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Licensee: Georgia Power Company
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Docket Nos.: 50-424 and 50-425 License Nos.: CPPR-108 and CPPR-109

Facility Name: Vogtle 1 and 2

Inspection Conducted: March 10-21, 1986

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SUMMARY

Scope: This announced inspection concerned a detailed appraisal of the Radiological Emergency Preparedness Program.

Results: Of the areas inspected, no violations or deviations were identified; however, 63 Incomplete and 50 Improvement Items were identified.

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INTRODUCTION

The purpose of this special appraisal was performance of a comprehensive evaluation of the applicant's radiological emergency preparedness program for the Vogtle Electric Generating Plant (VEGP). This appraisal included an evaluation of the adequacy and effectiveness of areas for which explicit regulatory requirements may not currently exist.

The appraisal scope and findings were summarized on March 21, 1986, with those persons indicated in Section 8.0 of this report.

Meetings and interviews with the applicant's management and staff indicated a strong commitment to the radiological emergency planning program. During the entrance interview, the inspectors were appraised of the current status of the radiological emergency preparedness program. The inspectors were also provided with updated summaries of plant site and Corporate Emergency Response Organizations' structure and personnel.

1.0 ADMINISTRATION

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

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(1) and (16); Paragraph IV.A of Appendix E to 10 CFR 50; guidance promulgated in Sections II.A and P of NUREG-0654, Rev. 1; criteria defined in ANSI N3.1.

Two principals of the VEGP staff have formal responsibility for the emergency preparedness program, namely: the Health Physics Superintendent, who reports to the General Manager of Nuclear Operations through the Unit Operations Manager; the Emergency Preparedness Coordinator, who reports directly to the Health Physics Superintendent. The Health Physics Superintendent is assigned general responsibility for the onsite emergency preparedness program and offsite coordination with the local emergency support organizations. These responsibilities are implemented on a part-time basis and are described in the following documents: FSAR; VEGP Administrative Procedures; Health Physics Procedures; and Nuclear Operations - Instructions (NOIs) issued by corporate management. The Emergency Preparedness Coordinator is a full-time position. The respective responsibilities are described in the VEGP Administrative and Health Physics Procedures, and in formal position descriptions. The individuals assigned fully meet the required qualifications which are established in either the FSAR or by the formal job description. Professional development and formal training programs are made available to both individuals to assure that their emergency planning expertise is maintained as required.

One of the functions of the Georgia Power Company (GPC) Manager is Radiological Safety and the responsibility for all offsite and corporate emergency preparedness including the direct interaction with Federal, State and local organizations, contractors and the individual nuclear power plant sites. A GPC Nuclear Emergency Planning Supervisor works full time in corporate emergency preparedness and reports to the Manager of Radiological Safety. The Supervisor is the corporate counterpart of the VEGP Emergency Preparedness Coordinator. These responsibilities are described in the FSAR, Corporate Emergency Plan, NOIs and the VEGP Health Physics Procedures.

Site personnel input to the VEGP Emergency Plan and EPIPs is formalized through Health Physics Procedure 40005-C which directs all requests and revisions to the Emergency Preparedness Coordinator and establishes the review process through site management. VEGP Administrative Procedure 00001 directs all managers to assign personnel to the Emergency Response Organization as requested by the Emergency Preparedness Coordinator.

VEGP Administrative Procedures 00001 and 00002 provide for the assignment of emergency preparedness responsibilities to the various VEGP superintendents and the Plant Review Board. These and other VEGP procedures clearly delineate the responsibilities for emergency planning. The subject procedures also provide for the direct coordination of budget input and other management responsibilities of site superintendents including the Health Physics Superintendent.

In general, administrative coordination between the corporate and site emergency preparedness program is adequate. However, during review of the NOIs, Health Physics Procedures and the EPIPs it was observed that NOI-08-052 gives the responsibility for annual review of the VEGP Emergency Plan to the Health Physics Superintendent, while Health Physics Procedure 40005-C directs this responsibility to the Manager of Radiological Safety.

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

- Determining the responsibility for the annual review of the VEGP Emergency Plan and correcting the NOI-08-052 or Health Physics Procedure 40005-C accordingly (50-424/86-12-01, 50-425/86-18-01).

2.0 EMERGENCY ORGANIZATION

2.1 Onsite Organization

2.2 Offsite Augmentation

This area was reviewed pursuant to the requirements of 10 CFR 50.47 (b)(1) and (2); Paragraph IV.A of Appendix E to 10 CFR 50; guidance promulgated in Sections II.A and B of NUREG-0654, Rev. 1; and criteria defined in ANSI N3.1.

The VEGP emergency response organization (ERO), including listing of personnel by job title assigned to key positions, and the ERO organizational structure are described in Section B of VEGP Emergency Plan and in EPIP 91101-C. Additional supporting EPIPs provide a more detailed description of key emergency managerial roles and functions. Discussions with VEGP personnel and review of respective plans and procedures indicated that the applicant has considered all required and appropriate onsite functions for the ERO. It was observed that EPIP 91107-C, "Duties of the Engineering Supervisor (TSC)," requires the supervisor to maintain a staff of three engineers including an Electrical Engineer; however, Table 3 of EPIP 91101-C does not include this engineering position.

Twenty-four hour onshift coverage exceeds the criteria for minimum staffing for power operation and provides for the Onshift Operations Supervisor (OSOS) to assume the position of Emergency Director until relieved by one of the following: General Manager, Vogtle Nuclear Operations; Senior Vice President, Nuclear Operations; Vice President and General Manager, Nuclear Operations; VEGP Manager, Unit Operations; or the VEGP Operations Superintendent. In the event the OSOS is incapacitated, the Shift Supervisor assumes the position of Emergency Director. The EPIPs provide a list of primary and at least two alternates for all key positions in the ERO, and the lines of succession for these positions are specified.

The GPC headquarters personnel augment the ERO by establishing a corporate emergency center in Atlanta to provide the following: public information function and support emergency coordination; communications; operational accident assessment; radiological accident assessment; manpower and logistics; and backup dose assessment capability. This facility is managed by the Director of

Corporate Response. The subject position is filled by either the Senior Vice President, Nuclear Operations or the Vice President and General Manager, Nuclear Operations. Two alternates are also designated. As time permits, the two primary designees may travel to VEGP and assume the position of VEGP Emergency Director. When this occurs, the public information staff, including the Public Information Manager (assigned to the VEGP EOF), the Company Spokesperson, and the Emergency News Center (ENC) Director also travel to the VEGP site. The public information staff establishes the ENC in Waynesboro, Georgia. The functions and responsibilities of corporate personnel are described in the Corporate Emergency Plan and the Vogtle Emergency Communications Plan, which are provided in Appendices 7 and 8 to the VEGP Emergency Plan, and the NOIs. The organizational structure and the personnel by job title assigned to the key positions, and their alternates, also are provided in these plans and NOIs.

The primary selection criterion for emergency personnel assignments both at VEGP and the corporate headquarters is based on job assignment which is related to job experience, education and capabilities. Review of the VEGP and Corporate Emergency Plans and Procedures disclosed inconsistencies in the descriptions of the staffing assignments at the corporate level. Alternates assigned for the position of Public Information Manager in the VEGP Emergency Plan and EPIPs cite different individuals than those listed in the Corporate Emergency Plan, the Vogtle Emergency Communications Plan, and NOI-08-116 and 117. It was also disclosed that the GPC Manager Engineering Liaison, has the primary emergency assignment as the Company Spokesperson, and five alternate key emergency management assignments in the Corporate Emergency Center.

The ERO also is supported by local ambulance and emergency medical services, hospitals, radio and television stations, and fire departments. Additional support is provided by vendors, contractors, INPO, and Southern Company Services. Agreement letters and descriptions of the assistance provided are specified in the VEGP Emergency Plan. The procedures for requests for assistance are given in the Corporate Emergency Plan, the EPIPs and the NOIs.

Except for staffing the EOF during normal working hours, the applicant has not demonstrated that the Emergency Response Facilities (ERFs) can be staffed and operational within one hour after activation. A drill to demonstrate this capability on the backshift is scheduled for October 1986.

Based on the above findings, this portion of the applicant's program appears to be adequate with the exception of the following incomplete item:

- Completion of the drills necessary to demonstrate that the ERFs can be staffed and operational within one hour after activation (50-424/86-12-02, 50-425/86-18-02).

In addition, the following items are recommended for program improvement:

- Reviewing the description of emergency staffing by corporate level to ensure that the staffing assignments are consistent in the VEGP and corporate plans and procedures (50-424/86-12-03, 50-425-18-03).

- Reviewing the corporate emergency staffing assignments to determine if an adequate number of individuals are assigned as alternates to key positions to ensure staffing 24 hours per day, or as required (50-424/86-12-04, 50-425/86-18-04).

- Correcting Table 3 of EPIP 91101-C to include an Electrical Engineer on the TSC engineering staff (50-424/86-12-05, 50-425/86-18-05).

3.0 TRAINING

3.1 Program Established

This area was reviewed pursuant to the requirements of 10 CFR 19; 10 CFR 50.47(b)(15) and (16); Paragraph IV.F of Appendix E to 10 CFR 50; guidance promulgated in Sections II.O and P to NUREG-0654, Rev. 1; and criteria defined in ANSI/ANS 3.7.3

The applicant established a training program for the emergency planning (EP) organization. The Emergency Plan and EPIP 91601-C "Emergency Preparedness Training," defined the emergency plan training requirements for Vogtle Electric Generation Plant (VEGP) personnel and selected offsite agencies. All VEGP emergency personnel were required to take the General Employee Training (GET) in accordance with Procedure 00700-C. The training included blue badge instruction which was an eight hour basic training class consisting of site specifics and some emergency plan information. Yellow badge instruction consisted of 16 hour training and included basic radiation protection. Annual GET training is required for all VEGP personnel.

Specified functional areas of emergency activity training were addressed in the Emergency Plan and were consistent with the requirements of the emergency organization. A formal, approved lesson plan was developed for each functional area of required training. Each lesson plan clearly stated student performance objectives. Testing of the performance objectives was required for each class. Tests are conducted where appropriate. Students failing a class were required to take further training and retake the examination until a passing score of 80% or higher was achieved. Table top and hands-on demonstrations did not normally require formal testing.

Emergency retraining was required annually (±3 months) for VEGP and Corporate personnel and offered to involve State and local service support organizations. Training instructors were selected using criteria established by VEGP Training Procedure Manual, Procedure 60100-C. Selection of instructors was based on technical and teaching qualifications, maturity, oral and written communication skills, and interpersonal skills. The process was administered by the Superintendent of Nuclear Training. Emergency training was provided primarily by lecture type classroom instructions. Practical or hands-on training was conducted to meet functional training area requirements. Primary documentation of emergency training records were maintained in personnel folders and filed; however, an unofficial computer tracking system program was developed which stores all emergency training record file information and provides a rapid capability for searching personnel records. Emergency training records reviewed

were current, and defined the course title, instruction, date of class, name of student and examination grade. Walk-throughs and table top training was periodically conducted for selected personnel. Some training exercises and drills were performed to demonstrate abilities to perform assigned functions under emergency/accident conditions. All designated first aid team members were scheduled to complete Red Cross Standard Multimedia training by March 31, 1986.

Radiation Management Corporation (RMC) provided training for the Burke County Hopsital and the Humana Hospital, Augusta. Training was completed for hospital and ambulance/rescue personnel. Fire brigade personnel provided ambulance/rescue service and nine of 17 were EMT trained. Local service support organizations required to enter the site (fire/ambulance and rescue) received a plant tour and familiarization orientation.

Provisions to train members of the emergency organization in changes to procedures and equipment which occurred during the period between the scheduled training was documented in the Training Procedures Manual, Procedure 60005-C "Incorporation of Changes in Training Material and Simulator". No procedure has been developed which provides for the training of non-licensee augmentation personnel (e.g., contractor, HPs, vendors, etc.) for plant entry in response to a request for assistance, prior to their assimilation into the emergency organization. However, the applicant stated that the brief GET or continuous escort service would be provided by VEGP.

VEGP security provided their own emergency training. Training of security personnel involved with emergency functions was completed. Some offsite law enforcement orientation and familiarization training was provided by security during the March 19, 1985, practice exercise.

An overview for decision makers training course for Burke County public officials, heads of operating departments and other applicable personnel involved in the Burke County Operations Center was completed. Records were maintained, and the procedures called for annual training/retraining for all State and local personnel.

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

- Continuing to develop the computerized record and tracking system for emergency training and including its functions as a part of the EPIP 91601-C "Emergency Preparedness Training" (50-424/86-12-06, 50-425/86-18-06).

- Establishing and documenting a provision for conducting appropriate training for non-licensee augmentation personnel (contractor, HPs, vendors, etc.) on arrival in response to a request for assistance prior to their assimilation into the emergency organization (50-424/86-12-07, 50-425/86-18-07).

3.2 Program Implemented

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(15) and (16); Paragraph IV.F of Appendix E to 10 CFR 50; guidance promulgated in Sections II.O and P to NUREG-0654, Rev. 1.

The applicant's training program had been implemented. Review of records indicated that a majority of VEGP personnel assigned to the emergency response organization were trained in each of their required training categories, and that the remaining untrained personnel would complete required training by March/April of 1986. All personnel records reviewed were in order, and provided the information required. The applicant's training program appeared to be consistent with the Emergency Plan and Training Procedures Manual.

Walk-through demonstrations and discussions with emergency response personnel, indicated that they were cognizant of their duties and responsibilities and were adequately trained in their assigned areas of emergency response. Interviews with Security personnel and observation of a security drill indicated that they had an adequate understanding of their duties and responsibilities relating to the emergency program. The Security Division, directs and implements its emergency response training program.

The inspector attended a portion of a training session for Core Damage Assessment attended by the remaining personnel requiring the subject training. The presentation was conducted in a professional manner, and required course material used was consistent with the lesson plans provided. The training session was considered adequate.

Based on the above findings, this portion of the applicant's program appears to be adequate; however, exception of the following incomplete items were identified:

- Completion of GET training for all personnel onsite to be badged for entry into the protected area (50-424/86-12-08, 50-425/86-18-08).

- Completion of Core Damage Assessment training for all Emergency Response Organization personnel requiring such training (50-424/86-12-09, 50-425/86-18-09).

- Completion of In-Plant Monitoring Team training for all Emergency Response Organization personnel requiring such training (50-424/86-12-10, 50-425/86-18-10).

- Completion of Field Monitoring Team training for all Emergency Response Organization personnel requiring such training (50-424/86-12-11, 50-425/86-18-11).

- Completion of Offsite Dose Assessment training for all Emergency Response Organization personnel requiring such training (50-424/86-12-12, 50-425/86-18-12).

- Completion of Communication and Records training for all Emergency Response Organization personnel requiring such training (50-424/86-12-13, 50-425/86-18-13).

- Completion of Repair and Corrective Action training for all Emergency Response Organization personnel requiring such training (50-424/86-12-14, 50-425/86-18-14).

- Completion of SCBA training for all Emergency Response Organization personnel requiring such training (50-424/86-12-15, 50-425/86-18-15).

- Completion of First Aid training for all Emergency Response Organization personnel requiring such training (50-424/86-12-16, 50-425/86-18-16).

- Completion of Medical Support of Radiation Emergency training for all Emergency Response Organization personnel requiring such training (50-424/86-12-17, 50-425/86-18-17).

- Completion of planned walk-throughs and talk-throughs training and drills for offsite support organizations (50-424/86-12-18, 50-425/86-18-18).

The applicant has identified the above incomplete items and is committed to complete the appropriate training by April 30, 1986, except for GET and offsite support organization training.

4.0 EMERGENCY FACILITIES AND EQUIPMENT

4.1 Emergency Facilities

4.1.1 Assessment Facilities

4.1.1.1 Control Room

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(8); Paragraph IV.E of Appendix E to 10 CFR 50; Reg. Guide 1.97; guidance promulgated in Sections II.H of NUREG-0654, Rev. 1; and criteria defined in ANSI/ANS 3.7.2.

The Control Room(s) (CR) is located on the 220 ft. elevation (Grade Level) of the Control Building. Units 1 and 2 Control Rooms are positioned toward their respective units, sharing a common area. Unit 2 control boards have been "rotated" 90 degrees counter-clockwise so that each control board is essentially the same, with minor exceptions due to space limitations. An elevated platform positioned between control room areas, provides space for the unit supervisors to oversee respective CR operations. An office space, adjacent to Unit 1 Control Room, and within the habitability envelope, is designated as the On-Shift Operations Supervisor (OSOS) area. No EP related materials were placed in the OSOS office at the time of the appraisal; however, a page speaker and telephone were available. In event of an emergency, the OSOS reports to the affected unit control room, and adjacent to the unit supervisor position.

Numerous items of facility equipment were missing, for example: fixed items such as room lighting and their associated battery back-up capability; and portable items such as phones, communication base stations, and computer printers.

Communications equipment status is provided in Section 4.2.3.1, below. Adequate plant communications, including plant page stations and a common (Unit 1 and 2) alarm activation panel were installed and operable. Adequate numbers of the Emergency Plan and EPIPs are not currently provided for in the CR. The applicant will provide folders containing appropriate EPIPs for the various watch stations to minimize the total numbers of EPIP sets required. Such folders have been prepared and are presently used in training. Adequate off-normal operating procedures are not available within the CR. The applicant plans to provide the required copies.

Relative to accident instrumentation and assessment capability, numerous status panels (e.g., Safety System Status Monitoring Panel (SSSMP), Plant Safety Monitoring System (PSMS)) provide rapid assessment capability to the operators. A "first-out" panel indicates causes of reactor trips and safety injection (SI). Alarm printers permit sequence of event analysis. Printers for the Process Effluent Radiation Monitors (PERMS) and turbine supervisory panels are available. A video copy of the ERF computer display is also provided. Based on review of the intended configuration of the Control Room, it appears that the equipment and workspace will adequately support the operator's ability to perform accident detection/mitigation, classification, notification, and protective action decisionmaking. The results of hypothetical accident scenario walk-throughs are presented in Section 7.1.

The Control Room is capable of operation on a closed, recirculation ventilation system. Normally, a positive pressure is maintained in the CR. The air intake is located to provide the following:

- Protection from the effects of a main steam line break
- Minimized introduction of airborne radioactivity from unit release points
- Minimized introduction of airborne diesel generator exhaust and other noxious fumes.

The Control Room system shifts to recirculation on receipt of SI signal, or high radiation on a noble gas channel at the CR ventilation intake, as well as high chlorine. The CR is designed for occupancy (five [5] persons, five [5] days) during and following a design base accident (LOCA) such that the direct dose plus the inhalation dose will not exceed the limits of 10 CFR 50, Appendix A, Criterion 19. Two redundant, physically separated air handling trains, belonging to two different safety trains, are provided at present. Upon completion of Unit 2, four safety related air-handling units will be available. The Control Room envelope includes kitchen and lavatory facilities.

Based upon the above findings, the following portions of the applicant's program were found to be incomplete. These areas will be reviewed during a future inspection:

- Placement of the appropriate EP material in the OSOS office (prior to fuel load) (50-424/86-12-19, 50-425/86-18-19).

- Placement of adequate, appropriate references, documents, and procedures in the Control Room (prior to fuel load) (50-424/86-12-20, 50-425/86-18-20).

- Completion of the installation and testing of Control Room equipment used in accident detection/mitigation, classification, notification, and protective action recommendation formulation (50-424/86-12-21, 50-425/86-18-21).

- Completion of training and qualification for Control Room personnel on all equipment used in accident detection/mitigation, classification, notification, and protective action recommendation formulation, and demonstration of ability to adequately perform same (50-424/86-12-22, 50-425/86-18-22).

4.1.1.2 Technical Support Center

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(8); Paragraph IV.E of Appendix E to 10 CFR 50; guidance promulgated in Sections II.H and I of NUREG-0654, Rev. 1; and criteria defined in NUREG-0737, Supplement I.

The inspectors interviewed the TSC Manager and other key personnel (supervisors) regarding their duties, responsibilities, and functional relationships within the VEGP Emergency Response Organization.

The TSC is located in the Control Building. The facility is adjacent to, and east of the Unit 1 Control Room entrance at plant elevation 220 feet MSL. The habitability envelope of the TSC is separate from, but similar to, the Control Room. The envelope boundaries are separated by approximately 15 feet. Under accident conditions involving a release, routine face-to-face communications between TSC and the CR would be possible since the volume separating the CR and the TSC is not free-exchanging with the outside environment.

The TSC is designed for occupancy during the design base accident (DBA). Its ventilation system is manually shifted to the emergency mode when the TSC is activated in accordance with EPIP 91201-C, "Activation and Operation of the TSC." The emergency filtration system processes all outside makeup air and 25% of the recirculated air through a standard HEPA train. For 30-day occupancy during DBA, exposures should not exceed 5 rem W/B, 30 rem thyroid. Chlorine and hydrogen sulfide alarms are provided on the local control panel for the system. Two area monitors in the TSC are provided and accessed by the plant PERMS. The current ventilation system is a temporary, local air-conditioning unit, since the final system has not been completed, tested, and turned over to the utility for routine operation.

Essential and battery-backed lighting systems, in addition to normal lighting, are planned for installation (EP Paragraph H.1.1). Power for TSC vital equipment is from a TSC Motor Control Center, backed by the security diesel generator, or from battery-backed Uninterruptable Power Supplies (UPS). Transfer to the security diesel is via manual bus transfer. Similarly, vital TSC equipment, such as the ERF computer, is provided power from TSC Motor Control Center. Such equipment is also battery backed from UPSs.

Approximately 6000 square feet of work space are provided in several different rooms and work areas. The segregated work areas house the various emergency teams, such as radiological assessment and engineering evaluation. Teams report to their respective supervisors in the centrally located space of the Command

Center. A central table in the Command Center seats all supervisors of the various disciplines with the TSC Manager. A clerk is also seated with the Manager. Provisions for NRC representation in the Command Center have been made. Additionally, approximately 100 square feet have been allocated in a segregated conference room. Communication capability in the NRC conference area has not been established, pending guidance from the NRC. Other facilities available include kitchen, shower, and lavatories. A satellite document storage facility supplements limited library storage within the Command Center.

Appropriate documents have been identified and selected for storage within the Command Center. The VEGP FSAR was available in the TSC; however, State and county emergency plans were not. The satellite document control center, under the direction of the Operations Department and planned for use during normal operations, is accessed from the space between the CR and TSC ventilation envelopes.

The Maintenance Supervisor has designed a system for uniquely tagging components and equipment within the TSC in a manner that will permit access to references and spares. Numerous plant drawings are available in the TSC in hard copy form. Most drawings will be available on aperture cards with an appropriate reader-printer provided, plus a back-up.

Relative to accident instrumentation and assessment capability, the primary data transmission system is the ERF computer, the main frame of which is located in the TSC. Several terminals are provided in the TSC. The terminals are customized for the primary function of the predominant user. The operations supervisor has single keystroke capability to access numerous routines. The terminals are multi-function, and can access PERMS PDS, etc. Dose assessment is done primarily with VIBRANT code software. This system is a VEGP-specific version of IRDAM. A battery powered mini-computer will also be available to run this program. Additionally, a manual worst-case technique is included in the offsite dose calculation procedure (EPIP 91304). Meteorological and release rate data are obtained from the ERF computer for input to the mini-computers or EPIP. The inspector observed that the fully activated emergency organization provides for the EOF to perform dose projection and field monitoring team control.

Based on the above findings, the following areas of the applicant's program were found to be incomplete. The applicant has committed to completing the items prior to fuel load. These areas will be reviewed during a future inspection.

- Completion of the installation and testing of TSC ventilation system, and qualification of cognizant personnel (50-424/86-12-23, 50-425/86-18-23).

- Completion of the installation and testing of TSC electrical distribution system, and qualification of cognizant personnel (50-424/86-12-24, 50-425-18-24).

- Placement of the appropriate documents, references, and equipment in the TSC command center and operations satellite document control center (50-424/86-12-25, 50-425/86-18-25).

4.1.1.3 Operations Support Center (OSC)

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(8); Paragraph IV.E of Appendix E to 10 CFR 50; guidance promulgated in Section II-H of NUREG-0654, Rev. 1; and criteria defined in NUREG-0578.

The OSC is located on the second floor of the Maintenance Building in the lunch room area on the eastern end of the building. The Maintenance Building is located east of the Turbine Building and to the northeast of Unit 1 containment. This location is consistent with the specified location in the Emergency Plan. It is a convenient location based on the availability of space for Radiological Emergency Teams (RET), maintenance personnel, OSC staff, and supporting personnel and equipment. Location of the facility in the maintenance area provides convenient access to shop spaces, tools, and equipment. A backup tool kit is maintained in an OSC locker. There is also a conveniently located document satellite which provides plant drawings, technical manuals, and other publications. The OSC is located over 800 feet from the Control Point. The Control Point is the assigned access to the plant under radiological emergency conditions. The route from the OSC to the Control Point must be partially traversed out-of-doors.

The Maintenance Building is not environmentally protected; however, the OSC is provided with an Eberline AMS-3 continuous air monitor equipped with alarms and radioiodine monitoring capability. In the event the OSC must be relocated, a secondary location is the TSC, with the EOF as an additional alternate. Space is very limited in the TSC; therefore, some personnel would have to be relocated elsewhere, or evacuated, if the TSC was selected as the alternate OSC.

The OSC is equipped with six status boards which address the following: radiological status; emergency team status; sequence of events; plant parameters; radiation monitor status; and equipment availability. There is also a large emergency planning sector map. Equipment, publications, and supplies assigned to the OSC are located in storage cabinets. The cabinets were inventoried by the appraisal team. Results of the inventory and equipment deficiencies are defined in Sections 4.2.1.1 and 5.5.1, below.

OSC communications with other emergency response facilities and the Radiological Emergency Teams are maintained via telephone and radio links. The OSC Manager is linked directly via dedicated phone lines to the EOF, TSC, and Control Room. Lines to the TSC and Control Room are additionally backed up by 2 general use lines, in-plant radio, and the plant page system. The Radiological Emergency Teams (RETs) primary communications are in-plant radios which use in-plant antennae to reduce the number of areas where transmission and/or reception are poor. The in-plant telephone system is backup to the radios. The inspectors conducted an inventory and functional test of the applicant's communications system and instruments. The communications system was found to be incomplete during the current construction stage.

The OSC is an initial assembly area for the following personnel with RET assignments: personnel with emergency plan assignments (i.e., offsite monitoring teams); chemistry and Health Physics Technicians not assigned to the TSC or

Control Point; plant operators and the OSC staff. The OSC Manager coordinates the movement of personnel within the plant and onsite (except for TSC and Control Room personnel), and performs the other functions defined in EPIPs 91104-C, Rev. 2, "Duties of the OSC Manager," and 91202-C, Rev. 2, "OSC Activation Checklist." The facilities and equipment in the OSC are adequate to support its assigned mission.

The inspector interviewed four personnel assigned to the OSC to determine the effectiveness of their training in EP procedures and cognizance of their functions during an emergency. A "mini scenario" was used to determine each persons knowledge of the assignment and its relation to the overall functions of the OSC. All personnel interviewed received training in the Emergency Plan, GET, and participated in past exercises. Telephone notification and the plant PA system were the primary methods of announcing an emergency requiring their presence in the OSC. Plant alarms defining emergency classifications have not been used during any emergency exercises. All participants are familiar with the contents of the OSC's supply cabinets, sign-in procedures, and procedures when participating in RETs.

The method for issuing dosimetry to RET members was described. The HP Technician was given a contaminated injured person scenario, and an adequate response was given. A member of an offsite monitoring team, who initially reports to the OSC, was familiar with the accountability method and requirements for obtaining both vehicle and supplies.

The OSC Manager (the plant's Maintenance Superintendent) was cognizant of his responsibilities specified in EPIP 91104-C, "Duties of the OSC Manager." The subject manager acknowledged that the layout of the OSC is being refined, and that each drill continues to improve its utilization. Recent drills have resulted in the restriction of access to and from the OSC to a single controlled door. The OSC Manager demonstrated his knowledge of EPIP 91501-C, "Emergency Exposure Guidelines."

In view of the above findings, the OSC staff interviewed appeared to be adequately trained and cognizant of their emergency plan functions. The OSC facility and equipment, however, is considered to be incomplete, pending full operation of the communication system and final stocking of emergency kits. An item to be considered for improvement is defined below.

- Assuring that sufficient HP personnel are available in the OSC to survey an acceptable route for RET members between the OSC and the control point (or other point of plant entry) in the event of onsite radioactive contamination (50-424/86-12-26, 50-425/86-18-26).

4.1.1.4 Emergency Operations Facilities (EOF)

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(8); Paragraph IV.E of Appendix E to 10 CFR 50; guidance promulgated in Section II.H of NUREG-0654; and criteria defined in NUREG-0578.

The EOF is located on the lower floor of the south wing of the Training Center, approximately 1.5 miles from the plant. It is composed of three classrooms an adjacent conference and storage areas. Portable walls are opened to provide an area which is adequate to accomodate all assigned personnel. There is adequate space for limited news media, but the Plan does not anticipate their presence in the EOF during an emergency. The Emergency News Center in Waynesboro provides the single point of media contact.

A review of Section H-6 of the Emergency Plan, indicates that the EOF is sealed and maintained at a positive pressure with respect to atmospheric pressure. Additionally, the ventilation system has recirculation capability through high-efficiency particulate filters. Because the available schematics and manuals were not adequately detailed to provide for positive analysis of the ventilation system's design and operation, the inspector requested a copy of the system acceptance procedure and indication of its satisfactory completion. This information was not provided prior to termination of the appraisal.

The Emergency Plan also indicates that EOF emergency lighting will be provided by 3-h wall packs. One battery operated emergency lighting fixture with two bulbs, was found in the hallway of the EOF. No emergency lighting was found in the EOF work areas.

In accordance with the Emergency Plan, the EOF is supplied from outside line power. Plant Vogtle and Plant Wilson are the closest sources of line power. However, presently, a disruption of line power between those sources and the EOF would require its evacuation because of an absence of back-up emergency power generation and no emergency lighting.

The EOF is equipped with adequate status displays and sector maps to follow the development and mitigation of the emergency event. Overhead projection is used for many of the status displays. Plume path is plotted on a properly sectored and posted EPZ map which also shows pre-selected monitoring points, TLDs, and air sampling stations. Isopleths are not used to plot plume pathway; however, the computer program RADDOSE II is used to predict the plume's trajectory.

The EOF has a dedicated hotline telephone connection with the TSC and Control Room (the GPC Corporate office and the OSC are also on the line) which is backed up by two administratively dedicated telephone lines, namely: one between the Control Room and EOF; and one between the EOF and the TSC, OSC and the back-up EOF. EPIP 91204-C, Rev. 2, "Emergency Response Communications" calls for the NRC to have three VEGP dial lines and two Bell System dial lines, plus the ENS and HPN lines. Currently, only two VEGP and one Bell System line is available and the ENS and HPN lines are not installed. An additional seven Bell lines are on order.

The following publications which are required by the Emergency Plan to be located in the EOF could not be found: State and local emergency response plans (with the exception of the Savannah River plan); and evacuation plans. Controlled copies of P&IDs and plant layout diagrams sufficient to plan initial recovery operations were available in the EOF. More detailed drawings can be sent by facsimile from the TSC.

The inspector conducted interviews of the following EOF staff: Emergency Director; Manager; NRC Liaison Manager (also an alternate EOF Manager); Dose Assessment Manager; Support Coordinator; and the Security Coordinator. The inspector's questions were based on operational scenarios designed to determine their cognizance of EOF assignments and the Emergency Plan. All interviewees were knowledgeable of their responsibilities defined in EPIP 91203-C, Rev. 2, "Activation and Operation of the EOF." The EOF Manager was cognizant of his responsibilities defined in EPIP 91105-C, Rev. 2, "Duties of the EOF Manager." The Manager demonstrated his ability to make recommendations to the Emergency Director when the TSC requests permission to exceed the exposure limits of 10 CFR 20.

The Dose Assessment Manager was familiar with the use of the EALs to develop protective action recommendations for the Emergency Director. The subject Manager was also familiar with State and DOE-SRP methods of designating areas for shelter and evacuation within the EPZ. The NRC Coordinator (alternate EOF Manager) and the EOF Support Coordinator acknowledged the limited availability of technical drawings and information in the EOF, but stated that information can be obtained by facsimile from the TSC as necessary. The training library is also located on the first floor of the building and can be accessed if required, and if it is habitable.

Based on the above findings, training of the EOF personnel interviewed appeared adequate. The facilities and equipment in the EOF, however, are considered to be incomplete. Specific items in this category are listed below.

- Demonstration of the satisfactory operation, including isolation and recirculation of the EOF ventilation and HEPA filter system (50-424/86-12-27, 50-425/86-18-27).

- Installation of 3-h emergency lighting as called for in the emergency plan (50-424/86-12-28, 50-425/86-18-28).

- Placement of all State and local emergency plans and the evacuation plan in the EOF as called for in the emergency plan (50-424/86-12-29, 50-425/86-13-29).

- Completion of the installation of the telephone system including ENS and HPN lines (50-424/86-12-30, 50-425/86-18-30).

An improvement item is the installation of a reliable emergency power source for the EOF (50-424/86-12-31, 50-425/86-18-31).

4.1.1.5 - 4.1.1.6 Post Accident Sampling and Analysis

These areas will be inspected at a later date.

4.1.1.7 Post Accident Gas and Particulate Effluent Sampling Analysis

This area was reviewed pursuant to the requirements of 10 CFR 50.47 (b)(9); Paragraph IV.B of Appendix E to 10 CFR 50; and guidance promulgated in Section II.I of NUREG-0654, Rev. 1.
At time of inspection, the equipment for obtaining samples from the plant and turbine building vents was not installed. The inspector reviewed two procedures in this area, namely: 33016-C, "Obtaining Ventilation Systems Samples for Radioactivity Analysis Under Post Accident Conditions;" and 33065-C, "Gamma Spectroscopy Analysis Under Post Accident Conditions." These procedures are discussed in Section 5.4.2.9.

Based on the above findings, this portion of the applicant's program is incomplete. An inspection will be conducted at a future date.

- Completion of the equipment installation and the determination of operational and procedural adequacy (50-424/86-12-32, 50-425/86-18-32).

4.1.1.8 Post Accident Liquid Effluent Sampling and Analysis

This area was reviewed pursuant to the requirements of 10 CFR 50.47 (b)(9); Paragraph IV.B of Appendix E to 10 CFR 50; guidance promulgated in Section II.I of NUREG-0654, Rev. 1.

Following detailed discussions with several members of the plant chemistry staff, it was determined that the procedures for liquid effluent sampling will have been completed by June 1986.

Based on the above findings, this portion of the applicant's program was found to be incomplete. This area will be reviewed during a future inspection.

- Completion of all the procedures required for post accident liquid effluent sampling (50-424/86-12-33, 50-425/86-18-33).

4.1.1.9 Offsite Laboratory Facilities

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraph IV.E of Appendix E to 10 CFR 50; guidance promulgated in Sections II.C and H of NUREG-0654.

The inspector toured Georgia Power Company's Environmental Laboratory at Smyrna, Georgia, and determined that the laboratory is equipped to provide support in performing the following radiological environmental analyses: river water; drinking water; milk; vegetation; sediments; air filters; and biological samples. Several types of isotopic analyses can be conducted; however, iodine analysis is still being developed. A program for processing environmental and emergency TLDs is being developed. TLD reading and iodine analysis are currently being provided under contractural agreements with Teledyne, Inc., and the University of Georgia, respectively.

The applicant provided documentation identifying the laboratory's participation in the EPA Laboratory Intercomparison Studies Program. In addition, the laboratory has an interim quality assurance audit program consisting of prepared standards, blanks, and spikes. The inspector reviewed a procedure titled "Reporting of Results for Environmental Samples Analyzed for Radioactivity (PSL-12450.608)." This procedure appeared adequate; however, it did not address sample results reporting during emergencies.

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

- Establishing a procedure for transmitting sample analysis results and data during emergencies (50-424/86-12-34, 50-425/86-18-34).

4.1.2 Protective Facilities
4.1.2.1 Assembly/Reassembly Areas

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(10); and guidance promulgated in Section II.J of NUREG-0654, Rev. 1.

The inspector reviewed Section J of the Emergency Plan, EPIP 91403-C "Site Evacuation," EPIP 91401-C "Assembly and Accountability," and discussed and observed assembly areas with applicant representatives. Plant personnel assigned specific emergency responsibilities proceeded to their designated emergency response locations such as the Control Room, Operational Support Center (OSC), and Technical Support Center (TSC). Non-essential plant personnel, visitors, and contractors, located within the protected area, exit through the security building and move to designated assembly locations along with personnel located outside the protected area. Should emergency conditions prevent exiting the Security Building, the Emergency Director would designate an alternate route through another security controlled gate.

During a protected area evacuation, non-essential personnel assemble in the Administration Building or Administration parking lot. Radiological monitoring would be provided by the portal monitors or the radiation monitoring teams. For plant site evacuation, personnel would be directed to the Georgia Power Wilson Plant area, or to the Vogtle Electric Generating Plant (VEGP) recreation area. Both evacuation areas contained water which could be used for decontaminating personnel or vehicles. Telephones were also available. Monitoring and decontamination teams would be dispatched to the assembly area with appropriate monitoring and decontamination kits to monitor evacuees and vehicles. Personnel at the evacuation area would await further instructions by the Emergency Director. In the event that conditions were favorable, the Director may elect to dismiss nonessential personnel from the site.

EPIP 91403-C indicated that private cars would be used for evacuation. A bus would be available to transport personnel without transportation to the site evacuation assembly area.

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

4.1.2.2 Medical Treatment Facilities

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(12); Paragraph IV.E of Appendix E to 10 CFR 50; guidance promulgated in Section II.L of NUREG-0654, Rev. 1; and criteria defined in ANSI/ANS 3.7.1. The inspector reviewed Section L of the Emergency Plan and EPIP 91307-C, Rev. 2, "Contaminated Injury." The applicant's plan for Unit I identified an onsite first aid area located near the health physics station on the 220 feet elevation in the control building. Construction type modifications were in progress in the first aid facility and stocking of materials and supplies in the facility had not been initiated.

The first aid facility was accessible to a stretcher being carried by two or more individuals. The facility was located near the controlled area and the health physics station where survey instruments, telephones, plant pager, emergency dosimeters, etc., were available. The facility was incomplete because required supplies and equipment were not in place.

An ambulance is onsite and is primarily used by construction contractors. Following the construction phase, the applicant will assume operation of the ambulance for transporting injured/contaminated personnel to designated local hospitals.

The Emergency Plan also indicated that first aid kits would be located at strategic locations throughout the plant. The applicant had the required first aid kits, but have not yet placed them throughout the plant due to construction activities.

Based on the findings, this portion of the applicant's program was found to be incomplete. This area will be reviewed during a future inspection.

- Completion of construction modifications of the Unit I first aid facility and the placement of the appropriate material and supplies for its operation (50-424/86-12-35, 50-425/86-18-35).

4.1.2.3 Decontamination Facilities

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(8), (10), and (11); Paragraph IV.E of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.J and K of NUREG-0654, Rev. 1.

The inspector reviewed Section K.3 of the Emergency Plan and EPIP 91306-C, "Contamination Monitoring and Decontamination." The Unit I decontamination facility was located in the Control Building adjacent to the first aid room and was in close proximity to the health physics station. Some construction type changes were in progress in the decontamination facility; therefore, stocking of material and supplies in the facility was not initiated. The facility was equipped with wash sinks and showers for both vertical showering and showering

personnel on a gurney. Waste generated through the use of the decontamination facility will be collected and processed by the station liquid radwaste system.

In addition to the Unit I decontamination facility in the protected area, the applicant designated decontamination facilities associated with assembly areas for plant site and exclusion area evacuation. These included the Administrative Building Parking Area, Vogtle Electric Generating Plant (VEGP) Recreation Area, and Plant Wilson. Decontamination supplies and waste containment equipment will be brought to the outside assembly areas by Personnel Protection and Decontamination Teams.

Based on the above findings, this portion of the applicant's program was found to be incomplete. This area will be reviewed during a future inspection:

- Completion of the Unit I decontamination facility, and placement of the appropriate material and supplies for its operation (50-424/86-12-36, 50-425/86-18-36).

4.1.3 Expanded Support Facilities

This area was reviewed pursuant to 10 CFR 50.47 (b)(3) and (8); Paragraph IV.E of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.C and H of NUREG-0654, Rev. 1.

The applicant planned to provide work facilities and resources for expanded support personnel such as corporate, contractor, and non-licensee personnel. Space would be available on the third floor of the Service Building, the second and third floors of the Administrative Building, areas in the Training Center, and as many of the engineering trailers as would be required. These facilities were provided with light, heat, telephones, portable radios, reproduction equipment, and office supplies. The facilities would be available for use in an emergency to house the additional personnel required to augment the onsite emergency staff.

Based on the above findings, this area of the applicant's program appeared to be adequate.

4.1.4 News Center

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(7) and guidance promulgated in Section II.G of NUREG-0654, Rev. 1.

The Corporate News Center collects and disseminates all information regarding the emergency prior to activation of the Vogtle Emergency News Center (ENC) at Waynesboro. The Center is located on the second floor of the Georgia Power Corporate Headquarters Building in Atlanta. It activates the Corporate Emergency Communications Plan and issues the initial news release. This facility has a seating capacity of 34 and will accommodate 3 or 4 TV crews. A cafeteria with a capacity of 200 people can be used if more space is needed.

The Vogtle Emergency News Center (ENC) at Waynesboro collects and disseminates all information regarding the emergency. This facility has a seating capacity of 468 and will accommodate several TV crews. The kitchen has a capacity of 40 people and is assigned for use as the news media room. It is designed to provide 20 telephone lines for news media use. Currently, five telephone units have been installed.

In both News Centers, provisions have been made for rumor control, media monitoring, additional telephones, power for the added TV load, audio-visual equipment, maps showing the 10 and 50 mile EPZ, schematics showing major plant systems, a public address system, TV monitors, and building security.

Several communication systems are available in the Centers including: fixed and portable facsimile systems; several data processing units for preparing news releases; and several video cassette; radio cassette recorders and TV monitors. In addition, a teletype machine for monitoring UPI releases is available in the Corporate News Center.

Corporate Communications Department Personnel staff the Corporate News and Emergency News Center, Vogtle Emergency News Center, Rumor Control phones and Employee Information "Answerphone." The inspector reviewed a copy of the initial news release form provided for use during the early phase of an incident at Vogtle. The initial release contains a phone number and a Georgia Power contact.

Based on the above findings, this portion of the applicant's program appears to be adequate; however, the incomplete item detailed below was identified.

- Installation of telephones in the Vogtle ENC news media room (50-424/86-12-37, 50-425/86-18-35).

4.2 Emergency Equipment
4.2.1 Assessment Equipment
4.2.1.1 Emergency Kits and Emergency Survey Instrumentation

This area was reviewed pursuant to the requirements of 10CFR 50.47(b)(8) and (9); Paragraphs IV.B and E of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.H and I of NUREG-0654, Rev. 1.

The applicant reserves prepositioned supplies and radiological survey instrumentation at specified locations in the plant and at the EOF for use during emergencies. The plant locations, as specified in the Emergency Plan, are in the TSC, Health Physics area, Service Building, OSC, and the site ambulance. Two other kits are located at Burke County and Humana Hospitals. Required maintenance of the kits is defined by Implementing Procedure 91702-C, Rev. 2. This procedure specifies that the Emergency Planning Coordinator is responsible for assuring kit inventories and instrument operability checks are performed on a quarterly basis, and that problems with missing and defective equipment are promptly corrected. At present, a Georgia Power Company contractor is responsible for maintaining the hospital kits.

Four kits are dedicated for offsite field monitoring, and are located in the Service Building per implementing procedures; however, the Emergency Plan specifies their location as the EOF. The inspector observed two offsite kits being transported to the VEGP Training Center for "training purposes;" thus leaving only two for emergency response.

A thorough inventory of all kits determined that nearly all of the required equipment was in the kits, and that all kits were located at the assigned location. The few discrepancies involved materials and equipment not yet delivered, or temporarily stored elsewhere. Some equipment was observed to be stored outside the kits and extra equipment (radios, survey equipment, etc.) was found in some kits.

Radiation measurement equipment in the kits was capable of measuring beta and gamma contributions of a radiation field, and contamination levels on personnel and equipment. During the audit, it was determined that nearly half of the instruments were left on from a previous check resulting in dead instrument batteries. It was also observed that approximately 80% of the instrument calibrations had expired. None of the air samplers were calibrated. A potential problem was noted with air sampling equipment because in, at least, one kit, the particulate filter did not match the sample holder. This practice could lead to gross errors in sampling accuracy.

When fully equipped, the kits should be sufficient to allow plant entry and field personnel to make accurate readings, take appropriate air samples, and protect themselves. The inspector reviewed calculations which showed that the equipment was capable of detecting radioiodines in air at a concentration of less than IE-07 uCi/cc. All radiological equipment in kits is maintained and calibrated as per Health Physics Manual procedures.

Based on the above findings, this portion of the applicant's program was found to be adequate. However, the following items should be considered for program improvement.

- Correcting the kit inventories to include missing items (50-424/86-12-38, 50-425/86-18-38).

- Calibrating all radiological and air sampling equipment (50-424/86-12-39, 50-425/86-18-39).

- Providing seals on each SCBA case stored external to a kit to indicate tampering and assuring that the spare air cylinders have been charged (50-424/86-12-40, 50-425/86-18-40).

- Replacing the KI placebo with actual KI (50-424/86-12-41, 50-425/86-18-41).

- Labeling emergency kits and lockers on the external surface, and sealing them with a breakaway device so that a) inventory can be controlled, and b) continuous access is provided (50-424/86-12-42, 50-425/86-18-42).

- Placing radio charger(s) in the same kit (excluding field team kit) or locker as the portable radios (50-424/86-12-43, 50-425/86-18-43).

- Equipping the EOF kit with the capability to outfit a limited number of personnel for a plant entry. This may be necessary in the event of HP area and Service Building evacuation. Additional equipment should include full protective clothing, SCBAs, and extremity dosimetry (50-424/86-12-44, 50-425/86-18-44).

- Correcting the discrepancy in either the Plan or Implementing Procedures concerning the location of the field monitoring kits (50-424/86-12-45, 50-425/86-18-45).

- Assuring that the kits dedicated for emergency use are available at their specified locations on a continuous basis (50-424/86-12-46, 50-425/86-18-46).

4.2.1.2 Area and Process Radiation Monitors

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraphs IV.B and E of Appendix E to 10 CFR 50; guidance promulgated in Sections II.H and I of NUREG-0654; and criteria defined in NUREG-0737.

Special emphasis was placed on reviewing the status of radiation monitors required to provide information critical to the emergency classification process and protective action recommendations. The status of the following monitoring systems was reviewed: Control Room; containment low-range monitor; fuel handling building; sampling room; seal table instrumentation; containment access hatch; containment high-range; TSC display room; TSC work area; radiochemistry laboratory; steamline monitors; and decontamination station monitors.

The inspector determined that approximately 50% of the detectors were installed; however, none were operational. Only the detector placement and readout locations could be examined. Plant vent monitor, fuel handling building monitor, high range containment monitors, steamline monitors, air ejector monitor, and TSC monitors have been identified as being on the emergency power bus. Actual and planned locations of the detectors appeared to be adequate because they should provide a representative reading of the radiological conditions in the respective areas. All of the above mentioned monitors had remote readouts in the Control Room. Most monitors had local readouts near the detectors.

The applicant is currently developing procedures to electronically calibrate installed radiation monitors across their entire response range. The applicant has on order a portable source calibrator that generates up to 800 rem/hr. This will allow an additional source calibration of monitors up to that dose rate.

The monitors appeared to be capable of measuring the intended radiation levels they were procured for in the presence of a wide range of conditions. The high-range containment monitor, for instance, has been certified by Westinghouse to operate in the range of 10^3 to 10^{11} mR/hr, at temperature to 400°F, and pressures to 50 psig. Installation of all process radiation monitors is

scheduled for completion on July 15, 1986, and the equipment is scheduled for full operation by December 1986.

Based on the above findings, this portion of the licensee's program was found to be incomplete. This entire area will be reviewed during a future inspection.

- Installation, calibration and operational testing of all plant area and process radiation monitors (50-424/86-12-47, 50-425/86-18-47).

4.2.1.3 Non-Radiation Process Monitors

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraphs IV.B and E of Appendix E to 10 CFR 50; guidance promulgated in Sections II.H and I of NUREG-0654, Rev. 1; and criteria defined in NUREG-0737.

The inspector reviewed the availability and status of those non-radiation process monitors which are used in emergency detection, classification, and protective action recommendation formulation. Examples of these instruments include: Reactor Coolant System (RCS) temperatures, pressures and flow; steam generator levels, temperatures, and pressures; and tank levels. Table 7.5.2-1 of the FSAR, lists all such "Post Accident Monitoring Instrumentation" of Regulatory Guide 1.97. The Table lists the range, qualification, number of instruments, type of indication, power supply, whether available on the ERF computer, and the utilities' conformance with Regulatory Guide 1.97. Several items of correspondence have been transmitted between the NRC Headquarters and VEGP because of differences in opinion of extent of compliance. For example, VEGP Pressurizer Relief Tank (PRT) temperature instrument has a range to 300 degrees F., while Reg. Guide 1.97 requires a range to 750 degrees F. VEGP's position is that the PRT rupture disk is designed for approximately 100 psig; therefore, the range to 750 degrees F is not required. Final determinations will be included in a supplement to Vogtle's SER addressing the subject. At present, one unresolved item exist between USNRC and VEGP.

Type A variables, that is, those key variables necessary for diagnosis and information for operator actions have distinctive red color bands on the control board instrument. The only instrumentation not in the Control Room is the various activity results obtained with Post Accident Sampling System (PASS). The PASS is in the TSC, adjacent to the Control Room. Many of the instruments have not completed turnover to the utility because of scheduling of startup testing on associated systems.

Based upon the above findings, this portion of the applicant's program is adequate.

4.2.1.4 Meteorological Instrumentation

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraphs IV.B and E of Appendix E to 10 CFR 50; guidance promulgated in Regulatory Guides 1.23, 1.97 and 1.101; guidance promulgated in NUREG-0696 and -0737; guidance promulgated in Sections II.H and I of NUREG-0654, Rev. 1, and Appendix 2; and the requirements defined in Supplement 1 to NUREG-0737.

The applicant's primary meteorological measurements system consists of an instrumented tower located approximately 1600 meters south-southwest of the containment buildings and about 1800 meters southwest of the nearest natural draft cooling tower. This system provides the basic parameters (i.e., wind speed, wind direction, and an indicator of the atmospheric stability) necessary to perform dose assessment. Specifically, wind speed and direction information is available from the 10 meter and 60 meter levels, and vertical temperature difference is measured between the 10 meter and 60 meter levels. Sigma-theta (the standard deviation of the fluctuations of horizontal wind direction, and an indicator of atmospheric stability) is computed from wind direction measurements of the 10 meter level.

Additional meteorological measurements on the primary tower include dry bulb and dew point temperatures at the 10 meter level with precipitation measured near the surface. The applicant has a second meteorological measurements system on a tower located near the primary tower. This secondary or backup system also provides the basic parameters, specifically, wind speed and wind direction from the 10 meter level, with sigma-theta also computed. Both meteorological measurement systems appear to comply with siting guidance, instrumentation specifications, and system accuracy specifications contained in Regulatory Guide 1.23. Note, however, that system accuracy specifications will have to be confirmed once the microwave transmission system for data transfer is completed.

At present, visual inspection of the sensors and recorders at the towers is made daily, and the surveillance program will be formalized with implementation of Procedure 36030 and plant technical specifications. Meteorological data are reviewed periodically by consultant meteorologists for validity. Maintenance and calibration of the meteorological measurements system is performed by GPC personnel. A spare parts inventory is available onsite. Inoperable equipment should be replaced or repaired and returned to service promptly. System calibrations are performed semi-annually, with the last calibration performed January 1986. All instruments were operable and calibrated at the time of inspection. Review of the operability, maintenance, and calibration procedures, and historical data recovery percentages indicates that data availability goals should be attained during plant operation, if current practices and procedures are maintained.

Digital and analog recorders are in place at the meteorological tower location, and provisions are being made to digitally display 15-minute averaged meteorological data (and store 12 hours of 15-minute averaged data) through the ERF computer system in various locations, including the control room, TSC, and EOF. The computerized system will include data range checks to identify clearly invalid meteorological information. A data screening algorithm could be employed to identify more subtle errors such as precipitation during extremely unstable (Pasquill type "A") or extremely stable (Pasquill type "G") conditions or occurrences of extremely unstable conditions at night. At present, meteorological data can only be obtained from recorders at the tower because the microwave transmission system and ERF computer are not yet fully operational. Currently, the applicant does not plan to provide backup recorders for meteorological information available in the Control Room area should the ERF computer system be unavailable. Installation of backup recorders and/or development of a

capability for other access (e.g., remote interrogation) to onsite meteorological data, would improve the availability of the information.

Communication with the National Weather Service (NWS) is not specifically accommodated in any procedure at this time. However, the applicant is in the process of formalizing communication with the NWS office in Augusta, GA, through a letter of agreement and by including the communication function in the responsibilities of the dose assessment manager through Procedure 91203. The letter of agreement should clearly identify information to be provided from the NWS, such as current weather conditions important to dose assessment and protective action decisionmaking as well as regional meteorological information (e.g., shifts in wind direction and radar information on movement and intensity of precipitation) and forecasts of changing weather conditions. The letter of agreement should also indicate responsibility for timing of updates for weather information. Procedure 91801 provides for "sharing" meteorological data between Vogtle and the U.S. Department of Energy's Savannah River Plant (SRP) in the event of an emergency at either facility. However, the type of meteorological data to be provided to Vogtle by SRP is unspecified, and the use or consideration of the SRP data in dose assessments or recommendations for protective actions is unclear.

Information regarding severe weather events is to be available through the GPC load dispatcher with two communication lines direct to OSOS; although the source of the information is not known by plant personnel. This notification will be assured through development of a company procedure. In addition, the applicant is planning to provide a National Oceanic and Atmospheric Administration (NOAA) type of tone-alert radio to security personnel. This type of radio will alarm when NOAA issues statements on severe weather in the vicinity. A procedure would then be developed to have security personnel alert Control Room personnel regarding severe weather events.

Two atmospheric dispersion models are identified in Procedure 91304 for use in dose assessment. Both models are for use with microcomputers. The primary model, included in the VIBRANT dose calculational technique, is derived from the IRDAM code, which uses the straight-line trajectory, gaussian model. This model presents calculated relative concentration (X/Q) values and expected plume arrival times at preset downwind distances. The second atmospheric dispersion model is a variable-trajectory model imbedded in the RADDOSE-II computerized dose assessment technique for use only by EOF personnel for establishing plume trajectory and boundaries. This model is simply to consider changes in plume trajectory resulting from shifts in wind direction. Procedure 91304 (Section 5.1.1.2 and Data Sheet 1) includes provisions for obtaining meteorological information from offsite sources; however, the sources of the information are not identified and the procedure for obtaining the information is neither provided nor cross-referenced. The procedure also does not specify an averaging period (preferably 15-minutes) for meteorological data. The meteorological data displayed through the ERF computer (the only source of continuous meteorological data for the Control Room, TSC, and EOF) should be 15-minute averaged conditions with some provision for automatic updates. Procedure 91304 reflects an appropriate hierarchy for substitution of missing information; however, the reference to the availability of sigma-theta from the 60m level is incorrect.

Because of uncertainties in determining plume position and trajectory, dose assessment techniques generally consider the plume to be within a relatively large area (typically at 67-1/2° sector, or more) centered on the downwind (transport) direction. Apparently, an implicit assumption is made by the dose assessment manager or other cognizant individual that the plume should be considered to be within a 45° sector centered on the direction of transport determined by onsite wind direction measurements. The consideration of meteorological uncertainties in direction of field monitoring teams and development of protective action recommendations should be clarified in existing procedures.

Based on the above findings, the onsite meteorological measurements program appears to be adequate except for the following incomplete items:

- Determination of the accuracies of meteorological parameters transmitted by the microwave system and comparing these with the system accuracy specifications presented in Regulatory Guide 1.23 (50-424/86-12-48, 50-425/86-18-48).

- Display and retrieval of meteorological data through the ERF computer. (Displayed data should represent 15-minute averaged conditions with automatic updates) (50-424/86-12-49, 50-425/86-18-49).

- Assurance that information on severe weather events is provided to plant operators by the GPC load dispatcher and that procedures are developed reflecting availability of other sources of information such as that provided by the NOAA tone-alert radio (50-424/86-12-50, 50-425/86-18-50).

The following items related to availability of meteorological information should be considered for program improvement:

- Providing a written agreement between GPC and the NWS to document the role of NWS in emergency response (50-424/86-12-51, 50-425/86-18-51).

- Modifying procedures to reflect communication protocol in obtaining meteorological information (including forecasts) from the NWS and to reflect use of NWS information in dose assessments and protective action recommendations (50-424/86-12-52, 50-425/86-18-52).

- Providing an alternate source (e.g., backup recorders or remote interrogation) of onsite meteorological data available to plant operators in the vicinity of the Control Room in the event of failure of the ERF computer system. (The sending of plant personnel to the meteorological tower and the verbal transfer of data may not be feasible in the event of severe weather, seismic activity or hydrologic events) (50-424/86-12-53, 50-425/86-18-53).

Based on the above findings, the following items related to use of meteorological information in dose assessment should be considered for program improvement:

- Specifying an averaging period for meteorological data and correcting the reference to sigma-theta from the 60 m level (50-424/86-12-54, 50-425/86-18-54).

- Specifying in the appropriate procedure(s), the expanded affected area of plume coverage considering uncertainties in wind direction and plume travel away from the vicinity of the plant. (A minimum of 67-1/2° is typically assumed for affected area, with a larger area generally considered for low-wind speed or unsteady wind situations or when offsite data sources are in use (50-424/86-12-55, 50-425/86-18-55).

4.2.2 Protective Equipment
4.2.2.1 Respiratory Protection

This area was reviewed pursuant to the requirements of 10 CFR 50.47 (b)(8); Paragraph IV.E of Appendix E to 10 CFR 50; guidance promulgated in Sections II.H and J of NUREG-0564, Rev. 1; and guidance in NUREG-0041.

Table J-1 of the Emergency Plan and Health Physics Procedure 47013-C describe the inspection, maintenance and storage of self-contained breathing apparatus (SCBAs). The designated locations for this equipment are the Health Physics Control Point, the Control Room, the assigned emergency kits, and the assigned health physics storage areas. The SCBAs and an equivalent number of spare air cylinders for the emergency kits are currently in place (see Section 4.2.2.1): TSC-8; OSC-10; HP Kit-Z; HP Control Point-5 and the Control Room. Currently, the Health Physics staff is not responsible for supplying SCBAs to the Control Room. This is being handled by construction; however, after program turnover, seven SCBAs and spare air cylinders will be stored and maintained in an area between the kitchen and conference room in the Control Room. Although the SCBAs are at the specified localities, the units have not been mounted on the wall as the procedure dictates. This concerns equipment at the OSC, HP control point, and TSC.

Procedures are in place for the monthly inspection and maintenance of SCBAs. They provide details on inspector qualifications, specific check items, and tagging instructions. At the present, this general program is not being performed nor have the spare air cylinders been checked for a proper charge since receipt. These procedures will be initiated following program turnover, tentatively scheduled for June 1986.

Notwithstanding the designated locations, SCBAs will also be located at other accessible areas onsite, such as: various supply areas; the Nuclear Operations Warehouse, and routine operating points. Ultimately, it is planned to have 100 sets of apparatus (including spare cylinders) in storage on the first level of the Control Block. It is desired to reach this goal by the end of 1987. If these supplies are insufficient during an emergency, additional equipment may be drawn from various other nuclear plants within a 300 mile radius.

The location for refilling the air cylinders has been designated to be in the Maintenance Building. At this time, the equipment is on order and not in place; however, discussions with plant personnel indicated that it will be positioned and operational by May 1986. If the Maintenance Building should become uninhabitable, there are no alternate refilling stations established. The current position is that the equipment is portable and can be moved to any other site on demand. The inspector verified that the proposed location was accessible by

appropriate moving machinery (forklift). The possibility of using the Burke County EMA's equipment or an Augusta commercial filler have also been discussed. No commitments or logistical considerations have been made.

Based on the above findings, the applicant's program in this area has been found to be incomplete. These items listed below will be reviewed during future inspections:

- Completion of the permanent mounting of the SCBAs located at the TSC, OSC, and HP Control Point (50-424/86-12-56, 50-425/86-18-56).

- Initiatiation of the monthly maintenance and inspection of SCBA equipment, including initial verification that spare air cylinders are fully charged, and deployment of the appropriate number of SCBAs to the Control Room (50-424/86-12-57, 50-425/86-18-57).

- Completion of the ultimate goal of 100 SCBAs for backup use (50-424/86-12-58, 50-425/86-18-58).

- Completion of the placement of the refilling equipment in the Maintenance Building, and designation of the specific localities as alternate cylinder refilling stations (50-424/86-12-59, 50-425/86-18-59).

4.2.2.2 Protective Clothing

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(8) and (11); Paragraph IV.E of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.H, J, and K of NUREG-0654, Rev. 1.

Tables J-1 and 4-1 of the Emergency Plan describe the location, means of distribution, and required use of protective clothing. Following discussion with several plant employees, it was confirmed that protective clothing would be available for emergency use at various locations onsite. Protective clothing is also contained in most of the emergency kits. The contents and locations of these emergency kits are specified in EPIP 91702-C and Section H of the Emergency Plan. Specifically, the distribution of protective clothing in the emergency kits is as follows: TSC/CR - six sets; OSC - 20 paper sets and 14 sets of rain suits; EOF and OSC Decon kits - one case each of paper coveralls and booties; Ambulance kit - three sets; Environmental Monitoring kits - six sets; Hospital kit - 25 sets; Relocation Center kit - one case each of paper coveralls and booties; and HP kit - four sets. These items are currently in place and have been inventoried (Section 4.2.1.1). In addition to the kits, approximately 50 complete and prepackaged sets of PCs are currently located at the Main Health Physics Control Point.

Extra protective clothing will be stored in the Health Physics Supply Room adjacent to the Control Point. If additional supplies should be needed, a constant inventory of approximately 4500 sets will be located in the Nuclear Operations Warehouse, and quantities can be drawn from other nearby nuclear facilities (Hatch, Farley, or Summer) per an INPO agreement.

Based on the above findings, this portion of the applicant's program was found to be adequate. One item remains to be completed and will be reviewed during a future inspection.

- Establishment of a constant onsite warehouse inventory of protective clothing (PCs), at least 4500 sets (50-424/86-12-60, 50-425/86-18-60).

4.2.3 Emergency Communications

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(6); Paragraphs IV.E and G of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.E and F of NUREG-0654, Rev. 1, and Appendix 3.

4.2.3.1 Emergency Communications Equipment

In accordance with Section F of the Emergency Plan, the onsite emergency communications consist of the following: Emergency Notification Network (ENN) connecting the Control Room, TSC, EOF, and back-up EOF; GPC General Office Hotline between the Control Room, TSC, and EOF; dedicated dial between the Control Room, TSC, OSC, EOF and back-up EOF; GPC General Office Dial between the Control Room, TSC, EOF and back-up EOF; Bell Dial between the Control Room, TSC, OSC, EOF and back-up EOF; Inplant Radio between the TSC and OSC; and Plant Page System between the Control Room, TSC, and OSC.

Communications links between the site and offsite groups is as follows:

State of Georgia

Primary - ENN with Georgia Emergency Management Agency (GEMA)
Back-up - Commercial telephone and GPC microwave system in Atlanta

Burke County

Primary - ENN to the Burke Co. EOC
Back-up - Commercial telephone and Burke Co. Emergency Management Agency radio network

South Carolina

Primary - ENN with the State Highway Patrol dispatcher and others
Back-up - Commercial telephones

Aiken, Barnwell, and Allendale Counties

Primary - ENN to the county EOCs
Back-up - Commercial telephone lines

Savannah River Plant (SRP)

Primary - ENN at the SRP EOCs.
Back-up - Commercial telephone lines

Nuclear Regulatory Commission

Primary - ENS and HPN to the incident response center in Bethesda, MD

Back-up - Commercial telephone lines and the GPC microwave

Continuous coverage of ENN drops at offsite locations is provided at every county and State EOC except Allendale County. This drop is manned only 40 hours per week. An agreement between South Carolina counties states that the Barnwell County EOC will notify Allendale County residents in the event of a Plant Vogtle emergency declaration.

The Emergency Preparedness Coordinator is responsible for assuring communications checks are performed on a regular basis. Implementing Procedure 91204-C calls for a monthly communications check of links with offsite agencies and a quarterly check of all devices used for emergency communication.

The applicant uses unique alarm signals to notify plant personnel of emergency class declaration (Alert, Site Area Emergency, and General Emergency) and of a fire.

At the time of this audit, the following communications systems were observed to be non-operational: ENS, HPN, and ENN with the South Carolina counties of Aiken, Barnwell and Allendale.

In addition, several other communication devices were observed to have intermittent problems because of installation of new equipment and the reprogramming of present equipment.

Based on the above findings, this portion of the applicant's program was found to be incomplete. These areas will be reviewed during a future NRC inspection.

- Completion of communications link (ENS) between the applicant and the NRC (See item 50-424/86-12-30, 50-425/86-18-30).

- Completion of communication links with the South Carolina Counties of Aiken, Barnwell, and Allendale (50-424/86-12-61, 50-425/86-18-61).

- Completion of all communication links specified in the VEGP Emergency Plan and assurance of their operability. (50-424/86-12-62, 50-425/86-18-62).

4.2.4 Damage Control/Corrective Action and Maintenance Equipment and Supplies

This area was reviewed pursuant to the requirements of 10 CRF 50.47(b)(8); Paragraph IV.E of Appendix E to 10 CFR 50; and guidance promulgated in Section II.H of NUREG-0654, Rev. 1.

The OSC as discussed in Paragraph 4.1.1.3 is located in the lunch room on the second floor of the Maintenance Building. It is a storehouse for tools and consumables. The applicant's computer based Work Order Control System, NPMIS, also has a subroutine used for warehouse inventory. Using this program, the

availability of spares can be readily determined. The warehouse is located within the protected area, approximately 200 yards from the Maintenance Building. It will be manned on a 24-hour basis. Using NPMIS terminals in the Maintenance Building, the OSC Manager can determine the exact bin location of required emergency spares in the warehouse, and procure them as long as the warehouse remains accessible during the emergency. It is not planned to locate Damage Control equipment and supplies within the plant. Required tools, consumables, and emergency spares are accessible to the Radiological Emergency Teams in the Maintenance Building and Warehouse.

Based on the above findings, the applicant's program appears adequate.

4.2.5 Reserve Emergency Supplies and Equipment

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(8); Paragraphs IV.E and G of Appendix E to 10 CFR 50; and guidance promulgated in Section II.H of NUREG-0654, Rev. 1.

The applicant has sized the consumable emergency equipment and supplies in pre-staged kits for approximately two days. It is planned to stock reserve emergency supplies in the plant warehouse which will be drawn down when necessary in an emergency. The warehouse emergency inventory control system is automated (a sub-routine of NPMIS) and has provisions for automatic re-ordering when supplies reach pre-selected minimum stocking levels. For non-emergency items, these minimum levels are determined by procurement time to assure that the stock is not exhausted before the order is received. For emergency supplies, the minimum will be determined by the requirement for emergency back-up. Procurement time minimums will be added to these emergency minimum stocking levels. Procurement is also negotiating blanket order agreements with selected vendors who will have emergency stocks designated for Vogtle on their shelves. However, this procedure is not documented and the emergency minimums are still being determined.

The applicant has made a conscious effort to standardize emergency equipment between Plant Vogtle and Plant Hatch. Plant Hatch is located approximately two hours drive from Vogtle, and can supply emergency equipment and consumables to back-up Vogtle during an emergency. In addition, Georgia Power Company is a signatory to the "Nuclear Power Plant Emergency Response Voluntary Assistance Agreement." The neighboring utilities, Alabama Power Corporation, South Carolina Electric and Gas, and Carolina Power and Light are also signatories. Emergency equipment, supplies and personnel can be requested from these sources. The INPO Emergency Resources Manual covers the emergency supplies and equipment available from these utilities (updated annually). A copy of this document is located in the Plant Vogtle library. Section H.6 "Emergency Kits" of the Emergency Plan states that, "A set of spares of certain equipment is also maintained to replace inoperative or out-of-calibration equipment." It also says a listing of the typical contents of each kit and the spares is included in Appendix 4. There is no such list of spares in Appendix 4 of the Emergency Plan. There is no mention in the EPIPs of reserve emergency supplies and equipment, nor as mentioned above, the stocking plan for the warehouse and its designation as the primary location for such reserves.

Based on the above findings, this portion of the applicant's program was found to be incomplete.

- Revision of Appendix 4 of the Emergency Plan to include a listing of "Emergency Kits" (50-424/86-12-63, 50-425/86-18-63).

- Revision of EPIPs to include RESERVE emergency supplies and equipment, and the stocking plan for the warehouse and designation of primary location for same (50-424/86-12-64, 50-425/86-18-64).

4.2.6 Transportation

This area was reviewed pursuant to requirements of 10 CFR 50.47(b)(8); Paragraph IV.E and G of Appendix E to 10 CFR 50, and guidance promulgated in Section II.H of NUREG-0654, Rev. 1.

The applicant has an ambulance permanently assigned to the plant site. Additionally, the applicant has four emergency vehicles dedicated to onsite/offsite monitoring and survey teams. The ambulance and monitoring team vehicles are equipped with radios. Three of the monitoring team vehicles are 4-wheel drive units. During normal operation the monitoring team vehicles are used by chemistry and other plant groups; therefore, their fuel tanks are frequently less than full. It was also observed that not all vehicle keys available to emergency field teams have fuel tanks keys.

Refer to Section 4.1.2.1 of this report for use of transportation during site evacuation.

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

- Including fuel tank keys for each emergency vehicle available for field team use with the ignition key (50-424/86-12-65, 50-425/86-18-65).

5.0 EMERGENCY IMPLEMENTING PROCEDURES

5.1 General Content and Format

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b); Appendix E of 10 CFR 50; guidance promulgated in Section II.B of NUREG-0654, Rev. 1; and criteria defined in Regulatory Guide 1.33.

The VEGP EPIPs use a specific format and each procedure is arranged as follows:

- Title Page: Procedure title, revision, and formal approval.

- Section 1. Purpose

- Section 2. Responsibilities - responsible personnel.

- Section 3. Prerequisites - conditions necessary to initiate the procedure.

- Section 4. Precautions (caveats) - limitations, precautions, and other considerations that should be made prior to initiating the procedure and during its implementation.

- Section 5. Procedure - procedural text.

- Section 6. References.

This standard format allows the applicant to ensure that all the essential information needed to implement the function and purpose of the procedure is included. The format establishes a workable set of EPIPs, including checklists, tables, graphical representations, forms, and/or related documentation.

The Emergency Action Levels (EALs) are given in EPIP 91001-C and provide a series of flow diagrams for defining an emergency classification based on symptomatic plant conditions indicating a loss of fission product barriers. In addition, a matrix of emergency classifications and plant conditions or offsite phenomena which would lead to an emergency classification is provided. A classification data form provides a checklist list for the four emergency classifications, and an announcement format for use with the public address system is included. The specific detailed comments regarding this procedure are discussed in Section 5.3 of this report.

The EPIPs have a number of inconsistencies regarding the proper telephone numbers and adequate references to other procedures that were observed by the inspectors and are described elsewhere in this report. It was found that the applicant did not observe proper documentation of revisions to EPIP 91001-C.

The VEGP Emergency Plan index of Plant Administrative Procedures, Health Physics Procedures, and EPIPs disclosed the following inconsistencies: EPIP 91703-C, "Emergency Support for Hatch Nuclear Plant" is not listed; and the title of EPIP 91801 in the index is different than the title of the respective EPIP.

Based on the above findings, this portion of the applicant's program appeared adequate; however, the following items are recommended for program improvement:

- Reviewing the EPIPs to assure that proper telephone numbers and adequate references to other procedures are provided (50-424/86-12-66, 50-425/86-18-66).

- Assuring that proper documentation of revisions to the EPIPs is made such that the current version of the procedure is easily identified (50-424/86-12-67, 50-425/86-18-67).

- Reviewing and correcting the index of procedures supporting the emergency program in the VEGP Emergency Plan (50-424/86-12-68, 50-425/86-18-68).

5.2 Emergency, Alarm, and Abnormal Occurrence Procedures

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraph IV.B of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.D, H, and I of NUREG-0654, Rev. 1.

In addition to the plant normal operating procedures, the applicant uses three types of procedures for off-normal conditions, namely: Alarm Response Procedures (ARP 17000 series); Abnormal Operating Procedures (AOP 18000 series); and Emergency Operating Procedures (EOP 19000 series).

The inspectors understand that all Control Room Alarm Response Procedures are complete. Some local panel ARPs are incomplete, generally, in the radwaste area. The inspector reviewed the ARPs which were appropriate for the hypothetical accident used during Control Room Walk-Throughs described in Section 7. The ARPs are indexed by control board alarm matrix alpha-numeric location, such as "ALB 005, D03." This alarm title corresponds to the Gross Failed Fuel Detector (GFFD). Radiation Monitoring System (RMS) channel alarms for various process and area alarms cause annunciators ALB 05, B03 and ALB 05, C03, to activate at intermediate and high levels, respectively. Alarm ALB 05, D03 refers the user to AOP 18033-1 "High Reactor Coolant Activity," after other preliminary response steps. The latter alarms (ALB 05, B03 and C03) refer the user the ARP 17100-1, "Process Effluent Radiation Monitor Alarms," a summary listing of all the process alarms, including, for example, Chemical Volume Control System (CVCS) letdown process monitor 1-RE-48000, with preliminary response steps for each detector. The ARP for letdown high then refers the user to AOP 18033-1, as above for the GFFD.

Based on the above observations, the inspectors concluded that relationship of ARPs to AOPs was adequate. The inspector observed that ARP 17100-1 was absent for unknown reasons from the Control Room copy (set #12) of the ARPs. Additionally, the ARP's do not appear to alert the operator to situations that may warrant activation of the Emergency Plan, or cause other reporting requirements to become necessary.

AOPs include many of the event-oriented abnormal conditions that are not included in EOPs, such as a seismic event and high activity in the Reactor Coolant. The inspector reviewed all AOPs for completeness. It was observed that only one AOP, namely 18036-1 "Seismic Event," contained reference to activation of the Emergency Plan as an action step, if a valid seismic event occurred. Similarly, other AOPs may address situations where EALs listed in EPIP 91001-C would be exceeded; however, no reference to the Emergency Plan is included to alert the operator.

Upgraded EOPs, symptomatic based, and prepared from the WOG Emergency Response Guidelines, High Pressure Version, Rev. 1, have completed preparation, and are in use for operator training at VEGP. The Procedures Generation Package (PGP), submitted to the NRC as required by NUREG-0737, Supplement 1, has been completed. Currently, no unresolved issues exist, although VEGP has not received formal approval of the PGP. The inspector noted that only EOP 19000-1, Rev. 0-"E-0 Reactor Trip or Safety Inspection," contains reference to the EPIPs. Specifically, the Subsequent Operator Actions contains the following note: "91001,

Emergency Classification and Implementing Procedures should be implemented at this time." EOP 19262-1-"FR 1.2 Response to Low Pressure Level," and EOP 19010-1-"E-1 Loss of Reactor or Secondary Coolant," are examples of procedures the operator could place in use with an EAL exceeded, but without a reactor trip. These latter EOPs do not contain notes equivalent to that found in EOP 19000-1.

It should be noted that Paragraph D.5 of the Classification Process on Page D-9 of the Emergency Plan, commits to referencing the E/P by the following statement: "Plant procedures which direct reference to this procedure include Control Room Annunciator Response Procedures, Abnormal Operating Procedures that reflect directly on EAL's, and Chemistry Procedures and Health Physics Procedures for conduct of shift activities."

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

- Improving Document Control Procedures to assure that required procedures in the controlled document sets are available (50-424/86-12-69, 50-425/86-18-69).

- Inclusion in "Subsequent Operator Actions" sections of all appropriate off-normal procedures a step similar to that included in AOP 18036-1, stating "Perform the following: Refer to 91001-C, Emergency Classification and Implementing Instructions" (50-424/86-12-70, 50-425/86-18-70).

5.3 Implementing Instructions

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraphs IV.C and D of Appendix E to 10 CFR 50; and guidance promulgated in Section II.C, D, H, and I of NUREG-0654, Rev. 1, and Appendix 1.

The inspectors reviewed the Emergency Plan Implementing Procedures (EPIP's) to determine if the procedures adequately implement the Emergency Plan (EP) in accordance with the above requirements.

The VEGP Emergency Plan Implementing Procedures are organized as follows: Emergency classification procedure; notification procedure for any classification attained; duties and responsibilities of members of the Emergency Response Organization (ERO); activation procedures for the ERFs; and finally, many explicit procedures for various activities including search and rescue, and re-entry. Each EPIP follows a standard format that defines its purpose, persons responsible, prerequisites and precautions, and associated references.

Classification is accomplished in accordance with EPIP 91001-C "Emergency Classification and Implementing Instructions." The method is a symptomatic approach which incorporates fission product barrier analysis. The method of barrier analysis is supplemented with some event oriented accidents that do not readily lend themselves to barrier analysis unless the event deteriorates significantly, and challenges a barrier. Security intrusions are examples. The Emergency Plan adequately describes the method of classification. EPIP

91001-C, Rev. 2, dated March 1, 1986, includes barrier analysis as Figures 1, 2, and 3 for fuel, RCS, and containment respectively. Figure 4 presents a matrix of EALs vs. emergency classification. Several administrative problems were noted with EPIP 91001-C:

- The EPIP was as described as above in Manual Set #31. In other manual sets in use by the inspectors, the same revision of EPIP 91001-C of same date had a blank Figure 4, with matrix at the end of the procedure. The inspector determined that changes were being made to the EPIP, issued an errata, but the EPIP revision number, issue date and cover sheet remained the same.

- Paragraph 5.2.3 should read, "...upgraded or downgraded base on current field surveys or projected releases, and make...."

The EALs listed in the Emergency Plan and the EPIPs are based on readily available information and parameters. Conversion of as-read parameters to a useable EAL has been minimized. This information is readily available to those personnel responsible for the detection, classification, and assessment of emergency situations.

Checklists for use by the Emergency Director (E/D) relating to the classification are included with the classification EPIP as "Initial Actions."

"Subsequent Actions" are included with the "Duties of the Emergency Director", EPIP 91102-C. Checklists for other managers and supervisors, such as "Duties of the TSC Manager," EPIP 91103-C, are provided. These checklists were found to be comprehensive and useable. Individual activation procedures were found to be provided for each of the ERFs, such as "Activation and Operation of the TSC," EPIP 91201-C. The first responder to the TSC is directed to implement a comprehensive checklist for TSC activation. Operational considerations are included in the text, such as habitability criteria.

EPIP 91001-C, and more particularly EPIP 91102-C, clearly delineate the Emergency Director's responsibilities, and those which can not be delegated. The authority vested in the Director is also clearly specified. Interviews with persons in the watch organization, who might become the Emergency Director, demonstrated their knowledge of the duties, responsibilities, and authority vested in the position.

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

- Correcting administrative problems with EPIP 91001-C (50-424/86-12-71, 50-425/86-18-71).

- Conducting training and practical drills for persons responsible for implementing modified EPIP's (50-424/86-12-72, 50-425/86-18-72).

5.4 Implementing Procedures
5.4.1 Notification

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(5) and (6); Paragraphs IV.C and D of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.E, F, H, and J of NUREG-0654, Rev. 1.

The inspector reviewed EPIP 91002-C "Emergency Notifications," EPIP 91204-C "Emergency Response Communications," and Section E of the Emergency Plan "Notification Methods and Procedures." The Emergency Director is responsible for implementing EPIP 91002-C, which includes initial and follow-up notification to Federal, State and local agencies, onsite and offsite VEGP personnel, and other offsite persons as necessary. The Emergency Director's responsibilities are clearly delineated, including the decision to notify and to recommend protective actions. EPIP 91204-C provides instructions on the operation of all communication systems.

Notifications are initiated by the Emergency Director with a plant-wide (P/A) announcement. During normal working hours, this activates emergency response organization augmentation. The notification includes alerting the assigned on-shift security officer and shift clerk to report to the Control Room and initiate the communicator checklist. Data Sheets 2 and 9 of EPIP 912002-C are completed by the Emergency Director for use by the communicators. Data Sheet 2 is used to notify the Georgia Emergency Management Agency (GEMA) and Burke County EOCs. Data Sheet 9 is used to notify DOE SRP, South Carolina, and county EOCs. Both notifications will normally use the two separate ENN systems, installed in the Control Room, TSC, and EOF, and designed to notify the warning points within 15 minutes of the declaration of an emergency class. Discussion of potential difficulties with meeting timely notification criteria, and difficulties with authentication schemes for back-up phone systems are discussed in Section 7.2.3. NRC notification is provided for on standard form, and should be completed within one hour after classification. Data Sheet 4 of the cited procedure prescribes VEGP personnel notifications at the management level, including, e.g., the General Manager, ERF Managers, Security. VEGP Security has the responsibility for notification of the balance of the VEGP Emergency Response Organization by contacting "Level A" Departments. The latter Department contacts their respective personnel, "Level B." This call tree is specified in Data Sheet 1.

The inspector observed a utility dress rehearsal drill on March 19, 1986, and observed that the Initial Notification form for the State of Georgia and Burke County was not Data Sheet 2 EPIP 91002-C. The format in use is slightly different than Data Sheet 2. A similar situation existed for the follow-up message format, i.e., Data Sheet 3 compared to the form actually provided in the Control Room and TSC. It was also noted by the inspector that the guidelines for completing the form (Data Sheet 2, Sheet 1 and 2 of 5) were not adhered to; therefore, some items on the form in use, such as Recommended Protective Measures, were left blank. Further, the message form did not emphasize or reproduce the instructions in an abbreviated form.

Updates on an emergency are provided by pre-formatted messages (Data Sheets 3 and 10 correspond to Sheets 2 and 9 of EPIP 91002-C, respectively) to appropriate

agencies at specified intervals, or upon other specified changes in plant status. The inspector observed that two sets of Data Sheet 3 existed in addition to the follow-up message. Sheets 1 - 7, the termination message form, are also included as Data Sheet 3. A similar situation exists for Data Sheet 10; although the entire Data Sheet 10 was entitled "Follow-Up Information Message and Termination Message for...." No reference to the termination message for either set of off-site agencies was included in the text of the procedure. Other administrative type problems were noted, such as Data Sheet 9, Sheet 6 of 8, Line 5, which now states: "This classification of emergency classification is: _____AM,_____PM on _____(date)."

Although the Emergency Plan identifies support organizations other than those cited above (e.g., Bechtel, Westinghouse, and the Voluntary Assistance Group), no automatic notifications are made to them. Reference to American Nuclear Insurers (ANI) and INPO are notably absent from the EPIP also. It was observed, however, that Data Sheet 12 of EPIP 91002-C specifies a format (no numbers) for the "Emergency Response Telephone Directory," which includes industry examples of listed numbers, such as INPO. EPC responsibilities for this directory are prescribed by the EPIP.

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

- Correcting or modifying EPIP 91002-C as necessary to remove administrative deficiencies (50-424/86-12-73, 50-425/86-18-73).

5.4.2 Assessment Actions

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9) and (10); Paragraph IV.B of Appendix E to 10 CFR 50; guidance promulgated in Sections II.I, J, and M of NUREG-0654, Rev. 1; and guidance promulgated in IE Information Notice No. 83-28:

The inspector reviewed the applicant's facilities, equipment, and procedures, namely: Section I - "Accident Assessment" of the Emergency Plan, and the following applicable EPIPs which relate to accident assessment actions.

- EPIP 91001-C Emergency Classification and Implementing Instructions
- EPIP 91102-C Duties of the Emergency Director
- EPIP 91301-C Emergency Exposure Guidelines
- EPIP 91304-C Computerized and Manual Back-Up Methods for Release Rate and Dose Calculations
- EPIP 91305-C Protective Action Guidelines
- EPIP 91502-C Core Damage Assessment
- EPIP 91503-C Control Room Instrumentation Output for Assessment of Core Damage
- EPIP 91504-C Core Inventory Determinations using Reactor Power History

The Control Room On-Shift Operations Supervisor (OSOS) assumes the functions of the Emergency Director (E/D) on classification of Emergency Action Levels (EALs). The On-Shift Unit Supervisor implements appropriate off-normal procedures, and the On-Shift HP Foreman reports to the TSC to perform dose projections and implement in-plant radiological protective measures. The TSC is activated at the Alert classification, while the EOF is placed on standby. The EOF is activated at Site Area Emergency/General Emergency. The plant General Manager assumes the functions of the Emergency Director at the location of his choice, after proper relief of the interim E/D. The initial assessment actions are therefore the responsibility of On-Shift Personnel. Subsequent assessment actions are directed by the Emergency Director with assistance from the Control Room, TSC, EOF and Emergency Teams, as appropriate.

Plant system and effluent parameter values, displayed on several instruments and/or devices, and characteristic of off-normal plant conditions are used to classify the accident as prescribed in EPIP 91001-C. Once a condition, directly or indirectly affecting a fission product barrier is identified, activation of the response organization is initiated. Parameters may be evaluated and analyzed on the main control board, and on numerous terminals of the Emergency Response Facilities (ERF) computer as directed by ERO personnel. In addition to plant thermo-hydraulic data, the ERF computer also provides display of SPDS and Process Effluent Radiation Monitoring System (PERMS) parameters. Multiple terminals are provided in the Control Room, TSC, and EOF. The SPDS display monitors the critical safety functions identified by the Westinghouse Owners Group (WOG), with an operator alerting function that aids the operator in determining the safety status of the plant. PERMS data are available for the input to dose assessment techniques described below. Meteorological data is normally available on the ERF computer. Accessibility to the data at the meteorological tower is possible in the event of a problem with ERF transmission.

As an aid to assessing plant conditions, plant chemistry may be determined with the Post-Accident Sampling System (PASS). Results of the multi-point sampling capability of this system are used to assess the extent of core damage and the potential source term. Early warning of fuel damage is provided by the Gross Failed Fuel Detector. Refined fuel damage data is derived through the PASS.

EPIP 91502-C "Core Damage Assessment," provides the integrated method for classifying and estimating the extent of core damage through fission product release measurements (PASS) and thermo-hydraulic indications. Chemistry personnel are responsible for implementing the procedure upon direction of the E/D. Operations department personnel collect data for use by chemistry personnel through implementation of EPIP 91503-C, "Control Room Instrumentation Output for Assessment of Core Damage." Engineering Personnel implement EPIP 91504-C, "Core Inventory Using Reactor Power History." The entire procedure is based on the "WOG Post-Accident Core Damage Assessment Methodology."

The computational results of the damage assessment method, or measured values from PERMS, provide the required input data (the source term) for dose projection calculation systems. The HP Foreman is the designated on-shift dose analyst. After staff augmentation, the HP Supervisor assumes dose calculation responsi-

bility from the time the TSC is activated until the EOF is activated. The EOF Dose Assessment Manager assumes this responsibility upon EOF activation.

Two software programs are employed by VEGP in performing dose projection: RADDOSE II and VIBRANT. EPIP 91304-C, computerized and manual back-up methods for release rate and dose calculations, describes implementation of both programs and the use of hardware. RADDOSE II, which is not described in the Emergency Plan, is used exclusively for establishing plume trajectories. VIBRANT, a VEGP-specific version of IRDAM, has not altered any of the methods of calculating doses prescribed by the applicable NUREG document. FSAR accidents, such as LOCA and control rod ejection, have been listed in EPIP 91304-C with default values of activity release rates (and other default values) to permit quick computer computations in the event measured values are not available. Criteria for refinement of dose projection data with field monitoring results is prescribed in the EPIP. Two field monitoring teams are initially available to the E/D for deployment within the plume EPZ from on-shift personnel. After augmentation, more teams are available.

In the event that computer generated dose projection is not available, EPIP 91304-C includes a "manual back-up method" in Section 5.3. The manual method is used when the VIBRANT code is unavailable or when a rapid emergency classification and/or protective action recommendation is necessary. Worksheets are included for each of the following post accident monitors:

- Unit Vent Monitors
- Unit Turbine Monitors
- Containment High Range Radiation Monitors
- Main Steam Line Monitors

EALs with the corresponding monitor reading on PERMS, classification, and default protective action recommendation for a 12-hour release, are listed. The monitor reading is "as read" on PERMS, with no conversion necessary to implement. Default values used in the computations are very conservative.

Protective response to data developed as described above is designed to limit radiation exposure of plant personnel and the public following and accident at VEGP. Assembly, accountability, and dismissal of non-essential personnel are the activities considered by the E/D to limit onsite personnel exposure. A site evaluation, if feasible, is dictated by procedure if a Site Area Emergency or General Emergency is declared. Alerting and protective action for the public are the direct responsibility of State and local officials. The Emergency Director, however, is responsible for formulating protective action recommendations (PAR) for transmission to the State and local officials. The recommendations are predicated on the dose projections and plant conditions. EPIP 91305-C "Protective Action Guidelines," provides instructions on the alternatives for protective action recommendations, and the factors to be considered in selection of an appropriate measure. Protective actions for site personnel and emergency workers are also included in EPIP 91305-C:

- Table 1, Guidelines for Recommended Protective Actions for Gaseous Plume Exposure, Items 2, 3a, and 3b, do not include the requirements of IE

Information Notice No. 83-28, Figure i, (4): "for all evacuations, shelter the remainder of the plume EPZ and promptly relocate the opulation affected by any ground contamination following plume passage." The inspector noted that the sheltering provisions are a part of the manual dose calculation worksheets (6-10) of EPIP 91304 discussed above.

- Table 1, Item 3b., does not include the IE Notice No. 83-28 requirement to "recommend shelter for areas that can not be evacuated before plume arrival. Evacuate others...." EPIP 91304 Worksheets 6-10 do not consider plume transit/arrival times for the default PARs.

Based on the above findings, provisions Figure 1 of IE Notice 83-28 "Criteria for Protective Action Recommendations for General Emergencies," should be included in appropriate Emergency Plan, Implementing Procedures. The applicant acknowledged the cited recommendation and promptly implemented required corrective action. The applicant's revision of EPIP 91305-C rendered it consistent with IE Notice 83-28 guidance. The corrective action was reviewed and accepted by the inspectors.

Additionally, based upon the above findings, the following item should be considered for program improvement:

- Providing descriptive information of RADDOSE II software and its relationship to VIBRANT code in the Emergency Plan (50-424/86-12-74, 50-425/86-18-74).

5.4.2.1 Offsite Radiological Surveys

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraphs IV.B and E of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.H, I, and K of NUREG-0654, Rev. 1.

The inspector reviewed EPIP 91303-C, "Field Sampling and Surveys," and discussed this area with VEGP personnel. This procedure contains the basic information needed to provide an offsite monitoring program.

Following activation of the EOF, the Dose Assessment Manager assumes responsibility for the organization, deployment, and direction of field monitoring teams. This function also includes collection of all documentation and management samples collected. If the EOF has not been activated, the Health Physics Supervisor assumes the above functions until the facility is activated.

The procedure specifies that field teams will be formed from personnel assigned to the OSC. Field Sampling Kits and keys for the transportation vans are secured from the OSC. Directions are found in the procedure that defines the following: sampling techniques and requirements; dosimetry; area and personnel monitoring requirements; decontamination of vehicles and personnel; and debriefing of the teams. A comprehensive field monitoring team checklist is included in the procedure. The procedure also defines field monitoring locations, environmental monitoring points and includes legible 10 mile EPZ and 50 mile EPZ maps.

The environmental monitoring survey form attached to the procedure provided for recording direct radiation levels defining the following: identification of the survey point; time of monitoring open and closed window direct radiation readings at waist level, and at 2 inches from the ground; monitoring instrument used; instrument serial number and calibration date; and listing of monitoring team members.

Air monitoring directions in the subject procedure provided the following, namely: a list of materials and equipment needed; directions for setting up the sampler; establishing sampling air flow and duration; retrieval and handling of the samples; counting, handling and logging of the samples; and reporting of sampling results. Data Sheet 3, page 26 of the procedure does not specify sampling flow rate; however, Work Sheet 1, Page 31 requires identification and logging of sample starting and ending times, and average flow rate.

Data Sheet 3, page 26 of the procedure identifies the flow rate in cfm; however, the air samplers register in liters per minute. The data sheet should be changed to reflect the actual flow rate units used.

Soil, vegetation, and water sampling techniques prescribed by the procedure identify the materials needed. Sampling method, preparation, and associated radiation control are defined.

Minimum acceptable offsite air sampler flow rates should be specified in the procedure. The inspector was informed by the applicant that the flow rate of the air samplers is set at the time the instrument is calibrated. The air monitor operability check list states "Check air sample operation with orifice plate on inlet, ensuring that rotometer flow ball is free to move." Such a check does not assure that a sufficient volume of air will be drawn through the filters to satisfy representative sampling.

An apparent discrepancy between the HP-210 detector iodine detection efficiencies used for onsite/inplant and offsite iodine air activity determination was identified and should be resolved.

The detection efficiency used in calculating offsite air activity is 1% and the detection efficiency used for calculating onsite/inplant air activity is 2.63% according to Paragraph 3.4.10 of Health Physics Procedure 43002-C. The difference between Procedure 43002-C for onsite-inplant, and Procedure 91303-C for offsite sampling would give an apparent discrepancy of 2.63 between dose projections developed from samples collected within the exclusion area, and dose projections developed from samples collected outside the exclusion area.

The procedure should require that gamma spectrometry determined radioiodine air activity values be used to update dose projections that were established using gross HP-210 detector values. Procedure 91304-C specifies that radioiodine air concentrations determined in the field by counting silver zeolite (AgX) filters with an HP-210 detector be used to calculate dose projections. It also specifies that the radioiodine activity of the AgX filters be gamma spectrometer analyzed and the information recorded on a Form 12 when the filters are returned to the lab.

The procedure does not provide dependable back-up communications if the vehicle radio or base station radio fails. The procedure does not require the field teams to secure back-up radios from the EOF. A phone number for calling the TSC or EOF should be included in EPIP Procedure 91303-C.

There is no procedure for determining and controlling potential direct radiation or contamination hazards associated with used air sample filters.

Data Sheet 2, Page 25 of EPIP Procedure 91303-C is inconsistent. Column 5 and Column 6 have different headings, but according to the foot note, contain the same information. The footnote for 5 and 6 states "RD-2 read from calibration sticker" is inconsistent with the terminology "Beta Ratio" or "open/closed" which appear as column headings.

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

- Specifying the minimum acceptable offsite air sampler flow rates in the procedure (50-424/86-12-75, 50-425/86-18-75).

- Resolving the apparent discrepancy between the HP-210 detector iodine detection efficiencies used for onsite/inplant and offsite iodine air activity determination (50-424/86-12-76, 50-425/86-18-76).

- Including a requirement in EPIP 91304-C that gamma spectrometry determined radioiodine air activity values be used to update dose projections (50-424/86-12-77, 50-425/86-18-77).

- Including in EPIP 91303-C a telephone number for calling the TSC or EOF if radio contact fails (50-424/86-12-78, 50-425/86-18-78).

- Including a section in EPIP 91303-C on the radiological control of air sample filters. Both direct radiation exposure and contamination control should be addressed (50-424/86-12-79, 50-425/86-18-79).

- Correcting data Sheets 2 and 3 of the procedure (50-424/86-12-80, 50-425/86-18-80).

5.4.2.2 Onsite (Out-of-Plant) Radiological Surveys

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraphs IV.B and E of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.H and K of NUREG-0654, Rev. 1.

The inspector reviewed EPIP Procedure 91302-C "In-Plant Sampling and Surveys" which also provides sampling and survey techniques for onsite (out-of plant) radiological surveys. These areas were discussed with VEGP personnel. This procedure contains the basic information needed to provide an onsite/in-plant monitoring program.

The Health Physics Supervisor has the following responsibilities: Determine the need for onsite/in-plant monitoring teams; evaluate survey results; report radiological information to the Emergency Director or Technical Support Center Manager; and make protective action recommendations. The Operations Support Center Manager forms, briefs, and dispatches onsite/in-plant monitoring teams. Teams are to consist of at least two qualified Radiological Emergency Team (RET) members. At least, an ANSI 18.1 qualified HP technician is required for each team.

Further radiological briefing is to be conducted at the HP Control Point where a Radiological Work Permit (RWP) or Emergency Radiological Work Permit (ERWP) is to be completed. Direct radiation, contamination and air activity monitoring and sampling procedures are delineated in the procedure. The team is to pick up an OSC emergency monitoring kit and/or necessary equipment. The handling of high radiation samples is identified. An in-plant monitoring team checklist is to be followed in preparing for entry/re-entry into the plant.

No requirement for specific air sample flow rates nor air activity determination was found in the Procedure. A VEGP representative stated that the procedure for air sampling was found in the Plant Health Physics Manual, Procedure 43002-C. Emergency procedure 91302-C should reference the Plant Health Physics Manual for the procedure to sample air and calculate air activity.

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

- Referencing the plant Health Physics Manual in Procedure 91302-C for the method to be used to sample air and calculate air activity (50-424/86-12-81, 50-425/86-18-81).

5.4.2.3 In-Plant Radiological Surveys

This area was reviewed pursuant to the requirements of 10 CFR 50.47 (b)(9); Paragraphs IV.B and E of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.H and I of NUREG-0654, Rev. 1.

Vogtle EPIP Procedure 91302-C provides instructions for in-plant radiological sampling and surveys during an emergency. The methods and equipment used for surveys were discussed but not specified. The procedure, however, was found to be adequate in conducting surveys and providing needed information to responsible persons in the emergency organization. The staff performing the surveys are adequately trained and their qualifications are consistent with ANSI 18.1.

One area requiring attention is the manner of presenting the data obtained from the air sampler and the samples collected. The unit used in reporting sampling rate data should be consistent, that is, air sampler flow rate should be specified as either liters-per-minute (lpm) or cubic feet per minute (cfm). Refer to Section 5.4.2.1, above.

5.4.2.4 - 5.4.2.7 Primary Coolant and Containment Air Sampling and Analysis

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Appendix VI.B and E of 10 CFR 50; and guidance promulgated in Section II.I of NUREG-0654, Rev. 1.

Consistent with the status of plant construction and equipment readiness, audits of post accident sampling and analysis were not conducted. However, the PASS, as designed, facilitates local grab sampling and allows remote in-line analysis of diluted/undiluted reactor coolant, containment sump and containment air samples. Tentatively, the PASS is scheduled to be operational prior to fuel loading.

The PASS panels are fully installed both in the TSC (remote panels) and in the fuel handling buildings (local panels). Procedures are in place for the remote and local operation of the equipment during post-accident conditions, namely Chemistry Procedures 35615-C and 35620-C, respectively. A procedure is also in place for operating the PASS system under normal conditions - Procedure 35610-C. This instruction will be used as a periodic refresher regarding personnel qualifications. Several other procedures are currently being developed and formally tracked. These include calibrations for the various PASS analytical monitors and radiological analysis equipment, and verification and trouble-shooting procedures. The subject procedures are scheduled for completion by June 1986.

The training program for the PASS system is currently in progress. The program involves a series of three course modules, namely general overview, PASS sampling team training, and PASS Manager training. All personnel to be trained are required to attend the 16-hour overview course. PASS team training - 24 hours and PASS Manager training - 32 hours are only required by those individuals filling those emergency positions. The initial instructional training is almost complete at this time; however, the training tracking system will not document initial completion of training until the system has become fully functional, and a true test of operational ability has been demonstrated.

Retraining is scheduled on a semi-annual basis. All PASS members must participate in this training in order to remain PASS "qualified." Eventually, the tracking system will be set up to flag personnel every six months to assure required training. It is intended to always have one chemical technician on staff who is PASS qualified. Also, it has been confirmed that there are at least two PASS qualified persons available for response to emergency activation within 60 minutes. This shift complement should be satisfactory for performing the necessary functions.

The procedures specify the means of controlling radiological exposure to personnel dispatched to the local sampling area. The PASS team member(s) is to be accompanied by a Safety Monitor (HP Technician) who will continually assess radiological conditions. The team member will also possess an alarming dosimeter to ensure that administrative limits are not exceeded. In addition, pre-established routes will have been established for traveling from the TSC to local panel, and from the local panel to sample drop off point. Additionally, a pathway for travel from the radiochemical laboratory to the local panel will be

established. Radiation exposures are limited by 8" of lead shielding (2-1/2" shields and 7" lead shot) at the sampling panels, and the use of a one-meter reach rod for valve manipulation. The rod and other sampling equipment is currently used in training; however, during plant operations this apparatus will be permanently placed at the local sampling area. Other needed equipment will be located at the TSC for pick-up prior to proceeding to the sampling location. Extra supplies needed for obtaining grab samples will be stored in the radiochemistry laboratory.

In the event that in-line analysis cannot be performed, the grab samples will be collected and sent to Oak Ridge National Laboratory for analysis. Onsite analysis of such samples is neither intended nor planned. A lead cask is currently in place at the local panel for placement of the reactor coolant sample and subsequent shipment.

The procedures contain a step-by-step listing for operation of the equipment. Checklists and data sheets have been formulated for specifying the following: the type of grab samples that are to be taken; the valve alignment required; the equipment needed; identification of samples; and the logging of sample results. Also addressed, is the passing of analytical results from the PASS Manager to the Laboratory Foreman for incorporation into the Core Damage Assessment Procedure, EPIP 91502-C, and transmittal to records in accordance with Procedure 00100-C.

Based on the above findings, the following items in the applicant's program were found incomplete. These items will be reviewed during a future inspection:

- Completion of the procedures for PASS calibrations and verification and troubleshooting (50-424/86-12-82, 50-425/86-18-82).

- Completion of PASS training once the system becomes operational, and updating the tracking system to reflect this (50-424/86-12-83, 50-425/86-18-83).

- Completion of the "flagging" process on the training tracking system for PASS personnel requiring semi-annual retraining (50-424/86-12-84, 50-425/86-18-84).

- Placement of the designated equipment at the local panel, TSC storage cabinet, and radiochemistry laboratory (50-424/86-12-85, 50-425/86-18-85).

- Completion of the final operational testing (50-424/86-12-86, 50-424/86-18-86).

5.4.2.8 Stack Effluent Sampling

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Appendix VI.B and E of 10 CFR 50; and guidance promulgated in Section II.I of NUREG-0654, Rev. 1.

The inspector reviewed Procedure 33016-C, Rev. 1, entitled "Obtaining Ventilation Systems Samples for Radioactivity Analysis Under Post Accident Conditions." The

procedure addresses grab sampling from the plant vent and the turbine building vent. Chemistry department personnel are responsible for sampling under the control of an RWP. The permit and procedure specify the maximum dose rates and permissible personnel exposures.

The procedure lists the equipment and location thereof required for the sampling. Sampling equipment was not installed and the respective procedure lacks vital information such as valve numbers, essential activity curves, and data sheets. The inspector questioned the sampling system's design capability to extract a representative sample of the plant vent without a planned modification. The concerns involved include uptake of significant amounts of non-vent air in the sampled volume, and the potential for sample line plateout of iodines prior to filtering. The applicant is requesting correction factors from the equipment vendors.

The applicant also intends to limit vent sample activity to less than 100 micrograms (µg), so that the present geometry of counting equipment may be used for analysis. This low activity should present no hazard to personnel during transport and analysis of the sample.

Based on the above findings, this portion of the applicant's program was found to be incomplete. This area will be reviewed during a future inspection by NRC.

- Revision of Procedure 33016-C to include missing instructions on valve numbers, activity curves, and data sheets (50-424/86-12-87, 50-425/86-18-87).

- Assurance that the volume of vent air sampled is representative of actual effluent activity, or development of correction factors to compensate for sample scavenging mechanisms (50-424/86-12-88, 50-425/86-18-88).

5.4.2.9 Stack Effluent Sampling Analysis

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Appendix VI.B and E of 10 CFR 50; and guidance promulgated in Section II.I of NUREG-0654, Rev. 1.

Currently, the applicant has an approved procedure for analyzing stack effluent samples under post accident conditions. Procedure 33065-C, Rev. 0 (Gamma Spectroscopy Analysis Under Post Accident Conditions) describes initial calibration techniques and sample counting method. Testing and verification of sampling and analysis is tentatively scheduled during December 1986.

Based on the above findings, this portion of the applicant's program was found to be incomplete. This area will be reviewed during a future inspection.

- Completion of Implementing Procedure 33065-C (50-424/86-12-89, 50-425/86-18-89).

5.4.2.10 Liquid Effluent Sampling

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Appendix VI.B and E of 10 CFR 50; and guidance promulgated in Section II.I of NUREG-0654, Rev. 1.
Currently, final design of the liquid effluent sampling system has not been completed. In addition, procedures for sampling have not been developed. Completion of the sampling procedure is scheduled for June 1986.

This portion of the applicant's program is incomplete. This area will be reviewed during a future inspection by NRC.

- Development and implementation of a procedure for safely and accurately sampling liquid effluents (50-424/86-12-90, 50-425/86-18-90).

5.4.2.11 Liquid Effluent Sampling Analysis

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Appendix VI.B and E of 10 CFR 50; and guidance promulgated in Section II.I of NUREG-0654, Rev. 1.

Procedures for liquid effluent sample analysis have not been developed. Current plans are to include this analysis in Implementing Procedure 33065-C, Rev. 0. The projected date of completion is June 1986.

This portion of the applicant's program is incomplete. This area will be reviewed during a future inspection.

- Development of procedures for safely and accurately analyzing liquid effluent samples (50-424/86-12-91, 50-425/86-18-91).

5.4.2.12 Radiological and Environmental Monitoring Program

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(9); Paragraphs IV.B and E of Appendix E to 10 CFR 50; guidance promulgated in Section II.I of NUREG-0654, Rev. 1; and criteria defined in NUREG-0737.

The applicant operates a routine radiological environmental monitoring program as required by 3/4.12 of the Draft Technical Specifications. This same capability would be used to sample environmental parameters during and after an accident. The Manager of Radiological Safety, a corporate position, is responsible for the operation of the program. Request for environmental monitoring is generated through the corporate office.

In the event of an accident, this group would provide sampling of soil, water, milk, vegetation, terrestrial and aquatic animals. Environmental TLDs are also exchanged by this group. Field collection is governed by Power Supply Laboratory Procedure Series PLF-12450.85 through PLF-124500.900. Sample analyses are governed by Procedures PFL 124500.600 to PFL-124500.799.

Collected samples are taken to the GPC laboratory in Smyrna, Georgia, for analysis. Currently, the laboratory is set up to analyze all samples except environmental TLDs and iodine in milk. These analyses are currently assigned to consulting laboratories. The capability to analyze these samples is being developed at the Smyrna Laboratory and should be available in July 1986. Section 4.1.1.9 of this report provides more details on environmental sample analyses. Results are reported to the Manager of Radiological Safety.

Based on the above findings, this portion of the applicant's program was found to be adequate.

5.4.3 Protective Actions

5.4.3.1 Radiation Protection During Emergencies

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(11); Paragraph IV.B of Appendix E to 10 CFR 50; and guidance promulgated in Section II.K of NUREG-0654, Rev. 1.

The inspector reviewed EPIP Procedure 91305-C, "Protective Action Guidelines," and discussed this area with VEGP personnel. This procedure contains the basic material needed to provide protective action guidelines under emergency conditions.

The Emergency Director (ED) is given the responsibility for implementing onsite protective actions and recommending offsite protective actions. The Health Physics Supervisor is assigned the responsibility for evaluating onsite radiological conditions, recommending onsite and offsite protective actions to the ED, and making offsite dose estimates in the absence of the Dose Assessment Manager. The Dose Assessment Manager is given the responsibility to make offsite dose estimates and recommend offsite protective action to the ED. The procedure emphasizes that offsite protective actions given by the ED to the State are only recommendations.

The procedure states that "Protective action recommendations shall be made on the basis of plant conditions and/or calculated or measured dose rates." Protective action guidelines such as sheltering or sector evacuation for the general public are given as a function of projected whole body and/or thyroid doses, and the occurrence of an actual gaseous plume release.

The procedure identifies the inplant and offsite protective actions that are to be taken upon Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency. They are consistent with EPA PAGs. The procedure also specifies onsite evacuation or sheltering of non-essential personnel, the use and administration of KI, and data required for dose projection determinations.

Direct radiation monitoring, contamination control, personnel dosimetry and other protective measures are not covered in this procedure, but are defined in the Health Physics Manual.

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

- Referencing of the Health Physics Manual Procedures pertinent to protective actions for facilities and personnel during emergency conditions in Procedure 91305-C (50-424/86-12-92, 50-425/86-18-92).

5.4.3.2 Evacuation of Owner-Controlled Areas

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(10); Paragraph IV.B of Appendix E to 10 CFR 50; and guidance promulgated in Section II.J of NUREG-0654, Rev. 1.

The applicant's plan specifies the following requirements: action levels that require evacuation of assigned zones of the Plant/Owner Controlled Areas; persons responsible for determining the need for evacuation; signals/messages that direct an evacuation; emergency procedures to be followed during evacuation; and responsibilities of security, health physics, evacuation leader, and evacuation personnel. The locations of primary assembly areas is specified along with evacuation routes assigned. Assembly is discussed in Section 4.1.2.1, above.

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

5.4.3.3 Personnel Accountability

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(10); Paragraph IV.B of Appendix E to 10 CFR 50; and guidance promulgated in Section II.J of NUREG-0654, Rev. 1.

The inspector reviewed Emergency Plan Section J.1, EPIP 91401-C "Assembly and Accountability" and EPIP 91704-C "Actions for Security During a Radiological Emergency." These documents specify the steps to be taken for personnel accountability in an emergency sheltering situation or an evacuation. These procedures were completed; however, the security system, including security building equipment, security computer, intrusion detection system, perimeter badge system, and security force was incomplete. The security system was scheduled to be installed and operational during the September/October 1986 time period.

Based on the above findings, this portion of the applicant's program was incomplete. This area will be reviewed during a future inspection.

- Completion of the Security computer system, detection system, perimeter protection area barrier, and permanent badge system (50-424/86-12-93, 50-425/86-18-93).

5.4.3.4 Personnel Monitoring and Decontamination

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(10); Paragraphs IV.B and E of Appendix E to 10 CFR 50; and guidance promulgated in Section II.K of NUREG-0654, Rev. 1.

The inspector reviewed Section J-5 of the Emergency Plan and Procedures EPIP 91306-C "Contamination Monitoring and Decontamination," EPIP 91307-C "Contamination Injury," 43300-C "Personnel Decontamination," and 43301-C "Decontamination of Materials Used in Radiation Control Area." EPIP 91306-C specified responsibilities for monitoring of all individuals leaving restricted areas known or suspected to be contaminated, and personnel having evacuated the site and reassembled. Techniques for monitoring, decontamination, and data recording were specified in Procedures EPIP 91306-C and 43300-C. Procedure 43300-C addresses monitoring and decontamination of tools, equipment and personal belongings. EPIP 91306-C provides instructions for vehicle monitoring and decontamination, and assignment of contamination limits for personnel, clothing and equipment. Instruments and equipment required for monitoring and decontamination were specified and available.

Monitoring and decontamination data collected is provided to the responsible emergency response personnel in accordance with EPIP 91306-C. Based on the above findings, this portion of the applicant's program appears to be adequate.

5.4.3.5 Onsite First-Aid/Rescue

This area was reviewed pursuant to the requirements of 10 CFR 50.47 (b)(12); Paragraph IV.E of Appendix E to 10 CFR 50; guidance promulgated in Sections II.K and L of NUREG-0654, Rev. 1; and criteria defined in ANSI/ANS 3.7.1.

The inspector reviewed Sections L.1 and L.2 of the Emergency Plan and EPIP 91402-C "Search and Rescue," EPIP 91301-C "Emergency Exposure Guidelines," EPIP 91306-C "Contamination Monitoring and Decontamination", EPIP 91307-C "Contamination Injury," and EPIP 91401-C "Assembly and Accountability." The applicant scheduled 16 first aid team members to be trained in Red Cross multimedia first aid, and eight in medical support of radiation emergencies. This training was scheduled to be completed by April 11, 1986, and is discussed in Section 3.0 of this report. Personnel trained to perform first aid and decontamination will be available on each shift.

EPIP 91307-C described procedures to be used by the first aid team in treating the injured patient onsite and at an offsite medical facility and in transporting the patient. The interaction between the first aid team and the offsite ambulance squad is included in EPIP 91307-C. Radiation protection guidance was provided for onsite activities, transportation activities and the offsite medical facilities.

Search and rescue procedures were defined in EPIP 91402-C. The actions and precautions to be initiated by the rescue team, including specific cautions regarding radiation hazards and rescue limits, were included in the above cited procedures.

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

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(10); Paragraph IV.B of Appendix E to 10 CFR 50; guidance promulgated in Section II.J of NUREG-0654, Rev. 1, and requirements defined in Appendix C of 10 CFR 73.

The inspector reviewed Sections E and J of the Emergency Plan, EPIP 91704-C "Actions for Security During a Radiological Emergency," and other EPIP procedures referenced in Section 6.0 of this procedure.

EPIP 91704-C was reviewed specifically for security response during operating emergencies. During declared emergencies, the Nuclear Security Shift Supervisor (NSSS) or the Security Coordinator (SC), manage the overall security of the facility under the direction of the Emergency Director. Duties and responsibilities include the following, namely: provision for assistance, as required, with site evacuation, assembly and accountability; search and rescue; expediting site access to emergency vehicles such as ambulance, fire trucks, etc.; coordinating security with offsite law enforcement agencies; directing and controlling traffic; conducting search of areas to ensure evacuation of all non-essential personnel; maintaining appropriate logs and all other security type duties as specified by procedure.

It was determined that security was instructed to obtain health physics support for any activity that might involve radiation or radioactive contamination when performing any of the above cited tasks.

The referenced procedures involving security activities appear to meet the requirements of Appendix C to 10 CFR 73 and the Emergency Plan.

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

5.4.5 Repair/Corrective Action

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(11) and (13); Paragraph IV.E of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.K and M of NUREG-0654, Rev. 1.

The following Emergency Planning Implementing Procedures were reviewed: 91102-C, Rev. 2 "Duties of the Emergency Director;" 91103, Rev. 2 "Duties of the TSC Manager;" 91202-C, Rev. 2 "Activation and Operation of the OSC;" 91104-C, Rev. 2 "Duties of the OSC Manager;" 91301-C, Rev. 2 "Emergency Exposure Guidelines;" 91306-C, Rev. 2 "Contamination Monitoring and Decontamination"; and 91308-C, Rev. 1 "Re-Entry." Section M, ("Recovery and Re-Entry Planning and Post Accident Operations") of Revision 5 of the VEGP Emergency Plan was also reviewed.

EPIP 91308-C, Rev. 1, provides instruction for entry into radiologically controlled areas during the recovery phase. Its predecessor, EPIP 91308, Rev. 0, also provided information on re-entry to perform damage control/corrective actions while the emergency is still in progress. Rev. 0 also incorporated a check-off list "Re-Entry Radiological Emergency Team Checklist," which provided the following: information to the RET leader on the content of the briefing provided by the Maintenance Superintendent; equipment to be obtained from

emergency kits and other locations; communication instructions to the RET Leader; debriefing instructions; listing of RET members' names; and other information vital to the safe and efficient conduct of a re-entry operation. In Rev. 1, this check list was retained, but, its title was changed to "Re-Entry Radiological Team Checklist" and it is no longer referred to in the procedure text of EPIP 91308-C, Rev. 1.

EPIP 91202-C, Rev. 2 refers to Procedure/Checklist 91306-C "Contamination Monitoring and Decontamination;" however, the checklists in this procedure do not cover the information contained in the EPIP 91308-C checklist.

The Emergency Director is responsible for determining the need for forming, and dispatching Radiological Emergency Teams (RETs) prior to the activation of the TSC and EOF. After activation this authority is transferred to the TSC Manager; however, the non-delegatable authority to permit 10 CFR 20 radiation exposure limits to be exceeded in re-entry operations is retained by the Emergency Director within limits as defined in EPIP 91401-C. The OSC Manager is responsible for forming, briefing, dispatching and debriefing the RETs.

Based on the above findings, this portion of the applicant's program was incomplete. This area will be reviewed during a future inspection.

- Revision of EPIP 91308-C to include a RET checklist and inclusion of a reference in the procedural text (50-424/86-12-94, 50-425/86-18-94).

5.4.6 Recovery

This area was reviewed pursuant to the requirements of 10 CFR 50.46(b)(13); Paragraph IV.H of Appendix E to 10 CFR 50; and guidance promulgated in Section II.M of NUREG-0654, Rev. 1.

Section M of the Emergency Plan which covers recovery and post accident operation (in addition to re-entry), EPIP 91501-C, Rev. 1 "Recovery," EPIP 91308-C, Rev. 1 "Re-Entry," and EPIP 91102-C, Rev. 2 "Duties of the Emergency Director," were reviewed relative to the applicant's plans and procedures for the emergency recovery phase.

EPIP 91501-C, Rev. 1 "Recovery," is the entry procedure document. EPIP 91308-C provides instruction on entry into radiologically controlled areas during the recovery phase. The assignment of Emergency Director responsibilities regarding recovery are consistent in EPIPs 91102-C and 91501-C. EPIP 91501-C provides the following: the in-plant operating; in-plant and out-of-plant radiological prerequisites to be satisfied prior to entering into the recovery phase; procedures for the termination of the emergency conditions and the transition to recovery. The procedure specifies the following: the Emergency Director, in consultation with the Vice President of Nuclear Operations, will direct the activities of the recovery operations; duties and responsibilities of the Recovery Manager; and provision of a description (and chart) of the recovery organization. However, although Table 1 of EPIP 91501-C, Rev. 1 "Recovery Organization's Responsibilities", presents the function of each recovery position in the organization, it is incomplete regarding the persons (by normal applicant

organizational position) assigned to the recovery organization as primary and alternate members. EPIP 91501-C also provides instructions and check lists to define appropriate justifications to State and local government authorities and the NRC. It also provides a checklist to facilitate the transfer of command and control between the Emergency Organization and the Recovery Organization.

Based on the above findings, the applicants program is incomplete, pending completion of Table 1 of EPIP 91501-C (50-424/86-12-95, 50-425/86-18-95).

5.4.7 Public Information

This area was reviewed with respect to the requirements of 10 CFR 50.47(b)(7); Paragraph IV.D of Appendix E to 10 CFR 50; and guidance promulgated in Section II.G of NUREG-0654, Rev. 1.

The inspector reviewed Appendix 8 "VEGP Emergency Communications Plan," of the Emergency Plan. The Emergency Communications Plan (ECP) is reviewed and updated annually as part of the annual review and update of the Emergency Plan. Within the Emergency Communications Plan, the following functions are identified: coordination of public communications; assignment of emergency communications responsibilities; description of communications activation; description of communications personnel training; provisions for 24 hour/day emergency communications during the emergency; and description of the public education and information program.

The applicant has established a policy of prompt and full disclosure, with the intent to maintain open communications with the public, public officials, and its own employees. All news releases are required to be approved by both the Director of Corporate Response and the Public Information Manager.

The Corporate News Center collects and disseminates all information regarding the emergency prior to activation of the Vogtle Emergency News Center (ENC) at Waynesboro. Following activation, ENC assumes collection and dissemination of all information regarding the emergency. In both news centers provisions have been made for rumor control.

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

5.5 Supplementary Procedures

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

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(8); Paragraph IV.G of Appendix E to 10 CFR 50; and guidance promulgated in Section II.H of NUREG-0654, Rev.1.

Implementing Procedure 91702-C requires the Emergency Preparedness Coordinator to ensure periodic inventory of emergency kits on a quarterly basis and after each use. The procedure appeared to be basically sound with a few exceptions.

A comparison of procedure inventories with actual inventories revealed some discrepancies. Some equipment was missing in the kits and additional equipment was located in the kits, but not included in the inventory listing. In addition, the applicant relies on some equipment and supplies external to the kits that appear to be excluded from a periodic inventory.

Radiological survey instruments are required by procedure to be operationally checked during inventory and removed for calibration, if required. HP Procedure 43500-C "Health Physics Instrument Calibration and Control Program," governs the calibration of portable HP instruments. Several specific procedures have been developed for the operation and calibration of specific instruments used in emergency response. These are found in the Health Physics Manual. About half of the instruments were observed to be turned on and thus contained dead or weak batteries.

Based on the above findings, this portion of the applicant's program was found to be adequate; however, the items listed below should be considered for program improvement.

- Correcting the inventory list in Implementing Procedure 91702-C to include items in the kits, but not on the inventory listing (50-424/86-12-96, 50-425/86-18-96).

- Providing a periodic inventory of equipment and supplies used in emergency response, but not included in the kits (e.g., communications devices, portable or mobile status boards, etc.) (50-424/86-12-97, 50-425/86-18-97).

- Including a prompting statement in Procedure 91702-C to remind persons performing inventories to turn off electronic instruments at the completion of the operational check (50-424/86-12-98, 50-425/86-18-98).

- Identifying the specific voltage or type of battery when it is referenced on an inventory (e.g., D, AA, etc.) (50-424/86-12-99, 50-425/86-18-99).

5.5.2 Drills and Exercises

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(14); Paragraph IV.F of Appendix E to 10 CFR 50; and guidance promulgated in Section II.N of NUREG-0654, Rev. 1.

EPIP 91602 describes the drill and exercise program for VEGP and assigns the responsibilities for coordinating, planning and scheduling exercises to the Emergency Preparedness Coordinator (EPC). The following responsibilities are also assigned to the EPC, namely: developing scenarios; coordinating scenario development with State and local agencies; arranging for observers; evaluating and coordinating critiques of drills and exercises; assuring that identified deficiencies are corrected; and maintaining records of exercises and drills. The GPC Manager of Radiological Safety also has responsibility for coordinating scenarios with offsite organizations.

An ad hoc committee, supported by contractors and vendors, under the chairmanship of the EPC consisting of members from VEGP Operations, Health Physics, Chemistry, Training, Security, and Startup organizations, is responsible for scenario development and coordination. This committee is expanded to include representatives from GPC Radiological Safety, the States of Georgia and South Carolina, Savannah River Plant (SRP) and Burke County when the scenario includes offsite organizations or involves a full scale exercise.

EPIP 91602 provides data sheets and forms to develop scenarios, simulate messages, document observations and evaluations, and provide a report to the Manager of Unit Operations or the General Manager of Vogtle Nuclear Operations by the Emergency Preparedness Coordinator. This procedure provides for all evaluators and observers to return their critique reports and recommendations for changes and improvements in drill and exercise techniques, as well as changes in the EPIP's equipment and data forms, to the Emergency Preparedness Coordinator who evaluates them along with the Health Physics Superintendent. Comments from observers, controllers, evaluators and players are included in the critique reports. The recommended changes are sent to the appropriate VEGP departments for comment. Based on the comments received, appropriate changes for implementation are directed through the Plant Safety Review Board to the General Manager using the VEGP standard review and revision procedures described in Health Physics Procedure 4005-C and the Draft Technical Specifications. The review and implementation of changes is tracked and assigned completion dates using the Vogtle Emergency Preparedness Action Item Report. Major items are carried on the VEGP Action Tracking Report. Under the previsions of EPIP 91602, the Emergency Preparedness Coordinator maintains records and files of all reports, comments, and changes with regard to exercises and drills for a period of five years. These records were reviewed and appeared to be complete and comprehensive. Comments that resulted in changes to procedures, equipment and data forms were recorded.

EPIP 91602 provides for all the drills and exercises, and is consistent with Section N of the VEGP Emergency Plan. Fire Brigade Training is specified in VEGP Procedure 92000-C, and is also specified in Paragraph 13.2.2.1.9 of the FSAR. Fire brigade training and drills are the responsibility of the Superintendent of Nuclear Training. The responsibility for direction of the VEGP Fire Protection Program resides with the Superintendent of Plant Engineering and Services.

Provisions for the scheduling of drills on the backshift are provided in the drill and exercise schedule maintained by the Emergency Preparedness Coordinator. The applicant intends to consider response to actual events as a substitute for drills required after fuel load.

GPC Public Information Department has conducted three drills for the public information staff including the staffing and operation of the ENC and coordination with Corporate Emergency Center, the VEGP EOF and State and local agencies. Procedures, information forms, and equipment requirements have been developed. The media has not been invited to any of these drills; however, they will be invited to participate in the April, 1986, pre-licensing graded exercise.

The GPC Public Information Department has its own computerized Emergency Planning Management Tracking System for tracking changes and revisions to the emergency public information, program scheduling completion dates, and closeout of changes.

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

5.5.3 Review, Revision, and Distribution of the Emergency Plan and Procedures

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(16); Paragraph III.G of Appendix E to 10 CFR 50; and guidance promulgated in Section II.P of NUREG-0654, Rev. 1.

The review and revision of the EPIPs are described in Health Physics Procedure 40005-C and Section P of the VEGP Emergency Plan. The procedure provides for an annual review by the Emergency Preparedness Coordinator with assistance of the Health Physics Superintendent. In this procedure and NOI-08-052, the GPC Manager of Radiological Safety is responsible for the annual review of offsite plans and procedures. Procedure 40005-C also requires a quarterly review and update of emergency telephone numbers by the Emergency Preparedness Coordinator.

Currently, the EPIPs and emergency preparedness program are subject to frequent review and revision because of the preparation for the graded exercise scheduled for April 1986. The files and tracking procedures for these changes are described in Subsection 5.3.2, above. The distribution of these changes is controlled by the VEGP Document Control Supervisor. A copy of the distribution list indicates 67 controlled copies of the EPIPs. Tracking of changes, implementation responsibilities, and dates are performed by a computer tracking system called the VEGP Emergency Preparedness Action Item Report which is reviewed three times a week by the Emergency Preparedness Coordinator and the Health Physics Superintendent. This system is also reviewed by the VEGP management on a weekly basis.

Changes to the VEGP Emergency Plan are handled as a revision to the FSAR and are reviewed by both the VEGP staff, the GPC management, and Southern Company Services who also is responsible for distribution of the revisions. A distribution list of 94 controlled copies was provided for review from Southern Company Services and appeared to be appropriate.

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

5.5.4 Audit

This area was reviewed pursuant to the requirements of 10 CFR 50.54(t); Paragraph IV.G of Appendix E to 10 CFR 50; and guidance promulgated in Section II.P of NUREG-0654, Rev. 1.

In addition to reviews described in subsection 5.3.3. above, Draft TS 6.5.2.8(1) requires an audit of the Vogtle Emergency Plan and EPIPs every 12 months plus or minus 25%, by the VEGP Safety Review Board. Also, an independent audit program

is conducted by the VEGP Quality Assurance Department under the direction of the VEGP Quality Assurance Manager. The offsite emergency preparedness program is audited by the GPC Deputy General Manager of Quality Assurance.

The VEGP Quality Assurance Department has been observing emergency preparedness drills and exercises. They have also used INPO and have contracted with a vendor for technical support in the emergency preparedness area. As a representative on the VEGP Plant Review Board, the Quality Assurance Manager is involved in the review of changes and revisions to the VEGP Emergency Plans and EPIPs.

As a part of the VEGP Standard Audit Program, the Quality Assurance Department is presently developing an audit plan and preparing checklists for the emergency preparedness program. A schedule of audits of the program is under development. The first audit is planned for October 1986. The second audit is planned for May 1987.

The VEGP Safety Review Board will use the records and reports of the Health Physics Department, GPC Radiological Safety Department, and the VEGP and GPC quality assurance programs in performing their annual audit of the emergency preparedness program.

Based on the above findings, this portion of the applicant's program appears to be adequate with the exception of the following incomplete item.

- Completion of the emergency preparedness audit plan, schedule, and checklists by the VEGP Quality Assurance Department (50-424/86-12-100, 50-425/86-18-100).

6.0 COORDINATION WITH OFFSITE GROUPS

6.1 Offsite Agencies

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(2) and (3); Paragraph IV.A of Appendix E to 10 CFR 50; and guidance promulgated in Sections II.B and C of NUREG-0654, Rev. 1.

All agency representatives contacted acknowledged their responsibilities in responding to an emergency at Vogtle Electric Generating Plant (VEGP) consistent with their signed Letters of Agreement appended to the VEGP Emergency Plan. The Letters of Agreement were current and valid.

The mutual assistance Emergency Response and Planning agreement established between VEGP and the U.S. Department of Energy - Savannah River Plant (SRP) is consistent with EPIP Procedure 91801-C. The agreement addresses emergencies and respective impacts which occur in either of the subject facilities. Proper emergency classifications and respective procedures are to be implemented by both VEGP and SRP. The agreement appears to be adequate for required coordination of emergency response between VEGP and SRP.

Discussions with the Burke County emergency response personnel demonstrated that there is a close working relationship with VEGP, the County and State of Georgia

emergency response organizations. Burke County has participated in drills with the applicant. The Burke County EOC is a well designed, and effectively managed facility. Field team monitoring kits, and vehicle/personnel decontamination kits are complete. All instruments were within calibration. Environmental sampling kits supplied by the State of Georgia were missing some minor supplies. An extensive radiological and emergency training program conducted by the State and County has trained over 300 county personnel and residents. Comprehensive training records are on file. Extensive training aids, lesson plans, and course outlines are available and used. Retraining of key personnel is in progress. Onsite (Vogtle) training of fire protection and ambulance personnel is only partially complete. Training is addressed in Section 3.0, above. The emergency communications network is operational, and the Emergency Center is manned 24 hours a day. Detailed procedures exist for the evacuation and sheltering of personnel within the 10-mile EPZ.

State and county protective action recommendations are consistent with those of the applicant. The County has copies of the VEGP Emergency Plan available within the EOC.

The County emergency organization has a tested procedure for County/Coast Guard cooperation for the monitoring and clearing of the Savannah River during an emergency. Formal letters of agreement between the county and Georgia Power Co. exist and are updated as needed.

The State of South Carolina has an effective emergency preparedness program. The State is in contact with the applicant regarding the emergency response training for the three counties in support of VEGP. The current EOCs at Aiken, Allendale, and Barnwell Counties appear to be adequate to support emergency response. The ENN Emergency communications equipment is being installed in the county EOC, telephone communications are established and have been used in drills.

The inspector confirmed that facilities at the Burke County and Humana Hospitals were adequate. An applicant contractor provides personnel decontamination equipment, an inventory and replacement service, and radiological/decontamination control training for all affected hospitals and training records are on file.

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

6.2 General Public

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(7); Paragraph IV.D of Appendix E to 10 CFR 50; and guidance promulgated in Section II.G of NUREG-0654, Rev. 1.

Emergency, battery powered radios tuned to the NOAA frequency will be distributed to all permanent residents within the 10-mile EPZ. Emergency information brochures were prepared by the applicant for transient population and rural residents near the Vogtle Plant. The brochures were not disseminated at the time of this evaluation. Additionally, emergency information, including a 10-mile EPZ map, has been developed to insert into local telephone books to provide necessary

emergency information to the public. The brochure developed for the applicable State, County and VEGP emergency organizations lists the radio and TV stations that will broadcast emergency messages. Personal protective actions are recommended, evacuation routes are identified, and evacuation instructions are given. Other subjects discussed include specific instructions required to prepare for a radiological emergency. A simple map is included, and Zone Evacuation Routes and accident classifications are discussed. A brief discussion of radiation is presented. A special needs card for those in need of transportation help, or who have a physical or mental problem is also included.

Periodic media news briefings have been conducted that inform the public of VEGP facilities and emergency plans.

Based on the above findings, this portion of the applicant's program appears to be adequate. However, the following items need to be completed:

- Dissemination of public information brochures (50-424/86-12-101, 50-425/86-18-101).

- Dissemination of emergency radios (50-424/86-12-102, 50-425/86-18-102).

- Design and installation of an emergency siren system (50-424/86-12-103, 50-425/86-18-103).

6.3 News Media

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(7); Paragraph IV.F of Appendix E to 10 CFR 50; and guidance promulgated in Section II.G of NUREG-0654, Rev. 1.

The applicant has developed a program for familiarizing the news media with the following required information: emergency plans; points of contact for release of public information; facilities and space allocated for media use; information regarding nuclear power, radiation, and normal plant operation; radiological emergencies; and accident sequences.

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

7.0 DRILLS, EXERCISES, AND WALK-THROUGHS

7.1 Program Implementation

This area was reviewed pursuant to the requirements of 10 CFR 50.47(b)(14); Paragraph IV.F of Appendix E to 10 CFR 50; and guidance promulgated in Section II.N of NUREG-0654, Rev. 1.

Consistent with the applicant's schedule of frequent drills and exercises, an exercise was conducted on March 19, 1986, in preparation for the pre-licensing graded exercise assigned for April 30, 1986. Items identified as problem areas are being tracked, approved and implemented as described in Subsection 5.5.2 of

this report. These drills and rehearsal exercises are being coordinated with the GPC emergency organization, State and local support groups and SRP, as appropriate, depending on the area being tested.

The practice exercise cited above was conducted using the techniques described in EPIP 91602-C. The exercise was critiqued by players, controllers and observers immediately following its termination. No attempt was made to discourage critical comments, and the participants documented problem areas and required improvements for analysis and correction. The inspectors noted problems with procedures, equipment, emergency supervision and other items which are described elsewhere in this report. Particular problems were observed with communication and coordination between controllers.

Based on the above findings, this portion of the applicant's program appeared to be adequate. However, the following items are recommended for program improvement:

- Improving communications and training provided for controllers (50-424/86-12-104, 50-425/86-18-104).

- Providing a number of alternate players to be available as substitutes if players are required to leave the exercise team (50-424/86-12-105, 50-425/86-18-105).

7.2 Walk-Through Observations

Walk-throughs for Control Room personnel were conducted with four groups of On-shift Operating Supervisors (OSOS), Unit Supervisors, and a Health Physics Department representative acting as the HP Shift Foremen. It was determined that only one foreman completed all EP training; therefore, it was necessary to use more senior and trained personnel to fill this position during the walk-throughs. Once the emergency organization has been activated, the OSOS becomes the Emergency Director (ED). The Unit Supervisor continues in his responsibility of supervising Control Room activities and keeping the OSOS/ED advised. The On-Shift HP Foreman reports to the OSOS, and manages radiological considerations, including performing dose assessment. Personnel assignments and work load, at the time of the appraisal, did not permit interview of the Shift Clerk who becomes the Emergency Communicator; however, the OSOS or Unit Supervisor demonstrated these activities.

Interviews of the three men teams were used as a method for determining the applicant's readiness to perform accident detection/mitigation, emergency classification, notifications, and performance of protective action orders in-plant, and recommendations to offsite authorities. The interviews were conducted in the TSC where each crew had the necessary equipment, documentation, and references available to them. A hypothetical accident scenario was prepared by the inspectors and reviewed by applicant personnel to assure plant-specific accuracy. The scenario contained degrading plant conditions that escalated from an Alert to a General Emergency. No requirements were placed on the operators to perform from memory; however, they were provided with guidance that directed them to perform as they normally would; that is, using all information available

sources. The watch organization was expected to evaluate the plant indications given to them by the inspector, and respond to the indications/conditions based upon the use of proper procedures.

The inspectors understood that this portion of the applicant's training program was incomplete, and that it is anticipated that at least six watch sections will be qualified for plant operations.

Based on the above findings, the following portion of the applicant's program was found to be incomplete. This area will be reviewed during a future inspection.

- Completion of training, qualification, and integration of remaining Control Room and other Watch personnel necessary to meet licensing commitments for number of qualified watch sections (50-424/86-12-106, 50-425/86-18-106).

7.2.1 Emergency Detection/Accident Mitigation

The response of the watch organizations in the area of accident detection and mitigation was adequate; however, some areas for improvement were noted as described below. The scenario used by the inspector began with indication of failed fuel by high activity on the CVCS System Letdown Monitor, followed by alarm on the Gross Failed Fuel Detector with confirmatory Reactor Coolant System (RCS) chemistry results. Most crews did not consider the use of annunciator alarm procedures (ARP 17005) in responding to control board alarms. Half of the crews were slow in utilizing AOP 18033-1 "High Reactor Coolant Activity." Once prompted to the use the AOP, some crews failed to implement all steps, or failed to correctly interpret the steps. For example, Step 4 prescribes the increase of letdown flow to increase purification flow which one crew omitted; one crew started to shut the plant down, rather than reduce power by 25% as prescribed by the AOP, until prompted. Difficulties were also noted in crew ability to interpret Technical Specifications (TS) concerning RCS chemistry requirements until prompted by the inspector. The crews did not uniformly notify the System Operator prior to making significant changes in power, and no uniform rate of power reduction was used by the crews.

Regarding the radiological considerations for this scenario, all crews were not prompt in their review of other process or area monitors to determine the extent of the problem. Most crews did not consider the local evacuation of personnel from potentially high radiation areas, relying only on the activation of the plant alarm for Alert to initiate this response.

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

- Conducting additional training in the use of Alarm Response Procedures, Abnormal Operating Procedures, Emergency Operating Procedures, and Technical Specifications to assure correct and complete interpretation and compliance with same (50-424/86-12-107, 50-425/86-18-107).

7.2.2 Emergency Classification

In addition to interpreting RCS activity indications to arrive at an Alert classification, the crews were required to evaluate primary plant, containment, and radiological considerations to arrive at a General Emergency classification. In all cases, the classifications were prompt and correct. It was observed, however, that one HP representative failed to correctly convert R/HR to mr/HR (EPIP 91304-C, worksheet No. 9, p. 33), and thus recommended to the ED a classification of Notification of Unusual Event instead of General Emergency. The ED correctly followed his own interpretation of plant conditions and proceeded with the General Emergency classification.

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

7.2.3 Notification

The Unit Supervisor or the OSOS was asked to implement the notification procedures that would be normally completed in the event of an emergency. Based upon the number of forms requiring completion, and the number of different agencies to be notified, it was unlikely that required notifications could be completed in a timely fashion by an unalerted watch organization. Actual equipment operation was not not able to be observed because its final installation was not complete. Unit Supervisors/OSOS were observed to be weak in notification procedures. It was recognized by the inspectors that the OSOS is not the person who will perform this function; however, the OSOS does have the responsibility for ensuring its completion. Authentication procedures for back-up phone systems were noted as an example of weakness. It was also noted that if the utility did not initiate the authentication procedure, the receiving party would also fail to initiate the procedure (Savannah River Project).

Administrative problems were noted in EPIP 91002-C, "Emergency Notifications." For example, Data Sheet 2, Initial Emergency Message Form for the State of Georgia and Burke County (Sheet 2 p. 14) had the wrong telephone number listed for the Georgia Emergency Management Agency (GEMA) Operations Duty Officer as (404) 656-6166. The correct number was found in the Emergency Response Facility (ERF) telephone directory. The verification/authentication scheme prescribed by the same message form, provides for the called party to be given a phone number to call back. This is not adequate to perform the intended function. The message authentication scheme prescribed by the subject procedure will perform its intended function since the scheme is one of matching code numbers and words; however, the code sheet was not available to the operators, nor was "....the appropriate telephone number provided on the authentication code list..." (Part 3, Data Sheet 9, EPIP 91002-C).

Regarding notification of plant personnel during normal working hours, use of plant paging system will permit timely augmentation. During backshift hours, a security representative will report to the control room for the appropriate notification sheet for notifying plant personnel. The system is currently a manual "tree" method. Based on the number of persons to be contacted, and the remote location of the plant, it is expected that the sixty minute augmentation

criteria will be difficult to achieve. No attempt was made during the appraisal to test off-hours augmentation capability.

Based on the above findings, this portion of the applicant's program appears to be adequate. However, the applicant is committed to completing the following items for improvement prior to fuel load:

- Performance of additional training and practical drills for Control Room personnel with notification duties and responsibilities (50-424/86-12-108, 50-425/86-18-108).

- Performance of a study or drills to verify the ability to meet notification of offsite agencies criteria in Appendix E to 10 CFR 50, and Section II.E and F of NUREG-0654, Rev. 1 (50-424/86-12-109, 50-425/86-18-109).

- Performance of a study or drills to verify the ability to meet the minimum staff augmentation criteria in NUREG-0654, Rev. 1, Section II.B, Table B-1, and activation criteria of Section II.H (50-424/86-12-110, 50-425/86-18-110).

In addition, the following items should be considered for program improvement:

- Correction of administrative problems as appropriate in EPIP 91002-C (50-424/86-12-111, 50-425/86-18-111).

7.2.4 Dose Calculations/Protective Action Decision Making

The inspectors observed the following: performance of automated dose calculations (computer with IRDAM program) by the HP crew member; the use of default (manual) dose assessment with no release occurring, but a large source term in containment; and the formulation of onsite and offsite protective action decisions by the crew.

As discussed in Section 7.2.1 above, protective actions for onsite personnel may have been improved if consideration for local evacuation of affected plant areas was accomplished. It was also observed by the inspectors that the procedure dictates non-essential personnel assembly in the Administration Building following Alert declaration. Most crews failed to consider their disposition after completion of accountability. One crew was unaware of assembly points for non-essential personnel.

The scenario presented by the inspector included a General Emergency classification due to plant conditions absenting a radiological release, but later followed by a release. Adverse weather conditions of icing were postulated as part of the scenario. Based on the plant and radiological conditions, protective action recommendations to the offsite agencies were correct and timely. However, the following difficulties were observed: an EPZ map with a wind rose and zones delineated was neither included in the EPIPs, nor available in the Control Room; consideration of EPIP 91305-C "Protective Action Guidelines," Precaution 4.5, dictating consideration of weather conditions, was not adhered to by most crews.

It was observed that following prompting, crews demonstrated obvious awareness of the EPIP requirement and were able to implement the step correctly.

Based on the above findings, the following portion of the applicant's program was found to be incomplete. This area will be reviewed during a future inspection.

- Completion of the training of on-shift HP Foremen in dose-assessment and protective action recommendation formulation and integration of this expertise into the watch section organization (50-424/86-12-112, 50-425/86-18-112).

In addition, the following items should be considered for improvement:

- Revising EPIP 91305-C as necessary to incorporate EPZ maps and other information as may be appropriate (50-424/86-12-113, 50-425/86-18-113).

8.0 PERSONS CONTACTED

*A. Desroiers, Health Physics Superintendent
*E. Schnell, Health Physics Supervisor
J. Jiles, Corporate Safety Advisor
C. Kitchens, Nuclear Security Advisor - Operations
G. Cook, Nuclear Security Supervisor - Support
*P. Hayes, Senior Nuclear Specialist
*J. Diluzio, Nuclear Emergency Planning Supervisor
M. Kurtzman, Supervisor, Health Physics and Chemistry Training
*M. Kirkpatrick, Methods and Training Specialist
*P. Rushton, Superintendent of Training
D. Hallman, Chemistry Superintendent
P. Jackson, Test Supervisor for Systems Engineering - PASS
*C. Moore, Supervisor, Chemistry Development Program
R. Gilbert, Chemistry Specialist
D. Langston, PASS Instructor (Chemston Technology)
D. Richards, Radiological Engineer (Stone and Webster)
J. McKnight, Health Physics Specialist
R. Leinke, Chemistry Supervisor
J. Carswell, Health Physics Foreman
R. Pickett, Health Physics Foreman
M. Llewellyn, Consultant Chemistry Development Program
W. Smith, ALARA Engineer (Bartlett Nuclear, Inc.)
*J. Roberts, Emergency Planning Coordinator
M. Griffis, OSC Manager
V. Agno, EOF Support Cooridnator
R. Brown, EOF Security Coordinator
C. Miller, EOF Manager
N. Barrow, OSC In-Plant Monitoring
C. Corella, OSC Field Monitoring Team
G. Brenenborg, Health Physics Technician
W. White, GPC District Manager
B. Wyre, Maintenance Engineer

N. Zerkos, NPMIS Engineer
J. O'Reilly, Senior Vice President, Nuclear Operations
T. Becham, Vice President, Nuclear Operations
R. Glover, Warehouse Supervisor
E. Kozinsky, Operations Supervisor
R. Dorman, Shift Supervisor
M. Biron, Senior Health Physicist
T. Dobbs, Operations Supervisor
D. Schreiber, Operations Supervisor
D. Carter, Shift Supervisor
D. Potocik, HP/Chemistry Operations Supervisor
B. Burmeister, Operations Supervisor
M. Lackey, Shift Supervisor
E. Balducci, Junior Engineer, Health Physics
B. Turpin, Health Physics Foreman
D. Evans, Nuclear Chemistry Technician
*J. Varner, Speech and Information Supervisor
*D. Read, General Manager - Quality Assurance
*C. Hayes, Quality Assurance
D. Birckbichler, Nuclear Chemistry Technician
J. Sanders, Nuclear Chemistry Technician
R. Bowden, Nuclear Chemistry Technician
M. Nichols, Health Physics and Chemistry Operations Supervisor
S. McCann, Technical Specialist (Bartlett Nuclear)
B. Crandall, Senior Construction Engineer (Stone and Webster)
*S. Ewald, Manager, Radiological Safety
T. Burnworth, Senior Training Specialist
P. Farrow, I&C Procedure Coordinator (WISCO)
*C. Bellflower, Quality Assurance Manager - VEGP
*H. Walker, Manager, Unit Operations - VEGP
D. Altman, News Services Manager - GPC
M. Dunkle, Intercon Services, Inc.
*R. Smith, Stone and Webster
G. Michaels, Stone and Webster
C. Myer, Operations Superintendent
*W. Kitchens, Operations Supervisor
D. Leonard, Senior Engineer
C. Mazzola, Senior Environmental Scientist
R. Liang, Senior Nuclear Technology Scientist
R. Bryant, Burke County Emergency Director
R. Bristol, Burke County Assistant Emergency Director
J. Hardman, State of Georgia, Department of Natural Resources
S. Koffler, Manager, EMAP RMC Medical Services
J. Emerg, Burke County Hospital Administrator
D. Cobb, Disaster Coordinator, Burke County Hospital
D. Parks, RN, Clinical Cooridnator, Emergency Department Humana Hospital
K. Henderson, RN, Administrator Humana Hospital
A. Posey, RN. Burn Unit Administrator, Humana Hospital
J. Culpepper, Jr., NCP Planner, State of South Carolina
B. Mauney, Emergency Preparedness Coordinator, Aiken County Emergency Services

R. Powell, Director, Aiken County Emergency Services
H. Awbrey, Director, Allendale County Emergency Services
H. Wald, Director, Barnwell County Emergency Services
L. Newman, Senior Public Information
B. Maulsby, Power Supply Labs Manager
D. Philpotts, Senior Health Physicist
T. Collins, Senior Biologist
S. Williams, Emergency Planner
R. Lide, Procedure Supervisor for Start-Up
B. Quick, Document Control Supervisor
M. Ajluni, On-Shift Operations Supervisor
S. Hargis, Shift Supervisor
C. Coursey, Maintenance Superintendent
*W. Knox, Emergency Preparedness Consultant

*Attended management exit briefing on March 21, 1986.

9.0 GLOSSARY OF ACRONYMS AND INITIALISMS

ALARA	As Low As Reasonably Achievable
ANT	American Nuclear Insurers
AOP	Abnormal Operating Procedure
ARD	Automatic Ring Down
ARP	Alarm Response Procedure
ARM	Area Radiation Monitor
ARP	Annunciator Response Procedure
CFR	Code of Federal Regulations
CR	Control Room
DBA	Design Basic Accident
EAL	Emergency Action Level
ED, E/D	Emergency Director
EMT	Emergency Medical Technician
ENC	Emergency News Center
ENS	Emergency Notification System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPIP	Emergency Plan Implementation Procedure
EPC	Emergency Planning Coordinator
EP	Emergency Preparedness
EPZ	Emergency Planning Zone
ERF	Emergency Response Facility
ERO	Emergency Response Organization
ETS	Emergency Telephone System
FSAR	Final Safety Analysis Report
GET	General Employee Training
GFFDS	Gross Failed Fuel Detector
GPC	Georgia Power Company
HEPA	High Efficiency Particulate Air (Filter)
HP	Health Physics
HPN	Health Physics Network

HVAC	Heating, Ventilating, and Air Conditioning
I&C	Instrument and Control
IE	NRC Office of Inspection and Enforcement
INPO	Institute of Nuclear Power Operations
IRDAM	Interactive Rapid Dose Assessment Model
KI	Potassium Iodide
LLEA	Local Law Enforcement Agencies
LOCA	Loss of Coolant Accident
MCA	Multi Channel Analyzer
MSIV	Main Steam Isolation Valve
MSL	Mean Sea Level
NOUE	Notification of Unusual Event
NRC	U.S. Nuclear Regulatory Commission
NRR	NRC Office of Nuclear Reactor Regulation
NSMC	Near Site Media Center
NSSS	Nuclear Security Shift Supervisor
NWS	National Weather Service
OSC	Operations Support Center
OSOS	On-Shift Operations Supervisor
PAG	Protective Action Guides
PASS	Post Accident Sampling System
PDS	Power Distribution System
PCs	Protective Clothing
PEP	Plant Emergency Procedures
PERMS	Process Effluent Radiation Monitoring System
PM	Process Monitor
PNSC	Plant Nuclear Safety Committee
psid	Pounds per square inch, differential
PSMS	Plant Safety Monitoring System
PWR	Pressurized-water Reactor
QA/QC	Quality Assurance/Quality Control
RAB	Reactor Auxiliary Building
RCA	Radiation Control Area
RCS	Reactor Core Spray
REAC/TS	Radiation Emergency Assistance/Training Site
RET	Radiological Emergency Team
RHR	Residual Heat Removal System
RMS	Radiation Monitoring System
SCBA	Self-Contained Breathing Apparatus
SC	Security Coordinator
SEC	Site Emergency Coordinator
SI	Safety Injection
SPDS	Safety Parameter Display System
TS	Technical Specifications
TSC	Technical Support Center
SSSMP	Safety System Status Monitoring Panel
UPS	Uninterruptable Power Supply
WOG	Westinghouse Owners Group