UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No. 50-395/81-12

Licensee: South Carolina Electric & Gas Company
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Facility Name: V. C. Summer Nuclear Station

Docket No. 50-395

License No. CPPR-94

Appraisal at the Summer site near Jenkinsville, S.C.

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Summary

Inspection on June 8-17, 1981

Areas Inspected

This special announced appraisal involved 390 inspector hours on site in the performance of an Emergency Preparedness Appraisal.

Results

In the areas inspected, no violations or deviations were identified. Appraisal deficiencies were identified in the following areas: Augmentation of Onsite Emergency Organization (section 2.2), Emergency Alarm and Abnormal Occurrence Procedures (section 5.2).

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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 June 17, 1981, with those persons indicated in Section 8 of this report.

DETAILS

1.0 ADMINISTRATION (RESPONSIBILITY, AUTHORITY, COORDINATION, CRITERIA)

The overall responsibility for emergency planning associated with the Summer site has been formally assigned to the Emergency Planning Coordinator, who reports directly to the General Manager, Nuclear Operations. The Emergency Planning Coordinator's responsibilities include corporate policy and plans, interrelationships with Federal, State and local agencies and the station's Emergency Plan. The onsite aspects of emergency planning are the responsibility of the Emergency Coordinator, who reports through the Administrative Supervisor to the Station Manager. The auditor noted that the respective areas of emergency planning are the primary duties and responsibilities of these individuals. The Summer Station Plant Safety Review Committee (PSRC) reviews and approves the Emergency Plan and implementing procedures. The Emergency Coordinator has responsibility for coordinating the review of the plan and procedures. The station's administrative procedures program sets forth the required method for review, approval, control, distribution and revision of the Emergency Plan and implementing procedures. The auditor noted that licensee management staff personnel were well aware of the two persons directly responsible for emergency planning.

The Emergency Planning Coordinator is the corporate staff person responsible for emergency planning. He functions as a staff assistant to the General Manager, Nuclear Operations. The Emergency Coordinator is the site person responsible for emergency planning. He functions as an assistant, through the Administrative Supervisor, to the Station Manager. The auditor noted that emergency planning receives adequate visibility and has adequate management support at both the station and corporate levels. Discussions with licensee representatives indicated that adequate coordination and cooperation exist between the corporate staff and station staff in the area of emergency planning. Interviews with individuals of various offsite agencies/organizations indicated that adequate coordination exists with these groups. (See Section 6.0).

The Emergency Planning Coordinator and Emergency Coordinator have been formally selected and designated to provide expertise in various disciplines that SCE&G considers important in emergency planning. The auditor noted that specific position descriptions existed for two SCE&G positions responsible for emergency planning, but that the position descriptions had not been updated to reflect a recent licensee reorganization. The existing position descriptions identified the responsibilities of the positions and the criteria for selection.

Discussions with those individuals responsible for the licensee's emergency planning effort indicated that the individuals possessed an understanding of the principles involved in developing plans and procedures, that these individuals had been selected according to criteria established by licensee management, and that these individuals have been provided knowledge of the emergency planning area through training.

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

2.0 EMERGENCY ORGANIZATIONS

2.1 Onsite Organization

The auditor reviewed section 5.0 of the Emergency Plan and discussed the onsite emergency organization with licensee representatives. An initial onshift and an augmented emergency response organization has been established and is discussed in section 5.2 of the Emergency Plan. Table 5-1 identifies the individuals responsible for the major functional areas of an initial emergency response organization by position title. This table however, does not include the designation of individuals by position for all functional areas down to the working level. Specifically, an emergency communicator, assistant to the health physicist in monitoring and surveys, rescue and first aid, and onshift chemistry responsibilities are not identified. The augmented organization does not specify individuals responsible for communication nor for rescue and first aid responsibilities. Discussion with licensee representatives revealed that table 5-1 is being revised and a supplemental table, to be included in an implementing procedure, is being developed which will more accurately define the onsite emergency organization. A draft of the supplemental table was reviewed and was determined to be acceptable concerning the identification of individuals in the onsite emergency organization, down to the working level, who are responsible for each of the functional areas specified in Table B-1 of NUREG 0654. The individuals are identified by position titles. An additional administrative procedure is being developed which will assign individuals, by name, to the position titles noted above. A watch list, generated by this proposed procedure, will be available onsite at all times to identify the specific role of each individual in an emergency. Appropriate training will be provided to the individuals for each specific area of responsibility when this watch list has been approved and issued for the onsite organization

Based on the above findings, this portion of the licensee's program appears to be acceptable pending completion of the following items:

> Provide, in the implementing procedures, an outline of the onsite emergency organization similar to the draft identified as "Table 5-1 Response", which identifies individuals, by position, responsible for the major functional areas of emergency response, described in Table 5-1, down to the working level. (50-395/81-12-01).
>
> Develop a procedure which identifies individuals, by name, associated with the functional position related to the emergency response organization. Include provisions to maintain this procedure current based on actual shift staffing. (50-395/81-12-02).

2.2 Augmentation Organization

The onsite organization is augmented by assigned personnel from the corporate staff located in Columbia, S.C. These personnel form the licensee's offsite emergency organization, which is described in both the Emergency Plan and the Corporate Emergency Management Plan. The Corporate Emergency Management Plan identifies the positions, functional descriptions, and individuals by name which

make up this organization. The offsite emergency organization is under the direction of the Offsite Emergency Coordinator (General Manager Nuclear Operations). In the event of an emergency requiring activation of this organization, the Interim Emergency Director (Shift Supervisor) notifies the General Manager Nuclear Operations, who then activates the offsite organization. Based upon discussions with licensee representatives and observation of the recent exercise, it appears that a timely augmentation of the onsite organization can be accomplished and that the augmentation organization would provide support in the requisite areas. The overall licensee response to an emergency, including management of the onsite and offsite emergency organizations, is the responsibility of the Emergency Control Officer (Vice President and Group Executive Nuclear Operations). The auditor reviewed the Emergency Plan and the Corporate Emergency Management Plan and discussed the roles of and interfaces between the onsite and offsite organizations with licensee management. It was noted that the specific authority and responsibility of both the Offsite Emergency Coordinator and the Emergency Director were not clearly established.

Additional assistance in coping with emergencies is provided by Westinghouse (Pittsburgh, PA) and Gilbert Associates (Reading, PA). A licensee representative stated that written contracts exist with these organizations to provide support in the event of an emergency. Support by local agencies/organizations for services such as medical, ambulance, firefighting, and law enforcement has been arranged and letters of agreements are included in the Emergency Plan (See Section 6.1). A review of the Emergency Plan and discussions with the licensee's representatives and representatives of nonlicensee support groups indicated that interfaces between the licensee and these support groups are established and understood.

Based on the above findings, the following deficiency must be corrected to achieve an acceptable program:

> Clearly define the areas of authority and responsibility for both the Offsite Emergency Coordinator and the Emergency Director. (50-395/81-12-03).

3.0 EMERGENCY PLAN TRAINING/RETRAINING

3.1 Program Established

The status of the emergency plan training and retraining program was reviewed and discussed with licensee representatives, including the Nuclear Training Assistant, who is primarily responisible for emergency organization training onsite. In general, the training requirments for the emergency response organization are contained in the V. C. Summer Emergency Plan, section 8.1.1 and implementing procedure EPP-018. These documents provide for initial specialized and annual refresher training for those individuals who may be assigned to the onsite emergency organization. In addition, all permanent employees at the station are provided emergency plan training on an annual basis. Offsite, non-licensee groups, for which letters of agreement exist for support during an emergency, have been provided emergency plan training which included a site

orientation, access procedures, radiological protective measures and coordination of support activities with licensee representatives.

Initial training for all designated emergency organization personnel and for non-essential personnel has been completed by General Physics Corporation with supplemental assistance from SCE&G training personnel and the Emergency Planning Coordinator. Lesson plans and training outlines were developed by General Physics for this initial training and these have been turned over to the SCE&G staff to be included in the final training program which is in the process of being established. These documents were reviewed and were found to be deficient in that they did not address site specific areas related to the Summer Station, were ambiguous with respect to allowable exposure limits for emergency workers and did not reference applicable implementing procedures or the Emergency Plan. A licensee representative stated that these lesson plans and outlines would be revised to include more site-specific information concerning the emergency response activities. Records of initial training for all groups of emergency personnel including offsite support groups were reviewed and appear to be complete; however, the mechanism to insure retraining of all personnel is not yet in place. Proposed administrative procedure AP-1100 provides for the establishment of a formal emergency plan training program which will be approved by the Station Manager and will be reviewed for adequacy at least every two years by an individual knowlegable in emergency response requirements, but not directly connected with the training program. The formal training program will be incorporated into a Training Manual, which will include performance standards and examination requirements as well as the outline of the complete emergency preparedness training program. It was noted that minimum performance standards are being used but have not been formally documented and approved. Specific emergency response training is included in the requalification program for licensee personnel. Overall training in emergency response activities is coordinated by the Nuclear Training Project Coordinator. Training for the corporate organization has been conducted; however, neither implementing procedure EPP-018 nor the proposed administrative procedures noted above provide for the establishment of a formal training/retraining program for corporate augmentation personnel.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the following items:

Develop and approve a procedure, similar to proposed AP-1100, to insure an adequate training and retraining program is established for all plant personnel. (50-395/81-12-04)

Review and revise lesson plans and lesson outlines to include site specific information, references to appropriate Emergency Plan sections and implementing procedures, and resolution of apparently conflicting information in current lesson plan documents. (50-395/81-12-05)

Develop and approve an acceptable training manual and establish a program to insure all individuals designated as part of the emergency organization receive training pertinent to their assigned functional positions in the emergency organization. (50-395/81-12-06)

Provide a procedure, such as proposed AP-1100, to provide for periodic review and up date of the emergency training program by an independent source. (50-395/81-12-07)

Develop and approve a procedure to insure appropriate training and periodic retraining for all corporate personnel who are assigned to the augmented emergency response organization. (50-395/81-12-08)

3.2 Program Implementation

Initial training in emergency preparedness has been provided to all site, corporate and nonlicensee support agencies involved in the Summer Station emergency response organization. However, there has not yet been a formal training and retraining program established (see section 3.1 above).

The acceptability of this area of the licensee's program could not be determined and this area will be reviewed during a subsequent inspection. (50-395/81-12-09)

4.0 EMERGENCY FACILITIES AND EQUIPMENT

4.1 Emergency Facilities

4.1.1 Assessment Facilities

4.1.1.1 Control Room

The Control Room is located in the Control Building at elevation 463. An updated copy of the Emergency Plan and the Emergency Plan Procedures (EPPs) are in the Control Room. Emergency equipment and decisional aids as described in the following draft EPPs will be in place and operable:

EPP-001, "Activation and Implementation of Emergency Plan"

EPP-002, "Communication and Notification"

EPP-019, "Emergency Equipment Checklist"

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

4.1.1.2 Technical Support Center (TSC)

The TSC is adjacent to the Control Room on elevation 463 and is directly accessible to the Control Room. A viewing window permits some interaction between the Control Room and the TSC. This center meets the same habitability requirements as the Control Room. There is sufficient space available to accomodate up to 50 persons in the eight rooms that comprise the TSC.

The TSC upon activation for an emergency will be staffed, in accordance with the Emergency Plan, to provide engineering design and technical review capabilities as well as plant operating performance evaluations. In the event that the plan

is activated during off-duty hours, personnel to staff the TSC are called in by normal telephone communications. Reference materials, including the Technical Specifications, Operating Procedures, FSAR, drawings and schematics, a Dose Projection Status Board, area Maps, county and State Emergency Plans, the site Emergency Plan and EPP's, auxiliary equipment such as a microfiche reader and printer, and supplies are present in the TSC as described in EPP-19. Respiratory protective devices and emergency kits are available. The TSC Is served by the following communication systems:

(1) Intercom to Control Room and OSC.

(2) Intercom to the monitoring station and the Health Physics labs at elevation 412.

(3) Plant paging system (paging phones are located throughout the plant).

(4) Radios, with assigned frequencies, to Security (onsite) and offsite law enforcement agencies.

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

4.1.1.3 Operations Support Center (OSC)

The OSC is located in the Meeting Room of the Service Building. It is large enough to accommodate more than the number of persons assigned to the OSC (including the space for assembling Health Physics and special teams). It is separated from the control building, auxiliary building, fuel handling area, and other potential direct sources of radiation by the turbine buliding. A backup location is provided at the Environmental Center located more than two miles south of the plant. Primary and backup voice communication systems are provided between the OSC, Control Room and TSC. Visual aids and special equipment are available at the OSC. The plant document control center is adjacent to the OSC.

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

4.1.1.4 Emergency Operations Facility (EOF)

The interim EOF, located at the construction office onsite was evaluated during a recent emergency exercise (IE Rpt. No. 50-395/81-09) and was determined to be adequate for an interim emergency response facility. The proposed permanant EOF was discussed with licensee representatives during this appraisal. The proposed EOF facility is expected to be operational by October 1982.

The proposed EOF will be a newly constructed facility located 2.6 miles SSE from the plant site. It will be a multi-purpose facility which will house the Environmental Laboratory, Training Facility and Simulator, and Public Relations Center (Visitor Center) in addition to dedicated EOF space. The EOF space is designed to include about 7000 square feet of area, below grade level, which will contain several functional work areas. About 400 square feet have been allotted

to NRC office space. The facility will have its own sewage system designed to accommodate peak capacity for the number of personnel expected to occupy the facility during an emergency. Water to the facility will be supplied through the Jenkinsville water supply system, which originates from wells, and a water storage tank at the facility will provide a reserve supply. Power to the facility will be provided through two separate lines which have independent and separate pathways to the facility site. The availability of two hydro plants on the grid preclude the need for an emergency power source, such as a diesel generator, at the facility. Installed instrumentation will include direct access to the plant computer and Safety Parameter Display System (SPDS) , video copy display capability, and redundant access to the HP 1000 system, used for computerized dose calculations offsite. In addition, sufficient communications systems will be provided along with fixed radiation monitoring instruments. The adjacent Environmental Laboratory will contain complete analytical systems and portable instruments which can be utilized during an emergency. The first floor of the facility will consist of the training facility and public relations area. An auditorium on the first floor will provide adequate area for press and news media representatives.

Based on the above findings, this area of the licensee's program appears to be acceptable. The permanent EOF will be evaluated during a subsequent inspection.

4.1.1.5 Post-Accident Primary Coolant Sampling and Analysis

The auditor examined the licensee's post-accident primary coolant sampling and analysis system which was partially installed. The system was being installed in the normal sampling room on Elevation 412. Shielding of the sampling room was completed. The licensee has designed the system to meet the NUREG 0737 criteria. The licensee's procedures and training for coolant sampling and analysis had not been completed. The licensee stated that all Chemistry Specialists will be trained to take the post-accident coolant sample.

This area is discussed further in Sections 5.4.2.4 and 5.4.2.5. Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the following item:

> Complete installation of the post-accident primary coolant sampling and analysis system. (50-395/81-12-10).

4.1.1.6 Post-Accident Containment Air Sampling and Analysis

The licensee's post-accident containment air sampling system was not yet in place. The auditor was told that the system would be installed in the vicinity of RM-A2, the Reactor Building air radiation monitor located on Elevation 463. The only other information available at the time was that the system will provide a means for diluting the sample; therefore, special remote handling equipment will not be used. The analysis of containment air will be performed in the count room on Elevation 412. No information was available on special equipment that might be used for analysis.

The acceptability of this area of the licensee's program could not be determined and this area will be reviewed during a subsequent inspection. (50-395/81-12-11).

4.1.1.7 Post-Accident Gas and Particulate Effluent Sampling and Analysis

The licensee stated that post accident gas and effluent sampling would be performed at the same location as RM-A3, the main plant vent. Special design features for post-accident sampling were not available for review at this time. Sample analysis will be performed in the counting room. Documentation was not available for review.

The acceptability of this area of the licensee's program could not be determined and this area will be reviewed during a subsequent inspection. (50-395/81-12-12)

4.1.1.8 Post-Accident Liquid Effluent Sampling and Analysis

The licensee stated that post accident liquid effluent sampling would be performed at the liquid waste discharge hold up tank. Special design features for post-accident sampling were not available for review. Sample analysis will be performed in the count room. Procedures and other documentation are not currently available for review.

The acceptability of this area of the licensee's program could not be determined and will be reviewed during a subsequent inspection. (50-395/81-12-13).

4.1.1.9 Offsite Laboratory Facilities

The Parr facility Environmental Laboratory provides complete analytical instrumentation and equipment and is designed to be used to evaluate offsite samples during an emergency. The laboratory is located about two miles SW of the Summer site. Some of the counting equipment, including a GeLi system is designed so that it can be transported to another location if necessary. Instruments are routinely calibrated and maintained for use in the environmental program and would be readily available for immediate use during an emergency. Future plans include moving the laboratory from its present location at the Parr facility to the permanent EOF when construction of that facility is completed. This move will provide additional capability to the offsite laboratory to input data directly to the assessment program. Additional shielding and fixed radiation protective measures will be provided in the EOF location.

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

4.1.2 Protective Facilities

4.1.2.1 Assembly/Reassembly Areas

Upon hearing the plant emergency alarms and announcements over the plant paging system, all persons report to their assigned assembly area as stated in draft implementing procedures EPP-008, "Personnel Accountability", and EPP-012, Onsite

Personnel Accountability and Evacuation. Essential personnel report to their duty stations. Non-essential personnel, in the event of a site evacuation, exit the plant through the guard house and use private vehicles to relocate to either the northern or southern offsite holding area, as determined by the Emergency Director. The offsite holding areas are large open areas approximately two to three miles from the plant and have sufficient space and facilities to accommodate the expected number of personnel. The locations of these areas, as well as a detailed map, are identified in EPP-012.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the following item:

> Review and approval of personnel accountability and evacuation procedures. (50-395/81-12-14).

4.1.2.2 Medical Treatment Facilities

A first aid room is located in the Control Building at elevation 412 near the Health Physics (HP) lab area to accomodate injuries that occur in the Radiation Controlled Area. The Health Physics labotatory and personnel provide decontamination services as needed. If the injury does not involve contamination and the patient can be moved, the injury can be treated at either the first aid room or the first aid dispensary located in the Service Building at elevation 436. First aid kits are located in the Control Room, the shop areas and in security facilities. EPP-009, "On-site Medical", and EPP-010, "Personnel/Vehicle Decontamination", provide guidelines for handling individuals who have been injured and may be contaminated. Potassium iodide supplies for thyroid blocking will be available for emergency workers. Medical assistance to the trained on site personnel can be obtained from the Pinner Clinic (located in Peak, S.C., about four miles from the site), or from the U.S.Army M.A.S.T Operation or the Fairfield Emergency Medical Service (located about two miles from the site in Jenkinsville, S.C.). Further medical treatment would be provided by the Richland Memorial Hospital in Columbia, S.C.

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

4.1.2.3 Decontamination Facilities

The onsite decontamination area is located adjacent to the change room and is in close proximity to the onsite medical facility. Access to the decontamination area is through three doors into the change area. Only one door will be utilized routinely for bringing in contaminated individuals, however, the door to be used has yet to be determined.

The decontamination area includes a small room for personnel frisking, a larger room with sinks and another large room with decontamination showers. Some supplies, such as decontamination foam, are currently available in the decontamination area, however, portable survey instruments and procedures are not yet available in the decontamination area.

There is a supply source of water provided in the decontamination rooms. The waste water is discharged to the liquid waste hold-up tanks for processing.

Provisions for replacement clothing include providing coveralls to processed individuals. Tape of a specified color will be attached to the coveralls to indicate whether or not the person is free of contamination.

There are provisions for decontamination at assembly/reassembly areas. Kits for decontamination will be maintained at the security annex. These kits contain equipment, supplies and procedures for decontamination as listed in EPP-019, Emergency Equipment Checklist. When a site evacuation is announced, a health physics technician will obtain a decontamination kit and take it to the designated holding area.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the following item:

> Provide emergency supplies and equipment at the decontamination facility. (50-395/81-12-15).

4.1.3 Expanded Support Facilities

Offices are provided for the NSSS and A/E representatives in the Technical Support Center. A telephone and a plant paging system are currently installed, and a dedicated line to each representative's home office is being installed. Consideration is being given for provision of trailer parking areas at the proposed EOF to support additional non-licensee support organizations.

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

4.1.4 News Center

Provisions have been made for a primary news center near the Interim Emergency Operations Facility (IEOF) at the site. Provision has also been made for an alternate news center which is approximately 35 miles away in the South Carolina Electric & Gas Company (SCE&G) corporate offices in Columbia, South Carolina. This alternate facility will become operable only in the event the news center at the site cannot be utilized.

The news center provisions include:

> Five telephones for media use at the news center, one telephone which operates through the site switchboard, and one pay telephone outside the news center building. The licensee has stated that 20 additional telephones can be installed at the news center upon one day's notice.
>
> Electric supply to carry added TV load.
>
> Provisions for copying services at the IEOF near the news center.

An adequate public address system is available.

Adequate audio-visual equipment including TV cameras, screens, projectors, and pre-recorded video tapes of the inside areas of the reactor building and plant.

Plans for security control at the news center.

The news center at the site is adequate for handling approximately 200-300 media representatives for accident information dissemination. To handle a larger press contingent, the licensee would have to utilize the corporate facility in Columbia. The licensee plans to provide an upgraded news media center at the permanent EOF location.

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

4.2 Emergency Equipment

4.2.1 Assessment

4.2.1.1 Emergency Kits and Emergency Survey Instruments

Implementing procedure EPP-019, "Emergency Equipment Checklist", defines the location and content of emergency kits and other site emergency supplies. Appendix B of the Emergency Plan lists emergency equipment and supplies, but it is not current in that equipment specified by the EPP did not match the equipment shown in this portion of the Plan.

The kits, equipment and supplies were located as specified in the procedure with the exception of the kits specified for the Auxillary Building and the Fuel Handling Building. Most components for those kits are available in the Health Physics Laboratory, but the kits have not been installed for security reasons. Kits and equipment are located so as to be readily available to the teams required to use them.

The emergency kit contents were inventoried against the lists in EPP-019 and the inventory lists found in the kits. The inventories were found to be complete and correct with the exception that two items were missing from one kit and there were no TLD and high range dosimeters in the Technical Support Center. Some kits did not have complete sets of procedures. EPP-019 specifies inventory and operability verification frequencies for emergency kits and supplies. Attachments III and VIII specify only the inventory for the instruments in the offsite holding area emergency kits stored in the Security Annex and do not include verification of operability. Discussion with the Health Physics Supervisor indicated that the operability checks are performed.

Equipment to be used for the re-entry team includes instruments capable of detecting and measuring both beta and gamma radiation fields. A limited number of TLDs were available for extremity monitoring and more were on order for the in-plant emergency kits.

Equipment and procedures used for emergency environmental surveys ensures the capability to detect and measure radio-iodine concentrations in air of at least 1E-07 uCi/cc without regard to the presence of noble gases and resulting background radiation.

Discussion with the Health Physics Supervisor indicates that a capability exists to detect and measure particulate activity in air (using emergency environmental survey instrumentation) of 1E-09 uCi/cc (Cs-137 equivalent) without regard to background radiation, but a written analysis and/or procedure was not available.

Portable ion chamber instruments with beta/gamma distinguishing capability (PIC-6A) were avaialble for measuring whole body exposure rates and plume exposure rates. GM instruments with beta/gamma distinguishing capability (RM-14 with HP-210 probe, E-400, and E-530) were available for detecting contamination.

The contents of the emergency kits were considered adequate to equip the emergency team members. Extremity dosimetry was not in place.

Silver zeolite cartridges were provided to assure inplant capability for detecting airborne iodine in the presence of noble gases.

Keys and combinations were provided in the kits, where necessary, to enable teams to gain access to environmental monitoring points.

Operability checks were performed in accordance with EPP-019. The calibration procedure, HPP-205 was being replaced in HPP-610 (Air Samples) and HPP-611 (Survey Instruments). The instruments in the emergency kits were not calibrated.

It appears that inoperable instruments have been promptly repaired or replaced.

It was noted that several interim procedures refer to verification of seals on emergency kits. None were sealed with the exception of SCBA units in wall-mounted cases.

Based on the above findings, this area of the Licensee's program appears to be acceptable, but several items were incomplete and several matters should be considered for improvement.

The following items were incomplete:

Install emergency kits in the Auxiliary and Fuel Handling Buildings in accordance with EPP-019. (50-395/81-12-16).

Provide TLDs and high range dosimeters and a copy of Precautions, Limitations and Setpoints in the TSC. (50-395/81-12-17).

Ensure that emergency kits have adequate sets of procedures. (50-395/81-12-18).

Provide a means to insure periodic calibration of instruments in emergency kits. (50-395/81-12-18).

The following items should be considered for improvement:

Review and revise as necessary, Appendix B of the Emergency Plan to ensure that the list of emergency equipment and supplies is current. (50-395/81-12-20).

Revise interim Procedure EPP-019, Attachments III and VIII, to reflect the operability checks performed on the instruments in the Off Site Holding Area Emergency Kits. (50-395/81-12-21).

Evaluate extremity dosimetry requirements for re-entry teams and provide dosimeters in the appropriate kits. (50-395/81-12-22).

4.2.1.2 Area and Process Radiation Monitors

The radiation monitoring system was reviewed with respect to the relationship between area and process monitors and the Emergency Plan and procedures; specifically, those monitors concerned with the classification of accidents and those used for assessing offsite consequences in an emergency. The auditor reviewed sections 4 and 7 of the Emergency Plan, interim procedure EPP-001, observed the physical locations of monitors and parameter displays, and discussed area and process radiation monitors with licensee representativies.

A major portion of the area and process radiation monitoring system had been installed, calibrated and was operational (RM-01). These monitors have been placed on a routine maintenance and calibration schedule at 3-4 month intervals. Four monitors, important to the Emergency Plan, have not been installed. These are the redundant, high range Reactor Building area monitor (RMG-18); the main steam line monitors (RMG-19A, B and C); the Reactor Building purge exhaust monitor (RMA-14), which is redundant to installed RMA-4; and, the high range main plant vent monitor (RMA-13). RMG-18 and RMA-14 are being installed as redundant monitors to those already installed and operational. RMG-19A, B and C and RMA-13 were being added to the system to increase monitoring capability and to satisfy the criteria of NUREG-0737. Equipment for all four of the above monitors was onsite and an order had been issued for their installation (ECN-1586). A licensee representative stated that these monitors would be installed, calibrated and operational in about three months. In reviewing the Emergency Plan and procedures, it was noted that RMG-19 and RMA-14 had not been included in the discussions of monitors available in an emergency and RMG-19 was not discussed in interim procedure EPP-001. Interim procedure EPP-001 requires that the Emergency Director classify an accident based on initiating conditions related to the radiation monitoring system. Interim procedure EPP-005 included equivalent dose projections using monitoring information from RMA-3, RMA-13 and RMG-19. The discussion of detection methods in EPP-001 refers to release rate projections in terms of Ci/hour, while the projection calculations of EPP-005 provide release rates in Ci/sec. This discrepancy is considered to be a source of confusion during initial classification considerations. (Dose assesment is discussed further in Section 5.4.2 of this report.)

Process and area monitor readouts were observed in the Control Room and accident classification and assessment, based on these parameters, were discussed with the

Shift Supervisor on duty. All installed monitors have meters which are readily visible to Control Room personnel and include appropriate alarm indicators. The Shift Supervisor stated that he was aware of a procedure to convert monitor readings to source terms and equivalent dose projection values, but that he had not been trained in its use and did not have a procedure available in the Control Room. He noted that there was an interim procedure used for that purpose during the recent emergency excercise.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the following items:

Complete installation, testing and calibration of the Area and Process Radiation Monitoring System. (59-395/81-12-23)

Review and revise the Emergency Plan and procedures to include discussions of all radiation monitors important to the accident classification and assessment scheme. (50-395/81-12-24)

Review and revise, as appropriate, interim procedures EPP-001 and EPP-005 to ensure consistency among units and parameters being measured or calculated. (50-395/81-12-25)

Provide training and periodic retraining to all personnel who may be expected to classify an accident and provide initial assessment information during an emergency. (This item is included as part of the implmentation of a training program discussed in section 3.2).

4.2.1.3 Non-Radiation Process Monitors

The non-radiation process monitors described in the Emergency Plan as being necessary for emergency detection, classification and assessment include instrumentation for reactor coolant system pressure and temperature, liquid levels, containment pressure and temperature, flow rates, fire detection equipment and meteorology instrumentation. The auditor observed that the instruments had readouts located in the Control Room and were operable. The seismic monitors had annunciators in the Control Room with the monitoring equipment located in the reactor building and throughout the plant. The equipment was not completely installed at the time of this appraisal. Instrumentation and controls for the Post-LOCA remote shutdown of the reactor coolant system were located at the remote shutdown station panels (XPN-7200A and XPN 7200B) on elevation 436 in the Intermediate Building. The auditors also inspected the facilities and equipment related to the monitoring of the use of chlorine, sodium hydroxide, sulfuric acid and aqueous ammonia. EPP-014, "Toxic Release", provides direction for relaced emergencies. The toxic substances are used in the water treatment process, primarily outside the Intermediate Building.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the installation of the above mentioned monitoring equipment. (50-395/81-12-26)

4.2.1.4 Meteorological Instrumentation

The basic parameters required by the Emergency Plan and procedures (wind speed, wind direction, indication of atmospheric stability (delta T)) were provided by the meteorological instruments located on the primary onsite tower. All the instrumentation at that site was operable and calibrated. In the event that this system is inoperable, meteorological variables measured at Site 2 across the reservoir are used as input to the dose assessment procedure. Standard deviation of horizontal wind direction computations will be added to this system prior to full power to be used as an atmospheric stability indicator. (Final upgrading of the system will include a continually operating backup system onsite). The meteorological data was recorded on strip charts and displayed on dials in the Control Room. This data was readily accessible to Control Room personnel. The meteorological data will be telemetered into the TSC to be stored and prepared for display on a mini-computer. Data from this system will also be available in the Control Room on a computer terminal with CRT display. The primary meteorological measurements system was checked daily and calibrated semi-annually, with calibration checks monthly. This schedule has been adequate and has been a factor in maintaining the high data recovery rate of the system (95% for recent years). With the inclusion of the backup data, there is adequate assurance that the data availability goals can be met.

Inoperable equipment can be detected and promptly replaced because of the daily site checking and the inventory of spare parts. Written calibration procedures were available and instrument checking and calibration reports were maintained.

The integration of the meteorological data into the radiological assessment was under development and the methodology is scheduled to be complete prior to power operation.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the following items:

> Installation of the indicator of atmospheric stability at the interim backup system at Site 2. (50-395/81-12-27).
>
> Finalization, including documentation, of the integration of the meteorological data into the radiological assessment procedures. (50-395/81-12-28).

4.2.2 Protective Equipment

4.2.2.1 Respiratory Protection

Self contained breathing apparatus (SCBA) were reserved for emergency use in a number of places as described in EPP-019, "Emergency Equipment Checklist". For example, SCBAs were located at the TSC, OSC, Control Room and Health Physics Laboratory. The SCBA number about 40 with over 30 spare bottles (including both 30 and 90 minute bottles). The licensee was installing a recharging system for the air cylinders, however, it was not in use. This equipment is useable in high airborne activity areas.

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

4.2.2.2 Protective Clothing

The auditor observed that protective clothing was available in locations such as the TSC, Control Room and medical facility as stated in EPP-019, "Emergency Equipment Checklist". There were approximately 5000 cloth coveralls available at the change room next to the Health Physics Laboratory. The protective clothing maintained appeared to be adequate for an initial and a continuing response to an accident. The stores of protective clothing would likely be accessible under emergency conditions.

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

4.2.3 Emergency Communications Equipment

The Emergency Plan and interim procedure EPP-001 were reviewed and discussions were held with licensee representatives concerning emergency communications. The Control Room, TSC, OSC and interim EOF were observed for the availability of communications equipment which would be used during an emergency.

Dedicated ringdown telephone lines were provided to the four counties within the plume exposure EPZ, the State Emergency Operations Center (EOC), the State Forward EOC, the licensee's EOF, and the NRC. These telephones can be used from either the Control Room or the TSC area. Two additional direct lines are being installed to Westinghouse (Pittsburgh, PA) and Gilbert (Reading, PA) from the TSC area.

Communications systems consisted of dedicated lines, General Telephone lines, Plant Automatic Exchange (PAX) system, sound powered inplant system, intercom, Gaitronics paging system and radio systems. The radio systems access the State Highway Patrol, the offsite monitoring teams and the local county EOCs. The State EOC can be accessed by radio through a relaying procedure via the State Highway Patrol system. A radio system has been committed to link the TSC and EOF to the State Department of Health and Environmental Control (DHEC) to insure timely exchange of monitoring and assessment information. This system had not been installed at the time of the appraisal.

The Emergency Plan requires review of the notification procedure annually and a monthly communications drill. A licensee representative stated that it is intended that the telephone numbers in the notification procedure be verified monthly as part of the monthly communications drill.

The NRC HPN system had not been installed at the Summer Station. The auditor agreed to notify the Region II Emergency Officer who will coordinate the installation of the HPN at designated locations.

Based on the above findings, this portion of the licensee's program appears to be acceptable pending completion of the following items:

Provide a method of verifying all telephone numbers on the emergency notification list at least quarterly. (50-395/81-12-29)

Coordinate with the NRC Region II Emergency Officer on the installation and specified locations of the HPN telephones. (50-395/81-12-30)

4.2.4 Damage Control/Corrective Action and Maintenance Equipment and Supplies

The Emergency Plan provides for personnel and material for damage control, corrective action and maintenance. Existing administrative and work procedures are to be followed, but expedited, during an emergency. Work may proceed without Quality Control releases when necessary, but the Quality Control function is to be completed as soon as reasonably possible. Provisions exist for emergency procedures to be written and to be approved on an interim basis by the shift supervisor and a knowledgeable staff person. Functional positions in the emergency organization are identified which have the responsiblity for providing supplies of spare parts, equipment and supplies. Existing maintenance equipment and supplies were reviewed and were considered adequate.

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

4.2.5 Reserve Emergency Supplies and Equipment

Adequate quantities of reserve supplies and equipment appeared to be available onsite or readily accessible from the nearby warehouse facilities. The inventory was maintained with a maximum and minimum range noted for each category. A computerized maintenance system, Computerized History And Maintenance Planning System (CHAMPS), was in effect for the major safety related systems and components. A computerized program also identifies piping and components. Reserve supplies were readily available. The inventories have been routinely audited. INPO emergency resources are also available.

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

4.2.6 Transportation

No vehicles are exclusively set aside for supporting emergency program needs. Company vehicles are made available to the Emergency Director in the event of an emergency. All trucks observed had provisions for trailer hitches and several four wheel drive vehicles were onsite. Two vehicles were assigned to the Environmental Laboratory and are used for emergency offsite radiological survey work. The utilization of the Fairfield Emergency Medical Service minimizes the need for onsite medical service vehicles.

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

5.0 EMERGENCY IMPLEMENTING PROCEDURES

5.1 General Content and Format of Implementing Procedures

The Emergency Plan implementing procedures used for the recent emergency exercise have been revised to reflect critique comments and difficulties encountered in using the procedures during the exercise . The procedures used during the exercise were issued for the exercise and for interim use by the Station Manager. Neither the procedures used during the exercise nor the revised version of the procedures had been formally reviewed and approved by the Plant Safety Review Committee (PSRC).

The auditors reviewed the revised procedures which implement the Emergency Plan with respect to their content and format and discussed the procedures with licensee representatives. Overall the procedures were found to be adequate regarding the assigned responsibility for each area, prerequisites and conditions modifying specifications, and guidelines for specific actions to be taken relative to the emergency action levels and accident classification. Except for those specific comments noted in the following sections, the revised procedures were considered adequate as to form and content. However, additional revisions to these procedures are planned based on this appraisal report. Licensee management has agreed to provide copies of all revisions, as they are completed, to NRC for continuing review.

Based on the above findings, this area of the licensee's program appears to be acceptable pending the final review, approval, and issuance of the implementing procedures. This area will be reviewed during a subsequent inspection. (50-395/81-12-31)

5.2 Emergency, Alarm and Abnormal Occurence Procedures

The Summer Station Emergency Operating Procedures were reviewed and the area of off-normal operations and alarm procedures was discussed with licensee representatives. The Emergency Operating Procedures did not reference the Emergency Plan Procedures (EPP) or the Emergency Plan EALs. A Shift Supervisor stated that in an emergency condition the plant operators would realize, through training and experience, that they would need to refer to the Emergency Plan and implementing procedures under most off-normal conditions. The Emergency Operating Procedures (EOP) had been reviewed and approved by the Plant Safety Review Committee (PSRC). The auditor was unable to find an established link between the EOP and the Emergency Plan or implementing procedures.

Based on the above findings, the following deficiency must be corrected to achieve an acceptable program:

> Revise appropriate Emergency Operating Procedures to initiate actions required by the Emergency Plan. (50-395/81-12-32).

5.3 Implementing Instructions

At the time of this appraisal, emergency instructions were based on the construction mode of operations. All instructions to the on-duty shift and, consequently, to the interim emergency director were made through a standing

order book maintained in the control room. These standing orders did not link emergency actions to EAL's, the Emergency Plan or implementing procedures.

Based on the above findings, this area of the licensee's program could not be appraised. This area will be reviewed during a subsequent inspection. (50-395/81-12-33).

5.4 Implementing Procedures

5.4.1 Notifications

The auditor reviewed applicable sections of the Emergency Plan and implementing procedures EPP-001, "Activation of Emergency Plan", and EPP-002, "Communication and Notification". For each class of emergency there is specified a list of individuals and agencies/organizations to notify and the sequence for notification to alert, mobilize, or augment the onsite emergency organization and supporting agencies organizations. Immediate notifications were the responsiblity of the Interim Emergency Director, via the communicator, and were incorporated in the "Immediate Action Steps" of EPP-001. The equipment to be used for notification was specified and includes ring-down, onsite and commercial telephone systems. Alarms, announcements, and pre-formated messages (included in EPP-002) were used for initial notifications. Telephone numbers for the required notifications are contained in attachments to EPP-002. Authentication of the initial notifications to State and local agencies was accomplished by the respective agency. The auditor noted, however, that procedures EPP-001 and EPP-002, were in draft and were not finalized.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report.

5.4.2 Assessment Actions

The Emergency Plan and interim implementing procedures EPP-001 and EPP-005 were reviewed and the area of accident assessment was discussed with licensee representatives.

EPP-001 was the overall procedure which provides prompt classification of an accident, based on parameters readily available in the Control Room, and keys initial actions by the Interim Emergency Director to assess the extent of the onsite and offsite consequences of an accident.

EPP-005 provided a method for assessing the consequences of an accident in the environment around the plant site and included the use of meteorological data, inplant radiation monitoring data and information collected through direct measurements of radioactivity in the environment by monitoring teams.

The primary method for source term and offsite equivalent dose calculations was a computer method utilizing an HP 1000 computer which will have direct inputs from the meteorological tower and inplant radiation monitoring systems and provisions for inserting additional information such as measured environmental parameters

and fixed ion chamber readings. When completely operational this system will provide a rapid method for initial dose projections and continuous updates with minimal effort from assessment personnel.

There was a manual method using the computer and a pre-formated program to provide assessment information; however, the data must be input to the system manually and the overall projection requires more time to complete. Most needed parameters will be readily available in the TSC through the CRT displays planned for that facility. The frequency of assessment updates using this method will be reduced due to the time required to input the necessary parameters and run the program. A licensee representative estimated that updates could be run at about 30 minute intervals. Both this method and the previously described method were planned to be available to the Interim Emergency Director for initial offsite equivalent dose projections.

In addition to the above two methods, EPP-005 provides a third calculational method which does not require computer assistance. A standard calculational method was outlined which uses key effluent monitor parameters and ventilation flow rates. Meteorological parameters were determined using standard estimating techniques based on the temperature differential between two points on the meteorological tower(10 and 60 meters) and recorded wind speed. The auditors concluded that this method would provide adequate estimates of offsite equivalent doses should neither of the aforementioned computer methods be available.

Finally, there was a "quick dose projection" calculation provided in EPP-005. This calculational model makes a number of assumptions regarding meteorological conditions and isotopic concentrations of the gaseous effluent. The bases for these assumptions were not included in the procedure. The auditors stated that these bases should be referenced and on file for review. It appears that the use of this quick method, provided the bases for the assumptions are adequate, should be bounded by values for meteorological conditions, at a minimum. A licensee representative agreed to review this procedure and to provide, on file, the bases of the assumptions used in this calculation. Any applicable bounds for the use of this method will be written into the procedure.

The auditor discussed equivalent dose assessment from deposited radionuclides within the plume exposure EPZ with licensee representatives. There were contamination limits which would be in effect during an emergency but no attempt had been made to establish a relationship between surface contamination from deposited radionuclides and equivalent dose rates for personnel traversing a contaminated area as required by NUREG 0654, Section II.I.10. A licensee representative stated that this area would be reviewed and appropriate measures taken to provide guidance in this area to emergency workers.

A significant problem area in environmental dose assessment was the relationship of the iodine radionuclide compared to noble gas radionuclides expected to be released to the atmosphere under various accident scenarios. During the recent emergency exercise this ratio was a source of significantly different estimates of thyroid equivalent dose potential between the utility and the State of South Carolina. There does not currently exist any firm guidance on the ratio of iodines to noble gas to be used for initial projections when the exact nature of

the accident and the release pathway are not well defined. Sampling of the release pathway and the environment will provide this information; however, in a rapidly developing accident this information would not be readily available for the initial projections required. The licensee's rationale for any iodine to noble gas ratio selected for initial projections under various accident conditions will be reviewed at a future date.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report and the following items:

> Document the bases for the use of the "Quick Dose Projection" method and include bounds in the procedure for its use. (50-395/81-12-34)
>
> Provide a procedure, as appropriate, to relate measured surface contamination levels in the environment to equivalent dose rates (50-395/81-12-35)
>
> Develop and document the rationale used to select a radioiodine to noble gas ratio in gaseous effluents under various accident conditions. (50-395/81-12-36)

5.4.2.1 Offsite Radiological Surveys

The auditor reviewed the two procedures used by the licensee for offsite radiological surveys. These procedures are EPP-004, which directs radiological surveys outside the plant in the event of an emergency and EPP-007, Environmental Monitoring, which provides guidance for the surveying of the environmental monitoring stations during an emergency. Initially, two teams of onsite health physics technicians will be available to be dispatched to make radiological surveys. Within about an hour, teams from the Environmental Lab will be dispatched. These teams will perform both radiological surveys and surveying of the environmental monitoring stations as directed by the TSC or EOF. Radio communications with the teams are routinely maintained.

Two environmental monitoring kits are available for use in the Security Annex Building. These kits are maintained and inventoried by the onsite health physics group. Currently the kits are in place and have most of the equipment and supplies in them; however, the instruments in the kits are not calibrated and the kits are not properly sealed.

The procedures do not adequately describe all equipment and methods used to perform emergency offsite radiological surveys. EPP-004 states that air samples need to be analyzed; however, specific instruments and instructions on how to take samples and analyze them are not provided. Discussions with two onsite health physics technicians indicates that these individuals knew how to take the air sample and analyze it in the field with a RM-14 radiation monitor. An attachment to EPP-003, In-plant Radiological Surveying, explains how the approximation of iodine concentrations on filter cartridges is to be performed. The licensee indicated that this attachment is to be placed in the environmental

monitoring kits. All samples are to be taken to the Environmental Lab for further analysis.

Prepositioned survey points are indicated in EPP-007. These points are the environmental monitoring sites. Other sampling locations are determined by the Out-of-Plant Monitoring Director using guidelines provided in EPP-004.

Procedures EPP-004 and EPP-007 provide means for recording all significant survey information. Environmental samples and cartridges are labeled for later identification. The health physics supervisor stated that the record survey sheets would be returned to the Health Physics Lab when the onsite technicians performed the surveys.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report and the following item:

> Environmental monitoring kits must have a full inventory of supplies including calibrated instruments and the procedure for approximating iodine concentrations. The kits must be properly sealed. (50-395/81-12-37).

The following item should be considered for improvement:

> Provide for a central location for the collection of survey records. (50-395/81-12-38)

5.4.2.2 Onsite (out-of-plant) Radiological Surveys

Onsite (out-of-plant) radiological surveys will be performed with the same procedures as identified in section 5.4.2.1 of this report (i.e., EPP-004 and EPP-007). Onsite health physics technicians will make the initial radiological surveys within one mile of the plant. Upon their arrival at the site the Environmental Lab teams take over performing the offsite monitoring, including surveys within the site boundaries.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the items identified in section 5.4.2.1 of this report.

5.4.2.3 In-plant Radiological Surveys

The auditor reviewed EPP-003, The procedure reflects the methods and equipment utilized when making surveys during an emergency. The procedure states that in-plant surveys can be directed from the TSC, Control Room, or Health Physics Laboratory. In-plant monitoring personnel are to report to the Health Physics Laboratory after notification or upon a Protected Area Evacuation. The survey teams personnel would then be dispatched from the Health Physics Laboratory.

EPP-003 contains a survey record which provides information on equipment used, location of and results of surveys as well as other pertinent information.

Collected samples and smears are labeled and sent to the counting room for analysis. If excessive background is present in the counting room, samples will be sent to the Environmental Lab for analysis. Survey results will be relayed to the TSC via radio.

The procedure provides radiation protection guidance relative to protective clothing, dosimetry and respiratory protection.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report.

5.4.2.4 Post-Accident Primary Coolant Sampling

Discussions with licensee management revealed that at this time procedures have not been written for obtaining the post-accident primary coolant sample. There are, however, plans to write and implement such procedures.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-39)

5.4.2.5 Post-Accident Primary Coolant Sample Analysis

Discussion with licensee management revealed that at this time procedures have not been written for analyzing the post-accident primary coolant sample. There are, however plans to write and implement such procedures.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-41)

5.4.2.6 Post-Accident Containment Air Sampling

Discussions with licensee management revealed that at this time procedures have not been written for obtaining post-accident containment air samples. There are, however plans to write and implement such procedures.

Based on the above findings this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-42).

5.4.2.7 Post-Accident Containment Air Sample Analysis

Discussions with licensee management revealed that at this time procedures have not been written for analyzing the post-accident containment air sample. There are, however, plans to write and implement such procedures.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-42)

5.4.2.8 Post-Accident Stack Effluent Sampling

Discussions with licensee management revealed that at this time procedures have not been written for obtaining the post-accident stack effluent sample. There are, however, plans to write and implement such procedures.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-43)

5.4.2.9 Post-Accident Stack Effluent Sampling Analysis

Discussions with licensee management revealed that at this time procedures have not been written for analyzing the post-accident stack effluent sample. There are, however, plans to write and implement such procedures.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-44)

5.4.2.10 Liquid Effluent Sampling

Discussions with licensee management revealed that at this time procedures have not been written for obtaining the post-accident liquid effluent sample. There are, however, plans to write and implement such procedures.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-45)

5.4.2.11 Liquid Effluent Sample Analysis

Discussions with licensee management revealed that at this time procedures have not been written for analyzing the post-accident liquid effluent sample. There are, however, plans to write and implement such procedures.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-46)

5.4.2.12 Radiological Environmental Monitoring Program

The auditors inspected the Environmental Laboratory at the Parr facility, toured fixed environmental sampling stations and discussed environmental radiation monitoring during an emergency with licensee representatives.

The routine environmental program consists of air, water, milk, vegetation, and food crop sampling along with direct radiation measurements utilizing TLD dosimeters. Fixed stations are located around the Summer facility and contain continuous air samplers with charcoal or silver zeolite capability and TLD dosimeters. Three continuously operating composite water samplers are located

on lake Monticello, Parr Reservoir and the Broad River downstream of the plant site. In addition, water grab samples are collected on a routine basis from both surface and ground water sources around the site. Milk is collected from the nearest dairy operation and vegetation and food crops are collected when avaiable. A small garden, maintained at one of the fixed monitoring stations in the prevalent wind direction, provides positive access to food crops in season. Samples are routinely split with the state of South Carolina, Department of Health and Environmental Control, as a means of verifying analytical results. This routine program provides baseline data to be used to evaluate releases from the plant during an emergency.

In the event of an emergency at the Summer Station, the Environmental Laboratory will provide offsite monitoring teams to evaluate radioactive releases from the plant site. Additional emergency equipment is available at the laboratory to supplement the fixed monitor installations. Radioiodine capability includes instrumentation and equipment for evaluation of airborne radioactivity under field conditions. Adequate portable instruments are available for use in an emergency and additional TLD dosimeters are available at the laboratory to supplement those already installed at fixed locations around the site. A ring of eight Pressurized Ion Chambers (PIC) has been installed around the plant site to provide additional information on radioactive releases from the plant. Input from these PICs is planned for the HP 1000 assessment capability when that equipment is completely installed and operational.

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

5.4.3 Protective Action

5.4.3.1 Radiation Protection During Emergencies

The auditor noted that the licensee has prepared some procedures and is in the process of creating other procedures which describe radiation protection during emergencies. Routine radiation protection procedures will be used until directed by the Emergency Director to override such procedures.

Guidelines for issuing dosimetry to non-plant personnel and controlling personnel exposure during an emergency was addressed in EPP-020, "Emergency Personnel Exposure Control". Another procedure, HPP-505, "Control and Issuance of Personnel Dosimetry", was being written and was not available for review. Other procedures dealing with radiation protection during emergencies were also not available for review. The auditor was told that a radiation protection plan was being written by the Health Physics Supervisor.

Protection guidelines for entering areas with severe or potentially severe radiation levels are addressed in EPP-003, In-plant Radiological Surveying.

Based on the above findings, this area of the licensee's program appears to be acceptable pending the completion of the item identified in section 5.1 and the following items:

Completion of HPP-505, Control and Issuance of Personnel Dosimetry. (50-395/81-12-47).

Provision for special controls implemented for emergency conditions. (50-395/81-12-48).

Provision for expanding the respiratory protection program during emergencies. (50-395/81-12-49).

Procedures describing how and by whom all health physics functions will be performed and their priority during emergency situations. (50-395/81-12-50).

5.4.3.2 Evacuation of Owner Controlled Areas

Implementing procedure EPP-012 provides for evacuation of specified areas within the site and evacuation of the site at the discretion of the Emergency Director (ED) or upon specified emergency conditions. Implementing procedure EPP-016 establishes conditions for evacuation of the emergency facilities.

The marking of evacuation routes onsite was specified in EPP-012. The auditors observed that the plant evacuation routes were adequately marked.

Indoor assembly areas were listed in EPP-008, Attachment II. Criteria for use of assembly areas are specified in the procedures EPP-008 and EPP-012. Procedure EPP-012 identifies the method for evacuation of the site and identifies the locations of the offsite holding areas. Procedure EPP-001 identifies the specific announcements to be made over the plant paging system to instruct non-essential personnel for Site and General Emergencies.

Provisions for accountability and personnel monitoring/decontamination is made in the implementing procedures (EPP-012, EPP-008).

Plant emergency signals and announcements, accountability procedures, search and rescue procedures, and security procedures combine to provide a means to verify that all individuals within the exclusion area have been warned of emergency conditions and have been given instructions.

Based on the above findings, this areas of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report.

5.4.3.3 Personnel Accountability

All personnel onsite at the time of an Alert, Site, or General Emergency are to be notified of the emergency classification by an alarm and/or announcement over the public address system. Those personnel with emergency assignments are to report to their duty stations, and non-essential personnel are to be instructed to report to assembly areas for accountability, monitoring, decontamination and possible evacuation.

The Emergency Plan (section 6.4) and procedure EPP-012, Onsite Personnel Accountability and Evacuation , provides for accountability of all individuals onsite and identification of missing individuals within 30 minutes following the declaration of an emergency. Procedure EPP-008, Personnel Accountability, which provides guidelines for personnel accountability when immediate site evacuation is not required, does not specify a 30 minute time limit for completion of accountability, but allows "a reasonable time" to account for missing personnel prior to implementing search and rescue.

EPP-008, EPP-012, and EPP-016, Emergency Facilities Activation and Evacuation, specify individuals to whom accountability reports are made. Reports are made through various individuals, but all are made to both the Emergency Director and the Security Supervisor.

Security Procedure SSP-405, "Security Force Responsibilities For Emergencies During Construction", includes the security force responsibilities for accountability. Badges of personnel who are off site are placed in their assigned places in the badge storage racks. Colored cards are placed in the badge storage racks for those essential personnel who are reported present on the accountability reports. When an individual is reported missing on the accountability reports, Security checks the badge storage rack, visitor register, and authorized access forms. If the individual still can not be accounted for, he is paged and directed to report his location. If after five minutes, the unaccounted for personnel have not reported, Security notifies the Shift Supervisor and Security Supervisor in the TSC so that the search and rescue procedure can be initiated.

The procedures do not provide for continuous accountability after the initial accountability has been completed. Security would be able to account for individuals entering or departing the site, but there is currently no provision for continuing accountability within the site. Discussions with Security indicated that a computerized magnetic card system is to be installed which will provide continuous accountability.

Based on the above findings, this portion of the licensee's program appears to be acceptable pending the completion of the item identified in section 5.1 of this report and the following item:

> Following installation of the card system, develop means for positively accounting for all personnel onsite at all times during an Emergency. (50-395/81-12-51)

5.4.3.4 Personnel Monitoring and Decontamination

Personnel will be required to monitor themselves or be monitored prior to exiting the controlled area next to the Health Physics Laboratory. The contamination limit is 200 DPM/100cm2 Beta/Gamma as specified in EPP-010, Personnel/Vehicle Decontamination. When a site evacuation occurs, all personnel leaving the site will pass through a portal monitor which does not meet the sensitivity requirements of 200 DPM/100cm2 Beta/Gamma. The portal monitor will, however, detect any significantly high contamination that may be present. There are no

procedures that specifically address personnel monitoring either at the Health Physics control point or outside the plant after an evacuation has occurred.

A personnel contamination report was provided in EPP-010, Attachment I, which includes the name of the individual surveyed, the extent of the contamination found, the instrument used and other important information.

Personnel decontamination performed inside the plant will be done at the decontamination facility as specified by HPP-405, Personnel Decontamination. Decontamination performed offsite will take place at the Service Building Annex, whenever possible, or at the holding area.

All personnel found to be contaminated during an emergency situation will be reported to the Radiological Assessment Supervisor.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report and the following item:

> Procedures to ensure monitoring for contamination is performed on all individuals in the event of a site evacuation. (50-395/81-12-52)

5.4.3.5 Onsite First-Aid/Rescue

The implementing procedure EPP-009, On-site Medical, covers the methods for administering first aid, handling of injured persons who may also be contaminated, and provides for the lead medically trained person to make the decision for transport to offsite medical facilities. The procedures require that the first aid teams be assigned a health physics representative and that the Health Physics person accompany the injured person to the hospital if the injured person is contaminated. The auditors observed the first aid facilities and equipment and reviewed procedure AP-018, Control of the First Aid Facilities.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report.

5.4.4 Security During Emergency

Security measures to be placed in effect during emergencies are specified in the following station security procedures and implementing procedures:

SPP-114, "Security Responsibilities During an Evacuation"

SPP-212, "Access Authorization and Clearance"

SPP 213, "Security Identification Badge Issuances"

EPP-012, "Onsite Personnel Accountability and Evacuation"

EPP-008, "Personnel Accountability"

EPP-016, "Personnel Search and Rescue"

The auditor reviewed these procedures and discussed this area of the program with licensee representatives. The procedures were being developed in accordance with the requirements of Appendix C to 10 CFR Part 73.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report and pending the final review, approval and issuance of station security procedures pertaining to an emergency (50-395/81-12-53).

5.4.5 Repair/Corrective Actions

The Emergency Plan and implementing procedures recognize the potential need for repair and corrective actions to correct or mitigate an emergency condition. While specific procedures for repair/corrective actions in an emergency are not provided, responsibilities are assigned and controls are designated to assure adequate safety for repair/corrective action responses through the use of approved procedures for plant operations.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report.

5.4.6 Recovery

The auditor reviewed section 9.0 of the Emergency Plan, implementing procedure EPP-017, Post-recovery and Re-entry, the Corporate Emergency Management Plan, corporate implementing procedure CEP-004, Emergency Operations Facility Recovery Organization and Responsibilities, and discussed the recovery organization and operations with licensee management. Both the overall SCE&G emergency organization and the recovery organization are under the direction of the Emergency Control Officer. The Emergency Control Office has the organizational authority to declare that a recovery phase is to be entered and to determine the specific organizational structure and staffing; however, the Emergency Director has this authority for the Alert and Unusual Event classes of emergencies. The plans and procedures provide for evaluation of plant conditions as well as onsite and offsite radiological conditions prior to entering a recovery phase. The Offsite Emergency Coordiator is responsible to ensure the proper notification of offsite agencies and organizations. A recovery organization is provided in the plans. Procedures EPP-017 and CEP-004 describe the transition from the emergency organization to the recovery organization and identify the key positions, as well as the individuals to fill these positions, in the recovery organization.

The auditor noted that the Corporate Emergency Management Plan and implementing procedures were in draft.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report and the following item:

Finalize and implement the Corporate Emergency Management Plan and the procedures concerning recovery. (50-395/81-12-54)

5.4.7 Public Information

The licensee's emergency information procedures identify the organizations involved in news dissemination. This includes Federal, state, and local agencies with information functions likely to be activated during an emergency, and major media outlets in the area, such as the major news wire services and area broadcast stations. Methods of contacting these organizations by telephone are clearly set forth in the procedure.

The method (primarily by telephone) for coordinating the internal dissemination of information to the various locations and individuals is clearly specified in the licensee's emergency information procedure.

Interim provisions for initial dissemination of information to the news media, prior to establishment of the licensee's news center, are specified in the emergency information procedure. This is spelled out in the section concerning the duties of the Emergency Communications Associate.

The chief utility spokesman, the Emergency Control Officer, is identified in the prodedure along with an alternate and second alternate. The sources of information to be used by the spokesman are identified.

Provision for coordinating information among the spokesmen of various organizations and groups has been made by designating this function in the emergency information procedure to the Industry-Agency Coordinator/Writer.

Provision for rumor control is included in the emergency information procedure. A primary rumor control specialist and an alternate have been designated. The procedures provide for a Customer Inquiry Center to be established at the corporate offices in Columbia.

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

5.5 Supplementary Procedures

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

The auditor reviewed inventories, inspected emergency kits and equipment, and discussed emergency facilities and equipment with licensee representatives. Monitoring equipment is calibrated at the facility on a scheduled basis. Operational checks of emergency equipment will be performed onsite periodically. Complete inventories of emergency equipment contained in the various emergency kits and facilities are inventoried and checked on a routine basis, as required by EPP-019, Emergency Equipment Checklists.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the item identified in section 5.1 of this report.

5.5.2 Drills and Exercises

The auditor reviewed the records available relative to the drills conducted prior to the May 1, 1981 exercise reported in IE Report No 50-395/81-09. The scenarios for these drills related to the reactor coolant systems, radiological monitoring, medical and security events. These drills and other drills of small work groups were discussed with the Emergency Planning Coordinator, the Emergency Coordinator and representative personnel that participated in the drills.

No approved procedures were available which address the drills and exercises specified in criteria of NUREG-0654 Section II.N and required by the planning standard of 10 CFR 50.47(b)(14). Draft procedure EPP-018, "Emergency Training and Drills", was reviewed and discussed with responsible personnel.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-55).

5.5.3 Review, Revision and Distribution of Emergency Plan and Procedures

The area of review, revision and distribution of the Emergency Plan and implementing procedures was reviewed and discussed with licensee representatives and the document control system was observed in operation. Section 8.3 of the Emergency Plan requires that the Emergency Plan and implementing procedures be reviewed and updated on an annual basis. All changes to the Plan and procedures will be reviewed and approved in accordance with the Station Technical Specifications, Section 6.8.2. The Emergency Plan and procedures are controlled documents for distribution purposes. Assigned copies with unique numbers are provided to personnel indicated on an approved distribution list. Signature verification of receipt is required.

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

5.5.4 Audits of Emergency Preparedness

The SCE&G Quality Assurance Surveillance Plan and Quality Assurance Procedures (QAP) were reviewed and the area of audits of the Emergency Preparedness Program was discussed with licensee representatives. The Station QA Surveillance Plan identifies the Emergency Plan and procedures as an area requiring periodic Type II surveillance. The QAP describe the methodology and reporting format for these audits. A licensee representative stated that an audit of emergency preparedness had been scheduled for June 1981, but the audit was delayed due to the number and extent of changes in the program following the emergency exercise. Emergency preparedness audits are required by QAP to be conducted every 24 months, which is in variance with 10 CFR 50.54 (t) and the guidance in NUREG-0654, Section II; however, the 24 month frequency is specified in

Section 6.5.2.8 of the draft Technical Specifications for the Station. QA audit reports are required, by procedure, to be issued within four weeks following the audit date. Responses to audit findings are expected within a reasonable time but no definite time period for response is included in the QAP.

Audit follow-up on corrective actions is required within six months of the audit date. A licensee representative stated that, in general, audit responses are expected within four weeks of the audit report date.

Based on the above findings, this area of the licensee's program appears to be acceptable, however, the following item should be considered for improvement:

> Provide for periodic audits of the emergency preparedness program at least every 12 months. (50-395/81-12-56)

6 COORDINATION WITH OFFSITE GROUPS

6.1 Offsite Agencies

The auditor discussed offsite agencies which would support a station emergency with licensee representatives and reviewed the letters of agreement contained in Appendix C of the Emergency Plan. Written agreements have been executed with offsite agencies and organizations to provide for radiological support, medical assistance, medical transportation, fire protection, and law enforcement support in the event of an emergency and the agreements are current. Training has been provided for members of offsite agencies and organizations, which includes onsite orientation and familiarization training for those individuals who may need to respond to the site. The licensee plans that offsite groups responding to the site will be accompanied by security officers while inside the protected area boundary.

The auditor interviewed representatives of the Fairfield County Disaster Preparedness Agency, Richland Memorial Hospital, Pinner Clinic, Fairfield County Emergency Medical Service, Jenkinsville-Monticello Volunteer Fire Department, and the Fairfield County Fire Board, to discuss emergency response at the Summer site. The individuals contacted at each of these organizations were cognizant of their role in the event of an emergency at the Summer site, had been provided training in their respective roles in emergency response and were satisfied that adequate communications and interface had been provided between their respective organizations and the licensee. The auditor noted that training of offsite agencies and organizations had been accomplished and that adequate overall interaction and coordination between offsite groups and the licensee were evident in the recent full-scale exercise. The procedures to establish an ongoing training program were not final. (see section 3.0).

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

6.2 General Public

The utility has provided for dissemination of emergency planning information to the public within the plume exposure EPZ, primarily through the mailing of an emergency information brochure to all identifiable residences. SCE&G information personnel stated that special signs are being prepared for permanent installation at recreational areas. Brochures have been placed at the few public establishments within the 10-mile EPZ. Utility personnel will place brochures at hotels, motels and other public establishments in nearby towns for reference by transients should an emergency occur. These establishments are outside the 10-mile EPZ, but they represent the only overnight, temporary, transient accommodations near the plant site.

The licensee has coordinated emergency action information with State and local agencies. The SCE&G emergency information procedure lists contacts with appropriate state and local officials. The procedure does not state that these officials will continue to be contacted, at least annually, and that changes will be promptly noted in the procedure.

As stated in the Emergency Plan, emergency information will be updated and disseminated at least annually.

The information provided the public tells how they will be notified and what actions they should take in the event of an emergency. The brochure would be improved if emergency information was the first item listed in the brochure rather than a description of the plant. Use of graphic arts to make emergency information stand out in bold face type would enhance its usefulness.

Public information in the brochure concerning radiation appears to be adequate. However, use of the table showing amounts of radiation from common sources and the level at which health effects can first be detected are subject to scientific debate. Universal agreement upon such numbers is probably impossible. A paragraph on why protection against radiation is desirable, limited to common exposures and the local background levels, could be simplified to illustrate, to persons not familiar with radiation physics, the reasons why protective actions might be needed. Reference to the latest National Academy of Sciences report on the Biological Effects of Ionizing Radiation (BEIR) would represent a neutral, professional opinion for reference.

Few public areas exist within the 10-mile EPZ. The licensee is placing permanent signs in public access areas with instructions on emergency procedures.

Based on the above findings, this area of the licensee's program appears to be acceptable pending completion of the following item:

> Complete the provisions for providing emergency information to the transient population. (50-395/81-12-57)

6.3 News Media

The utility has a program for familiarizing the news media with emergency plans, points of contact for release of public information, space allocated for media

use, information about radiation, normal plant operation versus accident operation, and accident sequences.

The program has been conducted once, prior to the May 1, 1981 emergency exercise. The licensee has committed to an annual review as stated in section 8.1.1 of the Emergency Plan.

The licensee's staff appears to be adequate in number. Some 28 persons in public and government affairs are listed in the duty roster of the company's nuclear information procedure. Individuals holding information management posts are capable and exhibit a desire to maintain and improve the company's emergency information response capabilities.

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

7.0 DRILLS, EXERCISES AND WALK-THROUGHS

7.1 Program Implementation

The licensee conducted a full-scale exercise on May 1, 1981 (IE Report No. 50-395/81-09) and was incorporating lessons learned from that exercise into the emergency preparedness program. Various drills were conducted in preparation for the exercise.

The licensee's experiences relative to the drills and exercise were reviewed and discussed with the Emergency Planning Coordinator and the Emergency Coordinator. This area of the program had not been formally implemented because the procedures are in draft form and because of the limited drills conducted to date.

Based on the above findings, this area of the licensee's program could not be appraised and this area will be reviewed during a subsequent inspection. (50-395/81-12-58)

7.2 Walk-through Observations

The auditors conducted interviews of licensee personnel in the areas of emergency detection and classification, notifications, dose calculations, post accident sampling and analysis, offsite environmental sampling and analysis, and protective action decision making. Walk-throughs could not be conducted in most areas since plant systems were incomplete, equipment was not yet in operation, and/or procedures were not yet implemented.

Walk-throughs were conducted in the area of offsite environmental sampling and analysis. Although the implementing procedure (EPP-007) was not final, the personnel at the Environmental Laboratory have a good understanding of offsite sampling and analysis in an accident condition. Personnel were observed and talked through their actions after being notified of a release from the plant site. The auditors concluded that this specific area of the licessee's program was acceptable.

Overall the acceptability of the area of walk-through observation could not be determined and will be evaluated during a future inspection. (50-395/81-12-59)

8.0 Persons Contacted

8.1 Licensee Personnel

*T. C. Nichols, Jr.	- Vice President & Group Executive, Nuclear Operations
*W. D. Williams, Jr.	- General Manager, Nuclear Operations
M. B. Whitaker, Jr.	- Group Manager, Nuclear Engineering and Licensing
W. Baehr	- Manager, Nuclear Health Physics and Environmental Programs
S. M. Cunningham	- Senior Instrumentation and Control Engineer
*K. Beale	- Emergency Planning Coordinator
G. M. Webb	- Engineer
*S. S. Howze	- Licensing Engineer
*N. E. Clark	- Licensing Engineer
J. W. Barker	- Staff Health Physicist
*A. A. Smith, Jr.	- Director of Surveillance Systems
O. Bradham	- Station Manager
*J. G. Connelly	- Assistant Station Manager
*J. B. Bone	- Emergency Coordinator
R. M. McSwain	- Nuclear Information Supervisor
*C. L. Ligon	- Administrative Supervisor
*S. Smith	- Maintenance Supervisor
L. F. Stor	- Operations Supervisor
*B. G. Croley	- Technical Support Supervisor
L. A. Blue	- Health Physics Supervisor
F. Leach	- Chemistry Supervisor
G. Putt	- Mechancial Maintenance Supervisor
C. T. McKinney	- Electrical Maintenance Supervisor
F. Lamphere	- Office Supervisor
S. Newell	- Maintenance Group Planner
J. LaBorde	- Lead Engineer
A. R. Koon	- Technical Services Coordinator
W. Koon	- Shift Supervisor
*R. M. Fowlkes	- Shift Technical Advisor
P. A. Shultz	- Assistant Health Physics Supervisor
J. Cox	- Assistant Health Physics Supervisor
J. Nesbitt	- Electrical Foreman
D. Nummy	- I & C Foreman
D. Watson	- I & C Foreman
L. Carter	- I&C Foreman

In addition to the above persons, operations personnel, technicians and craftspersons were contacted.

8.2 Other Organizations

Dr. C.A. Pinner, III, M.D.	- Pinner Clinic
R. Cunningham	- Chairman, Fairfield County Fire Board
T. Feaster	- Chief, Jenkinsville-Monticello Volunteer Fire Department
T. Hill	- Fairfield Community Volunteer Fire Department
D. Campbell	- Richland Memorial Hospital
W. Marcley	- Director, Fairfield County Emergency Medical Services
J. Parker	- Fairfield County Emergency Medical Services
L. Bouknight	- Fairfield County Emergency Medical Services
G. Douglas	- Director, Fairfield County Disaster Preparedness Agency

8.3 NRC

J. Skolds	- Senior Resident Inspector
*G. R. Jenkins	- Section Chief, EPOS Division, RII

*Attended the exit meeting on June 17, 1981