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Licensee: Florida Power Corporation
3201 34th Street South
St. Petersburg, Florida 33733

Facility Name: Crystal River Unit 3 Nuclear Plant

Docket No: 50-302

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Appraisal at the Crystal River Unit 3 site near Crystal River, Florida

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SUMMARY

Inspection on August 17-27, 1981

Areas Inspected

This special, announced appraisal involved 584 inspector-hours onsite and offsite in the performance of an Emergency Preparedness Implementation Appraisal, including administration, emergency organization, training and retraining, emergency facilities and equipment, procedures, coordination with offsite groups, drills and exercises, and evaluation of the Emergency Plan.

Results

In the areas inspected, no violations, deviation or preparedness deficiencies (other than those already addressed by the confirmation of action letter of September 11, 1981) were identified.

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INTRODUCTION

The purpose of this special appraisal was to perform a comprehensive evaluation of the licensee's emergency preparedness program. This appraisal included an evaluation of the adequacy and effectiveness of areas for which explicit regulatory requirements may not currently exist. The appraisal effort was directed towards evaluating the licensee's capability and performance rather than the identification of specific items of noncompliance.

The appraisal scope and findings were summarized on August 27, 1981, with those persons indicated in Section 9 of this report.

PART I

DETAILS

1.0 ADMINISTRATION

1.1 - 1.4 Responsibility Assigned, Authority, Coordination, Selection, and Qualifications

The overall responsibility for radiological emergency response planning at Crystal River 3 (CR-3) has been delegated to the Assistant Vice President, Nuclear Operations. The Assistant Vice President, Nuclear Operations is responsible for all FPC Corporate Emergency Support Organization (CESO) activities, including personnel assignments and communication arrangements. The Assistant Manager, Nuclear Support Services, designated as the Emergency Planning Coordinator, is responsible for development and updating of emergency plans, coordination of these plans with other response organizations and coordination of the offsite emergency planning effort. The Nuclear Operations and Nuclear Support Services groups are currently located at the CR-3 site, thus providing close coordination, on a day-to-day basis, with the CR-3 Plant Manager and his staff in the emergency planning effort.

The ChemRad Protection Specialist is responsible for the coordination onsite of emergency plans and procedures, and reports directly to the ChemRad Protection Manager. The Plant Review Committee (PRC) reviews and approves all changes to the radiological emergency plan (EM-100) and implementing procedures (EM series). As a member of the PRC, the ChemRad Protection Manager provides direct input to emergency planning for the CR-3 facility.

Discussions with those individuals responsible for the planning effort within the licensee's organization indicated that the individuals possessed an understanding of the principles involved in developing plans and procedures, that these individuals have been selected according to criteria established by the licensee's management and that these individuals have been provided knowledge of the emergency planning area through the individual's normal responsibilities, seminars, and meetings held by various industry groups.

Based on the above findings, this portion of the licensee's program appears to be adequate.

2.0 EMERGENCY ORGANIZATION

2.1 Onsite Organization

A site Emergency Coordinator (EC) has been designated who is available at all times and has the authority and responsibility to initiate any emergency actions within the provisions of EM-100 including the exchange of information with authorities responsible for coordinating and implementing offsite emergency measures. EM-100 specifies the line of succession for the position of Emergency Coordinator. There are adequate personnel onsite at all times to provide initial

emergency response capability in all key functional areas; however, EM-100 does not clearly specify onshift staffing assignments for a plant systems engineering advisor, one communicator, and two personnel (mechanical maintenance and electrical maintenance) for repair/corrective action. Shift staffing is discussed further in Part II, Section 2.2, of this report.

EM-100 identifies the following emergency teams, consisting of a team leader and team members.

- Emergency Medical Team (EMT)
- Emergency Repair Team (ERT)
- Radiation Emergency Team (RET)
- Fire Emergency Team (FB)
- Sampling Team (ST)
- Environmental Survey Team (EST)

The responsibilities and authority of each team is described in EM-100. Implementing instructions are provided in the EM series. During a review of EM-206, "Emergency Plan Roster and Notification", the auditors noted that a great majority (73%) of ChemRad personnel were assigned to 3 or more emergency teams. In discussion with the ChemRad Protection Manager, the auditors stated that a system should be established to prioritize the team commitments or reduce the commitments.

EM-100 does not address the capability for augmenting the initial emergency response for offsite monitoring and dose assessment within 30 and 60 minutes and firefighting and rescue support by outside agencies is not listed, even at 60 minutes. Offsite monitoring and dose assessment and offsite fire support are discussed further in Part II, Section 2.2, of this report.

Discussions with licensee representatives indicate that plant staff members are familiar with EM-100 and implementing procedures and have an understanding of the general functional areas in which they would be expected to perform.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following item should be considered for program improvement:

- Prioritizing the assignments or reducing the commitments of personnel assigned to three or more emergency teams. (50-302/81-14-01)

2.2 Offsite Organization

Assistance in coping with an emergency is provided by the FPC's CESO as described in the Corporate Emergency Support Plan (NNSD-17, Rev. 9). NNSD-17 provides for additional technical and administrative assistance to the CR-3 Emergency Organization in a timely and effective manner. In addition, CESO is responsible for the public information emergency activities. NNSD-17 describes the responsibilities and authorities of the key positions in the CESO. Primary and alternates for key positions are identified for the following positions:

Corporate Emergency Officer (CEO)
Emergency/Recovery Director (E/R Director)
Emergency Operations Facility Director (EOF Director)
Technical Advisor
Quality Assurance Manager
Emergency Supply Manager
Technical Support Manager
Information Director
Administrative Director
Nuclear Support Services Manager

NNSD-17 describes the corporate emergency facilities as the Corporate Command Center (CCC), Information Centers, and the EOF. Upon notification by the EC of an Alert, Site Emergency, or General Emergency, the E/R Director will activate the CESO. The E/R Director will report to the CCC and take charge of the overall CESO activities. The E/R Director is also responsible for directing the company's expanded response from either the CCC, the EOF, or the plant site as the situation warrants or access allows. The E/R Director will have access to this support through NNSD-24, Activation and Notification of Corporate Emergency Support Plan.

Based on the above findings, this portion of the licensee's program appears to be adequate.

3.0 EMERGENCY PLAN TRAINING/RETRAINING

3.1 Program Established

Emergency Team Training Programs Procedure TDP-307 describes the Emergency Plan Training Program for members of the specific emergency teams activated after an accident, and AI-1400, Conduct of Training, lists areas of emergency preparedness in which general employees are instructed. TDP-307 discusses qualification criteria for the individuals selected for assignment to the emergency teams; these include education, aptitude, and experience. Instructors for training sessions are selected on the basis of certification, experience, and skills.

Training and retraining are required annually (\pm 3 months) for licensee personnel assigned to emergency teams except for the fire brigade which is retrained quarterly. These teams include the Emergency Medical Team (EMT), Emergency Repair Team (ERT), Radiation Emergency Team (RET), Fire Emergency Team (FB), Environmental Survey Team (EST), Accident Assessment Personnel (AAP), and Sampling Team (ST). Areas which are covered in the training of these teams include plant systems operation, radiological environmental survey and monitoring, first aid and rescue, personnel monitoring, decontamination, security and site access control, repair and corrective actions, personnel accountability, radiological accident assessment, communications, radiological protection and inplant radiological survey and monitoring, plant chemistry, and technical support.

Training and retraining is required annually (\pm 3 months) for corporate emergency support personnel and offsite emergency response organizations. Periodic training and retraining is also offered to the news media.

Lesson plans, which have been developed, clearly state student performance objectives and these objectives appear to provide a basis for a valid test of the individual's ability to perform their assigned emergency tasks.

Provisions are established to document the name of individual attendees, the date, lesson title, and instructor. The training program consists of lecture-type classroom instruction and hands-on use of necessary equipment and procedures which attendees may be expected to use in responding to emergencies. The individual's progress throughout the instruction is evaluated by using written, oral, and performance evaluations.

The training includes information on what might be expected under unusual plant conditions, including higher radiation levels and changing nuclide composition. Procedures applicable to the specific employee functional areas are defined. The emergency organization and the relationship of the functional area to the entire organization, communication, authorities and responsibilities, protective action decisionmaking, surveillance under accident conditions, use of equipment, interpretation of results, personnel access control, and special protective actions are included in the appropriate training sessions.

Training for individuals assigned to first aid teams includes Red Cross Standard First Aid Multimedia Training.

Training for hospital personnel, ambulance/rescue, and police include the procedures for notification, basic radiation protection, and their expected roles. Site access procedures and identification of the individual in the onsite emergency organization who will control the organization's support activities are also discussed in this training.

The training of offsite protective action decisionmakers include the relationships between plant conditions and protective measures. Nonlicensee augmentation personnel, upon arrival, in response for assistance will receive proper training before site access.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Changing the requirement in AI-1400 regarding general employee retraining on emergency implementing procedures from every two years to annually.
(50-302/81-14-02)

Finalizing and documenting the lesson plans utilized for instruction for each category of emergency training. (50-302/81-14-03)

Reevaluating the methods of instruction, for members of the emergency organizations and general employees, on changes to emergency procedures and equipment which occur in the period between the scheduled training sessions. (50-302/81-14-04)

Including a description of the instruction program for the emergency sampling team in Procedure TDP-307. (50-302/81-14-05)

3.2 Program Implemented

Training records indicate that all required training has been completed in the manner required. Discussions, with licensee and nonlicensee emergency personnel assigned to each of the functional areas of emergency activity, indicate that the scheduled training took place and the training received was consistent with the content described in the licensee's records.

For the most part the licensee personnel demonstrated, through responses to the auditors' questioning, and observation of their performance, an understanding of their duties. The two areas, where there appears to be some confusion, are assembly locations and emergency team membership. Not all site employees are sure of the proper area to assemble (after an alarm), and some employees that are on more than one emergency team, are not certain of their present status on each team. These two areas of confusion appear to be related to the timing and methods used during retraining following changes to procedures.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.0 FACILITIES AND EQUIPMENT

4.1 Emergency Facilities

4.1.1 Assessment Facilities

4.1.1.1 Control Room

Complete, up-to-date copies of the EM-100 and implementing procedures are available in the CR-3 control room. Applicable to the assessment of postulated radiological emergency events are the EM-100 and the emergency plan implementing procedures as shown here:

Emergency Plan Implementing Procedures

Designation	Title
AP-102	Annunciator Alarms
AP-103	Radiation Monitoring System Alarms
EM-102	Activation.....TSC and OSC
EM-201	Duties of an Individual Who Discovers an Emergency
EM-202	Duties of the Emergency Coordinator
EM-203	Classification of Emergencies and Recommended Protective Actions for Gaseous Plume Exposure
EM-204	Dose Assessment by Use of Meteorological Overlays
EM-205	Assembly, Evacuation and Personnel Accountability of CR-3 Personnel During Emergencies
EM-206	Emergency Plan Roster and Notification
EM-207	Reporting Requirements on Emergencies
EM-208	Duties of the Radiation Emergency Team
EM-209	Reentry Procedure
EM-210	Duties of the Environmental Survey Team
EM-211	Duties of the Security Supervisor
EM-212	Duties of the Plant Guards
EM-213	Medical Emergency Procedures
EM-214	Evacuation and Accountability of Crystal River Generating Complex Personnel (Except CR-3)
EM-302	Postaccident Sampling and Analysis of Reactor Coolant
EM-303	Postaccident Sampling and Analysis of Reactor Building Atmosphere
EM-304	Postaccident Sampling and Analysis of Effluent Releases from the Plant

The necessary emergency equipment and decisional aids for offsite assessment include:

Two sets of transparent meteorological overlays designed for population dose estimation for use with EM-204 and maps of the surrounding area out to 50 miles.

Manual of Protective Action Guides and Protective Actions for Nuclear Incidents.

Radiation Monitoring System curves (OP-103, Plant Curve Book).

Meteorological and Radiation Monitoring System displays and readouts.

Communications equipment necessary for rapid onsite and offsite communications.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.1.1.2 Technical Support Center (TSC)

The TSC is temporarily established in the Office Building located near the northwest corner of the Turbine Building. This area cannot, as yet, be designated as the permanent TSC due to the requirement for the TSC to be habitable to the same degree as the Control Room for postulated accident conditions. The permanent TSC is scheduled for completion in October 1982. The temporary location consists of two small conference rooms, capable of seating 25 designated personnel. There is a dedicated telephone to the control room, access to the FPC Microwave System, facsimile facilities, Local Government Radio (LGR), National Alert and Warning System (NAWAS), Emergency Notification System (ENS), plant Private Automated Exchange (PAX), Automatic Ringdown Phone to the IEOF, and two dial telephones. There is no dedicated telephone voice link between TSC and OSC, nor a dedicated telephone on the NRC Health Physics Network (HPN). There are no designated telephones for use by NRC personnel other than the ENS telephone.

The temporary TSC is located close to the control room to provide face-to-face interaction between personnel responsible for control room and TSC activities. There is an Emergency Equipment/Supply Kit located in the temporary TSC. There appears to be no data display facilities other than two medium size chalk boards. The licensee indicated that two large data display boards were being prepared at an offsite location and would be ready for the TSC within a few weeks. Radiation monitoring equipment is available in the Emergency Equipment/Supply Kit.

All necessary records, plans, procedures, Tech. Specs., FSAR and drawings, schematics and diagrams are available in the temporary TSC or the Document Control Office nearby.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Expanding the TSC working space to provide approximately 75 sq. ft./person designated to report to the TSC. (50-302/81-14-06)

Providing a separate room adequate for at least three persons to be used for private NRC consultations. (50-302/81-14-07)

Providing a hotline telephone on the NRC ENS and a dedicated HPN telephone for the NRC consultation room. (50-302/81-14-08)

Providing at least two designated dial telephone lines for NRC use, when TSC is activated. (50-302/81-14-09)

Providing dedicated telephones for management communication with direct access to the OSC. (50-302/82-14-10)

Providing a base station communication system in the TSC for communicating with licensee mobile monitoring teams. (50-302/81-14-11)

Providing data display equipment or systems needed to acquire, process, and display data used in the TSC and space for personnel access to functional displays. (50-302/81-14-12)

4.1.1.3 Operations Support Center (OSC)

The Nuclear Technical Support Shop on the 145-ft. elevation of the control complex is designated for use as the OSC. An estimated 12-15 persons can readily be accommodated. The OSC offers protection from direct radiation but no special air filtration system to protect against airborne contaminants. The procedures, as indicated in EM-102 and EM-205, do not provide for a backup location in the event the primary facility becomes uninhabitable. The OSC is supplied with PAX telephone communications both to the control room and the Technical Support Center (TSC). This system also supplies intercommunications contact on the plant network. The OSC also has a commercial bell telephone and an FPC microwave telephone. Portable transceivers are available for backup.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be addressed for program improvement:

Provide a backup location to the OSC. (50-302/81-14-13)

Provide dedicated telephone lines from the OSC to the TSC and to the control room. (50-302/81-14-14)

Adequate supplies should be provided for personnel present in the assembly areas and OSC (50-302/81-14-15).

4.1.1.4 Emergency Operations Facility (EOF)

The interim EOF (IEOF) is located at the FPC District Office in Crystal River. The IEOF can be activated by the E/R Director, at his discretion, when the emergency is classified as an Alert. In the event of a Site or General Emergency, all CESO members will be alerted to report to their functional locations. The EOF Director is the primary contact and corporate liaison at this location. The EOF is the designated local assembly point for State and Federal regulatory agencies and industry support teams. If additional working space is needed, accommodations may be obtained from local motels and commercial establishments. If evacuation of the IEOF becomes necessary, alternate locations are designated in NSSD-17, Rev. 9. Communication equipment, required by NUREG-0696 (for a permanent EOF), is present except for the following:

Radio communications with the licensee's mobile monitoring teams.

At least three dial telephone lines designated for use by NRC while the EOF is activated.

HPN telephone for NRC use.

Although the IEOF is described in EM-100, NSSD-17 and NSSD-24, there appears to be no implementing procedures available or designated for the operation of the IEOF. The licensee stated that operation of the IEOF is conducted in accordance with NSSD 17 and 24, and, for the most part, FPL Standard Operating Procedures (SOP). There appears to be no radiological protection for IEOF personnel, nor is a radiation monitoring system provided in the IEOF. All appropriate maps, records, procedures, and emergency plans needed to exercise overall management of licensee emergency response resources appear to be available.

The Safety Parameter Display System (SPDS) is not installed at the IEOF. However, plans indicate that the SPDS should be considered available in the permanent EOF in October 1982.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Establishing radio communication between the IEOF and the licensee mobile monitoring teams. Designating a minimum of three dial telephones and one HPN telephone at the IEOF for use by the NRC. (50-302/81-14-16)

Establishing implementing procedures pertaining to the operation of the IEOF or providing appropriate references to SOPs in NSSD-17 or NSSD-24. (50-302/81-14-17)

Providing radiological protection for IEOF personnel and a radiation monitoring system in the IEOF. (50-302/81-14-18)

4.1.1.5 - 4.1.1.8 Postaccident Sampling and Analysis

Refer to Sections 5.4.2.4 - 5.4.2.11

4.1.1.9 Offsite Laboratory Facilities

Provisions for fixed and mobile laboratory facilities for offsite monitoring and analysis are established. Letters of agreement are established with Oak Ridge National Laboratory, the State Department of Health and Rehabilitative Services (DHRS), and the University of Florida. This latter laboratory is provided with dedicated instrumentation.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.1.2 Protective Facilities

4.1.2.1 Assembly/Reassembly Areas

Assembly/reassembly areas appear to be predicated upon the type of evacuation announced by the Emergency Coordinator after the appropriate alarm is sounded. Two types of evacuations may be declared; local and site evacuation.

Plant personnel would assemble at designated onsite areas as indicated in EM-205. However, EM-205 does not designate offplant and offsite assembly areas mentioned in numerous sections of EM-100. There appears to be an inconsistency of assembly areas. EM-100, EM-205, and NSSC-17 mention "initial assembly points", "assembly areas", "assembly points", "initial assembly areas", and "assembly center".

EM-100 and EM-205 designate the TSC, Emergency Assembly Center (EAC), CR-1 and 2 control room and the CR-3 control room as locations that have emergency equipment and supplies. However, the EM-100 does not specify whether these supplies are for emergency teams or assembly area personnel. Of the assembly areas, only the OSC appears to have any shielding.

There appears to be no supplies provided at the CR-4 and 5 Project Office Building and at the plant access road and old U.S. 19 intersection. All areas appear to provide protection against inclement weather except the EAC and the intersection of plant access road and old U.S. 19.

The primary assembly areas are onsite with offsite areas for use in the event of a site evacuation.

Walk-through discussions with plant personnel demonstrated that confusion exists, among plant personnel, on where employees would assemble following the announcement of an emergency. (See Section 3.2 on training).

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Providing a coordinated, clear and concise assembly area policy and procedure in EM-100 and EM-205. (50-302/81-14-19)

Providing Emergency/Protective equipment and supplies for Assembly Area Supervisor(s) and plant personnel at the assembly areas. (50-302/81-14/-20)

Providing alternative EAC locations that protect plant personnel against inclement weather. (50-302/81-14-21).

4.1.2.2 Medical Treatment Areas

The onsite provisions for treatment of individuals who may be injured and contaminated are consistent with the description in the plan and procedures. Provisions for immediate access are established, and the facility is accessible to a stretcher being carried by two individuals. The established medical facility, which is located by the radiation-controlled area, contains first-aid equipment and has ready access to supplies and facilities for personnel decontamination. An operable, calibrated personnel contamination survey instrument and communications are available at the facility. Procedures for treatment and decontamination as well as emergency dosimetry capabilities are also available.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.1.2.3 Decontamination Facilities

Provisions exist for decontamination including adequate instrumentation in close proximity to the onsite medical facility. Two decontamination kits exist; one is located in the ChemRad Section near the exit to the RCA and the other is now located in the EAC but is to be moved to the permanent TSC when it is established.

Decontamination procedures (RP-103) were available near the decontamination station by the Radiation Controlled Area (RCA) but were not in the decontamination kit in the EAC as specified by Inventory and Availability of Emergency Supplies/Equipment, procedure RP-219. (Refer to Section 4.2.1.1.) Water is available at the inplant decontamination facility and will be available near the permanent TSC. Other decontaminants such as versene, carbasol, and potassium permanganate, which are referred to in the procedures, were not kept in the decontamination kits but were said to be available. Provisions for disposal of solid and liquid radioactive waste and replacement clothing have been made for the inplant location.

Based on the above findings, this portion of the licensee's program appears to be adequate; however, the following items should be considered for program improvement:

Including on the decontamination kit inventory, lists in RP-219 for the inplant station and the permanent TSC specific amounts of decontaminants such as versene, carbasol and potassium permanganate which are referred to in the procedures. (50-302/81-14-22)

Maintaining the portable decontamination kit at the EAC after the permanent TSC is established and providing a suitable source of water and provisions for both liquid and solid radioactive waste at the EAC. (50-302/81-14-23)

4.1.3 Expanded Support Facilities

The licensee has designated work facilities/resources available for corporate, contractor, and nonlicensee augmentation personnel. There are telephonic communications at these facilities.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.1.4 News Center

Provisions have been made for establishment of primary and secondary news media centers. Provisions include arrangements for telephone service, electrical supply for added TV load, copying, a PA system, audiovisual equipment, and security. The centers are large enough to accommodate the expected number of media personnel.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.2 Emergency Equipment

4.2.1 Assessment

4.2.1.1 Emergency Kits and Portable Instrumentation

The licensee reserves prepositioned supplies and survey instrumentation at specified locations in kits for use only during postulated emergencies. These emergency kits are located at the control room for Crystal River Units 1 and 2 as well as for Unit 3, the EAC, the first-aid room, the TSC, the Plant Emergency Vehicle (PEV), and the ChemRad areas as specified in Emergency Procedure RP-219. There are no emergency supplies or portable survey instruments at the IEOF. Further discussion on IEOF emergency equipment is provided in Section 4.1.1.4.

Each emergency team, identified in the plan, would have ready access to available, dedicated use, necessary instrumentation, equipment, and supplies.

The inventories for each emergency kit were checked by the auditors and determined to be correct. The equipment was determined to be operable and was within calibration date allowances at the time of the audit.

Portable ion chamber instruments, with beta/gamma distinguishing capability, are available for measuring whole body dose rates inplant as well as measuring plume exposure rates. The emergency kits located in the EAC, TSC, control rooms of Units 1, 2, and 3, and the PEV have survey instruments with beta/gamma distinguishing capability for detecting contamination on individuals and in the environment.

Contents of the emergency kits provide sufficient number of instruments/supplies to equip the number of team members for their intended function.

Equipment and procedures are available for detecting inplant airborne iodine in the presence of noble gases.

The instruments referred to are properly maintained on a regular schedule. Operability and calibration checks are periodically performed. The gamma-detecting survey instruments are calibrated onsite using a calibration unit which is compatible with all the gamma detectors used. If an instrument is considered inoperable, it is replaced with the same model instrument or with a compatible instrument. There are written procedures for calibration of all the types of emergency radiation instruments. These checks and calibrations appear to be accurate.

The equipment to be used for team facility reentry or portions thereof, include extremity monitoring and detection and measurement instruments for beta and gamma radiation fields. The beta/gamma survey meters, located in the appropriate emergency kits, included high-level rate meters and ion chambers.

The instrumentation available for emergency environmental surveys has the capability to detect and measure particulate activity in air of E-09 $\mu\text{Ci/cc}$ (Cs-137 equivalent) and radioiodine concentrations in air of E-07 $\mu\text{Ci/cc}$ under low radiation background conditions as specified in EM-208 and RP-206.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

When slide rules are supplied in emergency kits, providing assurances to indicate that emergency personnel have the required expertise to perform the required calculations using slide rules. (50-302/81-14-24)

Marking or labeling emergency kits in such a manner that each kit can be distinguished from another to prevent confusion in kit selection, and labeling kits to indicate how many parts constitute each kit ("1 of 3", etc.). (50-302/81-14-25)

Clarifying the needs of emergency kits that require additional support items (e.g., the Environmental Survey Team kit contains an electric motor-driven air sampler but not an electrical generator, gas can, oil can, etc.). Clearly marking those items not contained within that kit proper, and indicating what additional support equipment is in the kit and where it can be located. (50-302/81-14-26)

Considering additional equipment for the kits at the EAC to include stopwatches, slide rules and tape measures. In addition, consider including in the Radiation Emergency Team kit at the EAC, high range pocket dosimeters (200 R) and a complete set of floor plans for CR-3. (50-302/81-14-27)

Providing an emergency kit and equipment for the IEOF. (50-302/81-14-28)

Providing survey instrumentation that has the capability to detect and measure particulate activity in air of E-09 $\mu\text{Ci/cc}$ or radioiodine concentrations in air of at least E-07 $\mu\text{Ci/cc}$ under field conditions, in any kind of weather, in the presence of noble gases and resulting background radiation. (50-302/81-14-29)

Implementing procedures to ensure proper care, service, and maintenance of the onsite emergency vehicles. (50-302/81-14-30)

Including decontamination procedure RP-103 in the EAC decontamination kit. (50-302/81-14-31)

4.2.1.2 Area and Process Radiation Monitors

The FSAR and Technical Specifications describe the fixed radiation area and process monitors used at CR-3. The description of the Radiation Monitoring System (RMS) covers the location, name, type, range, number of the monitors temperature range, and setpoints. Direct readout capability in the control room and the vital power source are also defined.

The Technical Specifications establish the out-of-service, functional checks and calibration requirements mandatory for the RMS. A functional check log is maintained in the control room. The calibrations performed by the ChemRad Department's Rad Technicians and results are maintained in their files. Walk-through discussions with the plant health physicists indicate that the reliability/operability experience with the RMS has been very good.

Walk-through inspection of the RMS showed that the monitor sensors were properly located to adequately reflect their intended use. The control room has an operating curve book that provides conversions, for monitors that readout in counts per minute, to $\mu\text{Ci/ml}$.

Based upon the above findings, this portion of the licensee's program appears to be adequate. However, the licensee's long-term program to install high range containment monitors will not be completed until the required implementation date in 1982. Consequently, evaluation and followup on this matter will be required in 1982 to assure compliance with NUREG-0737. This will be identified as inspector followup item 50-302/81-14-32.

4.2.1.3 Nonradiation Process Monitors

Quantities of toxic or flammable gases are either not currently used at CR-3, or else they are used in such small quantities that they pose no significant threat to operation of vital reactor areas. Consequently, no continuous monitoring of toxic/flammable gases is employed.

EM-100 provides, in Table 8.1, three classifications of earthquake events; unusual event, alert, and site emergency. The alert and site emergency categories stipulate that both horizontal and vertical g measurements would be used to classify earthquakes into these two categories. These same categories and g measurement requirements are reiterated in EM-203, "Classification of Emergencies and Recommended Protective Actions for Gaseous Plume Exposure", in Enclosure 1, page 3 of 8. However, EP-109, "Earthquake", the procedure used by the CR-3 operating crews, uses 0.05g (assumed by the auditor to mean 0.05g horizontal ground force) only. There are no procedural instructions in EP-109 to assist the control room staff in defining the vertical g forces stipulated in EM-100 and EM-203. There is, however, a section of seismic recorded tape (which is scaled up to 2g) attached to the seismic recorder to assist the operations staff in the interpretation of horizontal forces registered on the recorder.

Based upon the above findings, this portion of the licensee's program appears to be adequate. However, the following item should be considered for improvement:

Changing seismic provisions in EP-109 to conform to those required in EM-100 and EM-203, or else changing the EM-100 and EM-203 provisions to reflect those in EP-109. (50-302/81-14-33)

The licensee plans to store reasonably large quantities of chlorine and other toxic gases onsite beginning in 1982. Prior to that date, toxic/flammable gas detectors with annunciators are to be installed in the CR-3 control room air intake, which would alarm in the control room. Consequently, evaluation and followup on this matter will be required in 1982 to assure the licensee's toxic gas monitoring commitment is completed. This will be identified as inspector followup item 50-302/81-14-34.

4.2.1.4 Meteorological Instrumentation

A brief description of the meteorological measurements program is found in Section 12.2.1 of the EM-100, with reference to Section 2.3.3 of the FSAR. The integration of the meteorological data into the licensee's dose assessment scheme is described in procedure EM-204. The auditors reviewed the licensee's procedure for maintaining the meteorological measurements program; these procedures include Surveillance Procedures

SP-157 and SP-158. Procedures governing the data reduction and processing are outlined as part of Nuclear Support Services NSSD-10.

The auditors determined that the licensee's meteorological capabilities address the requirements of NUREG-0737, TAP III.A.2, and the criteria set forth in NUREG-0654, Appendix 2, in adopting the compensating measures to milestone 3.

The meteorological measurements system can provide the basic parameters (i.e., wind direction and speed, and an estimate of atmospheric stability) necessary to perform the dose assessment function. Data from the meteorological measurements system are recorded on strip charts located in the control room.

All measurement systems appeared to be operational or under active restoration and were calibrated according to their preventive maintenance (PM) schedule and procedures. The PM activities, consisting of a multi-tiered operational program, are performed in accordance with SP-157 and SP-158.

The licensee has made provisions for distributing meteorological data to offsite authorities in the event of a radiological emergency condition using NAWAS. This system provides the control room personnel with information regarding severe weather conditions that have occurred or may occur at or near the site.

The licensee has made provisions for access to meteorological data in the event the primary system is out of service. However, it has not been demonstrated that the alternate data sources listed are characteristic of site conditions sufficient for use during the interim period until a permanent backup capability is established.

The primary meteorological system is located in excess of 1000 feet from permanent structures that generally affect flow conditions. The permanent structures are likely to have only minimal effects on the data records.

There are several uncertainties regarding the siting and exposure of the primary meteorological measurements system. In the immediate tower vicinity, the grade is uneven and the ground cover varies from black (coal) to white (coral) with isolated patches of foliage. Similarly, waste is piled and debris scattered that could impact on the data collected. Finally, temperature probes may be affected by insolation as they are oriented in a direction that faces the sun at times.

Meteorological data obtained from recorders in the control room are incorporated into the radiological dose assessment scheme. A discussion of the treatment of this data is provided in Section 5.4.2.

Based on the above findings, as recommended by Regulatory Guides 1.23 and 1.97, and criteria in NUREG-0654, -0696 and -0737, the licensee must address the following deficiencies to achieve an acceptable program:

The licensee does not have an acceptable inventory and evaluation of alternate sources of meteorological data to which they may gain access during conditions when the primary system is out of service. As outlined in NUREG-0737, TAP III.A.2, this data source must be characteristic of site conditions. (50-302/81-14-35)

Errors in protective measures recommendations may result from the irregularities in surface conditions in the tower vicinity, due to effects on meteorological data. These irregularities include the proximity, size, and thermal effects of the coal storage area; the waste and debris scattered in the tower area, and the inconsistent ground cover characteristics. (50-302/81-14-36)

(Note: These items are covered by the confirmation of action letter dated September 11, 1981)

The following item should be considered for program improvement:

Determining the impact of the orientation of the temperature probes on insolation, and making the necessary corrections. (50-302/81-14-37)

4.2.2 Protective

4.2.2.1 Respiratory Protection

RP-102 provides procedural guidance on usage and maintenance of respiratory protective (SCBA) devices reserved for emergency use. Refilling SCBA air tanks can be accomplished under normal and high airborne/direct levels of radiation conditions inside the plant.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.2.2.2 Protective Clothing

RP-101 discusses the use of protective clothing storage and stockage procedures. Minimum stocking levels are maintained. The initial reserve is in the emergency kits, the remainder are stored in the warehouse. The warehouse would be accessible under emergency conditions if the initial reserves are used.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.2.3 Communications

The interim communications equipment, referenced in EM-100 and specific implementing procedures, were in place as specified with the exceptions of the TSC and the IEOF. (Refer to Section 4.1.1.2 and 4.1.1.4, respectively, for more detailed information.)

The auditor examined the licensee's emergency communications system: plant public address system; plant security radio system; PAX; control room/TSC/EOF dedicated phone tie-lines; power-operated portable phones between the control room and the TSC; commercial telephones; NAWAS telephone circuits; LGR; ENS and the HPN to the NRC in Bethesda and Atlanta; and the FPC FM Radio System. The ENS System is vitally powered, and the plant PAX, NAWAS, LGR, and FPC FM Radio Systems have vital power on battery backup.

The licensee has specific alarms having specific meanings and these alarms were operable. The auditor noted that the aural alarms were audible in high noise areas and were supplemented with visual alarms visible in restricted view areas. There are provisions for routinely checking the operability of the LGR and NAWAS Systems only.

There is 24-hour-per-day capability to notify the NRC, State and local authorities.

Each of the above mentioned communication nets does have a backup system. Redundant power sources are available for communications systems and devices.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Establishing procedures for testing each communication system and warning system on a specified interval. (50-302/81-14-38).

Providing direct telephone access to the individual responsible for making offsite dose projections to the NRC in the event of a radiological emergency. Establishing provisions for this access in the interim TSC and IEOF until such time that the NRC Health Physics Network is installed. (50-302/81-14-39)

Identifying which telephones are available for NRC use in the interim TSC, OSC, and IEOF. (50-302/81-14-40)

4.2.4 Damage Control/Corrective and Maintenance Equipment and Supplies

Specific needs for onsite damage control, corrective action and maintenance equipment and supplies are mentioned in EM-100 and referred to EM-219 for procedural guidance.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.2.5 Reserve Emergency Supplies and Equipment

Reserve supplies and equipment appear to be available onsite or accessible from CR 1, 2, 4, and 5. Onsite supply and maintenance facilities maintain reserve supplies of protective clothing and respirators, and miscellaneous equipment with minimum stockage levels are identified. Emergency reserve supplies are included in the periodic verification of all stocks.

Based on the above findings, this portion of the licensee's program appears to be adequate.

4.2.6 Transportation

The responsibility for transportation rests with the Emergency Coordinator. The licensee has an ambulance, designated as the Plant Emergency Vehicle (PEV), for transportation of injured personnel associated with radiation or contamination. Additional ambulance support is provided by the Citrus County Ambulance Service and is documented in Appendix B of EM-100. The licensee's Emergency Survey Vehicle (ESV) would supply transportation for survey teams and equipment.

Keys for the PEV are kept in the Chem Rad key locker and the TSC emergency kit. These vehicles are properly sized and equipped for their designated duties.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Implementing procedures to assure that the PEV will be used only for transportation of injured plant personnel. (50-302/81-14-41)

Equipping the ESV and PEV in accordance with RP-219 and EM-100 and verifying their operability. (50-302/81-14-42)

5.0 EMERGENCY IMPLEMENTING PROCEDURES

5.1 General Content and Format

The CR-3 EM-100 contains a listing of procedures which implement or are used in the implementation of EM-100. These procedures are cross-referenced to the sections of EM-100 which they implement. In addition, Enclosure 1, pages 1 through 8, of EM-203, "Classification of Emergencies and Recommended Protective Actions for Gaseous Plume Exposure", contains procedural references for each postulated emergency event.

The action steps, in the implementing procedures, are displayed in sequential fashion. Each procedure contains references to other procedures or documents. Where necessary, there are sign-off sheets, checklists, and/or data sheets to document the results of actions taken to implement the procedures. Other portions of the procedures generally adhere to a uniform format. However, the EM series of emergency procedures have some inconsistencies. For example, the authorities and responsibilities sections seem, in some cases, to mean the same thing, and, at least in one procedure, the procedure appears to have been assigned the authority. Perhaps the authority and responsibilities sections should be combined into a single section.

There are other format differences in the EM procedures series, some in title and some in content. One procedure has a table of contents, the others do not. However, none of these variations would prevent use of the procedure to accomplish the intended objective(s).

Based upon the above findings, this portion of the licensee's program appears to be adequate. However, the following item should be considered for improvement:

Rectifying the existing EM series of emergency procedures format inconsistencies. (50-302/81-14-43)

5.2 Emergency, Alarm, and Abnormal Occurrence Procedures

Emergency, alarm, and abnormal occurrence procedures are discussed with the various applicable sections of this report. As described above, all procedures have references where applicable, and actions related in the procedures are sequentially listed. AP-102, "Annunciator Alarms", is composed of nearly 400 pages of annunciator alarm considerations with specific action levels for each abnormal condition, sensing element numbers and locations, references, the abnormal indications, and operator actions. This procedure does not contain an index, but does conform to Regulatory Guide 1.33 requirements for immediate or followup actions.

Based upon the above findings, this portion of the licensee's program appears to be adequate.

5.3 Implementing Instructions

The procedural system employed by the licensee to implement EM-100 begins with abnormal procedures (APs) which are used by plant operators to ascertain the significance of emergency situations at an incipient stage. The emergency procedures (EPs) would be used to stop emergencies in the making, and the emergency implementing procedures (EMs) are designed to reduce the consequences of an emergency that cannot be immediately stopped.

Walk-through discussions with plant employees demonstrated that with the exception of assembly/evacuation instructions (see Section 4.1.2.1) there is no confusion on who would be in command during emergency events nor on what the employees role(s) would be.

Walk-through discussions on several postulated emergency events with the CR-3 control room staff demonstrated that the staff was both familiar with the procedures and had quick access to other necessary decisional aid documents and materials.

Based upon the above findings, this portion of the licensee's program appears to be adequate.

5.4 Implementing Procedures

5.4.1 Notifications

The sequence of notification to alert, mobilize, and augment the onsite emergency organization and offsite supporting organizations are specified in EM-206, "Emergency Plan Roster and Notification". These notifications include: (1) the kind of expertise needed (e.g., administration, operations, security, and technical support), (2) the names of the support personnel (alphabetically), (3) telephone numbers, and (4) the type of emergency team that personnel are assigned to (e.g., fire, medical, and emergency repair teams). In addition, the offsite agency and support group notifications are specified by group agency, name, telephone number (office, home, and emergency number) and address. Thus, onsite emergency organizations, corporate support, contractor and private agency support, local service support Federal, State and local agencies and the general public (indirectly by the government agencies) are all tabulated in EM-206.

Planned messages, announcements and alarms which are used for initial notification are in place and functional. In addition, followup messages are in place to authenticate the notifications made.

Based upon the above findings, this portion of the licensee's program appears to be adequate.

5.4.2 Assessment Actions

As defined in Section 4.1.1.1, there are 18 emergency implementing procedures that are available and would be used for radiological assessment, that could involve offsite population exposure to ionizing radiation, following a LOCA. In addition, there are 47 other procedures that either deal directly or indirectly with operational assessment following postulated non-radiological emergency events.

Although, currently, there is no overall procedure to assist the Emergency Coordinator in implementing radiological and operational assessment activities, EM-202, "Duties of the Emergency Coordinator", encapsulates the actions required for assessment. The encapsulation is accomplished by application of an analytical, step-by-step checklist of Emergency Coordinator actions formulated as a modified MORT decision. Further, the licensee is in the process of developing a single document that contains all the information required by the Emergency Coordinator that will be used to base decisions on:

- escalating and de-escalating classified emergencies
- implementing corrective actions
- recommending protective actions offsite and taking protective actions onsite.

The radiological assessment procedures, that would be used by the licensee, are written for the person who would use them. The step-by-step approach employed in each procedure, provides the priority (order) necessary to achieve the required decisions/results. Backup methods, for example, are available to obtain data that is required for protective/corrective actions on radionuclide source terms, release rates, and onsite and offsite contamination. However, acceptable backup meteorological data is not available. (See Section 4.2.1.4.)

Walk-through discussions, with each Nuclear Shift Supervisor and his staff, demonstrated that the in-place procedures (and radiological equipment and instrument readings) would work for radiological assessment activities. However, the "Dose Assessment by Use of Meteorological Overlays" (EM-204), although demonstrated usable by the Nuclear Shift Supervisors, is somewhat cumbersome and time consuming. Needed for the control room staff is a simpler, shorter dose assessment procedure designed to aid the Emergency Coordinator in making rapid decisions for onsite and offsite protective actions. This dose assessment procedure would only be used until the TSC was activated (within 30 to 60 minutes). Activation of the TSC would initiate the more elaborate/realistic dose assessment procedural process. The existing procedure, EM-204, contains quick evaluation information that the Nuclear Shift Supervisor could use currently; the data that could be used is designed as a backup means for use only if the more elaborate data is not available.

The existing EM-204 instructions provide the EALs for recommending protective actions out to 10 miles. In addition, a form for the projected population dose estimates allows updating of the dose projections at least once each hour, or whenever the meteorological or radionuclide release conditions change significantly. Deescalation considerations are also covered in the EM series of emergency implementing procedures. (See Section 5.4.1.)

There are provisions in the emergency implementing procedures for immediate and followup notifications to the State, county, and NRC officials concerning offsite releases of radionuclides, should an emergency occur.

The equipment for detecting and quantifying radionuclides that might be released to the environment centers around the use of the RMS (see Section 4.2.1.2) equipment. However, should the RMS fail (i.e., no readout or offscale control room readings), primary and secondary backup means have been established to quantify radionuclide releases. The interim primary means are the postaccident sampling and analysis equipment and procedures, and the secondary means; calculated values derived from FSAR source terms. Long-term primary means are planned, in situ, high-range postaccident sampling and analysis equipment, using the interim means as a backup. In addition, the high-range containment monitors will be available in 1982 to provide improved containment source term estimates.

The existing offsite and onsite monitoring capabilities are described in Sections 5.4.2.1 and 5.4.2.2. The licensee has not identified the means by which adequate protective measure recommendations (scope and area of application) will accommodate uncertainties associated with plume trajectories for their shoreline environment. Plume surveillance is covered in 5.4.2.1.

Specific EALs, regarding exposure to onsite and offsite FPC personnel, have not been fully defined, as described in Sections 5.4.3.1 and 5.4.3.4. In addition, no onsite dose or dose rate EAL has been specified for protection of employees following large accidental releases of radionuclides. However, during walk-through discussions with the Nuclear Shift Supervisors and their staffs, it was established that conservative EALs would be employed in all cases, and the actions would take into account wind direction from the meteorological equipment readouts in the control room.

The meteorological equipment, as described in Section 4.2.1.4, reads out in the control room. Walk-through discussions with each operating shift demonstrated that the control room staffs understand how to use this equipment, in terms of its application to offsite dose projections, except for the shoreline environment uncertainties described in 4.2.1.4 above.

Based upon the above findings, the following deficiency must be addressed to achieve an adequate dose assessment system in accordance with 10 CFR 50.47(b)(9) requirements as amplified by NUREG-0654 criteria I-5 and I-10:

In the absence of offsite plume monitoring by the licensee, the existing protective actions for the public that would be recommended by the licensee do not take into account the uncertainties associated with plume trajectories in the shoreline environment. (80-002/81-14-44).

(Note: this item is covered by the confirmation of action letter dated September 11, 1981.)

The following items should be considered for assessment system improvements:

Simplifying the existing dose assessment procedure (EM-204) for use by the control room staff. (50-302/81-14-45)

Designating emergency action levels specifically for protection of onsite personnel (i.e. relocation, sheltering, and/or evacuation). (50-302/81-14-46).

5.4.2.1 Offsite Radiological Surveys

Methods and equipment that would be used to perform out-of-plant radiological surveys are specified in EM-210, "Duties of the Environmental Survey Team". This procedure has been evaluated in Section 5.4.2.2 of this report which discusses onsite (out-of-plant) radiological surveys.

The licensee has committed to performing onsite radiological surveys; that is, surveys out to 4400 feet from the reactor which is defined as the owner-controlled area. The State (DHRS) will perform offsite radiological monitoring after arrival at the site; however, it may require at least two hours for the mobile unit to reach the site. EM-100 does not commit to performing offsite (outside the owner-controlled area) radiological monitoring until the State unit arrives.

Based on the above findings, the licensee must address the following deficiency to achieve an adequate program in accordance with 10 CFR 50.47(b)(9) and NUREG-0654 criterion I.7:

- . Establish the capability to perform offsite radiological plume monitoring (until the State unit arrives at the site) and determine plume locations under the uncertainties associated with the shoreline environment. (50-302/81-14-47)

(Note: this item is covered by the confirmation of action letter dated September 11, 1981.)

5.4.2.2 Onsite (Out-of-Plant) Radiological Surveys

Methods and equipment to be used to perform onsite (out-of-plant) emergency radiological surveys are specified in EM-210, "Duties of the Environmental Survey Team (EST)". The procedures are written from the viewpoint of the person(s) responsible for performing the surveys. Maps are provided with a grid overlay to assist in defining sector direction of the EST. There are provisions for the recording of all pertinent data. Each sample collected is labeled for later identification.

All sample documentation is to be forwarded to the ChemRad Protection Manager in the TSC and disposition of bagged samples will be directed by this manager based on available laboratory facilities. Communication is accomplished by transceivers and by vehicle radio. The procedure provides radiation protection guidance for protective clothing and respiratory equipment and refers to RP-101, "Radiation Protection Manual", for exposure guidelines.

Based on the above findings, this portion of the licensee's program appears to be adequate; however, the following items should be considered for program improvement:

Documenting the availability and condition of the primary ESV including the presence of a vehicle radio for survey team communication. (50-302/81-14-48)

Documenting the location of the emergency kit for the EST. (50-302/81-14-49)

5.4.2.3 Inplant Radiological Surveys

Methods and equipment to be used to perform inplant emergency radiological surveys are specified in EM-208, "Duties of the Radiation Emergency Team". The procedures are written from the viewpoint of the person(s) responsible for performing the surveys. There are provisions for recording all pertinent data. Each sample collected is labeled for later identification.

All sample documentation would be forwarded to the ChemRad Protection Manager in the TSC and disposition of bagged samples will be directed by this manager based on available laboratory facilities. Communication is accomplished by plant communication systems or transceivers. The procedure provides protection guidance for protective clothing and equipment and refers to RP-101, Radiation Protection Manual, which gives guidance on acceptable exposure levels for team members.

Walk-throughs were performed with different members of the environmental survey and radiation monitoring teams to evaluate their knowledge of the proper procedures, equipment, and their specific duties and responsibilities on the emergency teams. Personnel appeared to be familiar with the types of equipment necessary for radiation surveys and the locations of the emergency kits. Proper procedures were used and the emergency team members appear to be familiar with those procedures.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following item should be considered for program improvement:

Listing transceiver(s) in the equipment section of procedure EM-208. (50-302/81-14-50)

5.4.2.4 - 5.4.2.11 (Includes Sections 4.1.1.5 - 4.1.1.8)
Postaccident Sampling and Analysis

This section describes all portions of the postaccident sampling and analysis program that are covered by the report sections identified above.

The following three procedures were evaluated by the auditors:

- EM-302, Post-Accident Sampling and Analysis of Reactor Coolant.
- EM-303, Post-Accident Sampling and Analysis of Reactor Building Atmosphere.
- EM-304, Post-Accident Sampling and Analysis of Effluent Releases.

These three procedures all have checklists of equipment to be used and provide instructions on how to conduct the sampling, label the samples, transport the samples, and isolate the samples following analysis. Further, they contain data sheets, diagrams of sampling apparatus, and references to routine procedures for analysis. The employee dose limitations, radiological precautions and other limitations are defined along with dose rates that may be expected at the sampling locations and the samples.

The three postaccident sampling locations: effluents, containment and primary coolant were reviewed during a walk-through with the ChemRad Supervisors and Technicians. The necessary equipment was in place, and, except for the containment air sampling location, had nearby fixed radiation monitors that were part of the Radiation Monitoring System.

The fixed radiation monitor closest to the containment air sampling location was about 30 feet away. However, no entrance into any of the locations would be attempted, during postaccident sampling collection, without a Rad Technician with appropriate high range dose rate meters. Further, the containment air sampling location is shielded from access by a heavy closed door, so that changes in dose rates during access to the location would not cause unnecessary exposure.

Walk-throughs indicated that the samples can be collected and analyzed within the 3-hour NUREG-0737 requirement. However, all ChemRad Technicians have not been fully trained on all aspects of the sampling and analysis procedures.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following item should be considered for improvement:

- Training the representatives on each ChemRad shift on all aspects of the postaccident sampling and analysis procedures. (50-302/81-14-51)

The licensee's long-term commitment to install automated postaccident sampling/analysis equipment by the beginning of 1982 has not yet been completed. Consequently, evaluation and followup on this matter will be required in 1982 to assure compliance with NUREG-0737. This will be identified as inspector followup item 50-302/81-14-52.

5.4.2.12 Radiological and Environmental Monitoring Program

The State DHRS is responsible for offsite surveys and maintenance of TLD radiation monitoring stations within the 10-mile EPZ. The location of these TLDs is listed in Appendix F of EM-100. Additional support in this area is available from the Department of Energy.

The licensee is capable of conducting the emergency monitoring program in that environmental survey equipment, counting equipment, procedures, and training have been established. (Refer to Section 5.4.2.1 of this report for additional information on offsite monitoring by the licensee)

Based on the above findings, this portion of the licensee's program appears to be adequate.

5.4.3 Protective Action

5.4.3.1 Radiation Protection During Emergencies

ChemRad Protection Procedure RP-101, "Radiation Protection Manual", discusses the implementation of the radiation protection program during emergencies. The following areas are discussed in this procedure: personnel dosimetry, exposure records, positive access controls, instructions to emergency workers, and provisions for preventing re-exposure of individuals and limiting further exposure. Special controls are implemented for postulated emergency conditions. Restrictions on reentry into the plant area are discussed in EM-209, and provisions for surveying of possible radiation areas before entry are established.

Plans for expanding the respiratory protection program, in the event of an accident, are established as described in Section 4.2.2.1 of this report.

Changing and unusual conditions are considered in the structuring of the emergency radiation protection program. These include higher doses, possible restricted access areas, and use of silver zeolite cartridges for iodine monitoring.

Reliance on information from the Emergency Coordinator for changes in radiological conditions in-plant and out-of-plant is established.

Procedures exist that describe how and by whom all health physics functions will be performed during emergency situations. These procedures discuss access control, general exposure control and dosimetry (EM-209), in-plant surveys (EM-208), decontamination (RP-103), and high level sampling (EM-302, EM-303, and EM-304). RP-101 also discusses many of these areas for emergency conditions.

Based on the above findings, this portion of the licensee's program appears to be adequate; however, the following items should be considered for program improvement:

Establishing specific exposure limits for members of each emergency team. (50-302/81-14-53)

Including higher range dosimeters in appropriate emergency kits (highest range now is 5R) to correspond to levels which may be reached during life-saving activities. (50-302/81-14-54)

5.4.3.2 Evacuation of Owner-Controlled Area

EM-205 provides instructions for local and site evacuations. When a local evacuation is declared by the Emergency Coordinator, personnel evacuate to specific designated areas onsite. When a site evacuation is declared, personnel evacuate through the EAC location, designated by the Emergency Coordinator over the PA system, to the plant access road assembly area or to an offsite area. TSC, OSC, and EOF evacuation is discussed in Sections 4.1.1.2, 4.1.1.3, and 4.1.1.4.

There appears to be no primary and secondary evacuation routes clearly marked with conspicuously posted arrows, signs, floor marking, or other readily visible means. EM-205 does not clearly identify the location of the TSC Assembly Room.

There are provisions for concise oral announcements over the facility PA system to describe the immediate actions of nonessential personnel. EM-205 does include a reference to accountability and personnel monitoring. However, personnel decontamination procedures are not mentioned. Personnel decontamination procedures are discussed in Section 5.4.3.4 of this report. There are means to verify that all individuals onsite and in owner-controlled areas have been advised of postulated emergency conditions. Transportation for evacuation offsite is by FPC and privately owned vehicles. There appears to be no contingency plan for the evacuation of CR 1, 2, 3, 4, and 5 (at the same time) using the plant access road out to the old and new Highway 19.

Based upon the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Establishing and making the primary and secondary evacuation routes from onsite to the appropriate offsite assembly areas. (50-302/81-14-55)

Posting the designated onsite and offsite assembly areas. (50-302/81-14-56)

Clarifying the location of the TSC assembly area. (50-302/81-14-57)

Establishing and implementing a coordinated traffic evacuation plan for CR 1, 2, 3, 4, and 5, and providing priorities of lane use on the plant access road. (50-302/81-14-58)

5.4.3.3 Personnel Accountability

Section 14.2, EM-100, and Section 7.3, EM-205, provide procedural guidance on accountability of CR-3 personnel during emergencies. Section 7.2, EM-214 provides procedural guidance to CR-1 and 2 and CR-4 and 5 personnel. The Security Supervisor, the focal point of reporting accountability, reports to the Emergency Coordinator. EM-100 establishes the 30-minute limit for completion of plant accountability.

Procedures specify the individuals and positions in the emergency organization to whom reports of accountability are made. EM-205 does not, however, provide guidance or reference other procedures on what is to be done and by whom when personnel are unaccounted for. EM-209 indicates that the ChemRad Protection Manager or Emergency Coordinator will select personnel to search for unaccounted personnel, without reference to EM-205.

Section 6.3.3, EM-100, does not clearly assign the ChemRad Protection Manager as responsible for selecting personnel to search for missing personnel. Operational Supervisors and the Assembly Area Supervisor are responsible for continuous accountability of all individuals onsite after the initial accountability has been completed.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Providing guidance in EM-205 or reference to EM-209 on what actions are to be taken when searching for unaccounted personnel. (50-302/81-14-59)

Including in the ChemRad Protection Manager's responsibility, in Section 6.3.3 of EM-100, the requirement to select reentry search teams for unaccounted personnel (50-302/81-14-60)

Using the PA system initially to locate/call the unaccounted for personnel. (50-302/81-14-61)

5.4.3.4 Personnel Monitoring and Decontamination

ChemRad Procedure RP-103, "Decontamination of Personnel, Areas, and Equipment", and Section 15.3.1 of the EM-100 discuss personnel decontamination. EM-208, "Duties of the Radiation Emergency Team", discusses the radiation monitoring of individuals leaving the RCA and those persons leaving onsite assembly areas. Paragraph i.3.1 in EM-208 refers to evacuees decontaminating themselves but the requirement for ChemRad assistance when an open wound or body opening is involved is not stated.

Means for recording all pertinent data are established. Contamination levels that require decontamination actions are specified and procedures for various types of contamination are established.

Based on the above findings, this portion of the licensee's program appears to be adequate; however, the following items should be considered for program improvement:

Specifying which action levels or specific incidents (such as facial contamination) will require further assessment (e.g. whole-body count or bioassay). (50-302/81-14-62)

Including in EM-208, a reference to RP-103 with regard to assistance by ChemRad personnel when decontaminating an open wound or body opening. (50-302/81-14-63)

5.4.3.5 Onsite First-Aid/Rescue

EM-213, "Medical Emergency Procedures", discusses proper handling of injured personnel with or without radiological considerations. This procedure discusses methods for receiving, transporting, and handling injured persons, who may also be contaminated, and describes the interface and criteria for using the offsite medical treatment facility. Specific radiation protection guidance is not provided for the Emergency Medical Team. (Refer to Section 5.4.3.1 of this report)

Based on the above findings, this portion of the licensee's program appears to be adequate.

5.4.4 Security During Emergencies

Security measures to be placed in effect during emergencies are specified in EM-100 and EM-212. These procedures cover access control, evacuation, and personnel accountability. However, there appears to be no guidance or reference to vehicle traffic control during a site evacuation.

Unresolved item (50-302/79-7-02) is pending until installation and successful operation of a new security accountability computer system is completed. This is expected within the next 60 days.

Based upon the above findings, this portion of the licensee's program appears adequate. However, the following item should be considered for program improvement:

Providing references to coordination and notification of CR-1, 2, 4, and 5 Security Force to assist in CR-3 onsite (out-of-plant) evacuation, traffic control, assembly area, and accountability. (50-302/81-14-64)

5.4.5 Repair/Corrective Actions

EM-100, 208, and 209 describe the concept of operations for repair or corrective action activities. Reentry personnel are selected by the ChemRad Protection Manager or the Emergency Coordinator. The ChemRad Protection Manager is responsible for the immediate supervision of the Reentry Teams.

Based on the above findings, this portion of the licensee's program appears to be adequate.

5.4.6 Recovery

EM-100 specifies the organizational authority for declaring that a recovery phase is to be initiated. Provisions exist for an evaluation of plant operation conditions as well as the in-plant and out-of-plant radiological conditions. Notifications to be made to various individuals and agencies must be completed before a recovery mode may be assumed. Key positions in the recovery organization are identified.

Based on the above findings, this portion of the licensee's program appears to be adequate.

5.4.7 Public Information

Procedures clearly identify the organizations that would be involved in news dissemination, their locations, and methods of contacting them. The methods for coordinating internal dissemination of information to the various locations and individuals is addressed in the procedures. Interim provision has been made for initial dissemination of information to news media prior to establishment of a licensee news center, the utility spokesperson is identified, provisions for coordinating information among various spokespersons representing involved organizations exist, and adequate provision has been made for rumor control to handle separately the general public, the news media, and other organizations.

Based on the above findings, this portion of the licensee's program appears to be adequate.

5.5 Supplementary Procedures

5.5.1 Inventory, Operational Check and Calibration of Emergency Equipment, Facilities, and Supplies

ChemRad Procedures RP-206, RP-213, RP-215, RP-222, and RP-225 discuss the calibration procedures for the various emergency equipment reserved for use during emergencies. RP-219 discusses the specific inventory, availability, and location of emergency equipment, as well as the calibration, on a quarterly basis, for this equipment. Emergency vehicle operability checks are scheduled on a weekly basis. Records showed that the equipment has been checked in accordance with RP-219. The responsibility for the performance of the emergency equipment readiness checks and for correcting any noted deficiencies is delineated.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following items should be considered for program improvement:

Changing the procedure in RP-219 to add another column to the inventory sheet of each separate equipment list titled "Operability Check" to assist in the operational check of the equipment. (50-302/81-14-65)

Indicating the exact day, month, and year on the calibration stickers placed on the instruments. (50-302/81-14-66)

Implementing procedures to insure that perishable supplies such as batteries are maintained at an operational level. (50-302/81-14-67)

5.5.2 Drills and Exercises

The FPC Emergency Planning Coordinator is the corporate level position responsible for planning, scheduling, and coordinating major emergency drills or exercises involving offsite agencies. For similar duties onsite and at the plant level, the FPC plant positions of ChemRad Protection Manager and Nuclear Operations Training Manager (NOTM) are responsible.

Each drill and exercise is conducted in accordance with a scenario developed in advance with a followup report to critique training.

The Emergency Planning Coordinator is responsible to ensure that deficiencies which are identified in an exercise are addressed with corrective measures. The NOTM is responsible for corrective measures of deficiencies identified in an onsite drill. Provisions have been made to routinely invite offsite agencies and groups to participate in drills and exercises.

Onsite drills are occasionally conducted unannounced and the time of day is also varied to involve backshift personnel. Should an actual event occur, the licensee does not consider this a substitute for an exercise but does allow the event to substitute for a drill. The frequencies for conducting exercises and drills is followed as outlined in EM-100.

The documented critique which followed the CR-3 exercise of April 22, 1981 contained several items that had to be corrected. Those items that have been resolved are identified by the licensee in a letter dated August 26, 1981.

The open items that remain are as follows:

Habitability of the interim EOF was considered to be substandard due to background noises which caused difficulty in functional communications. The licensee anticipates this problem to be fully resolved with completion and utilization of the permanent EOF scheduled for October 1982.

It was recommended that the licensee place a word processor in the interim EOF. The licensee has committed to complete a permanent EOF by October 1982 and place a word processor in that facility, but does not anticipate placing one in the interim EOF prior to that time.

Notification of family or next of kin for casualties at CR-3 is addressed in NSSD-17. The licensee is considering modification to this procedure in the near future, but is delaying modification pending utilization of a different medical source which involves an in-plant physician and modified duties thereof.

Simulated requests for licensee support to general public evacuees created considerable policy questions concerning the licensee's responsibilities. Resolution of this item is held pending the results of an upcoming, but yet unscheduled, licensee meeting at the corporate level.

Based on the above findings, this portion of the licensee's program appears to be adequate. The matter of the exercise critique was identified originally as Inspector Followup Item (IFI) 81-05-10. In order to incorporate the followup of the four remaining licensee identified open items into the Emergency Preparedness Implementation Appraisal Program, IFI 81-05-10 is considered closed and this area will be reviewed during a subsequent inspection as IFI 50-302/81-14-68.

5.5.3 Review, Revision, and Distribution

Section 20.2, EM-100 requires an annual review and certification of the Emergency Plan and its implementing procedures by the Plant Review Committee. Quarterly review of telephone numbers is required in EM-206

by the ChemRad Protection Manager. Recommendations for revisions and/or the upgrading of emergency equipment and supplies, as a result of the drill or exercise, are forwarded through the Assistant Vice President, Nuclear Operations, Nuclear Plant Manager, and the Nuclear General Review Committee (NGRC) for review. Approved recommendations are incorporated into the Plan. Revised pages are dated and marked to show where changes have been made.

Based on the above findings, this portion of the licensee's program appears to be adequate.

5.5.4 Audit

Section 20.4, EM-100 indicates that the Emergency Plan will be audited at least every two (2) years by FPC's Quality Programs Department. Section P.9., NUREG-0654 recommends an independent audit annually. (See Part II, Section 2.16 of this report.) Guidance is provided in the Florida Power Quality Manual, Policy 18.1, Quality Program Audits and Evaluations; and Quality Program Procedure 18.50, Quality Audits, Reviews, and Evaluations for Operations Phase on how the audits will be conducted. Auditors are used as observers/implementors during drills and exercises. All audits and results are retained without cutoff date in microfiche file.

Based on the above findings, this portion of the licensee's program appears to be adequate.

6.0 COORDINATION WITH OFFSITE GROUPS

6.1 Offsite Support Agencies

The auditor discussed offsite support agencies with licensee representatives and reviewed recently upgraded agreement letters with offsite support agencies identified in EM-100. The auditor noted that there is no formalized arrangement for offsite fire support. This matter is addressed in Part II, Section 2.2 of this report. Training has been provided for offsite support groups, to familiarize those individuals who may need to respond to the site, with the general plant layout and access procedures. In general, all offsite groups responding to the site will be accompanied by Security Force personnel while inside the protected area boundary.

On August 25, 1981, the auditor and a licensee representative met with representatives from Seven Rivers Community Hospital, Citrus County Emergency Medical Service, Citrus County Sheriff's Department, Citrus County Disaster Preparedness Office, and Fire Dispatchers Office, identified in Section 9.2 of this report, to discuss emergency response should an accident occur at the CR-3 site. The individuals contacted at each agency were cognizant of their role in an emergency, had been

provided training relative to their respective roles during an emergency, had participated in the latest full-scale emergency exercise, and were generally satisfied with the contact and interface maintained between their organization and FPC.

On August 25, 1981, the auditor visited Seven Rivers Hospital to discuss the handling and treatment of contaminated victims from CR-3. The emergency treatment area at Seven Rivers Hospital appeared to be adequate; however, there were no emergency procedures available at the hospital for treatment and care of contaminated, injured individuals transported from CR-3. EM-213, Medical Emergency Procedures, provides guidance for proper handling of contaminated, injured personnel at CR-3 and for transporting to Seven Rivers Hospital, if needed.

EM-100 identifies the University of Florida Shands Teaching Hospital as the facility for providing definitive medical care. See Part II, Section 2.12 of this report for further discussion on the designation of primary and back-up medical facilities.

Based on the above findings, this portion of the licensee's program appears to be adequate. However, the following item should be considered for program improvement:

Providing coordination and assistance to Seven Rivers Hospital in establishing procedures for the handling of contaminated patients from CR-3. (50-302/81-14-69)

6.2 General Public

Provision has been made for dissemination of emergency planning information to the public within the plume exposure EPZ, including the transient population. Emergency action implementation has been coordinated with State and local agencies and is required to be updated and disseminated at least annually. The information informs the public how they will be notified and what emergency actions to take. The information contains accurate (IAEA) information about radiation which should be easy to understand. The information has been mailed to all locatable households within the 10-mile EPZ and distributed to area hotels and motels.

The information is contained in brochures which should be available in a residence should an emergency exist and should be available in limited recreation areas within the EPZ. The utility provides a local civil defense telephone number for citizens to utilize for acquisition of additional information.

Based on the above findings, this portion of the licensee's program appears to be adequate.

6.3 New Media

The utility has been conducting a program for familiarizing the news media with emergency plans, points of contact for release of public information, space allocated for their use, information about radiation, normal versus accident plant operation, and accident sequences.

The program is conducted at least once annually (four times within the past year).

Based on the above findings, this portion of the licensee's program appears to be adequate.

7.0 WALK-THROUGH OBSERVATIONS

Walk-through observations were conducted during the appraisal. Auditor comments for each particular walk-through are found in the appropriate sections of this report.

8.0 FOLLOWUP ON PREVIOUSLY IDENTIFIED ITEMS RELATED TO EMERGENCY PREPAREDNESS

- (OPEN) Unresolved Item (302/79-07-02). Personnel accountability is discussed in Section 5.4.3.3 of this report. The current system is manual and appears adequate. The licensee indicated that completion of installation of the new security-accountability computer system should be within the next 60 days. This item will remain open until completion and review of installation.
- (CLOSED) Unresolved Item (302/79-50-01). The auditor reviewed updated agreement letters, contained in Appendix B to the Emergency Plan, with Dr. Miller and Seven Rivers Hospital (both effective from December 1979 to December 31, 1982). This matter is considered closed. Letters of agreement with other offsite support agencies are addressed in Part II, Section 2.2 of this report.
- (CLOSED) Inspector Followup Item (302/79-50-03). Emergency kits and equipment are on the inventory list and are being inventoried on a quarterly basis. Emergency equipment previously listed in Paragraph 6.1.2 of EM-100, Rev. 10, for the Emergency Assembly Center (EAC) and defined in EM-100, Rev. 10, as the Emergency Control Center (ECC) has been deleted and incorporated into procedure RP-219. The interim TSC has been established to take over the functions of the ECC and the emergency equipment located in the TSC has been included in RP-219. Additional emergency equipment recommended to be included in RP-219 is discussed in Section 5.5.1 of this report.

- (CLOSED) Inspector Followup Item (302/79-50-04). Medical supplies are now inventoried on a quarterly basis along with the first-aid supplies as listed in RP-219.
- (CLOSED) Inspector Followup Item (302/79-50-05). Shift supervisors are no longer members of the emergency medical team; therefore, the first aid retraining for those personnel is no longer deficient. First aid training is discussed in Section 3.
- (CLOSED) Unresolved Item (302/79-50-06). Procedure EM-208 has been revised so that it states a member from the Radiation Emergency Team will be dispatched to Units 1 and 2 should the gravity of the emergency affect or potentially affect these units. The person dispatched will issue protective equipment and dosimetry as required.
- (CLOSED) Unresolved Item (302/79-50-07). QA Audit, QP-171, pertaining to three items of the Fire Brigade Training was verified and closed on February 12, 1980, by an FPC Audit Team Leader.
- (CLOSED) Infraction (302/80-14-01). The licensee's corrective action stated in their response, dated May 5, 1980, to the Notice of Violation, dated April 18, 1980, was reviewed and verified to have been completed by the auditor.
- (CLOSED) Inspector Followup Item (302/80-14-06). The adequacy of the TSC and EOF have been evaluated during this appraisal. (Refer to Sections 4.1.1.2 and 4.1.1.4 of this report for details.)
- (CLOSED) Inspector Followup Item (302/80-14-07). EM-102, Revision 5, dated July 21, 1981, delineates all participants in the TSC, assigns functional responsibilities and identifies the resources they will have to accomplish during the management of the accident.
- (CLOSED) Inspector Followup Item (302/80-14-09). Prompt collection and assessment of TLDs is not a method that the licensee intends to use for early evaluation of out-of-plant releases. Procedures for out-of-plant radiological surveys using survey meters, and gas and particulate sampling are established.
- (CLOSED) Inspector Followup Item (302/81-05-10). The auditor reviewed the licensee's followup on the corrective actions recommended in the April 1981 exercise critique. Corrective action has been completed except for those items, as identified in Section 5.5.2 of this report, which will be treated as part of this EPIA followup.

9.0 PERSONS CONTACTED

9.1 Licensee Personnel

D. Poole, Nuclear Plant Manager
 R. Pinner, Chem Waste Supervisor
 J. Roberts, Chem Waste Supervisor
 *G. Ruzala, ChemRad Protection Manager
 *P. Baynard, Manager, Nuclear Support Services
 J. Hancock, Assistant Vice President, Nuclear Operations
 S. Lashbrook, Chem Rad Supervisor
 H. Eck, Building Services Supervisor
 G. Boldt, Technical Services Superintendent
 E. Cappallia, Capt., Security Shift Supervisor
 D. Smith, Plant Security Supervisor
 P. McKee, Operations Superintendent
 R. Murgatroyd, Electrical Supervisor
 D. Eggleston, Nuclear Shift Supervisor
 W. Mardhall, Assistant Nuclear Shift Supervisor
 J. Kraiker, Nuclear Shift Supervisor
 T. Miller, Nuclear Shift Supervisor
 J. Gibson, Nuclear Shift Supervisor
 R. Fuller, Chem Waste Manager
 *C. Brown, Compliance Supervisor
 P. Breedlove, Document Control and Records Management Supervisor
 *L. Hill, Assistant Manager, Nuclear Support Services (Emergency Planning Coordinator)
 G. Patrissi, Fire Brigade Chief
 *R. Clark, ChemRad Specialist for Emergency Planning
 *J. Lander, Maintenance Supervisor (Acting Nuclear Plant Manager)
 *B. Kemper, Training Manager
 *K. Lancaster, Site QP Senior Auditor
 T. Lutkehaus, Technical Assistant to Nuclear Plant Manager
 J. Cooper, QA/QC Compliance Manager
 G. Beatty, Nuclear Operations Management Specialist (EOF Director)
 R. Bright, Nuclear Training Specialist, Nuclear Support Services

Other licensee employees contacted include 13 technicians, 1 Chief Nuclear Operator, 5 Security Force members, 3 maintenance personnel, 2 construction personnel, 5 office personnel, and 5 Nuclear Technical Instructors.

9.2 Other Organizations

S. Lovenguth, Citrus County Emergency Medical Services
 C. Campbell, Capt., Citrus County Sheriff's Department
 G. Allen, Citrus County Disaster Preparedness Director
 V. Eastwood, Fire Dispatcher Supervisor, Citrus County.
 *A. Billiris, Southern Science Applications Emergency Planning Consultant
 J. Kosik, Director of Personnel and Community Relations, Seven Rivers Community Hospital

9.3 NRC

*T. Stetka, Senior Resident Inspector

*J. P. Stohr, Acting Director, EPOS Division, RII

*F. G. Pagano, Chief, EL9, OIE

* Attended the exit interview on August 27, 1981.

ATTACHMENT EVALUATION OF THE CRYSTAL RIVER 3 EMERGENCY PLAN

1.0 BACKGROUND

An upgraded CR-3 Emergency Plan (plan, EM-100) was submitted to the NRC in late December 1980 and was implemented on April 1, 1981, as required by the new rule. Since that time substantial revisions have been made to the plan. Rev. 13 to the plan, dated July 24, 1981, was reviewed by the auditor and the staff's comments were discussed with the Assistant Manager, Nuclear Support Services (Emergency Planning Coordinator). Subsequent to the appraisal, on September 25, 1981, FPC submitted responses to the staff's comments and a proposed change to the plan.

2.0 PLAN EVALUATION

The Crystal River 3 Emergency Plan, dated July 24, 1981, and FPC's responses and proposed change to the plan, dated September 25, 1981 were reviewed and evaluated against the criteria set forth in NUREG-0654/FEMA REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plan and Preparedness in Support of Nuclear Power Plants", Rev. 1, November 1980. The following sections list the planning standards of NUREG-0654, Section II, A-P, each in turn followed by a synopsis of the evaluation and the staff review comments, and identify in parentheses, the specific applicable evaluation criterion of NUREG-0654.

2.1 Planning Standard - Assignment of Responsibility (Organization Control)

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 on a continuous basis.

SYNOPSIS: The plan identifies the licensee, governmental and private agencies, and organizations that will respond to an emergency and defines their operational roles, provides a diagram of interrelationships, designates the Corporate Emergency Officer (CEO) and the Emergency/Recovery Director (E/R Director) by title, provides for 24-hour-per-day emergency response, and provides copies of agreement letters.

The licensee has committed to:

Revise the plan to clarify the roles of the CEO and E/R Director.

Establish a letter of agreement with DOE (Savannah River Operations).

The following items require resolution:

Provide, in the plan, a description of the laws, regulations or executive orders that apply to the support provided by DHRS. (A.3)

Provide justification for the proposed change to EM-100 to reflect no reliance on local fire departments.

2.2 Planning Standard B - Onsite Emergency Organization

On-shift 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 activities and offsite support and response activities are specified.

SYNOPSIS: The plan specifies the onsite emergency organization and its relationship to the responsibilities and duties of the normal shift complement, designates the individual, by title, who will be the Emergency Coordinator and lists his authorities and responsibilities, and identifies the specific conditions for higher level utility officials assuming the function of Emergency Coordinator. The line of succession to the position of Emergency Coordinator is indicated. The functional responsibilities assigned to the Emergency Coordinator are established and those responsibilities that may not be delegated to others are clearly specified. The positions and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity are discussed. The minimum staffing requirements for CR-3 emergencies listed in the plan do not meet the recommended guidance given in Table B-1 to NUREG-0654. The plan specifies the interfaces between and among the onsite functional areas, the corporate management, administrative, and technical support personnel who will augment the plant staff, and the contractor and private organizations who may be requested to provide technical assistance to the emergency organization. The plan identifies the services to be provided by local agencies for handling emergencies and provides for transportation and treatment of injured personnel who may also be contaminated.

The licensee has committed to revise the plan to meet the recommended guidance given in Table B-1 to NUREG-0654, with the exception of offsite fire fighting support (Note: this area is addressed in Section 2.1 above).

2.3 Planning Standard C - Emergency Response Support and Response

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and

other organizations capable of augmenting the planned response have been identified.

SYNOPSIS: The plan specifies the persons, by title, authorized to request Federal assistance and the Federal resources and expected arrival times, provides for the dispatch of a licensee representative to the principal offsite government operations centers, identifies organizations which can be relied upon to provide assistance in an emergency, and identifies offsite laboratory facilities.

The licensee has committed to included in EM-100 a description of licensee, State, and local resources which are available to support the Federal response. 2.4 Planning Standard D - Emergency Classification System

A standard emergency classification and action level scheme, the basis of which includes 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.

SYNOPSIS: The plan specifies an emergency classification and action level scheme comparable with Appendix 1, NUREG-0654 and provides parameter values and/or equipment status for each emergency class. The initiating conditions stated in the plan include the example conditions found in Appendix 1, NUREG-0654.

2.5 Planning Standard E - Notification Methods and Procedures

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 followup 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.

SYNOPSIS: The plan establishes procedures for notification of response organizations and for alerting, notifying, and mobilizing emergency response personnel. The contents of the initial emergency message to be sent from the plant are established. Provisions for followup messages from the facility to offsite authorities which contain the appropriate information are made in the plan. The public alert and notification system is described. New information pertaining to the alert and notification system, submitted in Rev. 13 to EM-100, will be reviewed by the Federal Emergency Management Agency (FEMA).

The licensee has committed to include in EM-100 a description of supporting information for messages to the public concerning aspects of sheltering, ad hoc respiratory protection, and evacuation routes.

2.6 Planning Standard F - Emergency Communications

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

SYNOPSIS: The plan states that for each emergency facility or location a particular individual has been designated as the primary communicator, and an alternate is also designated. Table 10.2 of EM-100 indicates that all major interfacility communication links to response organizations involve at least a commercial telephone link and one other link, with most having multiple communication links. The primary communicator is indicated on this table as well. Site communications systems which would be critical in the notification process are manned 24 hours-a-day. The State Warning Point at Tallahassee (SWPT) has an officer on duty 24 hours-a-day. The Disaster Preparedness Organizations of Citrus County and Levy County (the only two counties within the 10-mile EPZ) maintain contact with the SWPT through dedicated communications lines. Provision for communications with Federal emergency response organizations is indicated in the plan. DOE will be contacted by the Florida DHRS when requested to do so by the licensee; NRC headquarters and regional offices can be contacted by dedicated telephone lines. Table 10.1 of the plan indicates interfacility communications links with the near-site EOF. The plan's Emergency Coordinator can contact the SWPT through NAWAS as well as other means, and the SWPT can in turn contact other response organizations through NAWAS. Means for alerting onsite emergency personnel are described in the plan. The Control Room and TSC have dedicated telephone links to NRC and means of communication with the EOF and the radiological monitoring team assembly area, making communications among these three facilities possible. The plan indicates the use or testing frequency of each of 13 different means of communication which could be used for emergency communication.

The licensee has committed to establish coordinated communication links for fixed and mobile medical support facilities, and to provide for periodic testing of the public alert and notification system as recommended by the guidance contained in NUREG-0654, Appendix 3. EM-100 will be revised appropriately.

2.7 Planning Standard G - Public Education and Information

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 physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

SYNOPSIS: The plan states the intent of FPC to provide a public education and information program in conjunction with State and county officials. The plan indicates the intent to engage in a coordinated

periodic dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. The plan indicates the way in which the dissemination process will be designed to provide adequate opportunity for the transient adult population within the 10-mile emergency planning zone of CR-3 to be made aware of the information. The points of contact and physical location for use by news media during an emergency are designated in the plan. The plan designates spokespersons who should have access to all necessary information and establishes arrangements for timely exchange of information among those spokespersons.

The licensee has committed to develop coordinated arrangements for dealing with rumors and to provide a response when the arrangement has been finalized.

2.8 Planning Standard H - Emergency Facilities and Equipment

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

SYNOPSIS: The plan states that an interim Technical Support Center (TSC), an onsite Operations Support Center (OSC), and an interim Emergency Operations Facility (EOF) have been established. A provision for timely activation and staffing of these facilities and centers is included in the plan. The plan identifies and establishes onsite monitoring systems that are to be used to initiate emergency measures. Provisions to acquire data from, or for emergency access to, offsite monitoring and analysis equipment are described in the plan. The Plan also states that offsite radiological monitoring equipment will be located in the vicinity of the nuclear facility. The plan makes provisions to inspect, inventory, and operationally check emergency equipment/instruments quarterly. Identification of emergency kits by general category and the establishment of a central point for the receipt and analysis of all field monitoring data and coordination of sample media exists in the plan.

The licensee has submitted detailed descriptions of the permanent TSC and EOF on June 1 and July 1, 1981, respectively. These submittals are currently being reviewed against the criteria of NUREG-0696.

Additional information is required in EM-100 with regard to hydrologic, seismic and radiological wound monitors, and process monitors that are to be used to initiate emergency measures, provisions for acquiring data from offsite hydrologic or seismic monitors, and a meteorological system that meets the recommended guidance of Appendix 2 to NUREG-0654. The licensee has committed to further investigative and evaluative efforts in order to provide an appropriate response. The response will be forwarded when the efforts are completed.

The licensee has committed to include in EM-100 provisions for emergency supplies and equipment at the OSC, and to clearly identify the facility to be used for receipt and analysis of all field monitoring data and coordination of sample media.

2.9 Planning Standard I - Accident Assessment

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

SYNOPSIS: The plan identifies plant systems and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents and the plant parameter values which correspond to the example initiating conditions of Appendix 1 of NUREG-0654 and discusses onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident. The plan establishes methods for determining the source term of releases of radioactive material within plant systems and the methodology for determining the release rate/projected doses if the instrumentation used for assessment are offscale or inoperable. The plan describes the capability and resources for field monitoring within the owner-controlled area. The plan states that the licensee has the capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ, within the owner-controlled area, as low as E-07 microcuries per cubic centimeter, under field conditions.

The licensee has committed to provide for containment monitors in accordance with NUREG-0578 during the shutdown scheduled to begin in September 1981, as noted in correspondence to the NRC dated December 15, 1980 and July 3, 1981.

The licensee has committed to include in EM-100 a description of the capability of the TSC, EOF, State and the NRC to receive the meteorological data, and the actual methods to be used to make rapid assessments of the potential magnitude and locations of any radiological hazards through gaseous release pathways.

Additional information is required in EM-100 with regard to the means for relating various measured parameters to dose rates for key isotopes and gross radioactivity measurements, and provisions for estimating integrated dose from projected and actual dose rates and for comparing these estimates with the protective action guides. The licensee has committed to further investigative and evaluative efforts in order to provide an appropriate response. The response will be forwarded when the efforts are completed.

Licensee submittal, dated September 25, 1981, provided only partial resolution to the staff's comments on NUREG-0654 criteria I.5 and I.8. The following items require resolution:

The proposed change to EM-100 does not include the provisions for suitable meteorological data processing interconnections which will permit independent analysis by the State. Provide this information and include in EM-100. (I.5)

The proposed change to EM-100 does not include the methods to be used to make rapid assessments of the actual magnitude and locations of any radiological hazards through gaseous release pathways and the actual or potential magnitude and locations of any radiological hazard through liquid release pathways. Provide this information and include in EM-100. (I.8)

2.10 Planning Standard J - Protective Response

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.

SYNOPSIS: The plan establishes the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, makes provisions for main evacuation routes and transportation for onsite individuals to some suitable offsite location, and provides for radiological monitoring of people evacuated from the site. The plan provides for the evacuation of onsite nonessential personnel in the event of a site or general emergency, for a decontamination facility, and for a capability to account for all individuals onsite at the time of the emergency and ascertain the names of missing individuals within 30 minutes of the start of an emergency and account for all onsite individuals continuously thereafter. Provisions for individual respiratory protection and use of protective clothing for individuals remaining onsite during the emergency are in the plan. The plan establishes a mechanism for recommending protective actions to state and local authorities, contains time estimates for evacuation within the plume exposure EPZ in accordance with Appendix 4 of NUREG-0654 and illustrates population distribution around the nuclear facility by sector formats. The bases for the choice of recommended protective actions from the plume exposure pathway during emergency conditions is included in the plan. The plan also includes maps showing evacuation routes, evacuation areas and shelter areas. Additional information is required in EM-100 with regard to maps which show offsite locations for evacuated onsite individuals, and alternatives for high traffic density and specific radiological conditions. The licensee has committed to further investigative and evaluative efforts in order to provide an appropriate response. The response will be forwarded when the efforts are completed.

The licensee has committed to revise EM-100 to include provisions for prompt notification to the offsite authorities responsible for implementing protective measures within the plume EPZ.

The following items require resolution:

Licensee submittal, dated September 25, 1981, provided only partial response to the staff's comments on NUREG-0654 criterion J.1. Additional information is required with regard to the means and time required to warn or advise visitors, contractor personnel and other persons in the owner controlled area. Provide this information and include in EM-100. Also provide a copy of procedure SS-113, which was referenced in the September 25, 1981 submittal.

Licensee submittal, dated September 25, 1981 did not address the staff's comment regarding the provision of radioprotective drugs (KI) for onsite workers. EM-100, Section 15.2.3, refers to the proposed use of KI and states that FPC, "plans to maintain an in-plant supply of appropriate blocking drugs..." Clarification of EM-100 is required regarding FPC's intent to provide KI for onsite emergency workers.

2.11 Planning Standard K - Radiological Exposure Control

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 Work and Lifesaving Activity Protection Action Guides.

SYNOPSIS: The plan establishes onsite guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides, provides an onsite radiation protection program to be implemented during emergencies including methods to implement exposure guidelines, and gives the Emergency Coordinator the power to authorize emergency workers to receive doses in excess of 10 CFR Part 20 limits. The plan provides for 24 hour-per-day capability to determine the doses received by emergency personnel involved in any nuclear accident and for distribution of dosimeters. The plan ensures that dosimeters are read at appropriate frequencies and provides for the maintenance of dose records for emergency workers. The plan specifies action levels for determining the need for decontamination and establishes the means for radiological decontamination. The plan and procedures provide onsite contamination control for area access and the capability for decontaminating relocated onsite personnel. The plan and procedures provide for onsite control of contamination regarding the consumption of food or water and criteria for permitting return of areas to normal use.

Additional information is required in EM-100 with regard to provisions for controlling exposure of offsite ambulance drivers, provisions for advance approval of emergency level doses and provisions for assurance of adequate training. The licensee has committed to further investigative and evaluative efforts in order to provide an appropriate response. The response will be forwarded when the efforts are completed.

2.12 Planning Standard L - Medical and Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

SYNOPSIS: The plan arranges for local and backup hospitals and medical services having the capability for evaluation of radiation exposure and uptake, provides for onsite first aid capability, and arranges for the transportation of victims of radiological accidents to medical support facilities.

The licensee has committed to revise EM-100 to clarify Table 16.1 regarding the hospital to be used for life threatening injuries, and to identify the regional facility referred to in Section 16.3.3 as Oak Ridge-REACTS.

2.13 Planning Standard M - Recovery and Reentry Planning and Post-accident Operations

General plans for recovery and reentry are developed.

SYNOPSIS: The plan includes general plans and procedures for reentry and recovery and describes the means by which decisions to relax protective measures are reached. The plans contains the titles, authorities, and responsibilities of individuals who will fill key positions in the facility recovery organization. The plan specifies means for informing members of the response organizations that a recovery operation is to be initiated and of any changes in the organizational structure that may occur and establishes a method for periodically estimating total population exposure.

2.14 Planning Standard N - Exercises and Drills

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.

SYNOPSIS: The plan defines an exercise adequately and states that it will include appropriate offsite as well as onsite personnel to verify the capability to respond to an accident scenario requiring response. The plan provides for a critique of the annual exercise and states that the scenario will be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period. Provisions to start an exercise between 6 p.m. and midnight and another between midnight and 6 a.m., once every six years is included in the plan. The plan defines a drill adequately and discusses the frequency and aspects of communication, fire, medical emergency, radiological monitoring, and health physics drills. The plan describes

how exercises and drills are to be carried out to allow free play for decision making. The plan states that the scenario shall include, but not be limited to, the basic objectives of the drill or exercise, the date(s), time period, place(s) and participating organizations, the simulated event, a time schedule of real and simulated initial event, and a summary describing the conduct of the exercise or drill that addresses the appropriate categories. The plan states that official observers from Federal, State, or local governments will observe, evaluate and critique the exercises. The plan requires the critique to be scheduled at the conclusion of the exercise; that a formal evaluation should result from the critique, and establishes means for evaluating observer and participant comments on areas needing attention.

The licensee has committed to revise EM-100 to provide for exercises to be conducted under various weather conditions and for unannounced exercises; testing communications with Federal emergency response organizations on a quarterly basis; communications and record keeping during radiological monitoring drills; and advance information to official observers.

2.15 Planning Standard O - Radiological Emergency Response

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

SYNOPSIS: The plan provides for site specific emergency response training for the offsite emergency organizations of hospital and ambulance/rescue personnel. The plan states that the training program for members of the onsite emergency organization shall include classroom training and practical drills. It is stated in the plan that training for individuals assigned to licensee first aid teams shall include courses equivalent to Red Cross Multi-Media. Specialized initial training and annual retraining programs for directors, accident assessment personnel, radiological monitoring teams and radiological analysis personnel, security and firefighting personnel, repair and damage control/correctional action teams (onsite), first aid and rescue personnel, medical support personnel, licensee's headquarters support personnel, and personnel responsible for transmission of emergency information and instructions are included in the plan. Procedures for training of local and State emergency offsite personnel are covered in Annex M to the State Plan. Provisions for training of offsite agency emergency personnel who are assigned to the EOF are covered in procedure NSSO-17.

The licensee has committed to revise EM-100 to specify that the retraining of licensee offsite support groups is on an annual basis.

2.16 Planning Standard P - Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans

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

SYNOPSIS: The plan provides for the training of individuals responsible for the planning effort, identifies by title the individual with the overall authority and responsibility for radiological emergency response planning, and designates an Emergency Planning Coordinator with responsibility for the development and updating of emergency plans and coordination of these plans with other response organizations. The plan provides for updating the plan and agreements as needed, and for review and certification that it is current on an annual basis. The plan states that the update shall take into account changes identified by drills and exercises. The plan states that emergency response plans and approved changes to the plans shall be forwarded to all organizations and appropriate individuals with responsibility for the implementation of the plans. The plan contains a detailed listing of supporting plans and an Appendix listing, by title, procedures required to implement the plan. The plan contains a table of contents and cross references to the criteria in NUREG-0654. The plan arranges for an independent review of the emergency plan, its implementing procedures and practices, training, readiness testing, and equipment. The plan states that management controls shall be implemented for evaluation and correction of review findings and that the result of the review and recommendations for improvements will be documented and reported to the appropriate organizations.

The licensee has committed to revise EM-100 to include the type of training to be provided the individuals responsible for the planning effort; provisions for an annual audit of the emergency preparedness program; and provisions for updating telephone numbers in the emergency procedures on a quarterly basis.

3.0 CONCLUSIONS

Based on the NRC review against the criteria in "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", NUREG-0654, Revision 1, November 1980, the staff concludes that the Crystal River Nuclear Station Radiation Emergency Plan, upon satisfactory correction of those items requiring resolution as identified in Section 2 of this evaluation, and upon satisfactory completion of those items for which the licensee has made commitments, will provide an adequate planning basis for an acceptable state of emergency preparedness and will meet the requirements of 10 CFR Part 50 and Appendix E thereto.

The findings and determinations made by FEMA on State and local emergency response plans, and the review of the revision to the plan will provide the basis for the staff's overall conclusions as to whether the plans provide reasonable assurance that adequate protective measures can and will be taken in the event of an emergency.

The final assessment of the state of emergency preparedness for the Crystal River 3 Nuclear Station will be made following implementation of the revised emergency plans to include revision/development of procedures, training and qualifying of personnel, installation of equipment and facilities, and a joint exercise involving participation of the response organizations (site, State, and local).

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