

*Official Record
Copy*

SEP 24 1984

Florida Power Corporation
ATTN: Mr. W. S. Wilgus
Vice President Nuclear Operations
P. O. Box 14042, M.A.C. H-2
St. Petersburg, FL 33733

Gentlemen:

SUBJECT: FEMA FINAL REPORT - CRYSTAL RIVER NUCLEAR POWER PLANT EXERCISE OF
APRIL 25, 1984

Enclosed are copies of correspondence and the referenced Final Report received from FEMA regarding evaluation of off-site emergency preparedness for the Crystal River exercise conducted on April 25, 1984. Your attention is directed toward the offsite deficiencies identified by FEMA which need to be resolved.

We encourage you to assist the State of Florida, and the Counties of Citrus and Levy, to correct all deficiencies disclosed by FEMA. Resolution of these items should be completed prior to the next full scale exercise.

We also encourage you to work closely with the State and above cited counties in the development of the scenario for the next full scale exercise that will effectively test those areas in which the previous deficiencies were identified.

Your cooperation in this matter is appreciated.

Sincerely,

Richard C. Lewis, Director
Division of Reactor Projects

Enclosures:

1. Memorandum from R. W. Krimm to
E. L. Jordan, dated
August 13, 1984
2. Memorandum from M. P. May to
R. W. Krimm, dated June 14, 1984
3. FEMA Exercise Report for Crystal
River Nuclear Power Plant
conducted April 25, 1984

cc w/encs: (See page 2)

8411010044 840924
PDR ADOCK 05000302
F PDR

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IE31

cc w/encls:

E. M. Howard, Director
Site Nuclear Operations
P. F. McKee, Nuclear Plant Manager
G. R. Westafer, Manager
Nuclear Operations Licensing
and Fuel Management

bcc w/encls:

NRC Resident Inspector
Document Control Desk
State of Florida

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ACunningham:sa
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09/24/84



Federal Emergency Management Agency

Washington, D.C. 20472

AUG 13 1984

54-342

MEMORANDUM FOR: Edward L. Jordan
Director, Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission

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

SUBJECT: Exercise Report for the April 25, 1984, Exercise of
the Offsite Radiological Emergency Preparedness
Plans for the Crystal River Nuclear Power Plant

Attached are two copies of the Exercise Report for the April 25, 1984, partial participation joint exercise of the offsite radiological emergency preparedness plans for the Crystal River Nuclear Power Plant. The State of Florida, and Citrus and Levy Counties, which are located in the 10-mile plume emergency planning zone (EPZ), participated in the exercise. The exercise report, dated May 11, 1984, was submitted on June 14, 1984, by Region IV of the Federal Emergency Management Agency (FEMA) and includes the comments resulting from the Regional Assistance Committee review.

FEMA Region IV staff will furnish a copy of this exercise report to the State of Florida. There were very few specific NUREG-0654/FEMA-REP-1, Rev. 1, deficiencies observed during the exercise activities. These deficiencies are discussed in Part II, Detailed Discussion, and are listed in Part III of the report, Summary Listing of Deficiencies. All deficiencies noted can be corrected largely through training, however a schedule of corrective actions will be requested from the State. As soon as we receive and analyze their response, we will send you the results.

Although there were deficiencies observed at this exercise, they did not detract from the overall demonstrated capability by the State of Florida and Citrus and Levy Counties to protect the health and safety of the public in the event of an accident at the Crystal River Nuclear Power Plant. In light of this, the Federal Emergency Management Agency 44 CFR 350 approval of the State and local offsite radiological emergency preparedness plans site-specific to the Crystal River Nuclear Power Plant will remain in effect.

If you have any questions, please contact Mr. Robert S. Wilkerson, Chief, Technological Hazards Division, at 287-0200.

Attachments
As Stated

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Federal Emergency Management Agency

Region IV 1371 Peachtree Street, NE Atlanta, Georgia 30309

June 14, 1984

MEMORANDUM FOR: ASSISTANT ASSOCIATE DIRECTOR
OFFICE OF NATURAL AND TECHNOLOGICAL HAZARDS SL-NT

ATTENTION: Marlow Stangler, Project Officer
Phillip May

FROM: Major P. May,
Regional Director

SUBJECT: Crystal River Nuclear Power Plant, Florida
Exercise Report

In compliance with the August 5, 1983 memorandum from Dave McLoughlin, two copies of the Exercise Report for Crystal River Nuclear Power Plant Exercise conducted on April 25, 1984 are enclosed.

This exercise demonstrated that the off-site preparedness continues to be adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of the site in the event of a radiological emergency.

The report was distributed to the Regional Assistance Committee and the exercise evaluators. Minor changes were made which are incorporated in the enclosed reports.

Please notify us when the report is transmitted to the Nuclear Regulatory Commission so that a copy can be transmitted to the State of Florida.

Enclosures

CRYSTAL RIVER NUCLEAR POWER PLANT
EXERCISE



**FEDERAL EMERGENCY
MANAGEMENT AGENCY
REGION IV**

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Federal Emergency Management Agency

Region IV 1375 Peachtree Street, NE Atlanta, Georgia 30309

CRYSTAL RIVER NUCLEAR POWER PLANT

EXERCISE

Conducted on April 25, 1984

Exercise Report May 11, 1984

Utility: Florida Power Corporation

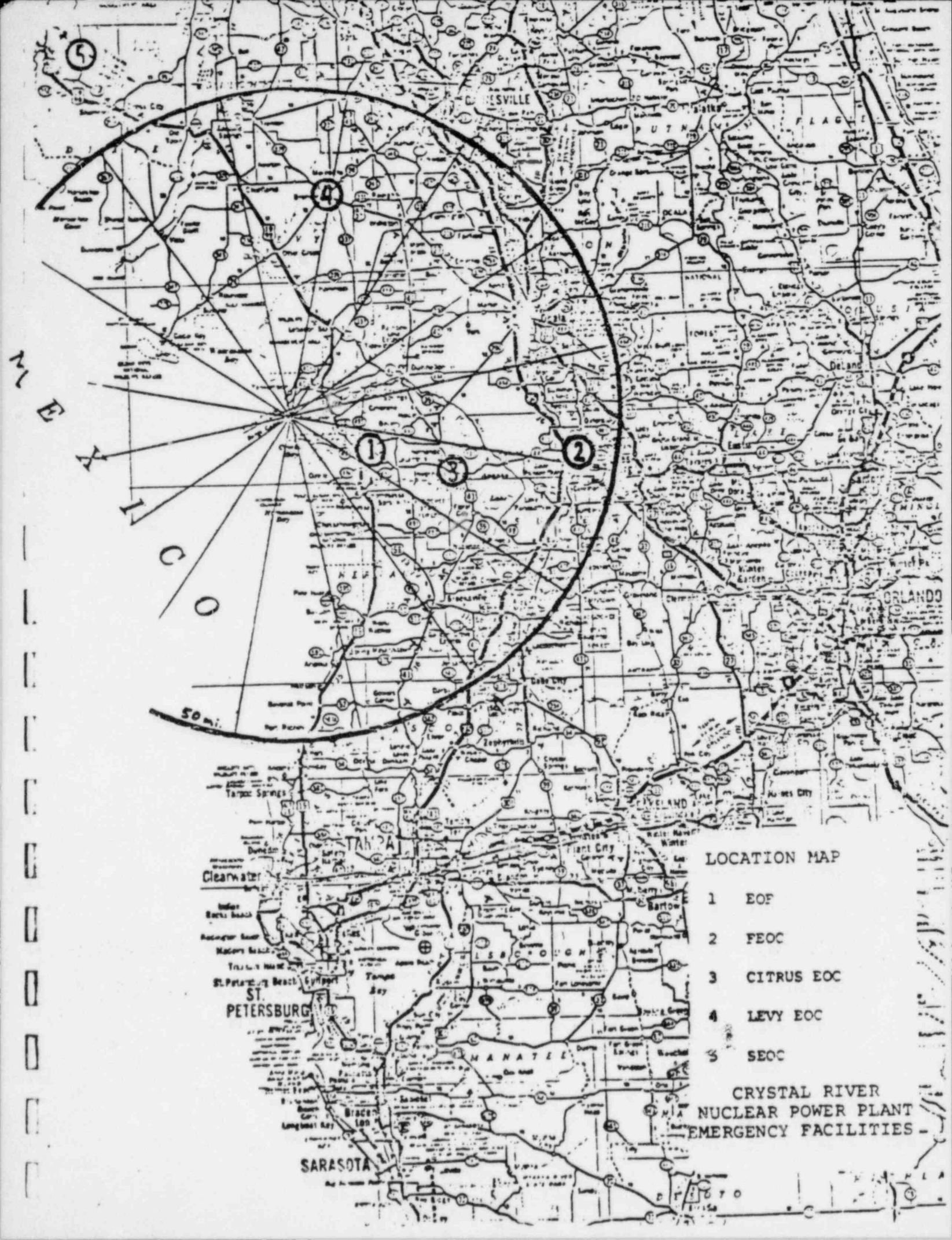
Plant Location: Crystal River, Citrus County, Florida

Participating State and local governments:

State of Florida

Citrus County

Levy County



LOCATION MAP

- 1 EOF
- 2 FEOC
- 3 CITRUS EOC
- 4 LEVY EOC
- 5 SEOC

CRYSTAL RIVER
NUCLEAR POWER PLANT
EMERGENCY FACILITIES

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SECTION I

EXERCISE SUMMARY

I. EXERCISE SUMMARY

This partial participation exercise was conducted on April 25, 1984, and was observed by eight Federal evaluators representing three Federal agencies (FEMA, NRC, FDA). As a partial exercise, the State participation was limited to the Emergency Operations Facility (EOF) and the Emergency News Center (ENC). Both risk counties (Citrus and Levy) participated and fully activated their emergency response plans. This was the third exercise for State and local governments to demonstrate off-site preparedness for the Crystal River Nuclear Power Plant 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 Crystal River Nuclear Power Plant is located in Citrus County approximately seven and one-half miles northwest of the town of Crystal River, and approximately four and one-half miles south of the towns of Yankeetown and Inglis. The Crystal River Plant is operated by the Florida Power Corporation (licensee).

For the purposes of the 1984 exercise, only the plans of local governments within the 10-mile emergency planning zone (EP2) were tested. Citrus and Levy Counties demonstrated activation of emergency operations centers as well as field activity. The exercise activity was conducted between 6:00 p.m. and midnight to meet the NUREG requirements for N.l.b., Exercises and Drills.

There were very few specific NUREG 0654 deficiencies observed during the exercise activities. These deficiencies are discussed in Part II, Detailed Discussion. A listing of these deficiencies is also included in Part III of this report, Summary Listing of Deficiencies. All deficiencies noted can be corrected largely through training.

The last Crystal River Exercise was conducted on February 22-24, 1983, and included participation from the State of Florida, Citrus County, Levy County, and Hernando County. The structure of the exercise established play in the 10-mile EPZ on the first two days and included play in the 50-mile ingestion pathway on the third day.

Overall, the level of preparedness of the State and local governments involved in the 1983 exercise was determined to be adequate to protect the health and safety of the citizens in the event of a radiological emergency.

During the 1983 exercise, two (2) deficiencies were noted for the State, seven (7) deficiencies were noted for Citrus County and nine (9) deficiencies were noted for Levy County. During the corrective actions all deficiencies were addressed and corrected. The 1984 exercise demonstrated that the previous deficiencies were adequately corrected. Only one recurring deficiency (Levy County K.5.b.) was noted and this weakness can be corrected through more training.

The following is a brief summary of the State and counties exercise activities.

State of Florida

In the Emergency Operations Facility (EOF) communications and coordination between State agencies and between the State and Florida Power Corporation were excellent. Consequently, this resulted in a rapid assessment of the postulated accident and the joint development of appropriate protective action recommendations.

Although procedures and plans are in place for an effective public information program, activities at the Emergency News Center (ENC) did not adequately provide accurate and timely information to the public. More training is needed to assist State and local public information officers in implementing their responsibilities.

Citrus County

The Citrus County Emergency Operations Center (EOC) is an excellent facility. Outstanding leadership was displayed and good support was provided by local government officials. The communications capability of the EOC is outstanding. The sirens were properly activated and appropriate EBS message transmitted. News releases and emergency information were properly coordinated with the county rumor control center. Radiological data was received and effectively coordinated.

Field activity included an evacuation drill at the Key Pines Center. Forty-eight handicapped individuals were transported to the Vocational Tech Shelter. The evacuation demonstration was outstanding with adequate shelter facilities. The Vo-Tech Program Coordinator serves as shelter manager with assistance from the Red Cross. Communications were provided by local ham radio operators (RACES) and they did an excellent job. Additional training is needed for the staff at both shelters for the radiological monitoring of evacuees.

The Citrus County Memorial Hospital and Emergency Medical Services (EMS) successfully demonstrated response capabilities. The EMS response and handling of a potentially contaminated patient was adequate. Appropriate measures were taken to control and limit the potential spread of contamination. The hospital staff is well trained and displayed the same high standards of conduct as demonstrated last year. Although the new emergency room was not yet complete, the facility is well planned and should be adequate to treat contaminated victims.

Levy County

Leadership at the Levy County EOC was effective and the support of public officials was excellent. The State RADEF officer was par-

ticularly helpful, providing an explanation of technical information that assisted in decision-making regarding emergency response personnel. Interaction of EOC personnel was excellent. EOC communications were impressive, with multiple systems for contacting relevant agencies and facilities.

The status board was kept up-to-date; however, displays of maps would be more useful if labeled. An additional status board showing shelters and capacities was not adequately utilized.

Message handling needs to be improved. A greater understanding of message flow and of the use of message forms would help improve this area.

Sirens were activated at a pre-set time, so coordination was not demonstrated. However, good coordination with the Citrus County EOC Director on other topics evidenced the abilities to coordinate when necessary.

Given prior evacuation of the county due to the simulated hazardous material accident, play regarding the nuclear accident was limited. It should be noted that recovery and reentry were not tested despite exercise objectives.

The washdown station in Levy County was used to monitor and decontaminate vehicles and monitor evacuees. The station was manned by members of the Yankeetown Volunteer Fire Department and volunteer residents. A single vehicle and three evacuees were processed through the station. Overall, the monitoring demonstration was weak. Monitoring personnel need additional training in procedures and techniques. A need exists for a full-time, non-seasonal response team.

SECTION II

DETAILED DISCUSSION

II. DETAILED DISCUSSION

During the exercise development process for the Crystal River Nuclear Power Plant Radiological Emergency Preparedness Exercise, the Federal Emergency Management Agency (FEMA) staff provided assistance. The Crystal River exercise objectives were designed to test all the areas of noted deficiencies during the February 1983 exercise. This allowed the exercise to demonstrate the corrective actions which have been implemented.

The scenario used to initiate the exercise for the Crystal River Nuclear Power Plant did establish activities to test most exercise objectives. Scenario design was different in that a hazardous materials transportation accident was the basis for which local emergency operations were to activate. However, at the scene of the simulated accident there was no response. Some confusion does exist as to what was to be simulated verses actual demonstration. Closer coordination between the State and local staffs could help in improving this problem area.

Scenario timeframe did not permit many activities to be executed in sequence with the emergency scenario, and thus, many activities were handled through control messages. The activities were effectively initiated and exercise controllers did a good job.

Overall, the exercise proved to be a good training tool for the State and local response personnel which serve as backup responders. However, it is recommended that the design of the exercise reflect where training demonstrations will occur rather than actual exercise play. Without a clear understanding of what is to be accomplished, it is very difficult to evaluate staff performance appropriately.

The following detailed discussion of the evaluation is presented by location of the activities.

State of Florida

Emergency Operations Facility (EOF)

The State did more than was required since this was not a full-scale exercise, and they used this opportunity to effectively cross train personnel in both the Health Department and the Emergency Management Agency. The State basically acted in a technical and administrative support role to the local governments. Additionally the key State agencies were co-located at the licensee's EOF which enhanced communications and coordination.

The proper technical assessments were made based on the available data and good agreement was achieved between the State and licensee's evaluation of the accident. As a result, appropriate, agreed upon protective actions were developed and implemented in a timely fashion.

Emergency News Center (ENC)

The Emergency News Center (ENC) was properly staffed and activated in a timely manner. Operations procedures were frequently referred to, to ensure that all tasks were initiated and implemented.

The ENC facility is an outstanding resource. The work space provided for the State and local PIOs is a large area and adequate to support their operations. However, the space was poorly organized and hampered an effective operation. Maps were available in the work area. No logs were maintained to document receipt or transmission of information. Internal operations of the State and local PIO activities needs a great deal of improvement. Staff resources were not effectively utilized and a great deal of time and energy was lost due to poor management of this activity.

Communications equipment was adequate and worked well throughout the exercise activity. The communications system could have supported a more active public information program.

Information released to the press and ultimately to the public was very delinquent. Information in several instances presented during press briefings was not followed by hard copy. Little information was available to the press about the off-site local response actions. Although procedures are in place to effectively support this important function, it was not successfully demonstrated. The coordination between State and local PIOs occurred in a confused manner (G.4.b.) and was not timely. The deficiencies in the operation resulted in a great deal of confusion to the mock media present for the drill as to what was actually being recommended to the public for their protection and safety.

The coordination and cooperation between the utility and State, and utility and local PIOs was excellent and truly showed a team effort. Enthusiasm was high but training is needed for the State and local PIOs to improve their capabilities to effectively carry out their responsibilities.

Risk Counties

Citrus County

The Citrus County EOC staff was activated and assembled in a timely manner. Correct call-down procedures were followed by communications personnel. Forty-eight individuals representing eighteen elements of county government participated in the exercise and were present in the EOC. The exercise received excellent support from public officials. Members of the County Commission and the Mayor of Crystal River were present throughout the exercise.

The Emergency Preparedness Director displayed outstanding leadership throughout the exercise. Sufficient briefings were conducted to

keep the EOC staff adequately informed. Additional briefings were made by representatives of the Civil Air Patrol (CAP) and by the Department of Health and Rehabilitative Services (Radiological Health). SOPs were in evidence and were referenced as appropriate.

The EOC facility is outstanding. The space is more than adequate for a county operation. Displays were excellent. Two minor deficiencies were corrected from the last exercise, i.e., displays (maps) showing population distribution and evacuation routes.

The highlight of the EOC operations is the outstanding communication capability. The communications center is operated 24-hours every day with trained and capable personnel. There are primary and back-up systems to all communications links. The alerting of the public by activation of sirens was demonstrated in an excellent manner. This was followed by the appropriate EBS message.

The Emergency Preparedness Director received two hard copy news releases from the Emergency News Center (ENC), one a State release and one a county release. These were distributed to the EOC staff. The rumor control at the county level was well organized. Two individuals were provided excellent space and communications to meet this requirement. The PIO in the EOC kept these operators sufficiently informed to answer questions. Several exercise calls were made to the rumor control center to test the knowledge of the operator and the validity of the answers provided.

Radiological data received from the EOF was evaluated by a member of the Department of Health and Rehabilitative Services (Radiological Health). Frequent discussions between the Emergency Preparedness Director and Radiological Health were held. Jointly the decision was made to direct in-place sheltering in two sectors. This was later changed to three sectors and the recommendation was made by the utility and State representatives at the EOF.

The evacuation of the Key Pines Center involved the evacuation of a congregate living facility which houses forty-eight mentally retarded/handicapped individuals. The facility has a Federal requirement to exercise a full-scale evacuation three times per year, and they have been in operation for three years. Consequently, they have had nine previous evacuations. The evacuation went extremely well with no problems. At 7:45 p.m. the center was contacted by the EOC and told that evacuation was necessary. The center's bus would not start (simulated) so two county school buses were requested. It took between twenty and thirty minutes for the county buses to arrive. All parties and staff were promptly loaded and transported to the Vocational-Tech Shelter.

The shelter space was adequate. Staff from the Key Pines Center served as staff for the evacuees. The program coordinator for Vo-Tech served as the shelter manager. Red Cross volunteers were also present to help staff the shelter operations. Communications were provided by RACES (ham radio operators) and were well organized. The area of radiological monitoring needs improvement.

One staff person is not adequate to manage this responsibility. (J.12.) Additional training and or refresher training is needed to help volunteers maintain established capabilities. The shelter operation at the Civic Auditorium identified the same weaknesses in the area of radiological monitoring of evacuees.

The Citrus Memorial Hospital drill was established as one of the exercise objectives. However, there was a misunderstanding at the hospital, in that staff were not aware they were to be tested. The hospital staff thought they were only to support the video taping of the Emergency Medical Services (EMS) activity. Therefore, the response center for the hospital was not completely staffed. Hospital staff who participated are well trained. The new facility, although not completed for this exercise, should be adequate to handle contaminated injuries. The EMS personnel involved in transporting the patients are well trained. Appropriate measures were taken to control and limit the potential spread of contamination.

Levy County

The Levy County EOC was located in a basement area of the Levy County Courthouse. The facility was small but adequate, with appropriate furniture and equipment. Communications equipment was particularly effective with built-in redundancies. To carry out extended operations, showers and other facilities in the Sheriff's office upstairs and next door in the high school would be used.

The County EOC was activated by controllers' message. Alert and Notification procedures were demonstrated by a staff member telephoning the list of EOC personnel. However, staff was "waiting in the wings" so that mobilization was not demonstrated, despite an exercise objective to this effect.

The Civil Defense Director was an effective leader. Briefings were frequent and complete. The interest and enthusiasm of EOC personnel was evidenced by extensive discussions and consultation. Support of elected officials was good. Of particular assistance was the RADEF officer from Orlando, who provided valuable assistance and explanation regarding the radiological accident. Staff participating in the exercise knew their job responsibilities. Each player had copies of procedures and checklists specific to their function.

The main status board was kept up-to-date, although the one listing shelters and capacities was not effectively utilized. Wall displays lacked labels and it was difficult to ascertain what was being displayed.

Message handling procedures could be improved. There was confusion regarding notification of plant status. At the beginning of the exercise, message forms were not used, but this was corrected during the exercise.

Fixed sirens were activated at a pre-set time so that coordination was not demonstrated. However, the Citrus and Levy County EOC directors communicated regularly and effectively, and there is no reason to believe that the sounding of the sirens and EBS messages could not have been effectively coordinated, if it had been necessary. Given prior evacuation of Levy County, due to the hazardous materials accident, play regarding the nuclear incident and protective actions was limited.

It should be noted that recovery and reentry were not tested, despite the exercise objectives.

The washdown station was located at Lebanon Station (Hwy. 19 & C-121; Levy County) to monitor and decontaminate vehicles, and monitor evacuees. Three monitors and two Yankeetown volunteer fire chiefs conducted the demonstration. Each player was generally familiar with the procedures, but the overall demonstration was weak.

Specific weak areas included:

- Consideration should be given to wearing protective clothing.
- Procedures for reading/recording dosimeter values were generally known, but not demonstrated.
- Personnel were not aware of where they would go for decontamination. (K.5.b.)
- CDV 700/715 were initially set at wrong level and probes were not protected from contamination.
- Volunteer team is comprised with about 50% seasonal residents, making the actual number of respondents uncertain from month to month.
- Permanent record devices were not distributed to emergency workers. (K.3.a.)
- Personnel did not record initial dosimeter values or read and record dosimeters periodically; although they had planned to do so after monitoring each vehicle. (K.3.b.)

A vehicle and three evacuees were monitored. Washdown of the vehicle was demonstrated. The evacuees were "clean" and sent to the relocation center. The relocation center was not observed, as it was closed shortly after the evacuees were processed. It is unclear as to why the relocation center was closed before evaluation.

SECTION III

SUMMARY LISTING OF DEFICIENCIES

III. SUMMARY LISTING OF DEFICIENCIES

NUREG 0654 Deficiency

State of Florida

G.4.b. Public Education and
Information

Citrus County

J.12. Protective Response

Levy County

K.3.a. Radiological Exposure
Control
K.3.b. Radiological Exposure
Control
*K.5.b. Radiological Exposure
Control

*Recurring deficiency from last exercise.

SECTION IV

APPENDICES

IV. APPENDICES

- A. Evaluator List and Assignments
- B. Exercise Objectives
- C. Exercise Scenario

SECTION IV

APPENDIX A

EVALUATOR LIST AND ASSIGNMENTS

FEDERAL EVALUATOR ASSIGNMENTS
CRYSTAL RIVER NUCLEAR POWER PLANT EXERCISE
April 25, 1984

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

EMERGENCY OPERATIONS FACILITY
Bob Trojanowski (NRC)

EMERGENC' NEWS CENTER
Cheryl Stovall (FEMA)

CITRUS COUNTY
Doug Hoell (FEMA)
John Heard (FEMA)

LEVY COUNTY
Shana Aucsmith (FEMA)
Jim Levenson (FEMA)

MOBILE EVALUATORS
Brad Eichorst (FDA) (Radiological Health)

SECTION IV

APPENDIX B

EXERCISE GOALS AND OBJECTIVES

STATE OF FLORIDA
DEPARTMENT OF
COMMUNITY AFFAIRS
DIVISION OF PUBLIC SAFETY PLANNING AND ASSISTANCE

BOB GRAHAM
Governor



JOHN M. DeGROVE
Secretary

February 8, 1984

Mr. Glenn C. Woodard, Jr., Chief
Natural and Technological
Hazards Division
Federal Emergency Management Agency
1375 Peachtree Street, Northeast
Atlanta, Georgia 30309

Dear Glenn:

Enclosed for your review and approval are the proposed goals and objectives for the April 25 (6:00 p.m. - 12:00 midnight) full scale local exercise at the Crystal River nuclear power plant. These goals and objectives are designed to demonstrate that the deficiencies identified during last year's exercise have been corrected. These goals and objectives were developed with input from State, Citrus and Levy counties, Florida Power Corporation, and Ms. Shana Aucsmith of your staff.

It is my understanding that the full scale local exercise will fully evaluate the local governments' emergency response capabilities and the alert/notification and communications capabilities of the State. As such, the State and Field EOCs will be minimally staffed by personnel who will be cross-trained during the exercise. Any questions or comments should be directed to Dan Bloemendaal of my staff.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gordon".

Gordon L. Guthrie
Chief

GLG/DB/rp

Enclosure

cc: George Allen
Billy Cobb
Karl Neuschaefer
Ted Keith
Robert Pennock
Dr. Lyle Jerrett

BUREAU OF EMERGENCY MANAGEMENT
1720 SOUTH GADSDEN STREET • TALLAHASSEE, FLORIDA 32301 (904) 488-1900

GOALS AND OBJECTIVES

CRYSTAL RIVER FULL SCALE LOCAL EXERCISE April 25, 1984

GOALS

- I. To evaluate the Florida "Radiological Emergency Management Plan for Nuclear Power Plants" and determine its adequacy for response to an emergency situation at the Crystal River Nuclear Power Plant.
- II. To evaluate the radiological emergency preparedness capabilities of those counties within the plume exposure pathway EPZ.
- III. To provide an opportunity for state agency personnel to be cross-trained in different aspects of radiological emergency operations.
- IV. To demonstrate that those deficiencies identified during the 1983 Crystal River exercise have been corrected.

OBJECTIVES

- I. Emergency Operations, Facilities and Resources
 - A. To test the point-to-point communications between state and local emergency response organizations and FPC emergency personnel at the Crystal River nuclear power plant during nighttime operations.
 - B. To determine the adequacy of the Citrus and Levy county emergency operations centers (EOCs) to support emergency operations.
- II. Alerting and Mobilization of Officials and Staff
 - A. To test the procedures and systems for the alert and notification of key emergency response personnel and activation of the Citrus and Levy county EOCs.
- III. Emergency Operations Management
 - A. To test the ability of key individuals within principal emergency response organizations to coordinate and direct the response operations and activities of their respective organizations.

- B. To determine the adequacy of internal and external information flow procedures.
- IV. Public Alerting and Notification
 - A. To test the systems and procedures for notification of the public that a radiological emergency condition exists.
- V. Public and Media Relations
 - A. To test the organization and procedures for the coordinated and timely dissemination of information to the public and media.
- VI. Accident Assessment
 - A. To test the procedures for determining the radiological consequences of the emergency.
- VII. Actions to Protect the Public
 - A. To test the adequacy of the decision-making process with regard to determining the appropriate action(s) to protect the public.
 - B. To demonstrate the ability of Citrus and Levy counties to implement recommended protective actions.
- VIII. Health, Medical, and Exposure Control Measures
 - A. To determine the adequacy of procedures for the distribution of personal dosimetry and/or radio-protective drugs to emergency workers within the radiation hazard area.
 - B. To test the ability of Citrus County to provide adequate health and medical services to contaminated injured individuals.
- IX. Recovery and Reentry
 - A. To determine the adequacy of criteria for the relaxation of protective actions.
 - B. To determine the adequacy of Citrus and Levy county plans and procedures for recovery and reentry operations.

SECTION IV

APPENDIX C

EXERCISE SCENARIO

STATE OF FLORIDA
DEPARTMENT OF
COMMUNITY AFFAIRS
DIVISION OF PUBLIC SAFETY PLANNING AND ASSISTANCE

BOB GRAHAM
Governor



JOHN M. DeGROVE
Secretary

March 2, 1984

Mr. Glenn C. Woodard, Jr., Chief
Natural and Technological
Hazards Division
Federal Emergency Management Agency
Region IV
1375 Peachtree Street, N.E.
Atlanta, Georgia 30309

Dear Glenn:

Enclosed is the scenario for the April 25 Crystal River nuclear power plant exercise. The scenario has been developed with input from licensee, state, county, and FEMA representatives. Please note the following:

- 1) State notes are inserted into the licensee's scenario;
- 2) A scenario time line has been included;
- 3) A real dispersion plot has been included;
- 4) A distance/dose rate table has been included; and
- 5) The standard plant messages and technical annexes will be submitted before April 6, 1984.

Please contact me if you have any questions regarding the scenario.

Sincerely,

A handwritten signature in dark ink, appearing to read "Dan Bloemendaal".

Dan Bloemendaal
Exercise Coordinator

DB/rp

Enclosure

BUREAU OF EMERGENCY MANAGEMENT
110 SOUTH GADSDEN STREET • TALLAHASSEE, FLORIDA 32301 (904) 498-1111

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EMERGENCY EXERCISE SUMMARY

- Purpose:** This Exercise is planned to test the state of emergency preparedness of Crystal River Unit 3 (CR-3), the FPC Corporate Emergency Support Organization, and local response organizations.
- Objective:**
- Test the abilities to alert and activate the Emergency Response Organizations.
 - Test communications networks and systems.
 - Test the procedures for implementing radiological dose assessment.
 - Verify the availability and operability of emergency equipment and supplies.
 - Verify the adequacy of FPC's Emergency Plan and Implementing Procedures, and assure that participants are familiar with their respective duties and responsibilities.
- Scope:**
- The Exercise will simulate events that will initiate each of the four emergency classifications.
 - This Exercise shall be conducted, simulating as closely as possible, actual emergency conditions.
 - Throughout this Exercise, simulated conditions may be scheduled such that one or more drills may be held simultaneously.
 - Protective action recommendations may not include evacuation of the Crystal River Generating Complex.
 - Implementation will be via Message Cards (see page 8) so that personnel must evaluate and respond. This will be accomplished by the Implementors giving Message Cards to the participants. These Message Cards will contain information requiring the participants to initiate specific emergency responses. Failure to respond or incorrect response will be corrected after a reasonable time to insure proper response and to keep the Exercise on schedule.
 - A critique will be held subsequent to the Exercise to document the implementation of the emergency plans and include appropriate evaluations and recommendations for corrective action.

DEFINITIONS

1. Evaluator - A member of the exercise group responsible for evaluation and documentation of a specific event or events (see page 7). An evaluator may also serve as an Implementor.
2. Implementor - A member of the exercise group responsible for initiation and implementation of a simulated event.
3. Observer - A person not involved in evaluation, implementation or participation in the emergency exercise.

LIST OF LOCATIONS OF FPC IMPLEMENTORS/EVALUATORS

1. Emergency Sampling Team
2. Auxiliary Building (General)
3. Control Room (2)
4. Technical Support Center (2)
5. Emergency Medical Team
6. Guardhouse (Security Team)
7. Radiation Emergency Team (re-entry to isolate MUT gas space)
8. Environmental Survey Team (2)
9. Emergency Repair Team, Bailey Control Station
10. Operations Support Center
11. Emergency Operations Facility (2)
12. Corporate Command Center

LIST OF TENTATIVE OBSERVING ORGANIZATIONS

1. U.S. Nuclear Regulatory Commission
2. Federal Emergency Management Agency
3. Industry/Utility Representatives
4. Florida Power Corporation Representatives
5. Institute of Nuclear Power Operations

SAMPLE
EXERCISE EVALUATION FORM

Florida Power Corporation
Crystal River Unit 3
March 1982, Emergency Exercise

Date: _____

Evaluator: _____

1. Activity Observed:

2. Location:

3. Answer the following concerning the event if appropriate:
 - A. Was the event organized?
 - B. Equipment & supplies available?
 - C. Did personnel understand their duties?
 - D. Did key personnel inform others?
 - E. Were communications adequate?
 - F. What responsibilities were exercised?
 - G. What responsibilities were not exercised? Could they have been performed?

4.

Key Times:	Events:

SAMPLE
MESSAGE CARD

No. _____

Time: _____

TO: _____
(Exercise Participant)

For the purpose of this Exercise, you have just observed or been informed of the following event or information:

MESSAGE:

ADDITIONAL INFORMATION:

THIS IS A DRILL!

CRYSTAL RIVER UNIT 3
ANNUAL EMERGENCY PLAN EXERCISE SCENARIO
APRIL 1984

BACKGROUND INFORMATION

1. The unit has been at 100% full power for three weeks.
2. The unit has been operating for 16 hours under STS Action Statement 3.8.1.1 (A.C. electrical power sources) due to the Units 1 & 2 startup transformer being inoperable.
3. The "A" emergency diesel generator has been running for 30 minutes at 2750 KW per STS 3.8.1.1 Action Statement.
4. MUP-1C is out of service and MUP-1B breaker is positioned in the "B" 4160 ES bus and selected for ES start. MUP-1A is aligned to the makeup tank and running.
5. Total gas in the Reactor Coolant System is 88 cc/kg.
6. The pressurizer is being degassed through the pressurizer steam space sample line.
7. The makeup tank is being vented to the waste gas header.

EQUIPMENT STATUS

1. The Units 1 & 2 startup transformer is inoperable because of bushing maintenance. It is expected to be returned to service within 16 hours.
2. MUP-1C is out of service due to a cracked weld on the casing vent. The pump is tagged out and mechanics are rewelding the vent at this time. It should be ready to return to service within five hours.
3. IAP-1A is tagged out for a major overhaul.

MAINTENANCE ACTIVITIES

1. The 4160 ES bus feeder breaker 3211 has been removed from its cubicle for arc shoot inspection.
2. A Fire Prevention Work Permit has been issued to the maintenance crew repairing the "C" makeup pump.
3. A maintenance crew is working in the valve alley between the Waste Gas Decay Tank Room and the Gas Analyzer Room, installing piping part of a MAR package.
4. The diesel air compressor is very low on fuel. Building Service has been notified and they will have it refueled as soon as possible.

CRYSTAL RIVER NUCLEAR POWER PLANT EXERCISE
SCENARIO
APRIL 25, 1984 -- 6:00 P.M. - 12 MIDNIGHT

- 1800 Maintenance man injured while working in the Waste Gas Valve Alley.
- 1801 Control Room is notified of the injury.
- 1805 Emergency Medical Team dispatched.
- 1810 Emergency Medical Team determines victim requires off-site medical care and is contaminated. An UNUSUAL EVENT is declared.
- STATE NOTE: Within 15 minutes State Warning Point notified.
- 1816 Annunciator Alarm: "RCP-1A Motor Vibration High"
- 1817 Annunciator Alarm: "Loose Parts Monitoring"
1. RCP-1A High Alarm
 2. OTSG-A1 High Alarm
 3. OTSG-A2 High Alarm
 4. Guide Tube 1 High Alarm
- 1821 RCP-1A shut down due to excessive vibration. Power level reduction to 75% initiated.
- 1822 Annunciator Alarm: "In-Core Monitor System High Temp." Printout shows increase temperature at three locations in the core.
- 1824 Annunciator Alarm: "RML-1 (Letdown Line Motor) High Rad" RML-1 monitor continues to trend upward.
- 1825 Emergency Medical Team transports injured man to hospital.
- 1826 Control Room requests Reactor Coolant System sample.
- 1827 Operator notices area monitors RM-G6, RM-G5, and RM-G10 are trending upward.
- 1828 Plant at 75% power. In-core monitor system indicates that temperature continues to increase in the three previously identified areas.

1830 Loose parts monitor alarms have subsided since RCP-1A shut down.

1835 Begin controlled shutdown based on loose parts monitor and probable damaged fuel.

1905 Unit at 0% power, 532°, beginning plant cooldown.

1930 A crack develops in the waste gas header. The crack is caused by stress from an improperly installed hoist left in place (unattended) since injury occurred in this area at 1800.

STATE NOTE: Minor Release Begins

1936 Annunciator Alarms: "Atmospheric High Rad"

1. RM-A2, Auxiliary Building Vent Monitor, Warning Alarm (Noble Gas and Iodine Channels); RM-A2 continues to trend upward.
2. RM-A3, Auxiliary Building Exhaust Duct Monitor, High Alarm; initiates trip of ventilation system.

1940 Control room notifies ChemRad and investigation of high radiation alarms is initiated.

1955 ChemRad reports results of Reactor Coolant System sample. Sample results indicate Reactor Coolant System activity to be 372 uCi/gm DE-I131.

2000 ALERT is declared. Technical Support Center activation is initiated. Site accountability initiated.

STATE NOTE: Within 15 minutes State Warning Point is notified. Citrus and Levy EOC Notification and Activation.

2015 Emergency medical Team arrives at hospital and reports back condition of the injured man.

2018 Crack in waste gas header deteriorates, increasing the rate of release.

STATE NOTE: Significant Release Begins

2020 Annunciator Alarm: "Atmospheric High Rad"
RM-A2 High Alarm, Noble Gas and Iodine Channels; monitor readings correspond to approximately 60 mRem/hr whole body and 450 mRem/hr thyroid at 4400 ft. (site boundary). Environmental Survey Team is dispatched. Dose assessment begins.

2035 Dose rate at CR-3 Parking Lot is approximately 200 mRem/hr whole body as reported by Environmental Survey Team.

2039 RM-L1 stabilizes, indicating Reactor Coolant System activity stabilizing.

2055 Dose rate at 4400 ft. (site boundary) approximately 60 mRem/hr whole body for > 30 minutes as determined by dose assessment. SITE AREA EMERGENCY declared. Emergency Operations Facility required to begin activation.

STATE NOTE: EOF Utility Personnel

2100 Unit at 425°; Bailey Control Station for the OTSG turbine bypass valves fails low (0% demand). Both bypass valves on the "A" OTSG fail closed.

STATE NOTE: SEOC, FEOC and EOF State Personnel activated.

2110 Emergency Repair Team is dispatched.

2117 Environmental Survey Team reports no loose surface contamination in the environment.

2119 In initial stages of the Exercise, ChemRad was sampling the makeup tank gas space. At this time, it is realized that the sample line was never isolated, allowing a direct flow path from the MJT gas space to the waste gas header. Emergency Coordinator requests sample line to be isolated.

2135 Sample line isolated.

2140 Bailey Control Station for "A" OTSG turbine bypass valves returned to service.

2155 EOF required to be staffed and operational.

STATE NOTE: State personnel in EOF and FEOC activated.

2217 Crack in waste gas header degrades, causing a rapid increase of RM-A2 noble gas channel readings; iodine channel off-scale.

2230 Environmental Survey Team reports approximately 1.5 Rem/hr whole body at the Restricted Area boundary (Security Fence).

2235 A GENERAL EMERGENCY is declared. Emergency Operations Facility makes protective action recommendations to off-site authorities.

2320 RM-A2 rapidly decreasing toward normal levels. (Release terminated.)

2335 Reactor Coolant System cooldown in progress; recovery begins.

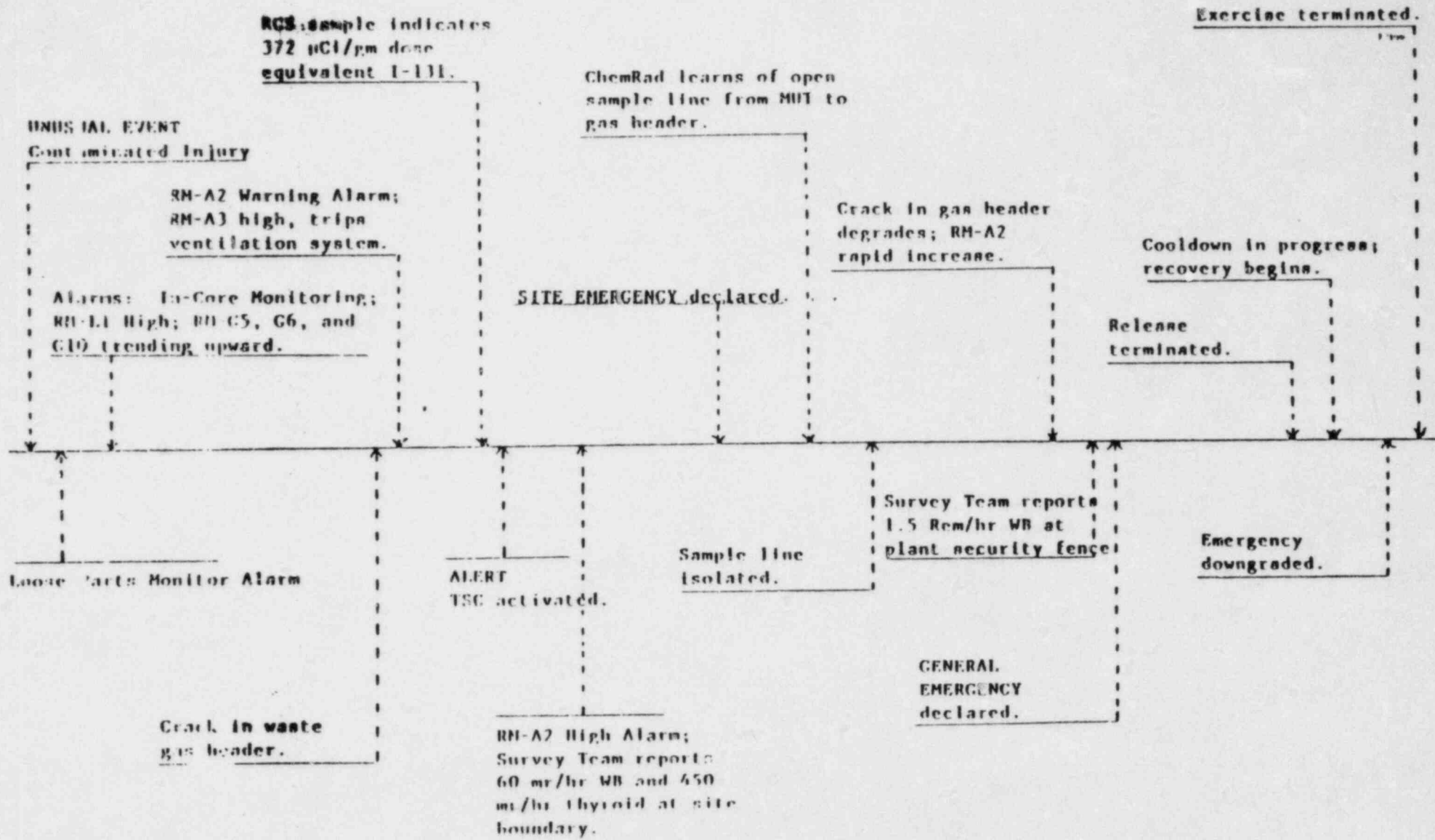
STATE NOTE: Recovery considerations begin.

2350 The emergency is downgraded.

2400 Exercise is terminated.

CRYSTAL RIVER NUCLEAR POWER PLANT EXERCISE
 SCENARIO TIME LINE
 APRIL 25, 1984 -- 6:00 P.M. - 12 MIDNIGHT

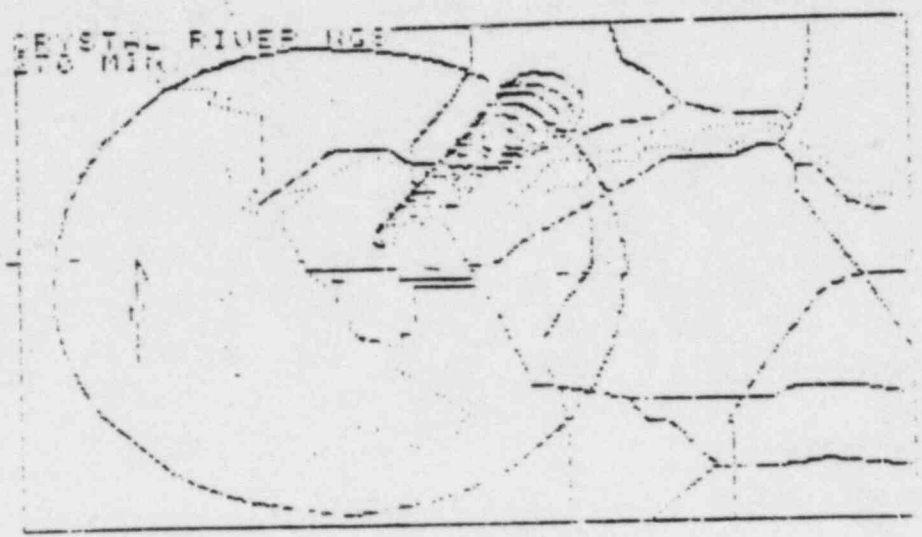
	1800
<u>UNUSUAL EVENT</u> , Contaminated Injury	1810
Loose parts monitor	1817
RML - 1 ALARM	1824
RMG-6 Increase	
Thermocouple Temp.	
	1900
RM-A2 Warning Alarm, RM-A3 Trip	1936
<u>ALERT EVENT</u> , RCS High Activity	2000
RM-A2 NG + I High Enough to Give Dose > 50 mR/hr @ 4400 ft.	2012
RCS Activity Stabilizes	2039
<u>SITE AREA</u> , > 50 mR/hr for > 1/2 hour	2055
	2100
	2155
EOF manned and operational	2200
Waste Gas decay tank rupture RM-A2 increase to high range	2217
<u>GENERAL EMERGENCY</u> > 1 Rem/hr Site Fence	2245
	2300
RM-A2 returning to normal	2325
Exercise Terminates	0000



H M M A S S O U L I
 REAL TIME VARIABLE TRAJECTORY AIR DISPERSION MODEL

CRYSTAL RIVER NUCLEAR GENERATING STATION
 START TIME: 20:00 E.S.T.
 WIND SPEED : 1 M/SEC.
 PGT STABILITY CLASS : D
 RELEASE RATES = IODINE: 0 CI/SEC
 INCIDENT TYPE : WSTR

02/20/64
 TIME AFTER INCIDENT : 270 MIN
 WIND DIRECTION : 225 DEG.
 MIXING HEIGHT : 1075 METERS
 NOBLE GAS: 0 CI/SEC



REL. CONC. RATE

TIME AFTER INCIDENT	REL. CONC. RATE	REL. CONC. RATE	REL. CONC. RATE
0.00	45.00	45.00	0.00
1.00	45.00	45.00	0.00
2.00	45.00	45.00	0.00
3.00	45.00	45.00	0.00
4.00	45.00	45.00	0.00
5.00	45.00	45.00	0.00
6.00	45.00	45.00	0.00
7.00	45.00	45.00	0.00
8.00	45.00	45.00	0.00
9.00	45.00	45.00	0.00
10.00	45.00	45.00	0.00

START TIME	STOP TIME	PERIOD TIME	DOSE TYPE	.2	.5	.75	1	2	3	4	5	7.5	SUMMED TERM C/D'S
2000		2030	WHOLE BODY	233	60	33	21	0	0	0	0	0	51
			THYROID	177	46	25	16	0	0	0	0	0	5.7E-11
			W.B.	489	126	69	45	9	3E-8	0	0	0	10.51
			THY.	370	95	52	34	7	2E-8	0	0	0	1.19E-3
			W.B.	489	126	69	45	20	5	3E-3	0	0	10.51
			THY.	370	95	52	34	15	4	2E-3	0	0	1.19E-3
			W.B.	489	126	69	45	20	10	3	7E-2	0	10.51
			THY.	370	95	52	34	15	8	2	5E-2	0	1.19E-3
			W.B.	489	126	69	45	20	10	6	2	3E-10	10.51
			THY.	370	95	52	34	15	8	5	2	2E-10	1.19E-3
			W.B.	1396	360	197	129	20	10	6	4	3E-2	301
			THY.	3110	801	440	287	15	8	5	3	3E-2	.011
			W.B.	1396	360	197	129	57	10	6	4	1	301
			THY.	3110	801	440	287	126	8	5	3	1	.011
			W.B.	0	0	1E-11	2E-3	55	28	7	5	2	01
			THY.	0	0	2E-11	4E-3	121	63	5	3	2	01
			W.B.	0	0	0	0	.57	28	18	5	2	01
			THY.	0	0	0	0	1	63	40	4	2	01

NOTE: MAXIMUM DOSE RATE @ 10 MILES: