

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-315/91019(DRSS); 316/91019(DRSS)

Docket Nos. 50-315; 50-316

License Nos. DPR-58; DPR-74

Licensee: Indiana Michigan Power Company
1 Riverside Plaza
Columbus, OH 43216

Facility Name: D. C. Cook Nuclear Power Plant, Units 1 and 2

Inspection At: D. C. Cook Site, Bridgman, Michigan

Inspection Conducted: August 26-28, 1991

Inspectors: *J. Foster*
J. Foster
Team Leader
W. Axelson
W. Axelson

9/20/91
Date

9-20-91
Date

Accompanying Personnel: T. Colburn
T. Chapman
J. Isom
D. Passhel

Approved By: *Roy J. Caniano*
Roy J. Caniano, Chief
Radiological Controls
and Emergency Preparedness Section

9/20/91
Date

Inspection Summary

Inspection on August 26-28, 1991 (Reports No. 50-315/91019(DRSS); 50-316/91019(DRSS))

Areas Inspected: Routine, announced inspection of the D. C. Cook Nuclear Power Plant, Units 1 and 2, annual evaluated emergency preparedness exercise involving review of the exercise scenario (IP 82302), observations by six NRC representatives of key functions and locations during the exercise (IP 82301), and follow-up on licensee actions on previously identified items (IP 92701).

Results: No violations, deficiencies or deviations were identified. The licensee demonstrated an excellent response to a hypothetical scenario involving multiple equipment failures. This was an after-hours exercise with an extended scenario designed to challenge the licensee's procedures for staffing of emergency positions. The simulator Control Room and other onsite facilities were significantly challenged by the scenario, which included loss of power to a large selection of equipment and instrumentation.

DETAILS

1. NRC Observers and Areas Observed

J. Foster, Control Room, Technical Support Center (TSC), Operations
Staging Area (OSA), Emergency Operations Facility (EOF),
W. Axelson, EOF
D. Passhel, Control Room, TSC
T. Chapman, OSA
J. Isom, Control Room, TSC
T. Colburn, TSC

2. Persons Contacted

Indiana Michigan Power Company

*E. Fitzpatrick, Vice President, Nuclear Operations
*R. Krieger, Emergency Preparedness Coordinator
*A. Blind, Plant Manager
*K. Baker, Assistant Plant Manager, Production
*L. Gibson, Assistant Plant Manager, Projects
*J. Lewis, Corporate Emergency Preparedness Coordinator
*E. Smarella, Public Affairs
*R. Heydenburg, Computer Services
*J. Rutkowski, RPM - Tech.
*L. Matthias, Administrative Support
*B. Svensson, Manager, Licensing Coordinator
*D. Loope, Radiation Protection
*E. Kinchelob, Training Superintendent
*T. Stephans, Operations/Production Supervisory Engineer
*G. Griffin, Stores
*J. Sampson, Operations Superintendent
*I. Fleetwood, Operations Engineer
*T. Postlewait, Project Engineering Superintendent
*D. Williams, NOD/RSSM
*S. Brewer, Manager, NS&L
*M. Bush, Secretary
*D. Yount, Administrative Services
*R. Ptacek, Plant/SA
*N. Janack, PM&C
*J. Wojick, TPS Superintendent

*Denotes those attending the NRC exit interview held on August 28, 1991.

The inspector also contacted other licensee personnel during the course of the inspection.

3. Licensee Action on Previously Identified Items (IP 92701)

- a. (Closed) Open Item No.316/90003-03 : During the 1990 annual emergency exercise, some of the information on the Nuclear Plant Notification forms was incorrect as to the description of the events or initiating conditions for event classification. During this



exercise, major problems were not observed in completing these forms. Minor discrepancies were noted during the 1991 exercise, but they were not of sufficient significance to impact emergency response, and overall communications with offsite authorities were very good. This item is closed.

4. General

An announced, after-hours exercise of the D. C. Cook Nuclear Power Plant, Units 1 and 2 Emergency Plan was conducted at the D. C. Cook Nuclear Power Plant on August 27, 1991. The exercise tested the licensee's emergency support organizations' capabilities to respond to a simulated accident scenario with the capability of resulting in a major release of radioactive effluent. This was a utility-only exercise. State and local counties participated to a very limited extent. This was also an after-hours exercise with an extended scenario designed to challenge the licensee's procedures for staffing of emergency positions. Attachment 1 describes the Scope and Objectives of the exercise and Attachment 2 describes the 1991 exercise scenario.

5. General Observations

a. Procedures

This exercise was conducted in accordance with 10 CFR Part 50, Appendix E requirements, using the D. C. Cook Nuclear Power Plant Emergency Plan and Emergency Plan Implementing Procedures.

b. Coordination

The licensee's response was coordinated, orderly and timely. If the scenario events had been real, the actions taken by the licensee would have been sufficient to mitigate the accident and permit State and local authorities to take appropriate actions to protect the public's health and safety.

c. Observers

The licensee's controllers/observers monitored and critiqued this exercise along with six NRC observers.

d. Exercise Critique

The licensee's controllers/evaluators held critiques in each facility (with participants) immediately following the exercise. Lead controllers held a joint critique the day following the exercise to discuss observed strengths and weaknesses for each facility and the overall exercise. The NRC discussed observed strengths and weaknesses, developed independently by the NRC evaluation team, during the Exit interview with the licensee which was held on August 28, 1991 the day after the exercise.

6. Specific Observations (IP 82301)

a. Control Room (CR)

Control Room performance was generally excellent. Operators demonstrated a good overall grasp of events displayed on the simulator. Good command and control was demonstrated by Control Room managers throughout the exercise. Operators were also cognizant of Technical Specifications Limiting Condition for Operation (LCO) conditions.

The Shift Supervisor displayed concern for the safety of responders to problems in the switchyard, directing that firefighting efforts not take place until a switchman could assure that transformers and other gear were deenergized. A call was also made to the environmental group, advising them of the oil spill in the switchyard. Notifications to offsite authorities were made within goal timeframes, and contained adequate information on plant conditions and accident classifications.

Operator decorum was excellent, and noise levels were kept low during the entire exercise. Procedures were well utilized, including Emergency Operating Procedures (EOPs) and adequate logs were maintained to facilitate later reconstruction of actions taken during the accident. Good "big picture" briefings were given to Control Room personnel. The Plant Manager's response was excellent. He awaited a complete briefing before assuming control of the TSC.

Procedure E-0 took longer than anticipated to complete, apparently due to the extent of the Control Room instrumentation which had been lost, and the necessity to take various distracting response actions.

Conservative emergency classifications were made, utilizing the appropriate procedure. Public address system messages alerted plant personnel of emergency classifications, but did not include the reason for the classification or any additional plant status information. In an actual event, there is a possibility that some plant personnel would immediately contact the Control Room for additional information, and additional information should be included in public address messages to preclude such calls. Additional Public Address plant status updates could have been made.

Late in the exercise, there was creative use of a sump sample point to obtain a sump liquid sample for determination of its boron concentration so that adequate shutdown margin could be verified.

Also late in the exercise, containment pressure slowly increased to the setpoint for initiation of the containment spray system, and operators appeared somewhat surprised when Containment Spray initiated.

Verification of the radiological habitability of the simulator Control Room (the use of dosimeters, surveys, swipe samples) was not observed. This may have been an "exercise artifact" in that the

scenario did not include a release and the simulator Control Room lacks the radiological monitoring equipment of the actual Control Room, and is located away from the plant.

No violations or deviations were identified.

b. Technical Support Center (TSC)

The first personnel arrived in the TSC at approximately 0215 hours. This was about 36 minutes after the Alert classification with directions given for the TSC to be manned. Then there was an early assessment of who was still missing from the TSC minimum staff compliment.

The Technical Director ordered the Administrative Coordinator to look around the TSC for suspicious packages, briefcases, etc., to ensure the saboteur had not been in the TSC. Evacuation of nonessential plant personnel was completed at 0425 hours.

Noise levels were exceptionally low for most of the exercise. Two exceptions were later in the exercise after the event had been upgraded to a Site Area Emergency. Considerable cross-table talk occurred during lively discussions on event escalation to General Emergency. Noise levels increased significantly and were only marginally acceptable. The second time noise levels became so high that information could potentially have been lost. At this time in the scenario, plant conditions were virtually static and little new activity was taking place.

Command and control of the TSC was excellent, and priorities were clearly established. It was, however, not observed that the TSC Technical Director announced that he was in charge, but everyone seemed to know that fact, and as one of the first to arrive he was able to describe the situation to each of his support staff as they arrived. Throughout the exercise, he was able to communicate his orders to each of the TSC staff effectively without having to raise his voice above the general background noise or otherwise compete for TSC staff member's attention. A very professional atmosphere was observed.

Initial sign-in on the status board and sign-in log was somewhat sporadic. Some individuals would print their names, some utilized script, and several different colors of markers were utilized. The administrative coordinator had to prompt several staff members to sign in the logbook. A recommendation is to use magnetic name strips which are more uniform and easily readable for use on the sign-in board. This would also facilitate changes in personnel assignments. It was noted that a listing of emergency managers was not posted on the appropriate status board for some time.

The electronic copyboard writer performed exceptionally well during the exercise. Not only did she do a good job of keeping track of important information as soon as it was available and demonstrated a strong technical knowledge of changing plant status and the related

causes, but showed keen intuition when she heard annunciators in the Control Room over her headset which signaled the loss of an electrical bus. She did a good job of keeping the emergency classification status board correct and later in the exercise, of keeping the emergency manager status board up to date. She was able to provide instantaneous clarification to the Control Room and others regarding directions or questions from the TSC without bothering the originators.

The TSC Technical Director held frequent and appropriate briefings to his staff on changing plant conditions and major developments. He also kept track of the approximate time of these briefings and other important information on a section of the status board. His briefings were succinct.

Several times the Technical Director held discussions with Operations and Instrument and Control personnel to discuss current plant conditions and thresholds for upgrading to the next emergency classification level. Plant conditions were continually assessed. The emergency classification procedures were frequently consulted and correct determinations were made. This saved a lot of time when the security breach event ended in deciding whether to remain in the Site Area Emergency classification.

The Technical Director kept good control of the status and priority of repair teams. He consulted with the status board keeper each time a new team was established on how he wanted it tracked and its relative priority. As conditions changed or teams accomplished assigned tasks, appropriate updates in priority were made. Appropriate notes were made in the available white space on the status board concerning various teams but left the board somewhat cluttered. This was offset by using a different color marker for these notes.

When the second shift of responders arrived, turnovers appeared to be thorough, smooth and well coordinated, even though noise levels escalated during the turnover period due to the multiple conversations taking place. While no problems were detected, turnovers to relief personnel could have been more noticeably announced to TSC staff.

The Technical Director showed good initiative in ordering security watches on switchgear and later "bomb searches" when the intruder was found to be within the Protected Area. Some exercise controlling problems occurred with the intruder being apprehended, then set free, then apprehended, then again set free to allow progression of the exercise. This was caused by Security personnel rapidly apprehending the intruder (well before his apprehension was to take place according to the exercise scenario).

Most technical discussions on plant status were very good. The updating of the plant status board appeared to lag actual information by quite some time (15-30 minutes). This is normal due to delays in transmitting and posting the information, but somewhat

limits the board's usefulness except for turnover briefings and parameter trending. A recommendation would be to equip the boardwriter with a headset.

New wireless telephones appeared to work very well. They freed the hands and "eyes" of the key personnel so they could function and focus on more important tasks. The key personnel seemed more aware of events and were better able to cope with multiple inputs of data. Use of the headset telephones may have contributed to the lapses in using "this is a drill" (this was done properly approximately 75% of the time) in exercise conversations. Some complaints of wireless unit or battery failure were noted, and some appeared to be more "noisy" than others, indicating unit variability.

The electronic copyboard had some initial problems producing copies, but this was corrected and it functioned well for the best part of the exercise. Towards the end of the exercise, some real telephone failures were experienced and were compensated for by utilizing radios until telephone personnel could get the problems corrected. Also, a telefax machine suffered a paper jam early in the exercise; this was later corrected.

No violations or deviations were identified.

c. Operations Staging Area (OSA)

Minimum staffing requirements for OSA activation were properly adhered to. Security personnel were requested to tour the facility looking for unauthorized personnel or articles.

During the exercise, good command and control was noted in the OSA. OSA management exhibited good planning in damage control and repair team member selection. Damage control/repair team control, accountability and communications were good. Team briefings and debriefings were comprehensive. Status boards were well utilized and appeared to be maintained adequately current.

It was observed that each in-plant team was advised to report back to the OSA by radio at a set period of time (normally each fifteen minutes) and departure times were carefully noted so as to determine when the radio call was to be expected. This was considered as an excellent team communication protocol.

No significant problems were noted in the OSA; however, several items were observed which indicate a need for greater attention to details:

On several occasions, personnel were noted leaving the OSA without properly removing their names from the OSA staffing pool status board.

The OSA Manager's log did not contain all the information required by Emergency plan implementing Procedure 2.02, "Operation of the Operations Staging Area," e.g., not all major

events received from the Technical Support Center or team mission results were included in the log.

No violations or deviations were identified.

d. Emergency Operations Facility (EOF)

The EOF was staffed and activated within an acceptable timeframe. Incoming personnel went about activating the facility in a orderly fashion, although this took slightly longer than anticipated, probably due to the early hour. The EOF was manned by 0250 hours.

Overall, EOF performance was excellent. Periodic EOF Manager briefings to his staff were comprehensive and timely. The flow of technical information from the TSC to the EOF was good. The EOF Recovery Manager provided excellent briefings to State personnel. At one point he indicated that the plant was escalating their emergency classification to a Site Area Emergency, but that the plant situation appeared to be deteriorating further and a General Emergency classification might be forthcoming.

The classification procedure was frequently reviewed to determine if a change in classification was warranted.

Technical support in the EOF was good. Discussions of the event, based on the available data, were comprehensive. Calculations of the shutdown margin was performed to address the concern that the dilution of the containment sump due to spilled secondary system coolant might reduce shutdown margins.

Offsite dose projections and field monitoring team readings were performed on a periodic basis, even though no offsite doses of significance were included in the scenario.

Shift turnovers went well, including the turnover between the EOF IRM and Recovery Manager. In general, all turnovers to relief shift personnel went well, with oncoming personnel being adequately briefed prior to assuming their response duties.

No violations or deviations were identified.

e. Field Monitoring Teams

Field monitoring teams were not directly observed during this exercise. Field monitoring team control, observed in the EOF, did not indicate any significant problems. Field teams were not significantly stressed by this scenario, as it did not include a release of radioactive materials.

No violations or deviations were identified.

f. Recovery

Following termination of the "active phase" of the exercise, licensee personnel demonstrated through discussion some of the actions which would follow a major power reactor accident.

A basic recovery organization and plan for short term (two weeks or less) and long term (over two weeks) actions was developed. The basic recovery procedure is overly generic, and did not provide a checklist which would prompt licensee management to include all expected items in their discussion. The procedure should be expanded to provide additional guidance on a recovery organization and the issues which the organization would be expected to face.

It was also noted that the Recovery discussion did not take into account the impact that the NRC would have on the licensee. Following a major reactor accident, the NRC (and others) would begin investigating the accident, and could be expected to have a significant impact on the licensee's resources. The NRC Accident Investigation Team (AIT) would, at a minimum:

1. Request that any failed equipment not required for safe plant shutdown not be worked upon until the team could inspect the equipment, observe its repair, and participate in failure analysis.
2. Request that all records, in any format (notes, computer files, message slips, logs, etc.) not be destroyed, but preserved for AIT review.
3. Request that all operations personnel present during the event be interviewed by the AIT, with a court reporter transcript of the interviews produced.
4. Request office space or space for NRC trailers to be placed onsite.

No violations or deviations were identified.

7. Exercise Objectives and Scenario Review (IP 82302)

The licensee submitted the exercise and scope and objectives and a draft scenario package for review by the NRC within the established timeframes. Scenario review did not indicate any significant problems, and the licensee adequately responded to the questions raised during scenario review. The scenario package was adequate in scope and content to ensure ease of use and contained enough information so that licensee controllers could control the exercise. Backup information was available in the event that the plant simulator, utilized to "drive" the exercise, failed.

The exercise scenario was very challenging technically, and large numbers of system failures entered into the simulator. The simulator did fail several times, but was quickly restored to operation following each failure.

The licensee's scenario was sufficiently challenging for a "utility-only" exercise, including: multiple equipment failures, and assembly/accountability. The scenario was also considerably extended, so as to demonstrate the capability to provide a relief shift of emergency responders.

The degree of challenge in an exercise scenario is considered when assessing observed exercise weaknesses.

No violations or deviations were identified.

8. Exercise Control

Overall, exercise control was considered adequate.

The scenario included creation of a hole in the Refueling Water Storage Tank. A scenario error may have occurred in that the tank level seemed to be lowering much too slowly given the reported size of the hole. A team was dispatched to determine the correct level and a separate team to repair the damage.

There were adequate controllers to control the exercise, and they were knowledgeable regarding their tasks. No instances of controller prompting were observed.

No violations or deviations were identified.

9. Licensee Critiques

The licensee held a Controller exercise critique, and a critique where the conclusions of the Controller/Evaluators presented their findings to the players. NRC personnel attended some of these critiques, and determined that significant NRC identified exercise deficiencies had also been identified by licensee personnel. Observed critiques were excellent.

10. Exit Interview

The inspectors held an exit interview the day after the exercise on August 28, 1991, with the representatives denoted in Section 2.

The NRC Team Leader discussed the scope and findings of the inspection.

The licensee was also asked if any of the information discussed during the exit interview was proprietary. The licensee responded that none of the information was proprietary.

Attachments:

1. D. C. Cook 1991 Exercise Scope and Objectives
2. D. C. Cook 1991 Exercise Scenario Outline

DONALD C. COOK NUCLEAR PLANT

1991 EMERGENCY PREPAREDNESS EXERCISE OBJECTIVES

II. EXERCISE OBJECTIVES

The exercise objectives dictate the scope of the scenario. The objectives for this exercise were developed based upon the Donald C. Cook Nuclear Plant Emergency Plan Administrative Manual.

Situations will be presented in the scenario to prompt the desired player response for each objective. Where appropriate, specific objectives and criteria for adequate demonstration have been included in the exercise messages for Controller/Observer use. Objectives C-13, D-9 and E-14 as contained in our submittal letter dated May 21, 1991, have been deleted. The scenario, when further developed on the simulator, would not support the above objectives as was originally planned.

OBJECTIVE

A. OVERALL LICENSEE OBJECTIVES

- A-1 Demonstrate the ability of the emergency response organization to implement DCCNP Emergency Plan Procedures, the IMPCo Emergency Response Manual and the AEPSC Emergency Response Manual.
- A-2 Demonstrate the ability to establish emergency management command and control, and maintain continuity of this function for the duration of the postulated event.
- A-3 Demonstrate the ability to establish communications and information flow between DCCNP emergency response facilities and participating offsite agencies.
- A-4 Demonstrate the ability to designate subsequent shifts of the emergency response organization.
- A-5 Demonstrate the ability to notify and mobilize off-duty personnel during non-working hours, between 0000 and 0400.

B. CONTROL ROOM OBJECTIVES

- B-1 Demonstrate the ability to recognize symptoms and parameters indicative of degrading plant conditions and to classify degraded conditions as emergencies.
- B-2 Demonstrate the ability to initiate notification of off-site authorities and plant personnel.

- B-3 Demonstrate communications and information flow to and from the Technical Support Center.
- B-4 Demonstrate the ability to transfer emergency authorities and responsibilities from the on-shift emergency organization to the DCCNP emergency response organization.
- B-5 Demonstrate the ability to respond to a simulated fire in the switchgear yard. This demonstration should include:
 - a. Onscene command and control.
 - b. Communication with the Control Room.
 - c. Associated assessment of emergency classification.
- B-6 Demonstrate the ability to implement site assembly and accountability during off-hours (i.e., 1700-0600).

C. TECHNICAL SUPPORT CENTER OBJECTIVES

- C-1 Demonstrate the ability to activate the facility within one hour of declaration of an emergency requiring facility activation.
- C-2 Demonstrate the ability to provide analytical assistance and operational guidance to the Control Room.
- C-3 Demonstrate the ability to coordinate on-site activities in response to the emergency.
- C-4 Demonstrate the ability to establish and maintain hard copy communications with the EOF and verbal communications with the EOF, OSA, IAG, ENC and/or JPIC.
- C-5 Demonstrate the ability to provide analytical radiological assistance to the OSA and Control Room.
- C-6 Demonstrate the ability to obtain data from the OSTC/PSSD system.
- C-7 Demonstrate the ability to request emergency response teams from the OSA.
- C-8 Demonstrate the ability to designate a second shift for TSC operation.
- C-9 Demonstrate the ability to recognize degrading plant conditions and classify plant conditions as an emergency.
- C-10 Demonstrate the ability to direct the implementation of site assembly and accountability.
- C-11 Demonstrate the actions required to be taken in the TSC if the emergency involves a breach of the reactor coolant system.
- C-12 Demonstrate a shift turnover.

D. OPERATIONS STAGING AREA OBJECTIVE

- D-1 Demonstrate the ability to activate the facility within one hour of declaration of an emergency requiring facility activation.
- D-2 Demonstrate the ability to assemble, brief and dispatch the following emergency response team(s):
 - a. Damage Control Team
 - b. Post Accident Sampling Team
 - c. On-Site Radiation Monitoring Team
 - d. Off-Site Radiation Monitoring Team
- D-3 Demonstrate the ability to designate a second shift for OSA operation.
- D-4 Each emergency response team assembled and dispatched shall demonstrate the following actions as applicable to the team type and mission:
 - a. Assembly of tools/equipment.
 - b. Preoperation checks of equipment and communications devices.
 - c. Performance of appropriate radiological precautions.
 - d. Performance or simulation of team mission.
 - e. Post-mission debriefing and radiological controls.
- D-5 Demonstrate the ability to provide emergency radiological support. As a minimum the following activities should be demonstrated:
 - a. Establishment of emergency dosimetry and exposure tracking system.
 - b. Establishment of emergency control points.
 - c. Performance of habitability surveys prescribed by procedure.
 - d. Analysis of radiological conditions to be encountered by emergency response teams.
 - e. Specification of radiological controls and precautions for emergency response teams.
- D-6 Demonstrate the ability to perform offsite radiological monitoring. As a minimum, two teams should be dispatched and direct radiation monitoring as well as airborne radioactivity analyses should be demonstrated.
- D-7 Demonstrate the ability to implement damage control activities in accordance with applicable Emergency Plan Procedures.
- D-8 Demonstrate the ability to perform onsite radiological monitoring in accordance with applicable Emergency Plan Procedures. This monitoring should include direct radiation surveys and analysis of airborne radioactivity samples.

- D-9 Demonstrate a shift turnover.
- D-10 Demonstrate the ability to obtain radiological base data required to evaluate the release level from the secondary plant during a steam generator tube rupture.

E. EMERGENCY OPERATIONS FACILITY OBJECTIVES

- E-1 Demonstrate the ability to activate the facility within one hour of declaration of an emergency requiring facility activation.
- E-2 Demonstrate the ability to establish overall command and control of the DCCNP emergency response within one hour of declaration of a site area emergency or general emergency, as applicable.
- E-3 Demonstrate the ability to establish and maintain effective emergency communications with each of the following agencies and facilities:
 - a. State of Michigan
 - b. Berrien County
 - c. NRC (if playing)
 - d. Technical Support Center
 - e. Joint Public Information Center
 - f. Initial Assessment Group
- E-4 Demonstrate the ability to establish and maintain hard copy data transmission and reception with each of the following facilities:
 - a. Technical Support Center
 - b. Joint Public Information Center
 - c. Initial Assessment Group
- E-5 Demonstrate the ability to direct Offsite Radiation Monitoring Teams in order to determine the geographical location and radiological magnitude of the postulated plume.
- E-6 Demonstrate the ability to designate a second shift for EOF operation.
- E-7 Demonstrate the ability to develop protective action recommendations based on projected dose and/or core and containment status if General Emergency is declared.
- E-8 Demonstrate the ability to update the State of Michigan on the status of the emergency at 15 minute intervals.
- E-9 Demonstrate the ability to respond to inquiries from the TSC, JPIC, and IAG in a timely manner.
- E-10 Demonstrate emergency de-escalation and termination.



- E-8 Demonstrate the ability to update the State of Michigan on the status of the emergency at 15 minute intervals.
- E-9 Demonstrate the ability to respond to inquiries from the TSC, JPIC, and IAG in a timely manner.
- E-10 Demonstrate emergency de-escalation and termination.
- E-11 Demonstrate the ability to project the magnitude of offsite dose using the Dose Assessment Program and the IBM Personal Computer.
- E-12 Demonstrate corporate augmentation of the EOF staff.
- E-13 Demonstrate recovery planning associated with emergency termination.
- E-14 Demonstrate a shift turnover.

F. PUBLIC AFFAIRS OBJECTIVES

- F-1 Demonstrate activation of the Emergency News Center and/or Joint Public Information Center.
- F-2 Demonstrate the ability to conduct media briefings.
- F-3 Demonstrate the ability to respond to actual or simulated inquiries from media representatives.
- F-4 Demonstrate the ability of rumor control personnel to respond to simulated inquiries from the general public.
- F-5 Demonstrate the ability to monitor media transmissions and respond to inaccurate information being transmitted by the media.
- F-6 Demonstrate the ability to designate subsequent shifts for JPIC operations.

DONALD C. COOK NUCLEAR PLANT

EMERGENCY RESPONSE EXERCISE

VI. NARRATIVE SUMMARY AND TIMELINE

The exercise will be conducted on Tuesday, August 27, 1991, and will commence at approximately 0100 hours.

The exercise sequence of events will be initiated by a transformer fire in the Unit 1, 345 KV switch yard located one-half mile from the Cook Nuclear Plant's protected area. Simulated off-site fire services will respond. Events in the switch yard will lead to the declaration of an Unusual Event and then to an Alert.

At approximately two hours into the exercise, an unknown person will deliberately damage an auxiliary transformer. The damage incurred to the transformer will cause the Refueling Water Storage Tank (RWST) to be punctured. Over 40,000 gallons of RWST water will spill out and into two nearby storm drains.

The same individual will continue to cause damage inside the plant. The resulting damage will cause loss of DC power, a subsequent (Unit 2) reactor trip, followed by a tube rupture and steam line break in containment. The classification will escalate to a Site Area Emergency and remain there for the duration of the exercise due to initiation of safety injection and high containment pressure.

No off-site radiological release will be detected. Precautionary surveys and dose assessment is expected to take place. Meteorological conditions will be simulated to reflect conditions typical of August in the vicinity of the plant.

At approximately four and five hours, (0500 and 0600), respectively, into the exercise, CRIDs 1, 2 and 3 will be restored by cross-tying 600 VAC busses and RHR is placed in service for cooldown.

At six to seven hours (0700-0800) into the exercise, all facilities are expected to go through a shift change. Overall exercise activities will have diminished by now but the new shifts will be required to operate their facilities for at least one hour after turnover so as to demonstrate their functional capabilities.

The exercise will terminate at approximately 1000.

The following exercise timeline provides a more detailed chronology.



<u>CLOCK TIME</u>	<u>EXERCISE TIME</u>	<u>EXERCISE ACTIVITIES</u>
0100	00:00	U1 and U2 Control Room Logs and other pertinent information made available to the Shift.
0130	00:30	EVENT begins with alarms being received in both control rooms pertaining to the event.
0132	00:32	Security Officer (S/O) in Unit #7 patrolling near the 345 KV switchgear yard sees a fire in the yard and hears some explosions.
0134	00:34	S/O reports above to Secondary Alarm Station (SAS).
0135	00:35	SAS notifies the Shift Security Supervisor (SSS).
0136	00:36	The SSS notifies the Shift Supervisor (SS).
0137	00:37	Control Room dispatches an Auxiliary Equipment Operator (AEO) or the Assistant Shift Supervisor (ASS) to the switchgear yard.
0138	00:38	Security calls Lake Township Fire Department.
0139	00:39	Michiana contacts U1 control room regarding breaker activity in the yard.
0145	00:45	<u>UNUSUAL EVENT</u> declared based on: ECC-4/1 "Any Explosion near or on site with the potential to affect plant operations".
		OR
		ECC-5/1 "Any fire lasting more than 10 minutes on plant site (protected area) <u>or</u> switchgear yards . . ."
0147	00:47	ASS/AEO reports in to the U2 control room.
0148	00:48	Lake Township Fire Department arrives.
0150	00:50	Shift Supervisor declares <u>ALERT</u> based on: ECC-4/2 "Explosion damage to the plant affecting unit operation or off-site power supplies".
0155	00:55	Security begins call-out.
0210	01:10	ASS or AEO or S/O reports fire still burning but secondary explosions have ceased.

<u>CLOCK TIME</u>	<u>EXERCISE TIME</u>	<u>EXERCISE ACTIVITIES</u>
0215	01:15	Benton Harbor personnel arrive to inspect the site.
0225	01:25	Benton Harbor personnel have isolated the transformer clearing the way for Lake Township Fire Department to put out the fire.
0230	01:30	Security reports that the call-out is complete.
0240	01:40	Security Officer notices ladder on fence.
0245	01:45	Benton Harbor reports suspicious wrench near drain valve of burned out transformer and drain plug removed.
0250	01:50	TSC/OSA/EOF are manned.
0300	02:00	Traveling switchman aligns transformer no. 4 to supply auxiliary power. Fire is out.
0307	02:07	Security Director is notified of potential sabotage to transformer no. 5.
0315	02:15	12AB breaker opens and de-energizes auxiliary transformers 201AB and 101AB
		AND
		S/O on Alarm Station console observes an individual throwing a 6' - 8' pipe at the top of U2 transformer near the water storage tanks. Reports a bright flash but no fire.
0316	02:16	Security Director notifies the TSC of the incident.
0317	02:17	S/O (Unit 6) or AEO find debris and pipe near 201AB transformer. Porcelain insulators are shattered on top of 201AB. No fire. Hear water "rushing".



<u>CLOCK TIME</u>	<u>EXERCISE TIME</u>	<u>EXERCISE ACTIVITIES</u>
0325	02:25	S/O (Unit 6) or AEO discover water running out of a 8" hole in the northeast wall of the Refueling Water Storage Tank and about 8' up on the tank.
0335	02:35	Unit 2 loses one train (CD) of 250 DC voltage. Individual seen earlier by 201AB transformer damaged CD batteries in 4KV room. Rx trip and SI occur.
0345	02:45	Perpetrator caught in 4KV room. #3 Steam Generator tube rupture.
0350	02:50	S/O inspects CD battery room and forwards information to Security Director. AEO inspects CD battery room and forwards information to U2 Control Room.
0425	03:25	Steam line break from Steam Generator No. 3 with steam released inside containment.
0430	03:30	<u>SITE AREA EMERGENCY</u> declared based on ECC-14.
0455	03:55	ECCS and Containment Spray switched suction to recirculation sump.
0505	04:05	Cross-tie 600 volt AC busses - CRID 1 & 2 restored.
0510	04:10	Accountability complete.
0705	06:05	RHR put into service for cooldown.
0725	06:25	CD battery loads cross-tied to AB battery or jumpered.
0730	06:30	Post Accident Sampling begins upon restoration of DC.
	Unknown	Shift turnovers take place.
	Unknown	Recovery activities begin.
1000	09:00	Exercise terminates.

