. All equipment for making surveys for radioactivity of taking air samples had been calibrated within the last year. Field team members were well trained in monitoring techniques and exposure control methods. Air samples were taken to determine the presence of radioiodine, and calculations were made to convert the meter readings to concentrations. Courier or runner vans are available to transport samples; however, the field teams did not meet with a runner van during the exercise. Field team members were familiar with the area, and the maps clearly indicate sampling points. The field team kits contained anti-contamination clothing and respiratory protection equipment. Field team members were issued KI and simulated its use. Team members had high and low-range personal dosimetry and permanent record devices (TLDs). The self-reading dosimeters were read often and readings reported to the RMCC. Radio communications were established with the RMCC and maintained throughout the exercise. Spare radios were available at the RMCC. Mobile radios in the Public Service Commission (PSC) automobiles could serve as a backup communication system.

Suggestions for Improvements:

1. A courier was sent to pick up environmental samples, but contact was never made. Courier should be instructed to stay at the pickup point until all field teams have checked in.

2. Controllers could be used to give data to field teams rather than have the teams be given the entire package at the start of the exercise. The use of copies of meter faces to inject field data to the monitoring teams would add some realism to the exercise. Field teams would be required to interpret the meter rather than reading tabulated numbers.

Risk Counties

Medical Services

The Chamberlain Memorial Hospital in Rockwood, Tennessee and the Rhea County Emergency Medical Services (EMS) participated in a medical drill as part of the Watts Bar Nuclear Plant Exercise.

The contaminated, injured individual was not appropriately dressed to play a "patient" in this drill. The EMS personnel simulated wrapping the patient. The EMS crew were aware of procedures although they were not demonstrated.

The Chamberlain Memorial Hospital received word from the Rhea County EOC that the EMS vehicle had been dispatched to pick up a contaminated, injured patient. The hospital received no message from the EMS vehicle until approximately two minutes away from the hospital.

This was the first drill for the hospital. The staff did not place paper to prevent the spread of contamination and did not decontaminate the patient. Hospital personnel appeared to have a good understanding of what should be done. Some sequences of procedures could have been different and resulted in better patient treatment. For example, the wound should be decontaminated and treated before decontaminating the non-injured areas.

The EMS and hospital personnel were aware of proper procedures but only a few items were demonstrated. Too many activities were simulated for a first time medical exercise. The scenario was adequate to test the medical procedures, it just was not adequately implemented. Due to the extensive simulation, the capability to manage a contaminated injury could not be determined. Therefore, the exercise objective was not met. While this does not constitute a deficiency, a positive finding can not be made. This item will continue to be outstanding and will require future supplemental actions to include an adequate demonstration of the medical capability.

Transportation/Evacuation

Only two of the six traffic control points (TCP) observed were staffed with law enforcement personnel. Three TCP were staffed with State Highway Department personnel (DOT) and the TCP at Clearwater Road and Sewee Church Road was manned by a member of the McMinn County Rescue Squad. The emphasis seemed to be on "road blocks" rather than "traffic control points". The terms "road block" and "traffic control point" seem to be used interchangably; however, "TCP" denotes movement of vehicle traffic, whereas "road block" indicates no traffic movement. "Road block" seems to be more appropriate once an area has been evacuated.

The presence of uniformed law enforcement personnel would enhance the operational efficiency of traffic control points. Law enforcement officers are trained to safely expedite traffic movement and the security of evacuated areas.

Evacuation route signs are correctly located and in sufficient numbers. Maintenance of these signs is excellent.

The resident population around Watts Bar could safely be evacuated. However, boaters and campers using the recreation facilities in the 10-mile EPZ may be unprepared for an emergency at the Watts Bar FNF due to a lack of information available in the recreation areas.

Not all emergency workers are properly equipped or trained in the area of radiation exposure. All workers were supplied with KI and said they would take KI on direction from their command post.

Suggestions for Improvements:

1. Design and erect information signs in recreation areas.

2. Staff each traffic control point with at least one uniformed law enforcement officer.

3. Provide each TCP with a checklist containing detailed information about that TCP along with generic information concerning TCPs.

4. The one Tennessee Highway Patrolman observed had a permanent record dosimeter but did not have a self-reading dosimeter. The other personnel observed had CDV-730 self-reading dosimeters and permanent record dosimeters. All personnel need to be provided self-reading dosimetry.

5. As noted above, the Tennessee Highway Patrolman did not have the capability to read or record dosage. All personnel need to be trained in reading and recording dosage using a self-reading dosimeter.

6. None of the observed personnel were sure of the maximum dose allowed without authorization, but they could easily determine that information from their command post. All personnel should be aware of maximum radiation dosage allowed for safety.

7. More training is needed for emergency workers in the area of radiation exposure control.

8. Workers observed were not sure of proper decontamination procedures but would follow instructions from their commnd post. More training is needed in this area.

McMinn County

The McMinn County EOC is located in the Athens City Hall. This is a modern facility and contains the Athens Fire Department and Police Department, as well as City offices and the EOC. The EOC has a protection factor of 100 and can accommodate an extended operation for emergency purposes.

Mobilization of staff and 17 agency representatives was accomplished in about 20 minutes.

Display maps and charts, as well as status boards, were large, easily read, and contained all necessary, pertinent information. A listing of the mobility-impaired population of the county, as well as population without transportation, was available in the operations room.

Internal message handling was efficient. In-coming messages, as appropriate, were distributed to agency representatives. All messages were accurately timed, numbered and logged.

Briefings to the operations room were frequent and included brief reports from each of the agency representatives.

Leadership and control were demonstrated by a capable Director, assisted on occasion by the Athens City Manager, who, along with the County Executive, was present and active during the entire exercise.

Security of the building was maintained by a uniformed guard who administered a sign-in roster and tagging system during the exercise.

Suggestions for Improvements:

1. An assistant for the Director is needed to relieve this position of some of its many tasks.

2. Additional training of staff in radiological emergency terminology is needed. The term "sectors", for example, was variously referred to as "evacuation sites", "sections", and "areas" in messages and on wall maps of the operations room. Although this is not a major item, inconsistent terminology could cause confusion and delays during an actual emergency.

Outside Activities:

Commencement of route alerting was delayed approximately half an hour. The term "Program Notification System" instead of "Prompt Notification System" was used. Sheriff's Deputies ran two routes

concurrently. The route observed was the one on page AA-58 of the State plan which identified Route C-1B and which the Sheriff's Deputy identified as Route C-1A. He was familiar with the route and had written directions. The car had a PA system as part of its normal police equipment, but the PA system was not demonstrated for fear of frightening persons along the route. In fact, the Deputy did not have a message in the car. Generally, the route was run at slightly too high a speed, between 30-40 miles per hour, in response to directions from the McMinn EOC to "hurry things up".

The directive to begin the bus evacuation run was received by Union Grove Firefighters at the road block at State Road 68 and County Road 232 at approximately 13:30 CDT. The school bus was parked at this road block. After covering the prescribed route, the bus arrived at Etowah Elementary at approximately 14:35 CDT. The driver had instructions to pick up anyone along the route who was waiting, rather than to stop at prescribed locations. As there were no persons waiting, it was a dry run.

The Union Grove Firefighters had a list of mobility-impaired persons and also had personal knowledge of where they lived and of the nature of their afflictions. They had between 5-10 personal cars at the State Road 68 and County-Line road block which could be used to transport the mobility-impaired if called upon to do so.

There was variation in the emergency worker exposure control demonstrated in the exercise. Each of the Union Grove Firefighters at the road block on State Road 68 had a permanent record dosimeter, a mid-range dosimter, and KI. They were knowledgeable on procedures for reading and recording doses. They had approximately a dozen sets of dosimetry for emergency workers entering Meigs County. They were prepared to rescue family members of motorists stranded in Meigs County. To clarify, it was the family members who were stranded. The motorists wanted to enter Meigs County to evacuate them. Workers were trained in checking for contamination but did not have CDV-700s.

The Sheriff's Deputies that did the route alerting were not issued any dosimetry for the following reason. Experience had taught the Emergency Management Coordinator that when dosimetry kits were issued, they tended to be mislaid, damaged or not properly maintained. These kits were available at the EOC and would be issued in the event of a real emergency. The instructions given the Sheriff's Deputies ("the kits are at the EOC, you will get them when needed") could be misinterpreted to mean - "you can start your route alerting and we will call if dosimeters are needed". It is recommended that the procedures for issuing dosimetry to Sheriff's Deputies be clarified.

Traffic control at State Route 68 and the McMinn/Meigs County Line was manned by a State Trooper. Access control was the responsibility of the Union Grove Fire Group. The State Trooper, who had a film badge, was reasonably familiar with the evacuation route and the location of the reception center.

The Union Grove Firefighters did an exceptionally good job. They came in mass with between 10 and 15 workers and with four vehicles in addition to their personal cars. Two of the vehicles were fire engines, one was of the nature of an ambulance with a bed, and the fourth was a tow truck. They wisely did not locate the road block precisely at the county line which was at a bend in the road but rather at the intersection of State Road 68 and County Road 232. At this intersection, State Road 68 was straight so that motorists have a sufficiently long view of the road to safely come to a stop. That location also permitted them to divert westbound traffic directly to County Road 232. If a motorist stopped at the road block wanted to enter the EPZ to retrieve a stranded family member, they were prepared to do it themselves. The presence of the tow truck gave them the capability to instantaneously remove wrecks, and they were knowledgeable on the use of the road's shoulder to keep traffic flowing.

The scenario called for the removal of a wrecked car at the intersection of State Road 30 and U.S. Highway 11. When the McMinn County evacuation bus passed this intersection at approximately 14:00 CDT, the tow truck was simulated by an Athens police car which was observed at this intersection.

The activities at the reception center at Etowah Elementary School were observed when the McMinn County evacuation bus arrived there. Evacuees arriving at the school were directed to the entrance of the gymnasium, a building separated from the main school building. At the gymnasium entrance, five county public health nurses were available to check evacuees for radioactive contamination. They checked for contamination using the procedures given in the county plan, and when questioned were knowledgeable as to the procedures for removing surface contamination as given in the State and county plans. They had two CDV-700 monitors and one charger and they wore appropriate protective clothing -- gloves, caps, shoes and gowns. The nurses stated that the State agency has a film on decontamination procedures and that they requested the agency to show them that film.

Contaminated persons were separated from uncontaminated persons at the gymnasium entrance; those that were contaminated were directed into the gymnasium for showers, etc., while those who were clean were directed to the main school building where three county human services workers, assigned to the Red Cross, had them fill out the appropriate Red Cross registration form.

The school seems to have adequate facilities. It has a kitchen and lunchroom, and relies on the Red Cross for bunks, and on the Athens police for security.

The reception center at Etowah Elementary School appears to be an excellent operation.

RACES personnel were present to communicate between the Reception Center and the Shelter Information Point (SIP) on State Road 30 west of Interstate 75. The SIP is a van with a battery of radio communication equipment in addition to RACES. Use of this equipment was demonstrated when the federal evaluator had a real problem -- ascertaining the location of the McMinn evacuation bus. This equipment was operated by an Athens police officer who also had a CDV-700 to check for contamination.
He appeared to be adequately trained.

Suggestions for Improvements:

1. Procedures for issuing dosimetry to Sheriff's Deputies should be clarified.

2. Prescripted alerting messages need to be developed.

Meigs County

Following an alert notification, the Meigs County EOC was partially activated. Complete activation was accomplished after the Site Area Emergency was declared. A total of 13 municipal and county agencies participated, including a Radiological Defense Officer. Participation by this officer corrected a deficiency from the last exercise. All participants carried out their assignments efficiently, and they were effectively managed by the EOC Director. The Director demonstrated a good knowledge of the EOC operations, reflecting a substantial improvement from the previous exercise. The EOC facility was adequate to support emergency operations. The working space was well organized and the noise problem reported during the last exercise had been eliminated by location of the PIO and communications in adjacent offices. Appropriate maps and status boards were posted. A glass cover permitted updating the displays with current emergency information. A message handling system was in place and utilized. Demonstrations in these areas eliminates an earlier deficiency. However, population evacuation information was confusing.

Available communication systems included a dedicated line and commercial telephone for primary communication. A variety of high and low-band radios provided back-up. The available systems functioned very well although the number of outside telephone lines was limited to three. This constitutes a deficiency. (F.1.)

Outside Activity:

Route alerting was carried out on several designated routes. Several agencies participated and were observed in the field. Protective actions were also demonstrated, including: manning of traffic control points, dispatching a traffic assistance team, busing residents on an evacuation route, simulating transportation of mobility-impaired, and opening shelters. The system in place for management of the mobility-impaired was comprehensive.

Radiological exposure control equipment included an adequate supply of dosimeters and TLDs. A demonstration of KI was simulated. However, EOC staff expressed a concern over health consequences of administering KI to their staff. Moreover, some EOC staff are not adequately trained in the use of dosimetry and do not understand dose limitations.

Space was set aside for the media, but members of the press did not come to this EOC.

The scenario was adequate to test most earlier deficiencies. The scheduling of the exercise in the summer season prohibited the testing of corrections for the deficiency concerning school evacuation. It is suggested that in a future exercise the scenario include school evacuation.

A total of five traffic control points were established in Meigs County and manned by law enforcement, fire, and rescue personnel. Three of these points were observed and personnel manning them demonstrated a good knowledge of their duties. All were equipped with radiological instruments and appeared informed on their use. However, more training is needed to maintain an adequate level of efficiency.

Route alerting was demonstrated in four sectors, one of which was observed. A Sheriff's Deputy ran the route with light and siren and provided information to citizens by using his public address system.

The Meigs County Emergency Management Team demonstrated the ability to protect the population in the event of an emergency at the Watts Bar Nuclear Plant.

Suggestions for Improvements:

1. Information provided to the EOC staff on population distribution and evacuation times was confusing. This information should be clarified and provided by sector for the EPZ.

2. EOC staff have expressed a concern over health consequences of administering KI to their staff. Health risks and remedial actions should be defined and provided to the staff.

3. Some EOC staff are not adequately trained in the use of dosimetry and dose limitations. More radiological exposure control training should be provided for each EOC and field staff participant.

Rhea County

Rhea County gave a good demonstration of radiological emergency response capability. A full complement of staff participated actively in the exercise, with over a dozen county, municipal and State organizations represented. The Emergency Management Director effectively coordinated the response activities, and the staff functioned well as a decision-making group. Several field activities were successfully demonstrated, including route alerting, access control barricades, shelter information points, a decontamination center, an evacuation bus, and traffic assistance teams. Field personnel were well trained and demonstrated adequate dosimetry equipment and procedures. Communications with the field units and with other EOC's were excellent throughout the exercise. Public information was coordinated by having a County PIO at the Joint Information Center, in constant contact with PIO's stationed at the EOC, to exchange information and press releases. All NUREG deficiencies noted at the previous exercise have been corrected.

Traffic control points were established and personnel were trained and knowledgeable. Route alerting was adequate, but messages should be developed for PA broadcasting. Workers were very knowledgeable of dosimetry methods and had the correct equipment. The current decontamination center was usable, but some improvements are needed.

Suggestions for Improvements:

1. Messages indicating the nature of the emergency and where to tune for information should be developed and read over the PA system during route alerting.

2. The County Emergency Medical Service should obtain an up-to-date list of handicapped individuals within the plume EPZ, with their specific locations. A sample of resources and procedures for evacuating these persons should be demonstrated at the next exercise.

3. The decontamination center, when permanently established, should have shower facilities and garments available for those with contaminated clothing.

Host County

Roane County

Sheltering capability of Roane County was demonstrated by the staffing of the Harriman Occupational School where thirteen evacuees were processed through monitoring, decontamination, and registration into shelter. Participation was excellent, including good support from county government leaders, i.e., County Executive, Mayor, etc. Although minor problems were noted, participants were found to be generally capable. Every weakness pointed out in last year's exercise has been addressed and improved on during the past several months. Last year's NUREG deficiency has been corrected, and Roane County reached its stated objective of demonstrating the capability to offer shelter to incoming evacuees.

Suggestions for Improvements:

1. Recommend using a more adequate building for a shelter in nuclear accident-type evacuation. (Local authorities indicated there are more suitable ones in the area.) The decontamination area has only two showers (to be used by men and women), with one dressing area that is small and cramped. The cafeteria in the Harriman School is on the second floor (problematical for aged, infirm, wheelchair-bound, etc.). Parking is quite limited.

2. More detailed planning is needed in some areas. Although personnel said they were aware of decontamination procedures, these were not completely demonstrated. Shelter personnel were not aware of any specific plan to secure clothing for those evacuees found to be contaminated. Shelter personnel were unsure what to do with contaminated clothing and other possessions, other than to place them in plastic bags.

3. It was noted that while the County Plan calls for various forms -- Red Cross forms, purchase orders, exposure record forms, etc., to be maintained in the local civil defense office, these were in fact provided by the State Office at the time of the exercise. It is suggested they be kept locally since in an emergency the delay in getting them would result in confusion.

4. It was also noted that the shelter manager, Ms. Vivian Manis, stated she had had no shelter management training. She was being assisted, however, by Ms. Sandy Hamlett, who has had the training, and who appeared very capable. It is recommended that all designated shelter managers complete the training.

III. SUMMARY LISTING OF DEFICIENCIES

	NUREG 0654 Deficiencies
State of Tennessee	None
McMinn County	None
Meigs County	F.1. - Emergency Communications
Rhea County	None
Roane County	None
Medical Drill	None (Exercise objective not met; see page 14.)

IV. APPENDICES

A. Evaluator List and Assignments

B. Exercise Objectives

C. Exercise Scenario

FEDERAL EVALUATOR ASSIGNMENTS
WATTS BAR NUCLEAR POWER PLANT EXERCISE
July 24-26, 1985

CHIEF OF EVALUATORS AND RAC IV CHAIRMAN
Glenn Woodard (FEMA)

STATE EMERGENCY OPERATIONS CENTER (EOC) - NASHVILLE, TN
Brad Loar (FEMA)
Dottie Nevitt (USDA)
Dick Payne (EPA)
Jeff Slack (DOE)

FIELD COORDINATION CENTER (FCC) - ATHENS, TN
John Heard (FEMA)

RADIOLOGICAL MONITORING CONTROL CENTER (RMCC) - ATHENS, TN
Tony Foltman (FEMA)

RADIOLOGICAL FIELD MONITORING
Rochelle Honkus (FEMA)
Nate Chipman (FEMA)

NEAR SITE MEDIA CENTER (NSMC) - SWEETWATER, TN
Cheryl Stovall (FEMA)

CENTRAL EMERGENCY CONTROL CENTER (CECC) - CHATTANOOGA, TN
Bob Trojanowski (NRC)

MOBILE TRANSPORTATION/FIELD ACTIVITIES
Al Hall (DOT)

MEDICAL SERVICES/MOBILE RADIOLOGICAL HEALTH
Brad Eichorst (FDA)

MCMINN COUNTY - ATHENS, TN
Tom Hawkins (FEMA)
Phil Kier (FEMA)

RHEA COUNTY - DAYTON, TN
Ken Lerner (FEMA)
Jim Nagle (FEMA)

MEIGS COUNTY - DECATUR, TN
Sue Ann Curtis (FEMA)
Russ Yarbrough (FEMA)

ROANE COUNTY - HARRIMAN, TN
Virginia Baker (FEMA)

OBSERVERS
Major P. May - Regional Director (FEMA)
Mary Lou Bennett (USDA)

1985 WATTS BAR NUCLEAR POWER PLANT EXERCISE

The 1985 Watts Bar Nuclear Power Plant full participation exercise will be the second such opportunity for the State of Tennessee, as directed by the Tennessee Emergency Management Agency (TEMA), and the Tennessee Valley Authority (TVA) to demonstrate an integrated radiological emergency response capability. In accordance with Federal Regulation 44 CFR 350, Final Rule, this exercise will establish a biennial frequency based on a rotational exercise cycle with the Sequoyah Nuclear Power Plant.

Both the State and TVA have prepared separate lists of goals and objectives that pertain directly to their respective duties. However, both lists reflect the necessary interactions of the State and TVA as set forth in the Multi-Jurisdictional Radiological Emergency Response Plan for the Watts Bar Nuclear Power facility. The list of goals and objectives that will guide the State and local governments are listed below.

EXERCISE GOALS

There are three goals of the 1985 Watts Bar Exercise. They are:

1. To allow State and local emergency response organizations to test and practice their response capability in accordance with procedures set forth in the Watts Bar Emergency Response Plan;

2. To make certain that NUREG-0654 deficiencies observed by the Federal Emergency Management Agency (FEMA)/RAC evaluators during the 1984 Watts Bar Exercise have been corrected; and

3. To identify emergency response activities that are in need of improvement or revision.

EXERCISE OBJECTIVES

In order to accomplish the exercise goals stated above, specific objectives have been developed within the various functional areas of the Watts Bar Emergency Response Plan. Objectives that are geared toward correcting 1984 NUREG deficiencies are so noted. Specific details regarding these deficiencies are contained in FEMA's 1984 Watts Bar Exercise Report. The objectives of the 1985 Watts Bar Nuclear Power Plant Exercise are listed below.

Alert Warning and Notification

State duty officers and Risk County Civil Defense Directors/EOC duty officers will follow procedures established for timely notification of appropriate response organizations dependent upon the particular emergency classification.

Emergency Operation Centers

1. Efficient staffing and operation of the State Emergency Operation Center (SEOC), Field Coordination Center (FCC), Radiological Monitoring Control Center (RMCC), and the three risk county EOC's will be demonstrated. Staffs will be initially prepositioned at the SEOC, JIC, RMCC, and FCC.

2. Internal message flow and logging systems will be demonstrated within the SEOC and each risk county EOC (1984 NUREG deficiency H.3., Rhea County, Meigs County).

3. The functional adequacy of the Meigs County EOC will be demonstrated. (1984 NUREG deficiency H.3., Meigs County).

Direction and Control

State and local EOC directors will demonstrate their knowledge of the Plan and exercise their decision making skills and ability to coordinate participating agencies and personnel into one united emergency response force. (1984 NUREG deficiency 0.4.a., Meigs County).

Emergency Communications

Transmitting necessary emergency information in a prompt manner will be tested between the following emergency operation centers:

1. CECC and SEOC (Specific focus will be on improving flow of information between the State and TVA Dose Assessment Groups);

2. SEOC and local EOC's;

3. SEOC and FCC/RMCC; and

4. FCC/RMCC and field monitoring teams.

Public Alert and Warning/Prompt Notification System

The Prompt Notification System will be activated by the SEOC Director in accordance with the correct sequence and procedures as outlined in the Watts Bar Emergency Response Plan. (1984 NUREG Deficiency E.5.)

Public Information

The Joint Information Center (JIC) concept will be employed as the public information system for the Watts Bar Plan. The JIC concept will function for the first time from the Quality Inn Motel in Sweetwater, Tennessee. The ability of the JIC Coordinators and various PIO's to dessiminate accurate information to the news media will be demonstrated. (1984 NUREG deficiencies G.3.a., G.4.b.,G.4.c.)

Accident Assessment

1. Radiological field monitoring teams will test their air and soil vegetation sampling techniques. (1984 NUREG deficiency 0.4.c.)

2. State and federal field monitoring teams will be coordinated and directed through the RMCC.

3. The ability of the SEOC/DRH to conduct dose assessment and recommend proper protective actions will be tested.

Radiation Exposure Control

State and local emergency response personnel will demonstrate their knowledge on the proper use of dosimeters by taking frequent readings as scheduled by their supervisors and maintaining accurate records.

Protective Action Response

1. The ability of the three risk counties to conduct an evacuation of the affected population will be demonstrated by simulating an evacuation along designated routes and in accordance with set procedures.

2. Efficient mass care shelter coordination will be demonstrated by Roane County. (1984 NUREG deficiency 0.1). TEMA will use this exercise as a training opportunity to self evaluate the shelter program. Exercise emphasis will be placed upon:

   a. Registration of evacuees;
   b. Radiological screening and decontamination of evacuees; and
   c. Use of amateur radio operators for communications between the shelters and shelter information points.

   McMinn County will practice their shelter management capabilities by activating at least one shelter. FEMA will informally review McMinn County's shelter operation. For in-house training purposes, Cumberland County will only exercise certain communication and notification aspects related to its shelter management responsibilities. FEMA review is not required. Hamilton County will not exercise host county responsibilities.

3. The Department of Agriculture will demonstrate its ability to recommend specific protective measures for the agricultural community within the ingestion pathway.

Recovery and Re-entry

The exercise will not include a recovery and re-entry phase.

WATTS BAR EXERCISE

Off-Site Response Narrative

July 25, 1985

0800 - 0904 (CDT) ALERT

Plant Status

A leak in the primary cooling system is detected. The Plant Operator dispatches a maintenance team to repair a block valve circuit and notifies the CECC that a two (2) hour Limited Operations Condition has been imposed upon plant operations. The CECC notifies TEMA that an ALERT has been declared.

State Response

The TEMA Duty Officer notifies the TEMA Director, Adjutant General and each risk county emergency preparedness director (McMinn, Meigs, and Rhea). Also notified during the ALERT are the Governor, Director of the Division of Radiological Health, Tennessee Highway Patrol (Emergency Service Coordinator), and the Field Coordination Center Coordinator. EBS stations (WDOD, Chattanooga and WNOX, Knoxville) are notified that an ALERT situation exists at the Watts Bar Plant and are instructed to play the pre-recorded ALERT message.

The TEMA Director reports to the State Emergency Operations Center (SEOC).

Local Response

The risk county emergency preparedness directors contact a limited number of people within their counties to place on standby. County Executives and Mayors/City Managers of Municipalities within the 10 mile EPZ are also notified. (County EOCs may be selectively manned at this time at the Director's discretion.)

EXERCISE OBJECTIVES:

Alert Warning and Notification: Both TEMA and the risk county emergency management organizations will test their ability to respond to an ALERT emergency classification by following established procedures for timely and complete notification of appropriate emergency response organizations.

Emergency Communications: The ALERT category will provide the initial test of communications between 1) the CECC and SEOC, and 2) the SEOC and local EOCs.

0905 - 1059 (CDT) SITE AREA EMERGENCY

Plant Status

Based on a Loss of Coolant Accident (LOCA) greater than the charging pump makeup capacity, a SITE AREA EMERGENCY is declared. By way of ringdown telephone, the CECC contacts the SEOC (TEMA) Director to report emergency status upgrade. TVA will recommend no protective action at this time.

State Response

The TEMA Director officially activates the State Emergency Operations Center (SEOC) in Nashville and the Field Coordination Center (FCC) in Athens. All State Emergency Services Coordinators (ESC) assemble at the SEOC and place their respective field forces on standby. FEMA (Region IV) and DOE, Oak Ridge, TN are notified by the TEMA duty officer of the emergency situation. Host county civil defense directors are also notified by commercial phone to prepare for possible mass care shelter activities.

The SEOC Director gives an emergency status update briefing. The message center is put into operation. State agencies not immediately affected are placed on standby.

The U.S. Coast Guard is notified by TEMA and requested to halt commercial traffic on the Tennessee River outside the 10 mile EPZ.

EXERCISE OBJECTIVES:

Emergency Operations Center: During this stage of emergency classification, TEMA demonstrates its ability for an efficient start up and sustained operation of the State Emergency Operations Center (SEOC).

Direction and Contol: The SITE AREA EMERGENCY requires the SEOC Director to demonstrate his knowledge of the Watts Bar Plan and his ability to manage the SEOC smoothly and confidently.

Emergency Communication: The test of communications expands to include the links between the SEOC and FCC/RMCC and the SEOC and Joint Information Center.

The Director of the Division of Radiological Health (DRH) will instruct monitoring teams to report to the Radiological Monitoring Control Center (RMCC) in Athens. From there the monitoring teams are dispatched to various field locations as required and together with TVA monitoring teams provide off-site monitoring results to the RMCC. DRH and TVA will jointly assess the results.

EXERCISE OBJECTIVES:

Emergency Communications: The communications between the FCC/RMCC and field monitoring teams will be tested during this time. The most

important aspect of this objective will be on the timely flow of information between the State and TVA dose assessment groups.

Accident Assessment: The DRH field monitoring teams will demonstrate their air and soil/vegetation sampling techniques to correct the 1984 NUREG O.4.c. deficiency. This phase of emergency will also provide practice in coordinating and directing the teams through the RMCC. Also, the ability of the SEOC/DRH to conduct dose assessment and recommend proper protective actions will be tested.

The Tennessee Department of Agriculture (TDA) assesses the need for protecting dairy animals and processing plants.

EXERCISE OBJECTIVES:

TDA will test its ability to recommend specific protective measures for the agricultural community within the ingestion pathway including the 10 mile EPZ. These will be actions that would occur prior to recovery since this exercise will not include a re-entry and recovery phase.

Prompt Notification System

During the SITE AREA EMERGENCY, the State Director will consider when to activate the Prompt Notification System (PNS). This decision will be based on recommendations from TVA/CECC. The Director will ensure that all appropriate participants of the PNS are notified. The PNS will include the following:

1) fixed siren system (will be sounded for the exercise);

2) vehicle sirens (for purposes of the exercise only selected routes will be run); and

3) Emergency Broadcast System (EBS), WDOD, Chattanooga and WNOX, Knoxville.

The entire 10 mile EPZ should be notified within 45 minutes.

The Tennessee Wildlife Resources Agency (TWRA) augmented by the U.S. Coast Guard and volunteers will provide notification to commercial river traffic within the 10 mile EPZ and restrict entry into the zone. Recreators will be notified by this means, also.

Since a release has not yet occurred, no further protective action will be given to the public.

EXERCISE OBJECTIVE:

Public Alert and Warning/Prompt Notification System: The Director will correct the 1984 NUREG E.5 deficiency by following the correct sequence and procedures to activate the Prompt Notification System.

Joint Information Center

The Joint Information Center (JIC), located in Sweetwater, is staffed and the public information system is put into place. News releases, conferences, briefings and official statements are prepared and conducted under the direction of the JIC Coordinators.

EXERCISE OBJECTIVES:

Public Information: This will be the initial operation of the Joint Information Center concept from the Quality Inn Motel in Sweetwater. This will provide confirmation that the Public Information Remedial Drill on December 14, 1984 did, in fact, correct 1984 NUREG deficiencies G.3.a, G.4.b, G.4.c.

Local Response

The risk county emergency preparedness directors are notified by TEMA of the SITE AREA EMERGENCY. Local EOCs become fully staffed and operational. The appropriate county department heads and response leaders are notified to ready their staffs and necessary equipment. Traffic Assistance Teams (TATs) are notified and placed on standby. School Superintendents and their transportation staffs are notified by the emergency management preparedness directors that school buses should be readied for a possible general population evacuation. Host county emergency preparedness directors are called by TEMA to prepare for mass care shelter activities.

EXERCISE OBJECTIVES:

Emergency Operations Center: During this phase risk counties are able to demonstrate their ability for an efficient start up and sustained operation. Both Meigs and Rhea Counties will demonstrate a satisfactory internal message and logging system to correct the 1984 NUREG H.3 deficiency. Meigs County must also demonstrate the functional adequacy of the EOC in order to correct 1984 NUREG deficiency H.3.

Direction and Control: As with the State Director, the local emergency preparedness directors must now show their knowledge of the Watts Bar Emergency Response Plan and ability to effectively direct and control their emergency response forces.

1100 - 1800 (CDT) GENERAL EMERGENCY

Plant Status

The refueling water storage tank becomes depleted. Make up capacity is lost. A GENERAL EMERGENCY is declared by the Plant Operator. The CECC notifies the TEMA Director of the upgrade in emergency status. Small releases to the atmosphere begin to occur approximately 1230. At 1400 radiation levels rise sharply. A significant release occurs between 1400 -1800.

State Response

The State Director announces that a GENERAL EMERGENCY has been declared. Shortly after the GENERAL EMERGENCY is declared, TVA and DRH recommend to the State Director that an evacuation be ordered within the 2 mile EPZ and eventually to selected sectors within Meigs and McMinn Counties. The Governor acknowledges this advise, declares a State of Emergency, and orders the recommended evacuation. (In the absense of the Governor, this link in the protective action decision process will be simulated.)

DRH and TVA continue to assess the need for additional evacuation or sheltering downwind from the plant.

TDA recommends sheltering dairy animals within the 2 mile EPZ and affected sectors within the 10 mile EPZ. The information is given to EBS from the JIC.

The JIC continues to provide the media with information regarding conditions at the plant, evacuation, and other public information.

EXERCISE OBJECTIVES:

Several objectives are reached during this phase of the exercise. Accident assessment continues to be practiced. Radiation Exposure Control is demonstrated by both State and local emergency personnel and accurate protective action response is undertaken.

Local Response

McMinn, Meigs, and Rhea County Emergency Management Directors proceed with implementing the evacuation plans for the affected sectors. The Sheriffs, having confirmed the completion of alerting the public, dispatch personnel to man critical roadblocks, assist in the orderly evacuation along controlled routes, and provide security for the evacuated areas. Traffic Assist Teams are dispatched, as needed, to critical locations along the evacuation routes. All law enforcement support resources (police, THP, Rescue, etc.) are utilized as needed. Sheriffs continue to coordinate this function. The County Road Departments set up roadblocks and barricades at predetermined county road points in the affected sectors. The Tennessee Department of Transportation (TDOT) sets barricades on State roads. Shelter Information Points (SIPs) are established along evacuation routes. Amateur Radio Operators provide communications between the SIPs, Shelters and EOCs.

Roane County prepares to receive evacuees from Rhea County (sector A-1). The school assigned to this sector (Harriman Occupational) is located within the City of Harriman. The Roane County Civil Defense Director coordinates the overall host county operation with the Harriman Civil Defense Director. School principals assume shelter manager roles and supervise setting up of shelter and registration of evacuees. Nursing teams arrive and prepare to conduct radiation screening and decontamination, if necessary, of evacuees. Amateur Radio Operators arrive at the shelters and establish communications with the SIPs.

EXERCISE OBJECTIVES:

Protective Action Response: The ability of the three risk counties to conduct an evacuation of the affected population will be demonstrated during this emergency classification. Roane County will have the opportunity to test their shelter management capabilities and correct the 1984 NUREG O.1. deficiency. The initial testing of recently developed decontamination procedures will also be undertaken.

1800 Termination of Exercise

Approximately two hours after vessel failure, suction from the containment pump is restored and the pumps are turned on to quench core debris, lower containment pressure and remove heat from containment. As containment pressure decreases, release rates also decrease. The release ends when the leakage to the annulus is isolated.

The Plant Operator reports to the CECC that all releases to the atmosphere have been secured. The CECC in turn contacts the SEOC and relays the information.

NOTE: Recovery actions would normally occur at this time. However, recovery and re-entry procedures are not included in this exercise.

TIME SCHEDULE OF SIMULATED INITIATING EVENTS

Initial Conditions

T = 20 min. 0740 (CDT)	Unit 1 at 100 percent power
	Unit 2 not yet in operation
	Unit 1 core at end-of-life
	Unit 1 - Containment spray pump A out of service LCO 3.6.2 (72 hours)
T = 0 0800 (CDT)	Pressurizer relief tank acoustic monitor and high temperature monitors alarm. Operator notes charging flow increase. Operator attempts to close PORV block valve. Block valve fails to isolate leak. Operator turns on second charge pump. Pressurizer level stable. Alert declared.
0805	Operator begins reducing power at 2%/min. Maintenance team is dispatched to investigate failure of block valve to close.
0830	Maintenance team reports electrical problem with block valve, they estimate 15 minutes to repair. Plant now at 50% power. Reduce power descent to 1%/min.
0845	Maintenance reports repair of block valve circuit completed. Operator closes block valve. Charging flow decreases, still higher than normal, acoustic monitor almost back to normal. PRT still shows high temperature. Operator turns off second charging pump. Plant is stable at 35% power.
0900	Charging pump flow increasing rapidly. Pressurizer level and pressure decreasing. Operator manually trips reactor and initiates safety injection. Turbine trips, main steam stop valves close, and condenser dump valves open. All charging, safety injection, residual heat removal and auxiliary feedwater pumps start. Reactor coolant pumps are turned off when RCS pressure falls below 1400 psi. Phase B containment isolation signal is received. Containment spray pump B starts.
0905	Site Area Emergency declared based on LOCA greater than charging pump capacity.
0910	Upper head injection accumulator discharges into reactor vessel, containment air return fans start.

0915	Containment pressure less than 2 psid. Containment spray pump B is turned off. Phase B containment isolation signal is reset.
1005	Primary pressure has dropped enough for the residual heat removal pumps to begin injecting water into the reactor vessel.
1035	Operator begins switchover to containment sump (ES 1.2) CCS to RHR HX established. Containment sump valves FCV-63-72 and FCV-63-73 closing. RWST RHR section valves FCV-74-3 and FCV-74-21 closing. RHR suction pressure indicators PI-74-4 and PI-74-22 indicates low pressure. Operator turns off RHR pumps. Maintenance team sent to investigate loss of suction from containment sump.
1045	Operator attempts to draw suction from the containment sump using containment spray pump B. PI-72-16 indicates low suction pressure. Operator suspects sump blockage due to inability to establish suction pressure without any apparent valve failure.
1055	Maintenance reports leakage from FCV-74-3 and FCV-74-21 still investigating loss of suction from sump.
1100	The RWST has been depleted. Charging and safety injection pumps begin to cavitate on loss of suction and are turned off. General Emergency is declared.
1105	Cold leg accumulators discharge into reactor vessel. Containment pressure steady at approximately 5 psid.
1130	Containment pressure indicators PDI-30-42, PDI-30-43, PDI-30-44, and PDI-30-45 decreasing indicating less than 1 psid.
1215	Radiation levels in containment are increasing indicating the beginning of fuel damage. Containment pressure indicators show less than 1 psid.
1230	Radiation levels outside containment are increasing.
1240	Localized hydrogen burns begins in lower compartment.
1330	Release and radiation levels outside containment are increasing.
1400	Radiation levels up sharply. Reactor vessel failure is

suspected. Localized hydrogen burns.

1600 — Suction to ECCS pumps from containment sump has been established. ECCS pumps are alligned for recirculation and turned on to quench core debris.

1630 — Release rates from containment are down. Maintenance reports they are now able to close the pressure equalizing valves from the containment to the annulus.

1800 — Release to atmosphere has ended. Containment now reading approximately 2 psid. Heat is being removed from containment by the RHR and containment spray heat exchangers.

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