

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/83-09(DRMSP); 50-316/83-10(DRMSP)

Docket Nos. 50-315; 50-316

Licenses No. DPR-58; DPR-74

Licensee: American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43215

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

Inspection At: D. C. Cook Plant Site, Bridgeman, MI and
review of licensee's Emergency Plan

Inspection Conducted: July 5-8, and August 1-17, 1983

Inspectors: *M. Phillips*
M. Phillips

9/8/83
(Date)

R. Lickus
R. Lickus

9/8/83
(Date)

W. Snell
W. Snell

Sept. 7, 1983
(Date)

Approved By: *M. P. Phillips*
M. P. Phillips, Acting Chief
Emergency Preparedness Section

9/8/83
(Date)

Inspection Summary:

Inspection on July 5-8, and August 1-17, 1983 (Reports No. 50-315/83-09(DRMSP); 50-316/83-10(DRMSP))

Areas Inspected: Routine announced follow-up inspection of licensee actions on previously identified items relating to emergency preparedness and activation of the licensee's Emergency Plan. In addition, a Safety Evaluation Report of the Donald C. Cook Nuclear Plant Emergency Plan dated August 13, 1982 was conducted. The inspection involved a total of 270 inspector-hours, by three NRC inspectors, of which 70 were onsite by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

*W. Smith, Jr., Plant Manager
*R. Begor, Staff Assistant
*E. Townley, Assistant Plant Manager, Maintenance
*T. Beilman, Quality Assurance Supervisor
*J. Stietlel, Quality Control Superintendent
R. Looker, Chemistry Foreman
D. Palmer, Plant Radiation Protection Supervisor
M. Glissman, Radiation Protection Engineer
W. Ketchum, Radiation Protection Engineer
A. King, Station Supervisor (I and M)
G. Fisher, Assistant Manager, Warren Dunes State Park
E. Marx, Secretary, Warren Dunes State Park

*Denotes those attending the exit meeting on July 8, 1983.

2. Licensee Action on Previously Identified Items Related to Emergency Preparedness

a. Significant Appraisal Deficiencies

(Closed) Significant Appraisal Deficiency Item 315/82-05-01 and 316/82-05-01: The Operations Support Area (OSA) is not activated in conjunction with the Technical Support Center (TSC). Section 12.3.9.3 of the emergency plan states that the OSA will be activated whenever the TSC is activated and will be manned with sufficient staff to perform the required administrative and coordination functions. To implement this portion of the plan, Steps 4.3.1.1 (Alert), 4.3.2.3 (Site Emergency), and 4.3.3.4 (General Emergency) of emergency plan implementing procedure PMP 2080.EPP.001 (3/31/83), "Emergency Plan Activation and Condition Classification," specify that TSC and OSA activation is required. Procedure PMP 2080.EPP.008 (4/20/83), "Initiating Manning of Emergency Response Facilities and Calling Off-duty Personnel," includes in Step 3.3 that the TSC and OSA will be activated for any event classified as an Alert or higher. This item is considered closed.

(Closed) Deficiency Item 315/82-05-02 and 316/82-05-02: The licensee does not recommend minimum protective actions for General Emergency where offsite dose projections have not been completed. Paragraphs 11.1 through 11.3 under Cook Plant Actions in Section 12.3.5.3 of the emergency plan state that the following recommendations be considered as a minimum when a General Emergency is declared: (1) activate the siren warning system; (2) shelter within a 2-mile radius and five miles downwind; and (3) place cows within ten miles on stored feed, if

appropriate. In addition, Steps 4.3.3.3.1 through 4.3.3.3.3 of procedure PMP 2080.EPP.001 (3/31/83) contain these same recommendations. This procedure is used by the Shift Supervisor for emergency classification and initial actions. Although these minimum actions are specified, protective action recommendations based on plant conditions need to be included. This is further discussed in Open Item Nos. 315/82-18-05 and 316/82-18-05 below. This item is considered closed.

(Closed) Deficiency Item 315/82-05-03 and 316/82-05-03: Incorporate the finite plume dose assessment model into appropriate computer software. The licensee had previously stated that they would make this adjustment to computer software only after the State of Michigan also adopted a finite plume model for their dose assessment model. The Michigan Department of Public Health stated that they would incorporate the finite plume correction factor into their calculations in a letter dated July 1, 1982, from Mr. G. Bruchman, Acting Chief of the Michigan Department of Radiological Health Services Division to Mr. Monte Phillips of the NRC staff. The licensee's current computer protective measures model was demonstrated for the inspectors. This program (CMP002.VBASIC) will perform calculations using old fission gas, new fission gas, failed fuel (NUREG-0578 source term), and primary coolant. Dose rate results are then calculated using both finite and semi-infinite cloud factors and both are listed in the final report. The final Class "A" model which the licensee is in the process of installing is identified as the MIDAS system. This model is partially operational; however, all elements of the program are not yet functioning. Completion of this model will be accomplished in accordance with Supplement 1 of NUREG-0737 and will be addressed in a separate report. For the purposes of tracking, this item is considered closed.

(Closed) Deficiency Item 315/82-05-04 and 316/82-05-04: Procedure PMP 2080.EPP.006 does not provide for an initial rapid dose assessment for the release of decayed (old) noble gases. This procedure has been revised (1/10/83) to include waste gas decay tank releases (old noble gas), steam jet air ejector releases, gland steam leak off, or unit vents in the determination of the site boundary dose. This model will be reviewed for accuracy during the emergency response facilities appraisal that will be conducted upon completion of all items addressed in generic letter 82-33 (Supplement 1 to NUREG-0737). For the purposes of tracking, this item is considered closed.

(Closed) Deficiency Item 315/82-05-05 and 316/82-05-05: The Nuclear Plant Emergency Alarm is not activated for any Site Area or General Emergency as well as for those radiological events judged necessary by the Shift Supervisor or Onsite Emergency Coordinator. Section 12.3.6.1.1 of the emergency plan has been revised to state that if it is determined that an incident or condition results in a Site

Area or General Emergency, or involves a lesser emergency with a release of material such that plant personnel must be evacuated from their respective work areas, the Nuclear Emergency Alarm is sounded. To implement this requirement, Sections 4.3.2 and 4.3.3 of PMP 2080.EPP.001 (3/31/83) require the Shift Supervisor to sound the Nuclear Emergency Alarm and make a public address announcement regarding site evacuation for all Site Area and General Emergency classifications. This item is considered closed.

(Closed) Deficiency Item 315/82-05-06 and 316/82-05-06: No procedure is available for stack effluent sampling, under limited accident conditions, until the high range post-accident sampling system is completed. The licensee has developed an interim procedure (12THP6020.PAS.004) for collection of particulate, radioiodine, noble gas, and tritium samples from the continuous stack monitor if area dose rates are less than 400 mr/hr. In addition, the permanent post-accident monitoring system has been installed, and a collection procedure (PMP 2081.EPP.027) has been developed. The permanent system and procedure will be reviewed during a subsequent inspection. This item is considered closed.

(Closed) Deficiency Item 315/82-05-07 and 316/82-05-07: Procedure 12THP SP.014 does not provide for a determination of exposure rate from the sample prior to transport, and an extension tool for remote sampling is not available. The inspectors examined the post-accident sampling area locker and determined that all equipment described in the sampling procedures was available. The permanent system has been installed and is operable (see open item 315/82-05-26 and 316/82-05-26 below). The procedure for use of the permanent system (12THP6020.PAS.011) includes a determination of radiation levels of the sample to determine if additional dilutions of the sample need to be made prior to analysis. This item is considered closed.

(Closed) Deficiency Item 315/82-05-08 and 316/82-05-08: The Plan does not contain specific Emergency Action Levels which indicate actual or potential emergency conditions based on reliable and observable sensors or instruments. PMP 2080.EPP.001, Exhibit A, provides for emergency action levels (EALs) based on emergency conditions at the plant. These conditions also appear in Section 12.3.5.5 of the Emergency Plan. Included are conditions that are based upon specific instrument readings such as air ejector monitors, liquid effluent monitors, blowdown liquid monitors, area radiation monitors, etc. The review of these EALS for conformance with requirements is discussed in Section D of the Safety Evaluation Report attached to this inspection report. For the purposes of tracking, this item is considered closed.

b. Emergency Plan Review (Safety Evaluation Report)

The American Electric Power Service Corporation in conjunction with the Indiana and Michigan Electric Company filed with the Nuclear Regulatory Commission revisions to the Donald C. Cook Nuclear Plant Emergency Plan dated January 2, 1981, and August 13, 1982. The Commission staff conducted a review of the plan dated January 2, 1981, against requirements of 50.47(b) and Appendix E of 10 CFR Part 50, and the criteria of the sixteen planning standards in Part II of the "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Revision 1, dated November 1980. Deficiencies identified in the plan as a result of this review were submitted to the licensee in a letter dated June 30, 1982, from Mr. James G. Keppler to Mr. John E. Dolan. The licensee responded to these comments by letters dated July 30, 1982, from Mr. R. S. Hunter to Mr. James G. Keppler; July 29, 1983, from Mr. M. P. Alexich to Mr. James G. Keppler; and by issuing Revision 1 dated August 13, 1982, to the Donald C. Cook Nuclear Plant Emergency Plan.

We have completed our review of the August 13, 1982, Emergency Plan and pertinent correspondence dated June 28 and August 31, 1982, from Mr. R. S. Hunter to Mr. H. R. Denton; July 30, 1982, and February 18, 1983, from Mr. R. S. Hunter to Mr. James G. Keppler; January 21, 1982, from Mr. R. F. Hering to Mr. James G. Keppler; April 15, 1983, from Mr. R. F. Hering to Mr. H. R. Denton; and July 29, 1983, from Mr. M. P. Alexich to Mr. James G. Keppler.

Attached to this inspection report is the Emergency Preparedness Safety Evaluation Report which lists each standard in order followed by a summary of applicable portions of the plan as they apply principally to the licensee's planning standards. The final section of this report provides the NRC Staff's review results and conclusions. Planning Standards requiring further clarification prior to closing are described in this section and in the appendix to the transmittal letter.

c. Items of Noncompliance

(Closed) Noncompliance Item 315/82-03-01 and 316/82-03-01: Distribution of brochures on early warning and emergency information to Warren Dunes State Park and other parks and recreational areas in the ten mile emergency planning zone (EPZ). The licensee has distributed brochures to nursing homes and adult foster care homes, hotels and motels, hospitals, trailer parks, marinas, and campgrounds (including Warren Dunes State Park) within the ten mile EPZ. The latest distribution of this material was made in June of 1983. Warren Dunes State

Park officials indicated that there was not much interest in these brochures. They suggested that a shorter (one page) brochure may be more effective for the park's visitors. The inspectors pointed out that the last sheet of the brochure contained a synopsis of actions to take if the sirens were sounded and had been prepared so that they could easily be removed from the brochure.

(Closed) Noncompliance Item 315/82-05-28 and 316/82-05-28: The licensee does not have a nearsite Emergency Operations Facility (EOF) from which effective control can be exercised during an emergency. The licensee established an interim EOF in their training building located just south of the plant. By October of 1982, the permanent EOF was completed. This facility was used during the emergency preparedness exercise described in NRC Inspection Report Nos. 50-315/82-18 and 50-316/82-18. The permanent EOF is discussed under Open Item 315/82-05-25 and 316/82-05-25 below. This item is considered closed.

d. Open Items

(Closed) Open Item 315/82-03-02 and 316/82-03-02: The licensee should establish a QA/QC or maintenance program to ensure continued reliability of the sirens. A maintenance schedule for each siren has been developed. Maintenance Inspection Check Sheets are used to guide personnel in performing required functions. Records are kept on siren operations and siren failure reports, as well as routine maintenance. The licensee has established an excellent system for maintaining the sirens. This item is considered closed.

(Closed) Open Item 315/82-05-09 and 316/82-05-09: General reentry/recovery procedures for resuming facility operations need to be developed. Sections 12.3.14.2.2 and 12.3.14.3 of the emergency plan identify general recovery and reentry criteria and the types of procedures that will be developed at that time. Reentry will be made when radiation hazards are reduced to permissible levels. Recovery procedures will be developed and will include the following: (1) damage evaluation; (2) decontamination measures; (3) repair procedures; (4) disposal procedures; and (5) test and startup procedures. Specific recovery procedures will be developed following an incident. This item is considered closed.

(Closed) Open Items 315/82-05-24; 316/82-05-24; 315/82-18-01; and 316/82-18-01: Completion of the permanent Technical Support Center (TSC) with adequate work space for all personnel. The permanent TSC consists of three distinct and separate areas, namely the operations area, communications/data gathering area, and the NRC area. The operations portion of the permanent TSC has been expanded into what was previously designated NRC space in the TSC. Even so, the NRC does not need the large area still designated for its use to work from as NRC Site Team personnel will be interacting with licensee

personnel in the other areas of the TSC. A space that is adequate for approximately five NRC representatives to use as a conference area should be provided. As a result of the fragmentation of TSC personnel between the various TSC areas, the licensee needs to evaluate the internal design of the TSC. Human factors engineering should be employed to devise a layout based upon the number of people, communications needs, adjacency considerations, and physical resources. The completion of the TSC, including all required communications and data acquisition systems will be reviewed as part of the licensee's response to Supplement 1 of NUREG-0737. A post implementation appraisal will then be conducted. For the purposes of tracking, this item is considered closed.

(Closed) Open Item 315/82-05-25 and 316/82-05-25: Completion of the permanent EOF. The licensee has completed development of a new EOF. The new EOF is located approximately eleven miles from the plant in Benton Harbor, Michigan. Even though this facility is located this distance from the plant, the licensee had installed a SPING detector to determine its habitability during an emergency. Since this facility is located outside of the plume exposure pathway EPZ, the inspectors suggested that the licensee replace the SPING detector with an instrument or combination of instruments that could be used to determine if radiation releases from the plant had reached the EOF. Preferably this instrument should be capable of alarming if radiation levels exceeded a certain multiple of background (such as three time background). This EOF is equipped with microwave, radio, and regular telephone communications systems. The licensee is still evaluating where to place the backup power supply system. Based upon the results of an exercise held on October 21, 1982, the EOF demonstrated its design functions, although items for improvement were identified. Data acquisition systems are still being installed. The completion of the EOF including all required communications and data acquisition systems will be reviewed as part of the licensee's response to Supplement 1 of NUREG-0737. A post implementation appraisal will then be conducted. For the purposes of tracking, this item is considered closed.

(Closed) Open Items 315/82-05-26; 316/82-05-26; 315/82-05-27; and 316/82-05-27: Complete installation of the permanent primary coolant and containment air sampling systems. The NUS designed post-accident sampling system is installed and operable in both units. This system is capable of collecting undiluted and diluted primary coolant, containment atmosphere, and degassed coolant samples under accident conditions while limiting the exposure of the user to less than approximately 2 rem whole body dose. Procedures have been prepared for its use. The inspectors reviewed these procedures (12THP6020.PAS.001 through 12THP6020.PAS.011) for using the post-accident sampling system and determined that they were adequate. The system has been tested during drills, and is used as part of the licensee's training program for technicians. Walkthroughs on the use of this system will be conducted during the routine emergency preparedness inspection. This item is considered closed.

(Open) Open Items 315/82-18-02; 316/82-18-02; 315/82-18-03; and 316/82-18-03: Status boards in the TSC were not visible in both licensee work areas; and the reactor equipment status boards and protective measures status boards in the TSC and EOF were either unavailable or inadequate. In a letter dated December 13, 1982, from Mr. R. S. Hunter to Mr. James G. Keppler, the licensee committed to investigate the possibility of improving the dissemination of plant specific data. This evaluation was to have been completed by March 31, 1983, and any changes identified by the evaluation implemented by June 30, 1983. At the present time the licensee is developing a set of draft graphs that would be used to trend the following key parameters: containment level, containment sump level, radwaste storage tank level, containment pressure, reactor coolant system T-cold, reactor coolant system T-hot, pressurizer temperature, reactor coolant system pressure, and condensate storage tank level. Based on these graphs, a decision will be made as to what information should be displayed on status boards. The evaluation process is complete. The licensee intends to test the use of the graphs in upcoming drills and also plans to update the status board usage in September 1983. This item remains open and will be reevaluated during the next exercise.

(Closed) Open Item 315/82-18-04 and 316/82-18-04: Procedure PMP 2081.EPP.022 does not require the Recovery and Control Manager to formally approve protective action recommendations prior to release to offsite authorities. This procedure has been revised (1/28/83) to add Step 4.3.7 which states that the Radiation Control and Waste Handling Manager shall ensure any changes to the "Recommended Emergency Actions for State or County Agencies," listed on Exhibit C are approved by the Recovery and Control Manager prior to release to offsite organizations. This item is considered closed.

(Open) Open Item 315/82-18-05 and 316/82-18-05: Present procedure for formulating protective action recommendations does not adequately incorporate evacuation time estimates into the decision-making process. By letter dated December 13, 1982, the licensee stated that their protective action recommendation making procedure would be modified to facilitate making recommendations for offsite actions including provisions for using the existing evacuation time estimates. The licensee revised procedure PMP 2081.EPP.014 (5/26/83), Offsite Dose Assessments, to incorporate evacuation time estimates in determining the maximum dose that would be received during an evacuation (e.g., time estimate times projected dose rate). The data concerning evacuation times and associated dose and risk projections are then used by the Radiation Assessment Director in recommending protective actions. However, the basis for choice between sheltering and evacuation, as it relates to dose savings, is not performed; therefore, the procedure will not allow the user to determine the most effective way to reduce dose. Criterion II.J.10.m of NUREG-0654/FEMA-REP-1, Revision 1, specifies that the organization's plans for implementing protective measures include the bases for the

choice of recommended action (e.g., between sheltering and evacuation), including expected local protection afforded by sheltering. Guidance on various reports that can be used to make this determination is provided on page 64 of NUREG-0654. In addition, Criterion II.J.7 of NUREG-0654 specifies that recommended protective actions for the population-at-risk shall be in accordance with Appendix 1 (of NUREG-0654) and with the recommendations set forth in Tables 2.1 and 2.2 of the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-520/1-75-001). A protective action flow chart patterned after Appendix 1 of NUREG-0654 has been developed and was issued to the licensee in IE Information Notice 83-28. This flow chart is enclosed as Attachment 2 to this report. The protective action recommendation making procedure needs to be revised to incorporate making protective action recommendations based on potential releases (prior to the release taking place) such as those shown in the attached table, and determining the appropriate choice between sheltering and evacuation based on optimal dose reduction. Pending these actions, this item remains open.

(Closed) Open Item 315/82-18-06 and 316/82-18-06: Personnel status board, name tags, and sector designations on county map were not available in the EOF. The licensee has committed to administratively track personnel manning the EOF so that staffing assignments are known at all times. Position/title name tags have been placed at each position in the EOF. Each position is properly identified to ensure ease of manning and proper positioning of personnel. All maps in the EOF are properly labeled with the appropriate sector designations in accordance with NUREG-0654/FEMA-REP-1, Revision 1. This item is considered closed.

(Closed) Open Item 315/82-18-07 and 316/82-18-07: Container used to transport primary reactor coolant sample has inadequate shielding (about one inch). The inspectors examined the new container for transporting this sample. This container is approximately 2 inches in diameter with a one-and-a-half inch cap, all made from lead. The licensee estimates that under worst case accident conditions, the total dose received by one individual while taking, transporting, and analyzing the sample would be less than 2 rems whole body and 60 rems to the hands. These values are below those listed in the criteria of GDC 19 (5 rem whole body, 75 rems extremity). This item is considered closed.

(Closed) Open Item 315/82-18-08 and 316/82-18-08: Procedure does not require control room or TSC to provide post-accident sampling team with an estimate of samples expected radiation level prior to drawing of sample. Step 3.1 of PMP 2081.EPP.016 (4/1/81) requires that the sampling teams for all liquid and gaseous sample collections ensure that they have been briefed on plant conditions; location, quantity, activity, and nature of sample to be taken; specific sampling and analysis procedures to be implemented; lab to be used;

protective equipment required; maximum stay times; and results to be reported to the TSC. To assist in providing this briefing, the licensee has prepared procedure PMP 2081.EPP.029 (5/31/83), "Initial Core Damage Assessment," which uses the containment high range radiation level monitor to determine the expected dose rate of the post-accident sample. This information is then provided to the sample team members during their briefing. This item is considered closed.

(Closed) Open Items 315/82-18-09; 315/82-18-10; 316/82-18-09; and 316/82-18-10: Procedure PMP 2081.EPP.012 does not provide for plume mapping in the vicinity of fixed survey points in view of topographical variations between release point and survey locations; and teams demonstrated inadequate plume monitoring during the exercise in that beta/gamma vs. gamma only measurements were not made. Procedure PMP 2081.EPP.012 (2/1/83) was revised to include as Step 3.7 the means to determine whether the team was located in the plume by making beta/gamma vs. gamma only measurements; and once the plume was located, obtain dose rates and begin surveying a traverse of the plume. This procedure also requires that the air sample collected be taken at the point of highest radiation reading found during the traverse. These items are considered closed, but will be examined during a future exercise to ensure that training on this revised procedure has been completed.

3. Activation of the Emergency Plan

(Closed) 315/81-XX-01; 316/81-XX-01; 315/83-XX-02 and 316/83-XX-02: Activation of the Emergency Plan at D. C. Cook Nuclear Plant. The inspectors examined the records for two Unusual Events declared by the licensee. These two events are discussed as follows:

a. August 7, 1981 - Offsite Toxic Gas Release

Due to a train derailment in Bridgeman, MI, State authorities decided to evacuate an area which included part of the offsite owner-controlled area of the plant. The licensee declared an Unusual Event based on this toxic gas release, and implemented their emergency plan. Offsite notifications were made in a timely manner as indicated in the Shift Supervisor's log.

b. May 29, 1983 - Tornado Warning

The licensee declared an Unusual Event when a tornado warning was issued for the vicinity of the plant. Offsite notifications of the State and NRC were made in a timely manner; however, documentation of this event was not available in the Shift Supervisor's log. During the exit interview the inspectors determined that this information had been entered in one of the control room log books rather than the Shift Supervisor's log. In the future, emergency plan activations which are the responsibility of the Shift Supervisor should be documented in his records, i.e., Shift Supervisor's log, rather than in one of the unit control room logs.

The procedure for making offsite notifications to the NRC, Michigan State Police, Berrien County officials, and licensee headquarters personnel (PMP 2080.EPP.012 dated October 19, 1982) contained a notification list (Exhibit B) which, upon completion, is normally routed to the Plant Manager's office upon event close-out. These forms are then maintained by the onsite emergency planning coordinator.

4. Exit Meeting

The inspectors held an exit interview with licensee representatives denoted in Paragraph 1 at the conclusion of the inspection. The inspectors summarized the scope and findings of the inspection. The licensee agreed to review use of Attachment 2 in the protective action decision-making process. (Paragraph 2.d)

Attachments:

1. Emergency Preparedness
Safety Evaluation Report
Related to the Operation of
the Donald C. Cook Nuclear Plant,
Units 1 and 2
2. Flow Chart for General Emergency
Offsite Protective Decisions

EMERGENCY PREPAREDNESS

Safety Evaluation Report

Related to the Operation of the

Donald C. Cook Nuclear Plant, Units 1 and 2

Docket Nos. 50-315; 50-316

NRC Operating Licenses No. DPR-58 and DPR-74

American Electric Power Service Corporation

Indiana and Michigan Electric Company

U. S. Nuclear Regulatory Commission

August 1983

SAFETY EVALUATION REPORT

A. Assignment of Responsibility (Organization Control) (Closed, 315/82-05-10; 316/82-05-10)

Planning Standard

Primary responsibilities for emergency response by the nuclear facility licensee, and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Emergency Plan

The emergency organization consists of three groups, the Plant Emergency Organization, the Initial Assessment Group, and the American Electric Power (AEP) Emergency Response Organization. The Plant Emergency Organization functions under the Plant Manager (also referred to in the plan as the Onsite Emergency Coordinator or Plant Operations Manager) or Alternate who is responsible for overall management of plant and emergency response functions, including ensuring that proper actions are taken to mitigate the event. He ensures that appropriate organizations are notified, and has the sole responsibility for making protective action recommendations to offsite authorities prior to activation of the EOF. The later responsibility transfers to the EOF Manager upon initial EOF activation. In addition to these immediate duties, the Plant Manager also has the authority to make policy decisions necessary to cope with the event.

The Initial Assessment Group (IAG) is located at corporate headquarters and consists of technical managers and a public affairs representative. The IAG is the interim corporate management organization responsible for organizing and utilizing all AEP resources including the engineering response to the accident. The IAG staffs the Engineering Emergency Operations Facility (EOF) which is located at the AEP corporate offices. The IAG determines the corporate persons that are required to staff the nearsite EOF, and sees that arrangements for such staffing are made. The nearsite EOF is activated for any Site or General Emergency and for any lesser classification as determined by the Onsite Emergency Coordinator in consultation with the IAG.

The AEP Emergency Response Organization functions under the Recovery and Control Manager, and would report to the nearsite EOF. The Recovery and Control Manager has total responsibility for the recovery from the emergency and for the control and coordination of all onsite operations. Upon arrival he assumes responsibility for recommending protective actions to offsite agencies from the EOF Manager. The AEP Emergency Response Organization is structured to provide support to the plant operating staff in the event of an emergency, and for any long-term recovery operations or long-term implementation of the emergency plan.

The authority for initiation of the emergency plan in the event of an emergency situation is delegated to the Shift Supervisor at Donald C. Cook Nuclear Plant. When an abnormal condition arises, it is his responsibility to make the initial determination of the severity of the emergency and to implement the plan. He maintains this responsibility until relieved by the Plant Manager or his alternate. If the Shift Supervisor is not available, the delegation of authority goes to the Senior NRC licensed individual on duty. When the Plant Manager arrives at the control room, he will assume the responsibility for overall plant management and emergency response functions. However, the Shift Supervisor will continue to be in charge of and responsible for plant operations. There is a 24 hour per day communication capability between the plant and Federal, State, and local response organizations to ensure the rapid transmittal of accurate notification information and emergency assessment data.

The total emergency response organization is shown in Figure 1, which identifies the various primary emergency response personnel. Principal interfaces and primary responsibilities for each of these individuals are specified in the plan. Emergency functions addressed in the organization are as follows: command and control, logistics support, engineering support, technical support, manpower requirements, scheduling and planning, public information, design and construction support, waste systems radiation control support, administrative support, and advisory support.

The concept of operations and relationship to the total effort is specified for each organization and suborganization. Interfaces with State and local governmental agencies; local support services; and contractors that are intended to be part of the overall response organization are described in the emergency plan.

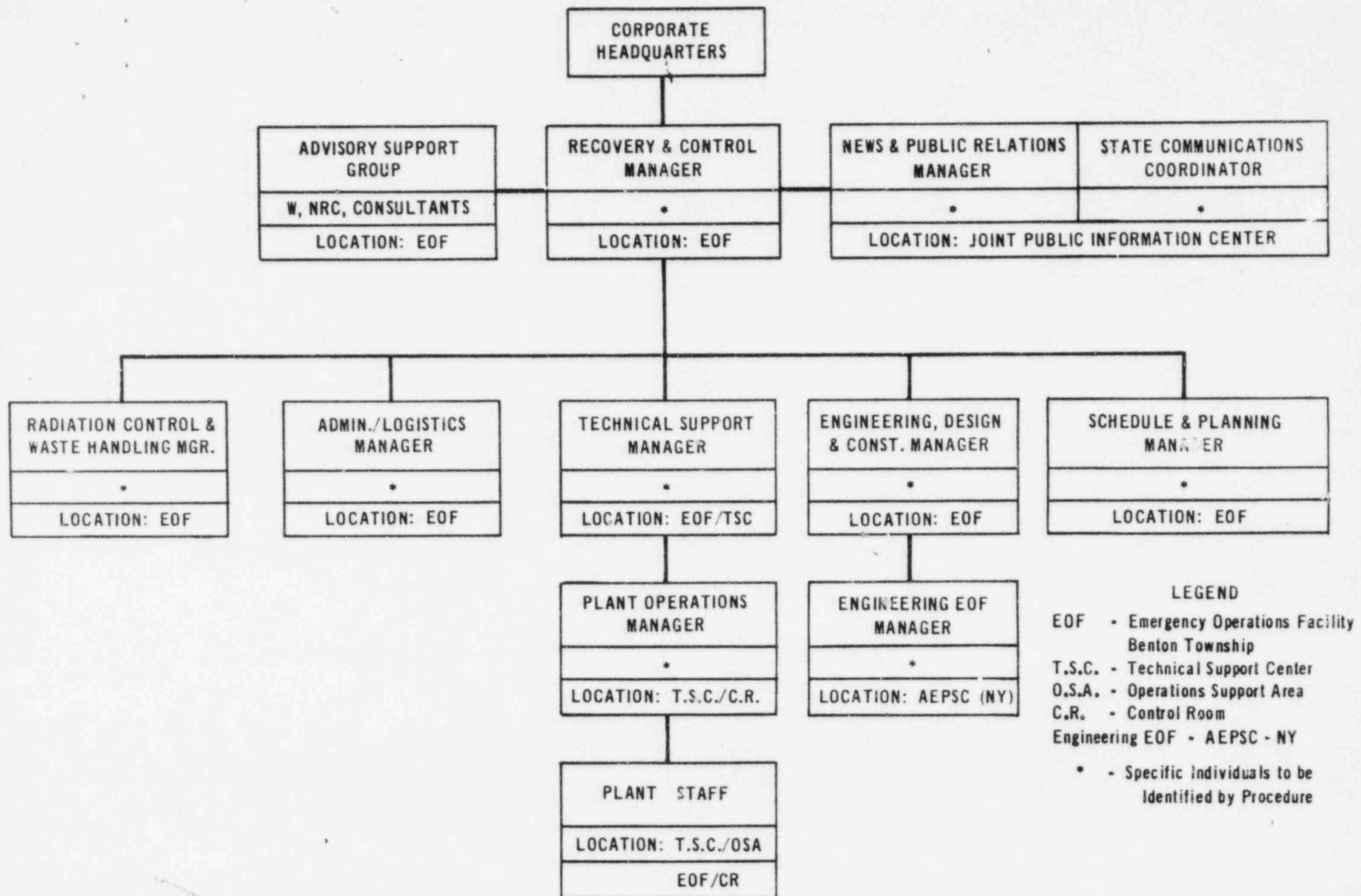
The personnel who are to serve in key emergency management positions along with two alternates have been predesignated in the licensee's procedures.

Formal agreements exist on file with appropriate agencies and organizations including law enforcement, fire protection, ambulance services, medical and hospital support, Institute for Nuclear Power Operations (INPO), Department of Energy (DOE), radiological support, and Federal, State, and local authorities responsible for implementation of protective measures for the public. These letters of agreement are updated every two years. However, the letter of agreement with the City of Bridgeman Fire Department appears to be contradictory in that the January 16, 1982 letter implies that it is only valid for the year 1982 while the January 9, 1982 letter does not contain this restriction. This item should be resolved prior to the next plan revision.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable; however, resolution of the City of Bridgeman letter of agreement should be made in the next plan revision.

FIGURE 1

DONALD C. COOK NUCLEAR PLANT AEP EMERGENCY RESPONSE ORGANIZATION



B. Onsite Emergency Organization (Closed, 315/82-05-11; 316/82-05-11)

Planning Standard

Onshift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, and the interfaces among various onsite response activities and offsite support and response activities are specified.

Emergency Plan

The normal plant organization is shown in Figure 2. The Donald C. Cook Nuclear Plant is under the direction of the Plant Manager who is responsible for its complete operation and maintenance. In the event of an incident, the Shift Supervisor is initially the Onsite Emergency Coordinator until relieved by the Plant Manager. During periods when the Plant Manager is unavailable, his responsibilities are delegated to alternates in the following order: (1) Assistant Plant Managers, (2) Operations Superintendent, (3) Production Supervisor of the affected unit, and (4) Shift Supervisor on duty. If for some reason the Shift Supervisor becomes incapacitated, the Senior NRC licensed individual will assume the position of Onsite Emergency Coordinator until relieved. The Onsite Emergency Coordinator has the authority and responsibility to declare an emergency and to immediately and unilaterally initiate any emergency actions that may be required to mitigate the event. The authority and responsibilities of the Onsite Emergency Coordinator have been clearly specified including those that cannot be delegated.

The onsite emergency organization is essentially identical to the normal organization. Figure 3 shows how this organization is deployed among the various emergency response facilities. The major responsibilities and duties of the key onsite emergency organization personnel are defined in the plan. As described in Section A, the onsite emergency organization is augmented by the AEP Emergency Response Organization or Initial Assessment Group.

The onsite emergency organization for non-normal working hours, backshifts, and holidays is described in the plan. Emergency assignments have been made, and the relationship between this emergency organization and the normal staff complement is shown in the plan. Positions and/or titles and qualifications of shift and plant personnel, both onsite and offsite, who are assigned major emergency functional duties are listed. Minimum shift manning requirements are in the plan, and guidance for shift augmentation based on the emergency classification is provided.

The plan has established the framework for a long-term augmented emergency organization under the command and control of the Recovery and Control Manager. Full activation of this organization is required for any Site or General Emergency. For accident situations classified as Unusual Events

FIGURE 2
DONALD C. COOK NUCLEAR PLANT
PLANT ORGANIZATION

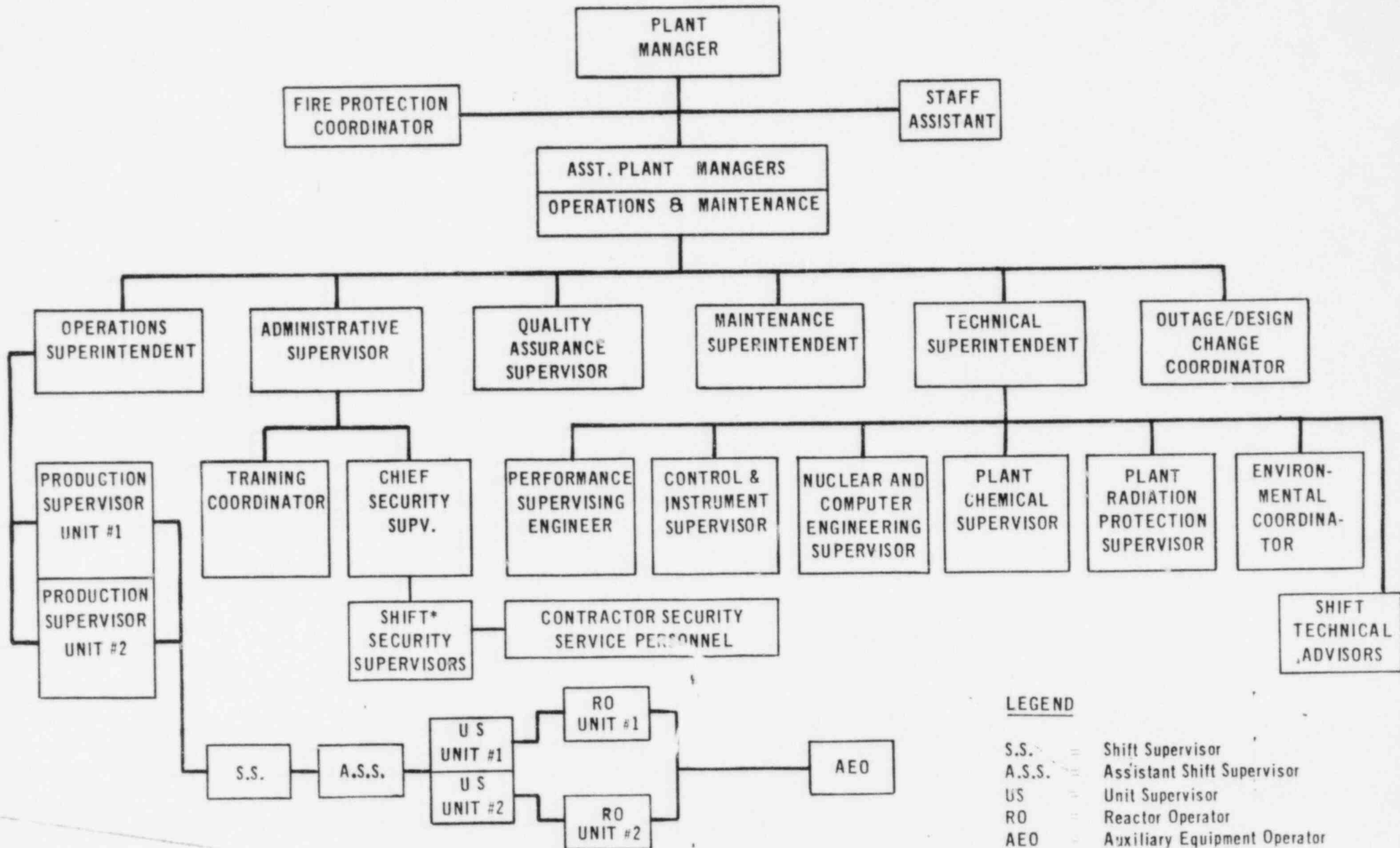


FIGURE 3
DONALD C. COOK NUCLEAR PLANT
FINAL PERSONNEL MANNING OF RESPONSE CENTERS
KEY PLANT STAFF AND SUPPORT MANAGERS

<u>Control Room</u>	<u>Technical Support Center</u>	<u>Operations Support Area</u>
Operations Superintendent	*Plant Manager	*Maintenance Superintendent
Shift Technical Advisor	Assistant Plant Manager - Maintenance	All other personnel on-site
Production Supervisor	Technical Superintendent	Supervisor and 2 C & I Technicians
*Shift Supervisor	Plant Nuclear Engineer	Supervisor and 4 RP/Chemical Technicians
Technical Support Center Liaison	Plant Chemical Supervisor	Supervisor and 2 Electrical Maintenance 2 Mechanical Maintenance
On-Shift Operations	***Plant Radiation Protection Supervisor	
**Assistant Plant Manager - Operations	NRC Representative	
	***Westinghouse Representative	
<u>EOF (prior to AEP-ERO) Arrival</u>	Production Supervisor (Unaffected Unit)	
*Assistant Plant Manager - Operations	Plant C & I Engineer	
Plant Radiation Protection Supervisor	Control Room Liaison	
Production Supervisor Technical	Performance Supervising Engineer	
Radiation Protection Engineer	Environmental Supervisor	
Communications Personnel	***Production Supervisor Technical Available Shift Technical Advisors	
	***Energy Information Center Manager	
	***Communications Personnel	

*Indicates individual in charge

**Is assigned as EOF Interim Manager upon activation

***Upon activation of the other emergency support centers, personnel initially assigned to the TSC may be reassigned to other centers.

or Alerts, this organization most likely would not be activated, and the offsite emergency support would be provided by the Initial Assessment Group. Interfaces between and among the AEP Emergency Response Organization, Initial Assessment Group, plant staff, governmental and private sector organizations, and technical and engineering contractor groups have been specified in the plan.

The minimum onshift staffing levels discussed in the emergency plan meet the objectives outlined in Table B-1 of NUREG-0654, Revision 1. This onshift staff includes the following expertise: one Shift Supervisor (SRO); one Assistant Shift Supervisor (SRO); two control room operators (four if both units operating); four Auxiliary/Utility Operators (shared between both units); one Shift Technical Advisor; one Health Physics Technician; one Radiation Chemistry Technician; one Instrument and Control Technician; and one individual to maintain communications.

The licensee's program for onshift augmentation within the first hour of a significant emergency is described in the plan. This augmentation will include eleven persons within thirty minutes with the following expertise: one dedicated communicator; one health physicist for offsite dose assessment; four health physics technicians for inplant, offsite, and onsite surveys; two mechanical maintenance technicians; one electrical maintenance technician; and two health physics technicians for radiation protection activities. Within sixty minutes, an additional sixteen persons will be available with the following expertise: two dedicated communicators; one Radiation Chemistry Technician for chemistry analyses; four Health Physics Technicians for surveys; the EOF Manager; three engineers for plant system engineering; two Health Physics Technicians for radiation protection activities; one Mechanical Maintenance Technician; one Radwaste Operator; and one Electrical Maintenance Technician. These personnel provide all the necessary functions defined in Table B-1 of NUREG-0654, Revision 1. If shift augmentation is deemed necessary or desirable, a single call to the Security Shift Supervisor will be made by the Shift Supervisor. The Security Shift Supervisor would then initiate a call tree notification procedure. The procedure identifies individuals who are capable of performing the specific response functions defined in Table B-1. Further, unannounced off-hours shift augmentation drills are conducted semi-annually to ensure that the above goals of shift augmentation are met.

The management, administrative, and technical support staff who will augment the plant staff has been specified in the emergency plan. Contractor and private organizations who may be requested to provide technical assistance to and augmentation of the emergency organization are described in the emergency plan. The licensee has identified the services available from local agencies for handling emergencies.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable.

C. Emergency Response Support and Resources
(Closed, 315/82-05-12; 316/82-05-12)

Planning Standard

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's nearsite Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

Emergency Plan

Arrangements for requesting and utilizing outside assistance resources have been made including authority to request implementation of the Department of Energy Radiological Assistance Plan (RAP) or the Inter-agency Radiological Assistance Plan (IRAP). Further, the licensee retains contractors to provide supporting services to the Donald C. Cook Plant. Among those services provided are the following: technical experts for accident analysis from Westinghouse Electric Company, INPO, Electric Power Research Institute (EPRI), and Exxon Nuclear; environs radiological monitoring and radiochemical analyses services from Eberline; consultation on radiation emergency medical procedures and treatment from Radiation Management Corporation (RMC); and financial support from American Nuclear Insurers (ANI). The Plant Manager has the authority to request IRAP/RAP assistance. The plan outlines the anticipated response and time necessary to obtain this assistance.

The licensee organization provides for a plant liaison person to be sent to the Berrien County Emergency Operations Center (EOC) and the State On Scene EOC upon activation of these facilities. The licensee has identified the radiological laboratories and their general capabilities and expected availability to provide radiological monitoring and analysis services which can be used in an emergency. Working space is available for Federal, State, and local offsite representatives, as well as contractor and other support groups in the licensee's nearsite EOF. The EOF is the central point for providing information needed by primary response agencies for implementation of protective actions. Completion and Staff evaluation of the permanent EOF which meets the guidance of NUREG-0696 and the requirements of Supplement 1 of NUREG-0737 will be addressed in a separate report.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable.

D. Emergency Classification System
(Closed, 315/82-05-13; 316/82-05-13)

Planning Standard

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Emergency Plan

Four standard emergency classes (Unusual Event, Alert, Site Emergency, and General Emergency) have been established. Emergency Action Levels (EALs), also called Emergency Condition Categories (ECCs), are indicated in the plan based on onsite and offsite radiation monitoring information and based on readings from various plant sensors (such as pressure and temperature in containment, response of vital electrical systems or emergency core cooling systems, and vital equipment status). EALs have also been developed for security threats, natural phenomena (such as earthquakes, seiches, and tornadoes) and other hazards (including fires, explosions, toxic gas releases, projected doses at the site boundary, and onsite aircraft accidents). These EALs are used for rapid classification of emergency situations.

The plan states that predetermined emergency actions will be taken by the licensee in the event of an emergency. These emergency actions are consistent with the guidance in Appendix 1 of NUREG-0654, Revision 1. Further, the plan has identified example emergency conditions for each standard emergency classification. These initiating conditions include most of the examples given in Appendix 1 of NUREG-0654, Revision 1, and the analyzed accidents in the Final Safety Analysis Report (FSAR); however, two EALs need to be clarified as follows: (1) ECC-5 (Fire) for an unusual event should indicate what a "significant fire" is; and (2) ECC-22 (Loss of Control Room Annunciators) alert condition 2 for this EAL should be listed as a Site Emergency. These should be incorporated into the EALs during the next plan revision.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable; however, additional changes to the EALs as described above should be made in the next plan revision.

E. Notification Methods and Procedures (Open, 315/83-09-01; 316/83-10-01)

Planning Standard

Procedures have been established for notification, by the licensee of State and local response organizations and for notification of emergency personnel by all response organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

Emergency Plan

Procedures have been established for notification of State and local response organizations in case of an emergency. The Shift Supervisor has the authority and responsibility for initiating the emergency notification to these agencies. The Plant Manager will assume this authority upon his arrival at the Control Room. He will ensure that the proper State and County authorities, NRC, and AEP Emergency Response Organization officials are notified. The plan has established procedures which describe mutually agreeable bases for notification of offsite response organizations consistent with the standard emergency classification and action scheme set forth in Appendix 1 of NUREG-0654, Revision 1; however, there is some confusion with Section 12.3.6.1.3 of the plan which states in part that offsite notification is given to offsite officials for any emergency that may affect individuals offsite. This statement must be clarified since it is inconsistent with other parts of the plan and does not meet the requirements of 10 CFR Part 50, Appendix E, Section IV.D.3.

Procedures have been established for notifying and augmenting the onshift staff with additional emergency response personnel. These procedures include both station and corporate personnel. However, it is not clear in the plan when this augmentation will take place. Section 12.3.6.2 implies that it will occur for Site or General Emergencies and for incidents that result in a release of radioactive material resulting in excessive exposure to plant personnel. The plan does include that the TSC and OSA will be activated for any Alert or higher emergency classification, and the EOF will also be activated for any Site Emergency or higher classification. These center activations are also addressed in the licensee's augmentation procedure. This portion of the plan must be clarified to indicate that notification and possible augmentation will be made to licensee personnel for any emergency classification, and the degree of augmentation required to activate response centers for various emergency classes should be described.

The contents of the initial emergency messages to be sent from the plant have been established. The contents of these messages include the following: information about the class of emergency; whether a release of radioactive material is taking place; potentially affected population and areas; and whether protective measures may be necessary. The notification procedures used also include means for verification of messages.

The plan has established provisions for follow-up messages to State and local authorities. These messages include necessary information about the accident that would be needed to determine the appropriate protective measures to be taken following the guidance in NUREG-0654, Revision 1.

The State of Michigan and Berrien County have developed predetermined written messages intended for the public which are consistent with the emergency classification scheme. These messages are part of the State Emergency Plan and are not included in the licensee's plan.

The prompt public notification system which is in effect at Cook is described as follows:

- Local radio stations, television stations, and local news media will be notified by a radio transmitter/receiver that will record the emergency information transmitted by the Sheriff's Department.
- Law and fire services will utilize public address systems on emergency vehicles to extend public notification.
- Door-to-door distribution of Emergency Public Information materials.
- Warn the Warren Dunes Park of the emergency and actions to be taken. In turn, park officials will activate a public address type notification system to advise parkgoers of what emergency actions they should take.
- Activation of the emergency warning system which consists of fourteen sirens located within the ten mile EPZ. This will only be used for Site Area or General Emergency classifications and is controlled solely by the Berrien County Sheriff. Sounding of the alerting sirens will alert the public to the fact that they should turn on radios to a local radio station for detailed information on the situation.

The purpose of this notification system is to advise citizens to either take shelter or evacuate and to instruct them to tune to designated emergency information radio stations.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is open pending further clarification as described above.

F. Emergency Communications (Closed, 315/82-05-14; 316/82-05-14)

Planning Standard

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Emergency Plan

The plan describes an extensive and reliable system for communications among the plant, nearsite EOF, JPIC, the corporate IAG, and State and local response organizations. A comprehensive communication system with backup capabilities has been designed to provide reliable communication links between the emergency response facilities and with offsite support organizations. The system consists of the plant telephone system, the plant public address system, dedicated microwave links, portable radio systems, a VHF radio system, and standard and dedicated offsite telephones.

The primary means of initial notification is by telephone. However, a transmitter and receiver combination is available in the control room as a backup for communication with the Sheriff's Department in Berrien County. A similar radio system is available for communication with the Michigan Department of State Police in Benton Harbor. Both of these contact points are manned 24 hours per day.

Dedicated phone lines have been installed to provide rapid uninterrupted communications with the NRC. NRC Health Physics Network (HPN) phones are installed in the NRC resident inspector's office, Operations Support Area (OSA), Technical Support Center (TSC), Radiation Access Control Area, and EOF. The NRC Emergency Notification System (ENS) phones are installed in the resident inspector's office, TSC, EOF, and control room. The HPN and ENS are used to provide information and operational data to the NRC headquarters in Bethesda, Maryland, and Region III Office in Glen Ellyn, Illinois.

Provisions exist for alerting and activating emergency personnel in each emergency response organization including plant and corporate staff, and local, State, and Federal organizations. The microwave facilities at the Cook Plant provide direct communication to major stations and offices of the American Electric Power (AEP) System companies.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable.

G. Public Education and Information
(Closed, 315/82-05-15; 316/82-05-15)

Planning Standard

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

Emergency Plan

The plan provides for a coordinated annual dissemination of information to the public regarding how they will be notified and what their actions should be during an emergency. This information includes the warning methodology to be used in notification of the public, educational information on radiation, personnel or agencies to be contacted for additional information, and sheltering and evacuation procedures to be used in the event of a nuclear incident. In addition, instructions are provided for the disabled or their caretakers. This public information brochure is distributed annually by mailing it to all residents in the plume exposure pathway EPZ and providing a summary page of the brochure to Warren Dunes State Park, local hotels, motels, restaurants, service stations, nursing homes, marinas, apartment complexes, selected camping and recreational areas, and other areas frequented by the transient population. These actions should ensure that the public information program reaches the permanent and transient adult population within the plume exposure pathway EPZ.

The licensee has designated an Emergency News Source and an associated manager as a point of contact for use by news media during an emergency. This will initially be located in the TSC and will be accessible only by phone. When the EOF is activated, the Emergency News Source will be phased out, placed in a standby status, and will support the operation of the Joint Public Information Center (JPIC) as required. The JPIC functions under the direction of the News and Public Relations Manager and is the single point contact for disseminating information to the public. The JPIC is located approximately one mile from the nearsite EOF and thereby provides ready access to licensee technical personnel. The News and Public Relations Manager's responsibilities include coordinating information releases with Federal, State, and local agencies.

The licensee has made provisions for a single individual to be designated their spokesperson at any given time. This individual will have access to all necessary information and arrangements have been made for the timely exchange of information between various organizations. An Inter-Agency Liaison Committee will be established and centered in the JPIC to respond to rumors.

The licensee offers an annual briefing session to acquaint news media with the emergency plans of the State, County and licensee.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable.

H. Emergency Facilities and Equipment
(Open 315/82-05-16; 316/82-05-16)

Planning Standard

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Emergency Plan

Emergency facilities needed to support an emergency response have been provided including a TSC, nearsite EOF, Operations Support Area (OSA), and Engineering EOF located at AEPSC corporate headquarters. The EOF and Engineering EOF are activated during a Site or General Emergency and for an Alert as required. The OSA is activated whenever the TSC is activated. Part of the plan states that the TSC is activated for an Alert, while another part states that it is activated for a Site or General Emergency or for an Alert as required. This inconsistency must be clarified so that the TSC is always activated for any Alert emergency or greater, and as may be deemed necessary for an Unusual Event.

The licensee has provided for activation of emergency response facilities and has indicated that activation and staffing could be provided in a timely manner. Upon activation of the nearsite EOF, predesignated members of the plant staff would provide interim management and operation of the EOF until members of the AEP Emergency Response Organization could arrive and assume EOF responsibilities (see Figure 3 in Section B of this report).

The TSC is located off the turbine floor in close proximity to the control room. The TSC has access to plant records and procedures to support detailed technical analysis and evaluation of plant conditions. The OSA is located in the basement of the Office Building and functions as a support center to the TSC. This area will be manned with sufficient staff to perform the required administrative and coordination functions. The EOF is located adjacent to the Benton Harbor Service Building approximately eleven miles from the plant. The EOF will be utilized to evaluate and coordinate the emergency re-entry/recovery operations on a continuing basis by the licensee. It also provides the focal point for evaluation and coordination of site and offsite activities with Federal, State, and local officials during an emergency. The EOF will also be used as the central point for receipt and analysis of all field monitoring data.

The licensee submitted by letters dated June 19, 1981, July 30, 1982, August 27, 1982, September 29, 1982, April 15, 1983, and August 2, 1983, a description of the emergency response facilities (TSC, EOF, and OSA), Safety Parameter Display System (SPDS), and other upgrades discussed in Supplement 1 to NUREG-0737. Completion and staff evaluation of the permanent TSC, EOF, OSA, and SPDS which meet the guidance of NUREG-0696 and the requirements of Supplement 1 of NUREG-0737 will be addressed in a separate report.

Emergency preparedness procedures have been developed for inventory and operational readiness of emergency equipment and supplies. The plant maintains portable survey instrumentation to assess inplant, onsite, and offsite contamination levels, exposure rates, and airborne gaseous, radioiodine, and particulate concentrations.

Onsite monitoring systems have been identified and established that are to be used to initiate emergency measures in accordance with Appendix 1 of NUREG-0654, Revision 1, as well as those monitors used for conducting assessment; e.g., geophysical phenomena monitors, instrumentation for detecting fires, and process and radiological monitors. These systems include a meteorological system, installed process radiation monitors to measure deviations in radiation levels in various fluid streams, installed area radiation monitors to measure upward deviations in radiation levels in specific locations in the plant, portable dose rate and radiation detection instruments, nonradiological process monitors (such as containment pressure and temperature, reactor system pressure and temperature, etc.), and laboratory counting and analysis facilities.

Provisions for offsite monitoring equipment have been made. In the event that it becomes necessary to utilize offsite laboratories, arrangements have been made with Eberline and Radiation Management Corporation (RMC) to obtain such services. An Environmental Radiation Monitoring System is available for offsite radiological monitoring in the vicinity of the plant. This includes the capability for sampling of air particulates, airborne radioiodine, lake water, well water, precipitation, milk, thermoluminescent dosimeters (TLDs), and others. Provisions have been made to obtain offsite meteorological data; however, the plan does not discuss the capability to obtain offsite hydrologic and seismic data. This should be added to the plan.

The meteorological monitoring equipment at the plant currently meets the criteria of Regulatory Guide 1.23, "Onsite Meteorological Programs," dated February 17, 1972. The meteorological system can provide real time, data of wind speed, wind direction, and temperature differential as an indicator of atmospheric stability. Backup sources of meteorological information are available from the visitor center and the Benton Harbor Service Building located about eleven miles northeast of the site. The plan indicates a Class A model consistent with criteria in Appendix 2 of NUREG-0654, Revision 1, will be implemented for use in determining atmospheric diffusion rate estimates.

However, the meteorological measurements program does not appear to meet the final requirements of Supplement 1 to NUREG-0737. Licensee correspondence to date indicates that no action to upgrade the meteorological measurements program is being taken pending further NRC guidance. Final guidance was provided in Supplement 1 of NUREG-0737, in that the meteorological measurements system had to provide meteorological variables for site vicinity and National Weather Service data available by voice communication for the region in which the plant is located (See Sections 8.2.1.h.ii and 8.4.1.g.ii of the Supplement). Paragraph 2 of Section 6.1.b of the Supplement further clarifies what is meant by vicinity as follows:

Provide reliable indication of the meteorological variables (wind direction, wind speed, and atmospheric stability) specified in Regulatory Guide 1.97 (Rev. 2) for site meteorology. No changes in existing meteorological monitoring systems are necessary if they historically provided reliable indication of these variables that are representative of meteorological conditions in the vicinity (up to about ten miles) of the plant site.

There is no indication that the licensee's current meteorological measurements system is capable of providing reliable indication of representative meteorological conditions up to ten miles from the plant site. Clarification of the licensee's proposed meteorological measurements system to meet the above guidance must be submitted.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is open pending further clarification as described above. In addition, a discussion of the capability to obtain offsite hydrologic and seismic data should be included in the next plan revision.

I. Accident Assessment (Closed, 315/82-05-17; 316/82-05-17)

Planning Standard

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Emergency Plan

The plan contains plant system and radiological effluent parameter values characteristic of a spectrum of off-normal conditions and accidents. Parameter values and other reliable information corresponding to the example initiating conditions in Appendix 1 of NUREG-0654, Revision 1, are identified for each of the emergency classes. Specific alarm setpoints, both visual and audio, are in the control room to alert the operator.

The onsite radiation monitoring and sampling system consists of the following: (1) process radiological monitors and sampling system; (2) effluent radiological monitors and sampling system; (3) airborne radioactivity monitors; (4) area radiation monitors; and (5) portable survey and counting equipment. Methods and techniques have been established for determining the source term of releases of radioactive material within systems. The plan describes the method for estimating onsite and offsite exposures for varying meteorological conditions. Provisions have been made to allow access to meteorological data by the control room, TSC, EOF, and NRC.

A method has been established for determining the release rate and subsequent projected dose. The method is computerized, and will predict offsite doses on a real-time basis using effluent and meteorological monitors. The magnitude of release or potential release may be determined from effluent monitors or by specific procedures which have been developed to perform this assessment when the effluent monitors are offscale or inoperable.

The plan describes the post-accident primary coolant and containment atmosphere sampling system. The system will allow sample collection and analysis within the exposure guidelines given in NUREG-0737. The primary coolant sampling system will provide samples for isotopic analysis, dissolved gases, chloride, and pH. The containment atmosphere sampling system will provide samples for isotopic analysis and hydrogen.

High-range effluent monitors which measure noble gas will be installed to monitor the unit vent effluent. These monitors will have a range of 1 E-7 uCi/cc to 1 E+5 uCi/cc and will be used to provide an estimate of the release. High-range containment radiation monitors will also be installed in each of the units. These monitors will have a range from 1 R/hr to 1 E+7 R/hr . Plots of radiation levels in containment versus time are developed to aid the control room operator in an assessment of core damage.

The capability and resources for field monitoring within the plume exposure pathway EPZ have been described in the plan. Teams will have adequate monitoring equipment to locate and find the plume, and make airborne measurements of radioiodine to levels of 1 E-7 uCi/cc . Adequate communications systems for the field teams are provided.

The plan describes the inplant radioiodine instrumentation and radioiodine and particulate effluent monitors. Sample media are taken to the plant hot laboratory for analysis. Portable monitors (for example, an Eberline PING) are also used to measure increasing levels of radioiodine during emergencies.

The methodology, equipment, and expertise to make assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways have been provided in the plan. The licensee has established procedures for relating the various measured parameters of radioactivity to dose rates for key isotopes.

The plan describes the offsite radiological environmental monitoring program, including fixed continuous air samplers and a fixed TLD monitoring network which meets the NRC Radiological Assessment Branch Technical Position for Environmental Radiological Monitoring Program. Maps are provided showing the TLD and air sampler locations.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable.

J. Protective Response (Open, 315/82-05-18; 316/82-05-18)

Planning Standard

A range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Emergency Plan

The plan describes the protective actions to be taken by onsite personnel. An onsite predetermined assembly area has been designated. The plant has a siren system to signal personnel to assemble in this area. Persons not having an emergency response assignment, including visitors and contractor personnel, are required to assemble when notified by the siren. Onsite accountability is the responsibility of the plant security force. They will account for all individuals within the protected area at the time the assembly is announced and will be able to ascertain the names of missing individuals with the goal of completing this task within thirty minutes. The accountability of employees or visitors to the Cook Energy Information Center will be the responsibility of the manager of the Information Center.

If site evacuation is ordered by the Plant Manager (such as for a Site or General Emergency), personnel will be reassembled at one of the following locations: (1) to the east with reassembly immediately across Red Arrow Highway along the main access road; (2) to the north along the Lake Michigan Beach with reassembly on the beach at the plant property line or Rosemary Road; and (3) to the south along the Lake Michigan Beach with reassembly at the end of Livingston Road. The evacuation route and reassembly location is designated by the Plant Manager. Suitable equipment will be available for determining if personnel have been contaminated. If any contaminated individuals are identified, they will be transported to decontamination facilities.

The plan makes provisions for respiratory protection, use of protective clothing, and use of thyroid blocking agents for onsite plant personnel and emergency workers. The criteria for issuance of these protective measures are described in the Plant Radiation Protection Manual and appropriate procedures.

Population distribution by sector and distance within a 60-mile radius have been compiled and are included in the plan. A map indicating the road network within the plume exposure pathway EPZ is provided in the plan. Detailed evacuation routes (maps) for the general public are contained in the State and local emergency plans.

Evacuation time estimates for the plume exposure pathway EPZ for normal and adverse weather conditions have been identified, and are included in the Berrien County Emergency Plan; however, there is insufficient information to determine whether these estimates are in accordance with Appendix 4 of NUREG-0654, Revision 1. The notification times listed in these estimates relate to conditions in the vicinity of the plant prior to the installation of the prompt public notification system. Section IV.D.3 of Appendix E to 10 CFR Part 50 requires that the design objective of the prompt public notification system shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about fifteen minutes. The notification times provided in the Evacuation Time Estimates range from twenty minutes to six hours, well beyond the required design objective of the system. Clarification of the Evacuation Time Estimates based on the existing conditions in the vicinity of the plant (namely, the use of the prompt public notification system) in accordance with the guidance provided in Appendix 4 of NUREG-0654, Revision 1, must be provided.

The mechanism for recommending protective actions to the appropriate State and County authorities has been established; however, this mechanism must be clarified regarding the basis of choice between various alternate protective actions, such as sheltering versus evacuation. The plan identifies protective action guide exposure levels for each emergency classification, but it is not clear whether actions will be recommended for the public to reduce exposures to these levels. Only the General Emergency Protective Action Guide corresponds to the guidance set forth in Table 5.1 of the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-520/1-75-001). The protective action guides listed for all other emergency classes are lower. Although protective action guides are also provided for exposures due to contaminated human and animal food, the plan does not identify the source of these values. In addition, no protective action guidance is provided for potential releases in that the guidance provided in IE Information Notice 83-28 has not been included in the plan. Clarification of the protective action recommendation making process must be explicitly incorporated into the plan to clarify the following: (1) the basis for choice between alternate protective action recommendations (such as sheltering versus evacuation); (2) the source of the values listed in the protective action guide section; and (3) how protective action recommendations will be made based on potential releases (such as that outlined in IE Information Notice 83-28).

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is open pending further clarification as described above.

K. Radiological Exposure Control (Closed, 315/82-05-19; 316/82-05-19)

Planning Standard

Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Life Saving Activity Protective Action Guides.

Emergency Plan

Emergency response personnel may receive radiation exposure in excess of the limits imposed by 10 CFR Part 20. Onsite exposure guidelines consistent with EPA Emergency Worker and Life Saving Activity Protective Action Guides (EPA-520/1-75-001) have been established. The Plant Manager can authorize exposures in excess of 10 CFR Part 20 limits. In no case shall this type of exposure be permitted unless personnel are wearing monitoring devices capable of monitoring these exposures.

The plant provides and distributes a self-reading and accumulative type dosimeter to all personnel involved in emergency onsite response. Self-reading dosimeters, area monitor records, and TLLs will be used to determine individual accumulated exposures. Dose records for workers will be maintained. The assessment and recording of radiation exposures will be the assigned duty and responsibility of the person so designated by the Radiation Protection Supervisor. The Plant Manager shall be made aware of any changes in cumulative exposures which would affect emergency team assignments. The methods for reading, recording, and maintaining dose records are identified in the Plant Radiation Protection Manual.

Onsite contamination control procedures for personnel, equipment, and access control are in place. Decontamination of personnel and equipment is required when the contamination level exceeds predetermined values. Criteria for permitting return of contaminated areas and their contents to normal use are stated in the appropriate contamination control procedures.

Personnel evacuated from onsite will be decontaminated as required by the Plant Radiation Protection Manual and Emergency Plan Procedures. If necessary and where possible, suitable protective clothing will be used during the evacuation. The licensee has made provisions for bioassay capabilities from RMC if deemed necessary.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable.

L. Medical and Public Health Support

Planning Standard

Arrangements are made for medical services for contaminated injured individuals.

Emergency Plan

The plant provides for onsite first aid capability. Radiation Protection Supervisors, each Senior Chemical and Radiation Protection Technician, and at least one person onsite for each shift has received multi-media Red Cross First Aid Training.

The licensee has made arrangements, confirmed in writing, with Memorial Hospital in St. Joseph, Michigan. This hospital is capable of receiving and treating contaminated injured or overexposed persons. This hospital will be utilized for decontamination and initial treatment of persons with injuries involving radioactivity and requiring immediate hospital care. Backup medical support, confirmed in writing, is available at Mercy Hospital in Benton Harbor.

The licensee has made arrangements, confirmed in writing, with the Lake Township Ambulance Service to provide for transporting persons with injuries involving radioactivity from the Donald C. Cook plant to a designated hospital. This service is available 24 hours per day. As a backup, a plant emergency vehicle which is located onsite on a 24 hour basis is also available. Radiation monitoring will be provided by the plant whenever it becomes necessary to use the ambulance service to transport a contaminated person.

Because of the specialized nature of the diagnosis and treatment of radiation injuries, the licensee has made arrangements for consultation services from the Radiation Management Corporation (RMC). They can provide medical support, including bioassay result interpretation.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable.

M. Recovery and Re-Entry Planning and Post-Accident Operations (Closed, 315/82-05-20; 316/82-05-20)

Planning Standard

General plans for recovery and re-entry are developed.

Emergency Plan

Procedures have been developed for entry to previously evacuated areas for the purpose of saving lives, search and rescue of missing and injured persons, or manipulation, repair, or recovery of critical equipment or systems.

The plan describes the recovery organization (Figure 1) which follows the recommendations of the Atomic Industrial Forum and INPO. The recovery organization will be activated upon activation of the EOF, which will automatically take place for any Site or General Emergency.

The Recovery and Control Manager is responsible for determining that a recovery made may be entered. The Recovery and Control Manager is the designated licensee individual who has requisite authority, management ability, and technical knowledge to manage recovery operations. The Plant Radiation Protection Supervisor is responsible for ensuring activity levels and personnel exposures are based on 10 CFR Part 20 limits. Procedures have been developed which describe how members of the emergency response organizations will be informed of accident status changes.

The plan contains no discussion of a methodology for periodically estimating total population exposure. This should be corrected in the next revision of the emergency plan.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable; however, a discussion of the methodology for periodically estimating total population exposure should be included in the next plan revision.

N. Exercises and Drills (Open, 315/82-05-21; 316/82-05-21)

Planning Standard

Periodic Exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

Emergency Plan

The plan ensures that an annual exercise is conducted at the Donald C. Cook Plant to test the effectiveness of emergency preparedness at the site including communication links and notification procedures. Each such annual exercise tests major portions of the basic elements of emergency preparedness; however, the plan does not indicate that scenarios will be varied such that all elements of the plan are tested during a five year period (for example, the off-shift augmentation aspect of the plan can only be tested during an off-hours exercise). Clarification must be provided describing how all elements of the plan will be periodically tested.

A written scenario will be prepared for each annual exercise. This scenario will include the following: (1) basic objectives of the exercise; (2) date, time period, place, and participating response organizations; (3) the extent to which participating organizations will respond; (4) simulated events which may include offsite radiological releases; (5) narrative summary describing the conduct of the exercise; (6) arrangements for qualified observers; and (7) criteria for evaluation of the exercise.

A critique will be conducted after each exercise. The critique will evaluate the ability of the licensee's emergency response organizations to respond to a simulated emergency situation as called for in the plan. A formal evaluation with "lessons learned" shall be prepared and submitted to the Plant Manager and AEP Emergency Response Organization for review and for action to upgrade those areas where deficiencies were noted. Review of the evaluations and critiques will be performed during the audit of the emergency plan to ensure that the required corrective action has been taken on noted deficiencies. Governmental representatives also observe and critique the exercise to evaluate the performance of all organizations involved in the exercise.

Medical emergency drills, involving a simulated contaminated injured individual, will contain provisions for participation by local support services agencies (i.e., ambulance and offsite support hospital) and will be conducted annually.

Fire drills will be conducted quarterly, with provisions for including the local support agency during one of these drills each year.

Health physics drills will be conducted quarterly, but will be limited to events involving the response to and a description of the analysis utilized in determining airborne and liquid sample concentrations. Where practical, actual samples will be taken and analyzed. However, the plan does not address including the use of the post-accident sampling system as part of the health physics drills, nor does it address the inclusion of the analysis of plant environs sample media such as soil, water, grass, and air. This area must be clarified to describe how plant environs and post-accident sampling and analysis are included in the health physics drills.

Communication links between the plant and Berrien County Sheriff's Department, Michigan State Police, and the Michigan Department of Public Health are tested at a minimum on a monthly basis. Communication links between the plant and DOE's Regional Coordinating Office are tested quarterly. Communications with field assessment teams will be tested at least annually to ensure an understanding of the content of the messages in the drills. As part of the annual exercise, communication links between the control room, TSC, EOF, field assessment teams, and State and local emergency operations centers are tested. Communication links with the NRC are tested on a daily basis; however, the plan does not clearly indicate that the capability to notify the NRC Operations Center from the control room, TSC, and nearsite EOF are included in these tests. This matter must be clarified since such tests must be conducted monthly as specified in Section IV.E.9.d of Appendix E to 10 CFR Part 50.

Off-hours shift augmentation drills to ensure that the goals of shift augmentation described in Section B of this SER are being met will be conducted semi-annually. One drill per calendar year may be tested by ensuring that communications are established and using the average time that an individual requires to travel to the plant.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is open pending further clarification as described above.

O. Radiological Emergency Response Training
(Closed, 315/82-05-22; 316/82-05-22)

Planning Standard

Radiological emergency response training is provided to those who may be called on to assist in an emergency.

Emergency Plan

All plant personnel, including contractor personnel, will receive an initial orientation and annual review of the emergency plan to ensure that they are aware of actions they should take during an emergency. This training covers the areas of familiarization with the sounding of the Nuclear Emergency Alarm, locations of assembly areas, routes to assembly areas, industrial safety, radiation protection (health physics), the emergency plan, and for selected employees, fire protection. Specialized initial training and annual retraining programs are provided for the managers and key personnel of the plant and AEP Emergency Response Organization, personnel responsible for accident assessment, radiological monitoring teams, fire brigades, first aid and rescue teams, offsite fire department personnel, offsite medical support personnel, repair and damage control teams, security, local Sheriff personnel, and AEP Company personnel. The proficiency of these emergency response personnel is ensured by their participation in exercises and drills. Records are maintained regarding all emergency personnel training.

The Plant Manager has the responsibility for the plant training program, except for that aspect associated with the Hospital Assistance Plan which is the responsibility of the Radiation Protection Supervisor. Training of individuals in the AEP Emergency Response Organization is the responsibility of the AEPSC Assistant Division Manager - Nuclear Operations.

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is acceptable.

P. Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans (Open, 315/82-05-23; 316/82-05-23)

Planning Standard

Responsibility for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Emergency Plan

The AEPSC Assistant Vice President - Nuclear Engineering has overall authority and responsibility for radiological emergency response planning. Normally, plan updating and review and the review and coordination of offsite plans will be the responsibility of the Assistant Division Manager - Nuclear Operations. He is designated as the Nuclear Emergency Planning Coordinator.

The emergency plan is reviewed and updated on an annual basis and takes into account changes identified by drills and exercises. Assigned individuals have responsibility for these reviews and updates and they are approved by the Plant Nuclear Safety Review Committee. All revisions are marked and dated and revised plans are promptly forwarded to appropriate personnel and offsite agencies. All written agreements with offsite support groups are reviewed and updated on a two year basis.

The emergency plan contains a detailed listing of supporting plans and their source. A section of the plan outlines the required content of implementing procedures, with an appendix listing these emergency plan implementing procedures by title for both the plant and AEPSC Emergency Response Organization. The plan contains a specific table of contents cross-referenced to the Section II headings in NUREG-0654, Revision 1.

At least once every 12 months as delineated in 10 CFR 50.54(t), an independent audit of the emergency plan and implementing procedures is conducted. This is performed under the cognizance of the AEPSC-Nuclear Safety Design Review Committee. The audit findings and recommendations for improvement are documented, reported to corporate and plant management, and retained for a period of five years. Reviews involving the adequacy of interface with State/local agencies shall be available to the appropriate agency. In addition, the responsibilities of the individuals, groups, and agencies and the emergency procedures to be followed during an emergency condition are reviewed and updated at a minimum on an annual basis and will take into account changes identified by drills and exercises. These reviews and updates are approved by the Plant Nuclear Safety Review Committee and are documented. The Assistant Division Manager - Nuclear Operations is sent copies of changes.

The plan does not specify the frequency by which telephone numbers in the emergency procedures are updated. Clarification regarding this frequency of review must be provided (such as quarterly).

This element of emergency preparedness as described in the Donald C. Cook Nuclear Plant Emergency Plan is open pending further clarification as described above.

Conclusion

Based on our review of the Indiana and Michigan Electric Company Donald C. Cook Nuclear Plant Emergency Plan and supplemental correspondence, we conclude that upon satisfactory clarification of the items listed below, the licensee's emergency plan will meet the planning standards of 10 CFR 50.47(b) and the requirements of 10 CFR Part 50, Appendix E. The required clarifications are summarized as follows:

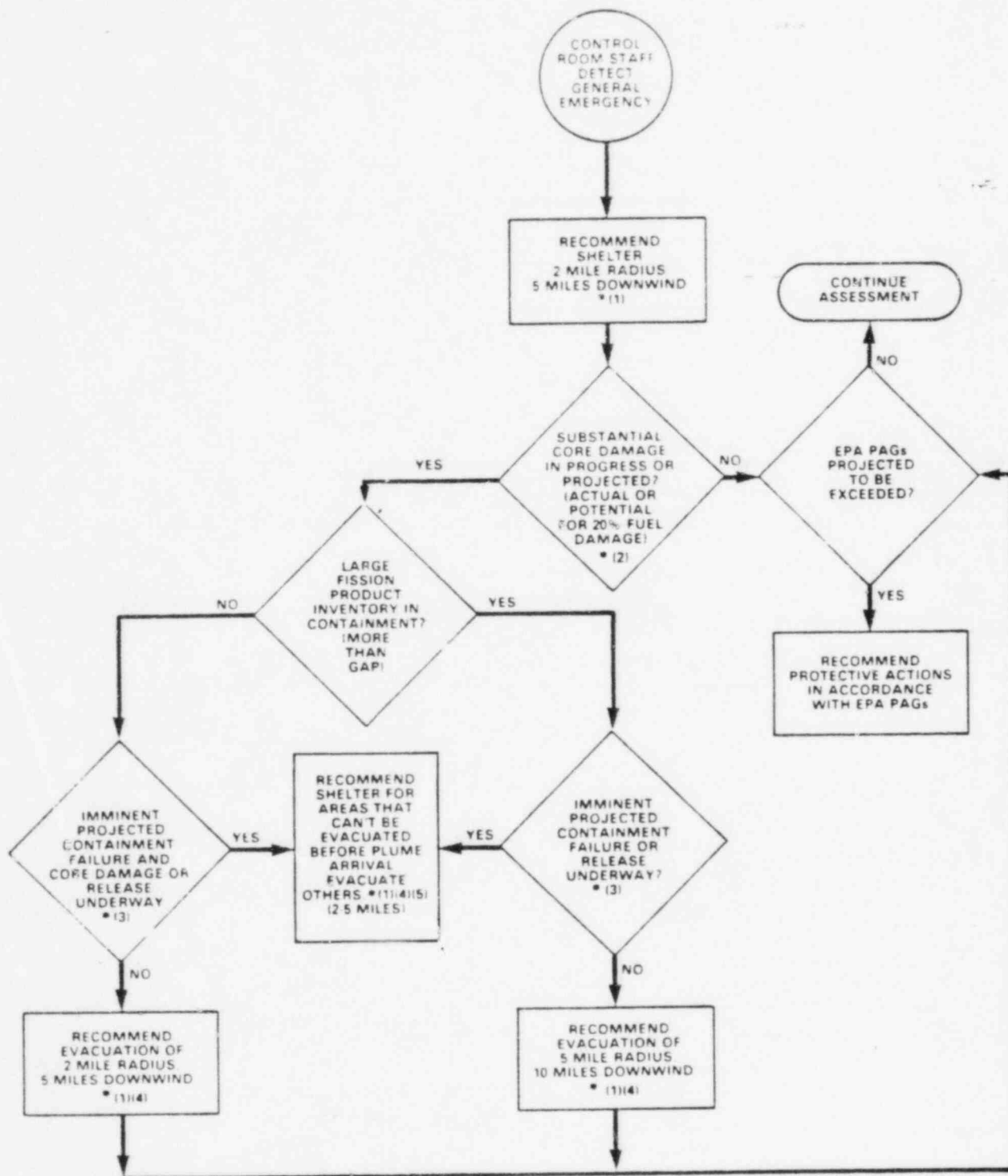
1. Clarify Section 12.3.6.1.3 of the plan to clearly indicate that offsite notifications occur for any emergency declaration rather than just those that may affect offsite individuals. (Planning Standard E)
2. Clarify Section 12.3.6.2 as to when off-shift augmentation will occur, e.g., although TSC and OSA are activated for any Alert or higher emergency classification, the plan does not clearly indicate that shift augmentation will occur to staff these centers. (Planning Standard E)
3. Clarify when the TSC and OSA are activated. Part of the plan acceptably states that these centers are activated for an Alert or higher emergency, but another part of the plan indicates that it is activated for a Site or General Emergency or for a required Alert. Since all Alerts would require its activation, but not necessarily with the full TSC and OSA staffs, this should be clarified in the plan. (Planning Standard H)
4. Provide a description of the meteorological measurements program in sufficient detail to indicate that it is capable of providing reliable indication of representative meteorological conditions up to ten miles from the plant site. (Planning Standard H)
5. Clarify the referenced evacuation time estimates to incorporate the use of the prompt public notification system. Appendix E to 10 CFR Part 50 requires the design of this system to essentially complete notification of all individuals in the EPZ within fifteen minutes, yet the evacuation time estimates indicate the notification times range from twenty minutes to six hours. In addition, these estimates should provide sufficient information to determine whether they meet the guidance provided in Appendix 4 of NUREG-0654, Revision 1. (Planning Standard J)
6. Clarify the protective action recommendation making process, specifically including the basis for choice between alternate protective action recommendations such as sheltering and evacuation, the source of the values listed in the protective action guide section, and how protective action recommendations will be made for potential releases (such as that outlined in Attachment 2 to the enclosed inspection report). (Planning Standard J)
7. Clarify how scenarios will be varied to test all elements of the plan during a five year period (for example, the off-shift augmentation aspect of the plan can only be tested during an off-hours exercise). (Planning Standard N)

8. Clarify the frequency for use of the post-accident sampling system and the inclusion of sampling and analysis of environs sample media such as soil, air, water, and grass in the Health Physics Drills described in Section 12.3.15.1.10 of the plan. (Planning Standard N)
9. Clarify in Section 12.3.15.1.9 of the plan how the capability to notify the NRC Operations Centers (Bethesda and Region III) from the control room, TSC, and EOF are tested. This is required on a monthly basis. (Planning Standard N)
10. Clarify the frequency for determining that telephone numbers listed in emergency procedures are correct. (Planning Standard P)

The review of the permanent emergency response facilities and other items discussed in Supplement 1 of NUREG-0737 will be discussed in a separate report.

FLOW CHART FOR GENERAL EMERGENCY OFFSITE PROTECTIVE DECISIONS

The following actions will be based on predetermined observable instrumentation and plant status indicators (EALS) contained in the emergency plan and that have been reviewed by offsite officials. However, responsible offsite officials must decide the feasibility of implementing the protective actions at the time of the accident.



SOURCE: Appendix 1 NUREG 0654 FEMA REP 1 Rev 1

* (1) SITUATIONS REQUIRING URGENT ACTION BY OFFSITE OFFICIALS
(Based on Control Room Indicators. No Dose Projections Required)

15 Minute Decisionmaking. Activation of Alerting System and EBS Message

* (2) Actual or projected release of 20% gap from core

* (3) "Puff" release (rate much greater than designed leak rate).

* (4) For all evacuations, shelter the remainder of the plume EPZ and relocate the population affected by any ground contamination promptly following plume passage.

* (5) Concentrate on evacuation of areas near the plant (e.g., may be time to evacuate 2 mile radius and not the 5 mile radius).