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OFFICE OF INSPECTION AND ENFORCEMENT

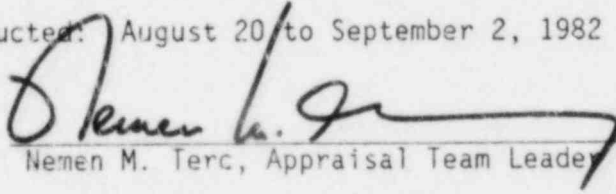
Region I

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Docket No. 50-322
License No. CPPR-95 Priority - Category B-1
Licensee: Long Island Lighting Company
175 East Old Country Road
Hicksville, New York 11801

Facility Name: Shoreham Nuclear Power Station

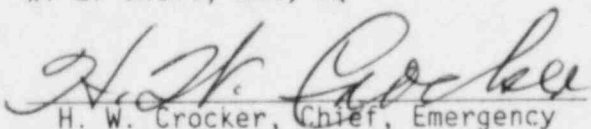
Appraisal At: Shoreham, Long Island, New York

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SUMMARY

The appraisal of the onsite emergency preparedness program at the Shoreham Nuclear Power Station involved seven general areas: administration of the emergency preparedness program, emergency organization, emergency training, emergency facilities and equipment, procedures which implement the emergency plan, coordination with offsite agencies and walkthroughs of emergency duties.

The development of the licensee's Emergency Preparedness Program was administered by a task force consisting of site and corporate personnel.

A review of the licensee's emergency organization description showed that although the licensee had identified organizational response elements, improvements were in order to further clarify duties and responsibilities, and to provide an organizational structure consistent with the various emergency response tasks.

The emergency preparedness training program had been established but was incomplete: a training coordinator had not been assigned, some lesson plans had not been developed, and criteria for qualifying instructors and emergency personnel were not in place.

Those aspects of Emergency Response Facilities that had been completed were basically satisfactory, but facilities were still in various stages of development, and equipment and supplies were not always in-place.

Emergency Plan Implementing Procedures were mostly inadequate, with unclear assignment of specific responsibilities, ambiguities, inconsistencies, errors, missing specific cross references, and burdened by extraneous materials. Other emergency procedures necessary for an adequate emergency response were incomplete or lacking.

The auditors concluded that significant deficiencies identified in this report needed to be corrected in order to properly detect, classify, manage, and mitigate emergencies.

1.0 ADMINISTRATION OF EMERGENCY PREPAREDNESS

1.1 Responsibility Assigned

On August 8, 1981, the Plant Manager assigned an onsite Emergency Planning Coordinator (EPC) by means of a memorandum. The auditors noted that neither normal organization charts nor the incumbent's 'Position Analysis' were descriptive of Emergency Preparedness Functions, but rather described the onsite EPC as a Plant Engineer assigned to the Health Physics Engineer. From interviews with the incumbent the auditors concluded that a definite commitment for an onsite EPC had not been made. A similar situation existed for the corporate EPC. Emergency Planning responsibilities were spread out between the various members of a Task Force designated for Emergency Preparedness which included the interim Onsite EPC. Such Task Force was assigned in a memo signed by the Vice President Nuclear on November 5, 1981. Another memo dated, May 30, 1982 assigned a new corporate EPC to the Task Force.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Assign corporate and onsite Emergency Planning Coordinators (EPCs) on a permanent basis who shall be given direct working level responsibility and authority over all aspects of the development and maintenance of the emergency preparedness program. Revise normal organizational charts, position analysis descriptions, and other related documents to reflect the EPCs assignments and to describe the scope of their duties, authorities, and reporting chains. (50-322/82-18-01)

1.2 Authority

The auditors concluded based on interviews that subject to the need for clarifications of Section 1.1 above, the individuals responsible for emergency planning functions appeared to receive sufficient management support to support their emergency preparedness effort.

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

1.3 Coordination

The auditors noted that the individual assigned as onsite EPC was not a member of the Review of Operations Committee (ROC). The coordination between onsite and corporate organizations, was embodied within the Task Force concept which combined onsite and corporate individuals. Other written means specifying administrative provisions to ensure the continuation of inter-organizational coordination concerning emergency preparedness matters were lacking. Additionally, the auditors noted that there was no written program to ensure continuous coordination of emergency preparedness activities between the licensee and: offsite support groups, the general public and the news media (e.g. information on radiation and emergency response through conferences, lectures, site tours etc.).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Design, implement, and document a program to coordinate emergency preparedness activities including such things as technical information exchange, training, and site familiarization tours. Coordination on a continuous basis is needed between the site and corporate headquarters, the general public, offsite support agencies, and the news media. (50-322/82-18-02)

1.4 Selection and Qualifications

The auditors interviewed the EPC, reviewed documentation and noted that selection criteria for personnel responsible for emergency planning (i.e. EPCs) had not been developed. The auditors determined that an appropriate training program designed to qualify the incumbents had not been established. In addition, means to ensure professional development and to maintain their state-of-the-art knowledge were not available. The onsite EPC, however, had attended a one week course (approximately 2 years ago) dealing with Nuclear Emergencies, and had observed two Emergency Exercises.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement:

- Develop and implement selection and qualification criteria for personnel assigned emergency planning responsibilities. (50-322/82-18-03)
- Develop a training program for individuals who are assigned emergency preparedness responsibilities which will enable them to attain and maintain a state-of-the-art knowledge in the field of emergency preparedness. (50-322/82-18-04)

2.0 EMERGENCY ORGANIZATION

2.1 Onsite Organization

The auditors reviewed the Shoreham Nuclear Power Station Emergency Plan, dated May 27, 1981 (hereafter referred to as the Emergency Plan) and Revision 1 to the same, dated January 11, 1982. In addition, the auditors reviewed all Emergency Plan Implementing Procedures, and their revisions up to August 1982, and held discussions with licensee personnel to evaluate the emergency organization.

In performing this evaluation the auditors conceived the emergency organization as a system unfolding with time. Three basic phases (i.e. staffing levels) were considered: initial, intermediate and final augmentation. The initial phase consists of the minimum staff operating the plant (i.e. in particular during backup shifts). The intermediate phase comprises the full fledged onsite emergency organization forming within a reasonably rapid time frame (60 minutes). The final augmentation phase includes the first two staffing levels, additional corporate and other support groups. The final augmentation phase

will be discussed further in Section 2.2. A recovery phase would be entered after the reactor plant has stabilized and significant releases of radioactivity to the environment and a potential for them has ceased. At that point, the licensee will implement organization designed to recover from the accident. The recovery phase will be discussed further in Section 5.4.6.

The licensee's emergency organization was described in Sections 5 and 7 of the Emergency Plan and in Procedure CIP-21, dated August 19, 1982. These documents provided a description of the various phases of augmentation, including organizational charts, and lists of duties and responsibilities for the various organizational elements. Additionally, the licensee correlated its emergency response organization with NUREG 0654 table B-1 "Minimum Staffing Requirements".

The auditors noted some discrepancies as follows:

- . Organizational titles used by the licensee were not referenced in tables describing minimum staffing responses (e.g. the titles Shift Supervisor and Shift Foreman were used, instead of Watch Engineer and Watch Supervisor).
- . Description of responsibilities and specific duties were ambiguous. For example, there was no explicit mention in Procedure CIP-21 of the Watch Engineer's responsibility to make protective action recommendations, and no specific, unambiguous designation of his relief since both the Operations Manager and the Emergency Director have been designated to relieve him. (See his Specific Duties, Paragraph 3) The auditors attributed this situation to the lack of an independent description of duties applicable to each staffing level, that is, independently describing each phase of emergency augmentation.
- . The inter-relationships between the Emergency Director and the Response Manager, and the limitations pertaining the duties and authority of the onsite Emergency Director were unclear when the Response Manager is at the Emergency Operations Facility (EOF). Procedure CIP-21 stated that the Emergency Director has the authority to immediately and unilaterally initiate any emergency actions. During the final augmentation phase, this would imply a bicephalic organizational structure, since the Response Manager has similar authority.
- . In some cases the selection of emergency organizational titles was poor. For example, the use of the title Emergency Director to designate the organizational element who will be directing all aspects of the emergency response, was retained by the person coordinating the onsite effort after he had relinquished overall direction and responsibility (e.g. for making protective action recommendations) to another individual namely, the Response Manager. Emergency titles such as Radiation Protection Manager and Radiological Control Manager used to designate emergency organizational elements in charge of ascertaining onsite and offsite radiological consequences (e.g. dose assessment) do not clearly suggest the scope of their duties. Additionally, the licensee failed to clearly describe

inter-relationships between these elements regarding responsibilities for collecting and transmitting radiological assessment data to the Emergency Director and Response Manager. Here again, the lack of a separate description for each augmentation phase resulted in unclear responsibilities. For example, the Radiation Protection Manager is instructed to act as the Radiological Control Manager until the EOF is activated and at the same time to provide dose projection estimates to the Response Manager, who will assume his duties only upon activation of the EOF.

The number of organizational elements in the initial phase of emergency response was unclear. While the Emergency Plan (Section 5.1.1 and the Minimum Staffing table) show ten elements, Procedure CIP-21, Appendix 12.3.1 shows thirteen.

The structure of intermediate and final augmentation organizational phases did not show a command linkage between the Maintenance Manager and the Operational Support Center (OSC) supervisor in order to select, and support repair/corrective action teams. Additionally, block diagrams failed to indicate assessment functions under the Radiation Protection Manager.

The licensee failed to describe the organizational structure within the OSC as necessary to support its response functions.

The various phases of augmentation were correlated with the emergency classification. (See for example Paragraph 5.1.1 of the Emergency Plan and Paragraph 3.3 of procedure CIP-21). For example, the onshift staff (initial phase of augmentation) corresponded to the Unusual Event category. This suggested the expectation of a smoothly progressing accident sequence which would allow the staffing levels to correspond on a one to one basis to each emergency category, and appeared to discard the possibility of a General Emergency condition occurring with an initial onshift staff, that is, before any augmentation takes place.

Some of the functional response areas and tasks were not clearly addressed in organizational charts (e.g. personnel accountability; search and rescue). This in turn obscured the sequence of procedural actions necessary to perform these functions. (See Section 5.1)

The licensee provided a listing of emergency personnel correlating the various functional areas of response and the tasks needed to be performed during emergencies with individuals qualified to perform these tasks, but at this time, all individuals (e.g. backup personnel) necessary to provide for a prolonged response had not yet been trained and qualified (See related finding in Section 3.2 below).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Revise your emergency organization and Emergency Plan to:
 - (a) describe all functional areas of response and emergency tasks;
 - (b) provide for all response sequences;
 - (c) clarify responsibilities and inter-relationships between the various organizational elements; and
 - (d) provide an organizational structure within the Operational Support Center (OSC) that will meet the demands of its emergency functions. (50-322/82-18-05)
- Demonstrate, after personnel involved are trained and qualified, that the augmentation of your emergency organization can be accomplished within the time-frames specified in NUREG-0654. (50-322/82-18-06)

2.2 Augmentation Organization

The auditors found the offsite augmentation of the onsite emergency organization referred to in Sections 5.2.1, 5.2.4, 7.1.3 and 7.1.8 of the Emergency Plan; in the Emergency Plan Implementing Procedures and in particular in Volume 2 of the CIP series.

The offsite augmentation organization consisted mainly in the activation of the Emergency Operation Facility, (EOF) the Emergency News Center (ENC) and the Support Corporate Headquarters (SCH) facilities.

The auditors noted that according to Section 5.2.1 the activation of the EOF would depend on the declaration of site and general emergency classes. The description of the EOF support group was found in procedure CIP-21 "Emergency Organizations", in conjunction with descriptions of the onsite emergency organizations. A review of CIP-21 showed that although specific duties and responsibilities had been outlined, there were inconsistencies, omissions, ambiguities and structural problems some of which stemmed from lack of a separate description of the emergency response organization at the various phases of augmentation (See Section 2.1). As a consequence, the auditors concluded that further clarification in this area was required.

Additionally, the auditors noted that although procedures for notification and activation of the SCH group were in place, the detailed concept of operations had not been clarified. Section 7.1.8 referred to SCH support activities in the areas of administration, logistics, technical, information, communications and personnel support, but procedures failed to clearly specify what these activities consisted of, and how they would take place. The auditors did not find procedures outlining or describing: inter-relationships of corporate groups with other organizational groups; response sequences necessary to fulfill SCH support functions; nor the integration of Expanded Support Facilities within the framework of expanded support in the event of a continued large scale response to an emergency situation. (See Section 4.1.3). In addition,

the licensee's plans for augmenting the onsite health physics staff beyond 24 hours were unclear, except for a reference to the Institute of Nuclear Power Operations (INPO) in Section 5.3.1 of the Emergency Plan stating that manpower needs could be coordinated through INPO after the accident; that is, during the recovery phase.

Coordination with offsite local support groups (e.g. fire protection, ambulance and medical services and Brookhaven National Laboratory) was outlined in Section 5.3 of the Emergency Plan. (Findings in this section were included in Section 2.1)

3.0 EMERGENCY PLAN TRAINING/RETRAINING

3.1 Program Establishment

The auditors reviewed the licensee's program for training/retraining site personnel and individuals assigned specific emergency duties and responsibilities outlined in Section 8.1.1 of the Emergency Plan and described in the Emergency Plan Training Manual.

The auditors noted that while the Emergency Plan stated that all employees would receive General Employee Training it did not address re-training. Classroom instruction had begun three weeks prior to the appraisal, lesson plans were in draft format, and instruction media were under development.

Training for site and corporate emergency response personnel consisted of formal classroom instruction supplemented by a four phase drill and exercise cycle. The Emergency Plan and training manual called for an annual re-training cycle. The licensee stated that the training program was undergoing a review process and had not been formally approved. Members of the licensee's emergency planning task force and contractor personnel had been conducting specialized emergency response training. Instructors were qualified to perform their duties based on past work experiences, but specific selection criteria had not been developed.

In addition, the auditors noted that no individual had been made responsible for coordinating the emergency plan training program.

Categories of specialized training were listed as: Introduction and Overview, Classification, Command and Control, Implementing Actions, Assessment, Notification and Communication, Accountability and Evacuation, Facilities, Health Physics Survey, Recovery, Emergency Support, Press Information, and Administration. The auditors reviewed lesson plans which covered the above categories, and noted that performance objectives were specified. However, lesson plan performance objectives were not always consistent with the demand of specific

areas of emergency response. The auditors noted that a substantial number of lesson plans were not available (e.g., personnel monitoring and decontamination, post accident sampling, inplant surveys, repair and corrective actions, and radwaste operations).

A written examination was provided for each lesson plan to evaluate training effectiveness rather than individual performance. The licensee stated that satisfactory performance during drills was the only performance qualification criterion. Review of training records indicated that approximately eighty percent of the persons completing the training program received a grade below seventy on the written test. A pass/fail performance criterion was not in place. The drill and exercise vcle (e.g. demonstrations, walk-throughs and joint function drills) appeared to be adequate.

Training for offsite support groups had been developed by the various support groups. Specialized training in fire fighting, rescue and first aid had been developed by the Fire Protection Coordinator. This program used the Suffolk County Firefighter Training Center to qualify station fire brigade personnel. Respiratory protection was a mandatory part of this training. The Fire Protection Coordinator developed and implemented training for the Wading River Fire District and mutual aid pact fire districts, the Security Department developed training for the local police (6th precinct); and the Health Physics Department in conjunction with Radiation Management Corporation provided a training course for response individuals at Central Suffolk Hospital. Training records for these activities had been submitted to the training department.

The auditors noted that the Emergency Plan Training Manual contained individual qualification record forms. These record forms provided: the name of the individual, date and location of training, title, grade and name of instructor, drill/exercise performance rating, and requalification requirements. Retraining in changes to procedures and equipment occurring between scheduled training sessions was made using a required reading list.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Complete the development of the training program to include the:
 - (a) Designation of an individual to coordinate emergency preparedness training;
 - (b) Development of written instructor qualifications;
 - (c) Development of pass/fail performance criteria for written tests used to qualify emergency personnel;
 - (d) Revision of lesson plans to specify performance objectives consistent with your implementing procedures;

- (e) Development of lesson plans and training courses for: personnel monitoring/decontamination, inplant surveys, post-accident sampling, repair and corrective actions, radwaste operations, and general employee training. (50-322/82-18-07)

In addition to the above findings, the following matters should be considered for improvement:

- Review your Emergency Plan and make appropriate revisions to specify on an annual basis retraining of all employees who received General Employee Training. (50-322/82-18-08)

3.2 Program Implementation

The auditors held discussions with licensee personnel concerning their routine duties and emergency response responsibilities, and reviewed training records for emergency personnel who were on the training qualification list.

Based on training records, discussions with plant personnel, nineteen training interviews and observations during walk-throughs, the auditors determined that the emergency plan training program had been administered as outlined in the Emergency Plan. In addition, the auditors verified that individuals on the training qualification list had completed all the necessary classroom instructions and drills as specified in the training matrix. The auditors noted however, that not all emergency response personnel had been qualified. (e.g. only one Watch Engineer available had been qualified). As a consequence the auditors could not ascertain the level of personnel knowledge and preparedness in some of the functional areas of emergency response (e.g. emergency classification).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Prior to fuel loading:
 - (a) Complete training of all emergency response personnel in existing emergency related equipment and procedures.
 - (b) Retrain at least 25 percent of all emergency response personnel in new emergency related equipment and procedures. Such personnel shall be selected so as to provide trained individuals in all functional areas of emergency response.
 - (c) Prior to attaining a power level greater than five percent. Complete retraining of all emergency response personnel in new emergency related equipment and procedures. (50-322/82-18-09)

4.0 EMERGENCY FACILITIES AND EQUIPMENT

4.1 Emergency Facilities

4.1.1 Assessment Facilities

4.1.1.1 Control Room

The Control Room was located in the Control Building on the 63' elevation. The auditors toured this area and were informed that the habitability of the Control Room during accidents was ensured by shielding and air filtration systems.

Copies of the Emergency Plan and Implementing Procedures, Emergency Operating Procedures and Emergency Action Levels were available, but not all procedures (e.g. Alarm Response Procedures) had been completed (See Section 5.2). Some decisional aids needed to detect and classify emergencies and to project radiation doses were not in place. For example: The Radiation Monitoring System (RMS) and the Phase I Process Computer were in the testing stage, and the meteorological readout instrumentation had not been installed. A ten mile EPZ map with onsite and one-mile blow-up sections was available. (See Sections 4.2.1.2 and 4.2.1.3 regarding the specifics on CR instrumentation).

The auditors inspected operable communications in the Control Room and found: dedicated lines between the Technical Support Center (TSC), Emergency Operating Facility (EOF) and Operations Support Center (OSC), a Hotline and NAWAS line to State and county, a dedicated line to the NRC (ENS), an automatic card reader, conference phone, commercial phone lines and a Gaitronics paging system.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Complete installation and operational testing of meteorological equipment, radiation and non-radiation monitors, and the plant process computer needed in the Control Room to support emergency classification, assessment and response functions. (50-322/80-18-10)

4.1.1.2 Technical Support Center (TSC)

The auditors toured the TSC located on the second floor, south wing of the Office and Service Building Annex (OSBA) and found that it consisted of a 85' x 55' working area, as described in the Emergency Plan. Its layout was found as specified in procedure SP69.005.02 "Technical Support Center, Activation".

The auditors noted that access to the TSC from the Control Room (CR) was achieved by exiting the Control Building to the Office and Service Building (OSB), walking down 6 flights of stairs, exiting the OSB and walking into the OSBA. Then walking up 2 flights of stairs into the TSC. This walk was accomplished in three minutes at a moderate walking pace. The licensee has plans for building an overpass from the OSB to the OSBA but its construction had not

been started. Dedicated phones were available to compensate for situations when face to face interaction between personnel from the CR and TSC was not possible (e.g. airborne contamination onsite). The auditors noted that a phase I plant parameter display and radiation monitoring system display to supply technical data and plant status from the CR to the TSC were being installed.

The auditors determined that the licensee had conducted an independent design review of the TSC and concluded that the habitability of the TSC and the CR were similar. Its ventilation system included HEPA and charcoal filters and the walls of the first and second floor levels provided substantial concrete radiation shielding from the containment.

A review of communications in the TSC showed that dedicated lines from the TSC included links to the OSC, EOF, NRC (via ENS), State and County Hotline, and LILCO Public Affairs News Center. Three radio frequencies could be available for emergency response, but two of them were being used by the construction group. A separate working space containing two commercial phones was available to the NRC. The licensee mentioned that this area will become the Resident Inspectors' Office.

The auditors noted that the emergency supply kits in the TSC did not contain all the items in accordance with the licensee inventory list. (See Section 4.2.1.1) Other supplies and equipment were included: (e.g. updated copies of plant procedures, schematics and diagrams of plant systems, plant status boards, marker boards, EPZ maps, telecopier, microfiche reader, photo duplicating machines and general office supplies, such as, hard bound log books, radiation instrumentation, dosimetry, etc).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Complete installation of instrumentation in the Technical Support Center needed to provide data for support of operations. (50-322/82-18-11)

In addition to the above findings, the following matters should be considered for improvement:

- Construct an overpass to facilitate commuting between the Control Room and the Technical Support Center. (50-322/82-18-12)

4.1.1.3 Operations Support Center (OSC)

The auditors reviewed Section 7.1.4, of the Emergency Plan, reviewed the OSC Facilities Procedure 69.005.03, "Operations Support Center", and toured the OSC facilities.

The auditors noted that the OSC was not located as described in the Emergency Plan, but in a classroom facility one elevation below. The licensee stated that this was the interim location. From the tour of the present facility, the auditors concluded that the size of the OSC was large enough to accommodate

twenty persons and thus would be consistent with the licensee's emergency organization. A habitability study had not been performed for the OSC, and the dedicated area radiation monitoring equipment specified in procedure SP69.005.03, was not in place. An alternate facility where OSC personnel would be moved to if the OSC became uninhabitable had not been considered.

There were dedicated telephone links from the OSC to the CR and TSC, as well as two plant telephone extensions and one commercial telephone. Other equipment located within the OSC included four SCBA units and spare air bottles, six respirators with MSA cartridges, first aid stretchers, first aid and decontamination kits. (See Sections 4.2.1.1 and 4.2.3).

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement:

- Provide an alternate OSC and a scheme for moving OSC personnel in the event the primary OSC became uninhabitable (50-322/82-18-13).

4.1.1.4 Emergency Operations Facility (EOF)

The auditors found the EOF located at the LILCO Training Center in Hauppauge, New York, 18.5 miles south west from the site, as specified by the Emergency Plan, Section 7.1.3 and Emergency Procedure CIP-3 "Emergency Operations Facility Activation".

A tour of the facility revealed that, during emergencies, the EOF would be divided into the following 6 areas: Command Control, Dose Assessment, Security, Lilco Public Affairs, NRC, and Suffolk County/New York State Rooms. The auditors concluded that the EOF had adequate working space (96' X 60') for the emergency response personnel expected in accordance with the intended response. However, the auditors noted that the Command Control Room (24' X 36") provided enough working space for the various emergency organizational elements expected (e.g. Response Manager, Technical Support Manager, Design and Construction Manager, Radiation Control Manager, Administration, Scheduling Manager and communicators).

The auditors found that the EOF contained equipment and supplies similar to the TSC except that plant status and radiation monitoring data would be relayed by telecopier or telephone. The auditors noted dedicated phone lines between the EOF, TSC (2 lines), CR, Suffolk County/New York State Hotline, News Center and Hicksville. Communication links supplied by commercial lines appeared to be adequate in number and placement. In addition, a total of seven commercial lines were located in the county/state and NRC working areas.

The EOF had kits containing some offsite survey equipment (e.g. Eberline RO-2A, air sampler and sampling media). However, sample counting equipment, check sources, protective clothing, and personnel dosimetry were lacking. (See Section 4.2.1.1).

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

4.1.1.5 Post-Accident Primary Coolant Sampling and Analysis

The auditors examined facilities and equipment for post accident primary coolant sampling and analysis, including the Post Accident Sampling Facility (PASF) which will house the Post Accident Sampling System (PASS) and noted that installation had not been completed and that associated systems were not functional. They noted that these facilities were described in Section II.B.3 of the Shoreham FSAR.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Complete the installation and assure the operability of facilities and equipment incorporating the guidance of NUREG-0737 for sampling and analysis of post-accident primary coolant (50-322/82-18-14).

4.1.1.6 Post-Accident Containment Air Sampling and Analysis

The auditors examined the facilities and equipment for post accident containment air sampling and analysis including the Post Accident Sampling Facility (PASF) which will house the Post Accident Sampling System (PASS) and noted that installation had not been completed and associated systems were not functional. The auditors noted that these facilities were discussed in Section II.B.3 of the Shoreham FSAR.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Complete the installation and assure the operability of facilities and equipment incorporating the guidance of NUREG 0737 for sampling and analysis of the post-accident containment atmosphere. (50-322/82-18-15).

4.1.1.7 Post-Accident Gas and Particulate Effluent Sampling and Analysis

The auditors examined facilities and equipment for sampling and analysis of post-accident gaseous and particulate effluents and noted that although most hardware was in place the systems were not completely operational. These facilities were described in Section II.F.1 of the Shoreham revised FSAR.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Complete the installation and assure the operability of facilities and equipment incorporating the guidance of NUREG 0737 for sampling and analysis of post-accident gas and particulate effluents. (50-322/82-18-16)

4.1.1.8 Transfer, storage, sampling and analysis of Post-Accident Liquid Wastes

The auditors reviewed licensee's provisions for transferring, storing, sampling and analyzing highly radioactive liquid wastes that could be generated during certain accident scenarios. The auditors noted that if a release of coolant occurred within the primary containment, highly radioactive liquids would be transferred into the suppression pool and that sampling would be accomplished using the Post-Accident Sampling System (PASS) via the Residual Heat Removal System (RHRS). For releases of coolant occurring outside of containment, sampling would be performed from the Radioactive Waste Sample Panel. During a release outside of containment, water would be collected in various collection tanks via floor drains. From here, water would pass through a detector, and be diverted to one of two possible pathways: towards a Recovery Tank and subsequently into the Rad Waste Processing System for processing and storage, or to a discharge sample tank. Any water discharged to the environment would be through the discharge sample tanks connected to a radiation monitor calibrated to read up to 0.1 $\mu\text{Ci/cc}$ of CS-137, and could be retrieved for analysis from the Rad Waste Sample Panel.

The auditors noted that at this time, the Rad Waste Panel was still in a testing stage. Additionally, radioisotopic analysis capability was not yet available.

The licensee stated that a release of any post-accident wastes to the environment would be unlikely because they had adequate storage capability. The auditors reviewed the collection, discharge and recovery tanks and concluded that the licensee had a storage capacity of 250,000 gallons and the ability to pump additional waste into the suppression pool which could hold 608,000 gallons at maximum operating capacity. The licensee was aware that the control of high activity liquid wastes should be maintained during accidents since the rad waste tanks would routinely contain large quantities of lower activity waste, and retention capacity should be available.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Complete the installation and assure the operability of facilities and equipment incorporating the guidance of NUREG 0737 for the transfer, storage, sampling and analysis of post-accident liquid wastes. (50-322/82-18-17).

4.1.1.9 Alternate Laboratory Facilities

The auditors reviewed Section 6.1.2 of the Emergency Plan, Bid Specification for LILCO Shoreham Nuclear Power Station REMP Program, and the Purchase Order (TM-81-519) for the contract laboratory services (Teledyne Isotope, Westwood, New Jersey). The auditors noted that the contract laboratory would supply the capabilities to analyze various types of environmental samples (e.g. water, soil, animal feed, etc.) during an emergency. The contract with the above laboratory specified that analytical equipment included: a liquid scintillation counter, Ge(Li) detector coupled with a computer-based multi-channel analyzer and a TLD reader. (See Section 5.4.2.12)

The auditors noted that an alternate laboratory for performing chemical and radiochemical analyses during accident conditions was not operable at this time.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Provide a permanent, onsite, back-up capability for performing chemical and radiochemical analysis during emergency situations. (50-322/82-18-18).

4.1.2 Protective Facilities

4.1.2.1 Assembly/Reassembly Areas

Procedure No. SP69.030.02, "Personnel Accountability", identified the following assembly areas for accountability purposes during a local evacuation:

- Maintenance Shop (for QA, Radiochemistry, and Maintenance)
- I&C Shop (for Health Physics and I&C)
- Office and Service Mezzanine Classroom (Reactor Engineering and Operations)
- Office and Service Large Conference Room (Administration)
- Security Building 2nd Floor Classroom (Technical Support and Training)
- Security Building 1st Floor Classroom (visitors)

The auditors examined the above areas to determine the size, exact location, the types and quantities of protective equipment available and determined that no provisions had been made in these areas for respiratory protective equipment, protective clothing, radiological instruments, and air sampling/ monitoring equipment, when applicable.

The auditors estimated that designated assembly areas could contain presently assigned personnel but would only be useful for performing personnel accountability.

In addition, Procedure No. SP 69.030.01 identified the following assembly areas within the owner controlled area:

- . Employee Parking Lot located north of the primary guardhouse. (For employees and visitors)
- . Warehouse located west of the secondary guardhouse (for contractors and vendors)

The auditors toured areas and determined that both were located outside of the protected area fence, and that only the warehouse had the potential for providing shelter from inclement weather. Due to construction work in progress the interior of the warehouse was not examined. The licensee representative stated that at this time no radiological protection equipment was located in assembly areas, as needed.

The auditors examined the remote assembly area (i.e. the Wildwood 69 kv Substation located on the plant access road about one quarter mile from Highway 25A), and determined that provisions had not been made for sheltering, personnel and that neither protective and decontamination equipment and supplies, nor means to establish radiological hazards (e.g. radiation detection instruments) were available. In addition, means to assure transportation for all personnel leaving the site as a consequence of an accident were not addressed.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Ensure that provisions have been made at assembly/reassembly areas for radiological assessment and protection of personnel remaining onsite during severe accident conditions. In addition, make provisions for transportation of personnel to offsite locations suitable to protect them from inclement weather and for which provisions have been made for radiological protection, personnel monitoring and decontamination. (50-322/82-18-19).

4.1.2.2. Medical Treatment Facilities

The auditors toured medical treatment facilities, reviewed Section 6.5.3 of the Emergency Plan and Implementing Procedures: SP69.030.03, "Contamination Control During Emergencies;" SP69.040.01, "Personnel Injury/Illness"; and SP62.046.01, "Personnel Decontamination". The auditors noted that medical treatment facilities had not been designated, and that equipment and supplies had not been allocated for emergency use.

Assistance for the treatment of seriously injured/contaminated individuals was available from the Central Suffolk Hospital. The auditors inspected equipment

and supplies listed in the Central Suffolk Hospital Inventory, and noted that for the most part items were in place except for personnel dosimetry (e.g. TLDs and extremity TLD rings).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Complete medical treatment facilities and provide equipment and supplies necessary to ensure that such facilities will be able to perform their intended functions during emergencies. (50-322/82--18-20)

4.1.2.3 Decontamination Facilities

The auditors reviewed Section 6.5.2 of the Emergency Plan and toured the licensee's Decontamination Facility located adjacent to the Health Physics office on the 15 foot elevation of the Turbine Building. The auditors examined the decontamination facility and determined that the room was approximately 13' X 22' and contained a double stainless steel sink and a common area with two shower heads. There was only one door, 3 feet wide, for entrance and exit. Since a layout of the decontamination facility was not in place, the method for handling a number of contaminated individuals was unclear. The room had four small desks and an unmarked storage cabinet. There were approximately 25 sets of disposable (i.e. paper) protective clothing stored on shelves. Although instrumentation would be routinely available in the adjacent Health Physics office, the facility was not equipped with dedicated radiological instrumentation. This precludes assurance that instruments for personnel monitoring and decontamination would be readily available when needed.

The Health Physics Foreman stated that the sink and shower drains were piped into the Rad-Waste System and that the facility ventilation was a part of the filtered area Turbine Building ventilation system.

The auditors inspected a list of decontamination supplies for the decontamination facility listed on procedure SP 62.040.01 and noted that many of the supplies were lacking (e.g. nasal irrigation kit, decontamination chemicals). In addition, decontamination procedures were not available at the decontamination facility.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Place decontamination equipment, instrumentation, supplies, and decontamination procedures in those locations where personnel would be decontaminated during emergencies, and provide a method for handling a number of contaminated individuals. (50-322/82-18-21)

4.1.3 Expanded Support Facilities

The auditors reviewed procedure CIP-11, "Administration", Sections 5.3, and 5.4, of the Emergency Plan, and interviewed licensee personnel to establish the adequacy of Expanded Support Facilities.

The Emergency Plan and implementing procedures did not indicate provisions for expanded support facilities during an accident, licensee personnel indicated that no facilities had been designated at this time for this purpose.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program;

- Specify facilities in the vicinity of the site which will be used for expanded support in the event of a continued large scale response to an emergency situation. Incorporate a description of such facilities in the Emergency Plan. (50-322/82-18-22)

4.1.4 News Center

The auditors reviewed sections 5.2.9, 7.1.5 of the Emergency Plan, procedures CIP-16, "Public Affairs Emergency Notification", CIP-17, "Emergency Communications Centers Activation", and toured the Emergency News Center located in the Old Mill Inn, Ronkonkoma, New York, within 18 miles of the site. The auditors noted that the News Center contained 50 operating telephone lines, a briefing area (3000 ft²) and work area (5000 ft²) for the media and an additional 1000 ft² working space for licensee personnel. There were 3 copy machines 15 typewriters and a public address system. The auditors noted that audio-visual equipment (e.g. screen, projectors) was lacking. The licensee stated that the News Center could be activated and made functional within three hours, and that security personnel were assigned to this center when activated.

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

4.2 Emergency Equipment

4.2.1 Assessment Equipment

4.2.1.1 Emergency Kits and Portable Instrumentation

The auditors reviewed Sections 6.2 and 7.3.2 of the Emergency Plan and procedure SP69.062.01, "Emergency Response Facilities Equipment Control and Readiness Check", which specified locations of emergency kits and emergency survey instruments (e.g., TSC, OSC, EOF, LILCO First Aid Room, Main Control Room, and Central Suffolk Hospital).

The auditors noted that the emergency kits and instruments were stored in the locations specified but that many of the inventory items were missing (e.g., Eberline RM-14/HP-210 Probes, direct reading dosimeters and chargers, personnel and control TLDs, two way radios, and protection clothing).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Provide dedicated instruments and supplies in accordance with Procedure SP 69.062.01 and ensure that they are operational and readily available for emergency use. (50-322/82-18-23)

4.2.1.2 Area and Process Radiation Monitors

The auditors examined instrumentation in the Control Room and noted that installation was in progress. Area and Process radiation monitors specified in Section 6.1.1 of the Emergency Plan were not operable. The auditors verified that area and process detectors had readouts and annunciators within the Control Room and noted that readouts from these monitors also would appear on the computerized Radiation Monitoring System.

(See Finding in Section 4.1.1.1)

4.2.1.3 Non-radiation Process Monitors

The auditors examined non-radiation process monitoring equipment intended to measure vital parameters of a non-radiological nature (e.g., pressure, temperatures fluid level, etc.) which would be relied upon for accident detection, classification and assessment. The auditors noted that most of the equipment had been installed but was not operational. These monitors were described in Section II.F.1 of the Shoreham FSAR.

(See Finding in Section 4.1.1.1)

4.2.1.4 Meteorological Instrumentation

The auditors reviewed the meteorological systems referred to in Section 7.3.1 of the Emergency Plan against Regulatory Guides 1.23, 1.97 and 1.101, and the criteria set forth in NUREG-0696 and NUREG-0737 and interviewed licensee representatives. In addition, the auditors reviewed Procedure SP69.022.01, "Determination of Offsite Doses" which integrated meteorological data into the dose assessment scheme, inspected available instrumentation and reviewed its associated preventive maintenance program.

The auditors noted that the site currently had two meteorological towers: One was a 33 foot tower located northwest of the containment building from which wind speed, wind direction and sigma theta (i.e. the extent of variance of the wind direction) could be measured. Another 400-foot tower, located 1 mile west of the containment building allowed measurement of temperature differentials between 150 and 33-feet, wind speed, direction, and sigma theta at a height of 33-foot. These towers allowed the determination of atmospheric stability used for dose assessment but due to the difference in terrain between the release point (i.e. reactor building) and the 400-foot tower, measurements from that tower may not be representative of low-level plume transport. To ensure representativeness, the licensee was comparing and correlating 33-foot wind measurements between the two towers and was incorporating the effects of the land-sea interface in the dose assessment model. The auditors noted that

the results of such study had not been made available to the NRC. The auditors toured the Control Room and the Emergency Response Facilities and found that readouts from primary and backup meteorological systems were not operable. (See Section 4.1.1.1) Analog readouts were currently available at the base of the 400-foot tower.

The auditors noted that an ongoing program was in place for inspecting and maintaining the 400-foot tower. Instrumentation on the 400-foot tower and the meteorological shed were checked at the rate of three times a week, and inoperable instrumentation was promptly restored. However, instruments were calibrated on a semi-annual basis contrary to the guidance of NUREG 0737 which calls for quarterly calibration when backup measurements are not available. The auditors found no program in place for calibrating and inspecting the instruments on the 33-foot tower.

The auditors found that there were no means (i.e., teletype terminal, radio, procedures) to obtain information on severe weather conditions from either WSI or NWS Weather Radio.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Complete the installation and calibration of meteorological instrument readouts in the Emergency Response Facilities needed to perform dose assessment functions during accidents. (50-322/82-18-24)

In addition to the above findings, the following matters should be considered for improvement:

- Develop and implement inspection and maintenance procedures for instruments on the 33-foot meteorological tower. (50-322/82-18-25)
- Establish means for obtaining information on severe weather conditions, and for calibrating meteorological instruments on a quarterly basis. (50-322/82-18-26)
- Provide NRC with the results of the study which compared and correlated measurements from the meteorological towers, and which incorporated the effects of the land sea interface in the dose assessment model. (50-322/82-18-27)

4.2.2 Protective Equipment

4.2.2.1 Respiratory Protection

The auditors noted that the licensee had not developed a respiratory protection program, but that there were a sufficient number of self contained Breathing Apparatus (SCBAs) distributed throughout the site. There were no means, however, to refill SCBA bottles on site (e.g. cascade refilling system).

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Complete the respiratory protection program needed to support emergency response activities (e.g., fitting and testing of respirators); provide respiratory protection for persons expected to remain onsite during site and general emergencies; and provide for the continuous availability of air for self contained breathing apparatus. (50-322/82-18-28)

4.2.2.2 Protective Clothing

Dedicated sets of disposable (i.e. paper) protective clothing for emergency use were maintained in the TSC and OSC, but interviews with licensee personnel revealed that protective clothing consistent with the types and levels of radioactive contamination expected during severe accidents (e.g. cloth and rubber suits, gloves, etc.) were not available.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Provide protective clothing at the locations necessary to support emergency response functions consistent with the types and levels of radioactive contamination expected during accidents. (50-322/82-18-29)

4.2.3 Emergency Communications Equipment

The auditors reviewed sections 5.4, 5.5.1, and 7.2, of the Emergency Plan; procedures SP 69.062.01, "Emergency Response Facilities Equipment Control and Readiness Check", and CIP-2, "Communications Equipment"; and inspected available communication equipment in emergency response facilities (ERFs).

The auditors noted that the installation of onsite and offsite communications equipment specified in the Emergency Plan and procedures had not been finalized. However, early notification systems (i.e. 89 sirens) were in-place but had not been tested. The emergency communications system consisted of the following:

Sound powered telephones; Gaitronics public address system; Telephone system (conventional and automatic dial); Dedicated telephone system; Radio system; Hard copy transceivers; and beepers for notification of emergency personnel.

Alarms having specific meanings, (e.g., radiation emergency, site evacuations, fire) which were specified in the Emergency Plan had not been tested, and telephone numbers in call lists were missing. The auditors determined that the installation and operational testing of redundant communication capabilities had not been finalized.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Complete the installation and operational testing of communications and notifications systems described in the Emergency Plan Implementing Procedures. (50-322/82-18-30)

4.2.4 Damage Control/Corrective Action and Maintenance Equipment and Supplies

The auditors reviewed Sections 6.3, and 5.2.3, of the Emergency Plan and noted that the licensee maintained routine stocks of equipment, supplies, and spare parts but had not identified such items specifically for damage control purposes repair and corrective action teams support, search and rescue teams support. An evaluation had not been performed to determine what equipment/supplies would be needed for an effective response.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement:

- Evaluate dedicated equipment needs for damage control, corrective action and maintenance, and the positioning of this equipment at specified locations for use during an emergency. (50-322/82-18-31)

4.2.5 Reserve Emergency Supplies and Equipment

The auditors reviewed Section 8.3, of the Emergency Plan, procedure SP 69.062.01, "Emergency Response Facilities Equipment Control and Readiness Check", interviewed licensee personnel and determined that the licensee relied upon onsite inventory of supplies (e.g. survey instruments, dosimetry, protective clothing), to support emergency operations. Inventory controls such as minimum stock levels, were in place to ensure adequate reserves during emergencies. Quarterly verification of supplies were performed according to procedure SP 69.062.01.

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

4.2.6 Transportation

The auditors interviewed licensee personnel and inspected equipment to determine the adequacy of emergency vehicles. Transportation was not specifically mentioned in the Emergency Plan but was addressed in procedure SP 69.020.01 "Downwind Survey".

The auditors concluded that the two dedicated emergency vehicles were adequate to support emergency teams and that they had been modified to accommodate survey equipment. The means of assuring transportation of personnel during a site evacuation had not been addressed. (See related finding in Section 4.1.2.1).

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

5.0 PROCEDURES

5.1 General Content and Format

The auditors found that the format of licensee's emergency procedures was that of licensee's administrative procedures and included sections such as: discussion, purpose, responsibility, limitations, contents, references, appendices, etc., some of which were of a general nature and of no value to the users during emergencies. The auditors determined that procedures were intended by the licensee to be didactic in nature. This approach resulted in obscuring the intent of the procedures, loading them with unnecessary references, repetitions (e.g., list of the procedure's content) and statements concerning generalized responsibilities for overall implementation (See for example Procedure SP 69.005.02 "Technical Support Center Activation") instead of specific responsibilities pertaining to each of the action steps.

The auditors noted that clarification of actions, duties and responsibilities would result from an entirely different approach to writing procedures, namely eliminating didactic overtones and concentrating instead on the practical information necessary for the various elements of the emergency response organization to accomplish specific tasks. Additionally, procedures should be kept consistent with the hierarchy of command, and the structure of the emergency response organization.

Among discrepancies found in the content and format of procedures were: ambiguities resulting from disregarding the changes with time (e.g., CIP-21, "Emergency Organizations"); omissions (e.g., Stability classes missing in SP 69.022.01, "Determination of offsite doses"; specific values missing in SP 69.010.01, "Classification of Emergency Action Levels"); lack of closure concerning information feedback after the completion of a task (e.g., Procedures SP 69.022.01; SP 69.005.02, etc).

The auditors found that many procedures, essential to an adequate emergency response, had not been written and others were not completed (e.g., In-plant surveys, Repair and Corrective Actions, Security and Radiation Protection during emergencies, etc.). In some cases, procedures could not be completed because facilities had not been finalized (e.g., sampling and analysis of: post-accident liquid wastes, primary coolant, containment air, stack effluents during accidents, etc.). Other procedures of an operational nature (e.g., Alarm Response and Emergency Operations procedures) needed for emergency detection and classification during accidents had not been completed.

There were other deficiencies such as means of identifying the last page of each procedure, and extraneous materials which distract the user from needed actions. In addition, inconsistencies were noted (e.g., Procedure SP 69.005.02, had unexplained symbols; floor plans showed two Area Radiation Monitors while procedure listed three, etc.).

The auditors held discussions with LILCO's senior management describing the various flaws and deficiencies in procedures, and recommended that procedures be revised and walked-through in mini drills, to ensure that they accomplished their specific objectives within the organizational structure, and that information flow and closure were adequate. In particular, the auditors recommended that procedures of an operational nature, such as SP 69.010.01 "Classification of Emergency Action Levels," should be reviewed by the reactor operators who could be using them during emergency conditions. LILCO's management agreed that improvements in these areas were necessary, and that a task force would be assigned to undertake a complete revision of emergency procedures.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Review Emergency Plan Implementing Procedures and make revisions to:
 - (a) Clarify required actions and the duties and responsibilities of personnel performing these actions;
 - (b) Correct ambiguities, inconsistencies, omissions, errors, wordy discussions, unnecessary references, lists of contents, and other extraneous materials which do not help the users to perform their duties during emergencies;
 - (c) Provide specific cross-references to other procedures in the action steps needed to further detail and clarify actions;
 - (d) Include lines of command, communications, and information flow necessary to perform emergency tasks and response actions; and
 - (e) Ensure that emergency response tasks are coordinated between the appropriate elements of the emergency organization and are consistent with the organizational structures. (50-322/82-18-32)

- Provide Emergency Plan Implementing Procedures and other procedures needed to implement the Emergency Plan, including the following:
 - (a) In-plant surveys during emergencies;
 - (b) Repair and corrective actions during emergencies;
 - (c) Security during emergencies;
 - (d) Radiation protection during emergencies;
 - (e) Drills and exercises;
 - (f) Sampling and analysis of post-accident liquid wastes;

- (g) Sampling and analysis of primary coolant during accidents;
- (h) Sampling and analysis of containment air during accidents;
- (i) Sampling and analysis of stack effluents during accidents;
- (j) Calibration procedures for the above, when pertinent;
- (k) Alarm response procedures; and
- (l) Emergency operations procedures. (50-322/82-18-33)

5.2 Emergency Alarm and Abnormal Occurrence Procedures

The auditors reviewed procedures used by the operations staff to identify and classify abnormal plant conditions and to initiate actions to return the plant to a stable condition. It was noted that many Alarm Reponse Procedures (ARPs) had not been written and therefore the auditors could not verify whether such procedures referred the user to Emergency Operating Procedures (EOPs) which in turn activated the site Emergency Plan. Furthermore, a review of EOPs showed that many did not incorporate references to the Emergency Plan and specifically to Procedure SP 69.010.01, "Classification of Emergency Action Levels (EALs)".

The auditors reviewed licensee's Emergency Action Levels found in Procedure SP 69.010.01, "Classification of Emergency Action Levels" and determined that emergency action levels (e. g. specific instrument readout numbers) used to classify accidents were missing.

As a consequence of this, the adequacy of the EALs could not be established. In addition, interviews with operations personnel revealed that EALs had not been reviewed by site operation personnel who would use them during emergencies.

(See findings in Section 5.1)

5.3 Implementing Instructions

Emergency Plan Implementing Instructions are overall procedures intended for use by the organizational element who is directing the emergency response effort in order to orchestrate the implementation of other, more specific procedures (e.g. onsite surveys, personnel accountability, etc.).

The auditors reviewed: SP 69.013.01, "Unusual Event"; SP 69.014.01, "Alert"; SP 69.015.01, "Site Area Emergency"; and SP 69.016.01, "General Emergency"; and determined that Implementing Instructions did not specifically make reference to additional Implementing Procedures for activation of emergency facilities depending on the emergency classification. (e.g. SP 69.005.02, "Technical Support Center (TSC) Activation"; SP 69.005.03, "Operational Support Center (OSC) Activation" and CIP - 3, "Emergency Operations Facility Activation").

The auditors noted that Procedure SP 69.016.01, "General Emergency", Appendix 6.1 (page 6), "Predetermined Action Recommendations for General Emergency Classifications", contained predetermined recommendations based on "Core Failure" and "Containment Failure" which required the operator to establish that certain failures had occurred but did not provide the user with specific observables (e.g. instrument readings in the Control Room such as containment high range monitor readings).

(See findings in Section 5.1)

5.4 Implementing Procedures

5.4.1 Notifications

The auditors reviewed procedures SP 69.009.01, "Notifications", CIP-1, "Corporate Notifications", and Emergency Plan sections 6.2, "Activation of Emergency Organization", 5.4.1, "Notification of Governmental Authorities", 7.2, "Communication Systems", and 9.2, "Notification". For each emergency class, the procedures specified the sequence of notification to alert, mobilize, or augment the onsite emergency organization. The auditor noted, however, that telephone lists for contacting emergency personnel and agencies were incomplete.

Immediate notifications that were the responsibility of the Emergency Director were incorporated in the implementing instructions; action levels for notifying the onsite emergency organization; corporate support; contractor support; local services support; participating local, state, and federal agencies were specified, but notification action levels for evacuation or sheltering of the general public, transients and persons at recreational facilities were not defined (see section 6.2 of this report). Planned messages, announcements, and alarms used for initial notifications as well as the content of the messages were included in the procedures. Notification procedures did not contain a listing of persons and agencies belonging to the response scheme and the means to contact them, (e.g. Card dialer telephones, beepers, and dedicated telephones) nor a scheme to be used to confirm the authenticity of emergency callers.

(See findings in Section 5.1)

5.4.2 Assessment Actions

The auditors noted that procedures concerning radiological assessment were incomplete and that devices or emergency actions to be used for accident assessment (e.g. area and process radiation monitors, procedures for in-plant surveys, etc. had not been established.

(See findings in Section 5.1)

5.4.2.1 Offsite Radiological Surveys

The auditors reviewed Section 7.3.2 of the Emergency Plan and Procedure SP69.020.01, "Downwind Surveys", which specified the methods and equipment needed to perform surveys. Forms used to record survey results and instructions for labeling of samples were found to be satisfactory. Radiation Protection guidance was provided and a central collection point designated.

The procedure did not instruct alternate means to report survey results if radio communications were lost but forms in the procedures contained telephone numbers for Emergency Response Facilities. In addition, the procedure failed to indicate instruments used to measure offsite radiation dose rates (e.g. Eberline RO 2A).

(See findings in Section 5.1)

5.4.2.2 Onsite (Out-of-Plant) Radiological Surveys

Procedure 69.021.01, "Onsite Surveys", specified the methods and equipment needed to perform onsite surveys and contained a map indicating specific sampling locations. Forms to record survey results and instructions for labeling samples were found to be satisfactory. Radiation Protection guidance was provided.

The procedure did not instruct the user to report survey and sample results to the proper organizational element in the TSC.

(See findings in Section 5.1)

5.4.2.3 In-Plant Radiological Surveys

The auditors noted that a procedure for performing inplant surveys during emergencies was lacking. The licensee stated that they intended to use Procedure No. 62.010.01, "General Radiation Survey Technique."

A review of this procedure showed that it failed to address: precautions, equipment, instrumentation, specific air sampling media, protective clothing, self contained breathing apparatus (SCBAs), thyroid blocking agent and means of communication that would be necessary during emergencies.

(See findings in Section 5.1)

5.4.2.4 Post-Accident Primary Coolant Sampling

The auditors noted that procedures in this area were not complete.

(See findings in Section 5.1)

5.4.2.5 Post-Accident Primary Coolant Sample Analysis

The auditors noted that procedures in this area were not complete.

(See findings in Section 5.1)

5.4.2.6 Post-Accident Containment Air Sampling

The auditors noted that procedures in this area were not complete.

(See findings in Section 5.1)

5.4.2.7 Post-Accident Containment Air Sample Analysis

The auditors noted that procedures in this area were not complete.

(See findings in Section 5.1)

5.4.2.8 Post-Accident Stack Effluent Sampling

The auditors noted that procedures in this area were not complete.

(See findings in Section 5.1)

5.4.2.9 Post-Accident Stack Effluent Sample Analysis

The auditors noted that procedures in this area were not complete.

(See findings in Section 5.1)

5.4.2.10 Sampling and Analysis of Post-Accident Liquid Wastes

The auditors noted that procedures to transfer radioactive liquid wastes during routine operations were being developed and that an Emergency Operating Procedure 23.702.04 "Suppression Pool Leakage Return", had been approved for moving liquid wastes to the suppression pool. In addition, procedures 23.717.01 "Liquid Rad Waste Discharge", and 71.020.02 "Liquid Rad Waste Discharge" gave instructions to assure that discharge tanks had to be sampled and analyzed before release.

As discussed (See section 4.1.1.8) the post-accident sample analysis system was not completely installed. Although procedure 72.002.01, "General Sample Techniques", cautioned users to transport liquid samples in shielded canisters, the procedure did not address radiation conditions during accidents. In addition, procedures for analyzing liquid wastes using GeLi detector techniques had not been completed, and shielded canisters referred to in Procedure 72.002.01 were not available.

(See findings in Section 5.1)

5.4.2.11 Radiological and Environmental Monitoring Program (REMP)

The auditors reviewed Section 6.1.2 of the Emergency Plan and procedure CIP-5 "REMP" (Draft) and interviewed licensee personnel who would implement REMP during the emergency.

The auditors determined that CIP-5, "REMP", (Draft) specified initiating steps which required the recovery of samples, and the responsibilities for compilation and analysis of the data. The Environmental Engineering Department was responsible for both routine and emergency implementation of the REMP, and relied on contract laboratory facilities located in Westwood, New Jersey for sample analysis (See Section 4.1.1.9). The auditors noticed that the Emergency REMP procedure had not been approved.

(See findings in Section 5.1)

5.4.3 Protective Actions

5.4.3.1 Radiation Protection During Emergencies

The auditors reviewed Section 6.4 of the Emergency Plan and Implementing Procedures; SP69.030.03, SP69.050.01, and SP69.070.01. The auditors noted that a procedure which provided a comprehensive radiation protection program to be used during emergencies was lacking.

(See findings in Section 5.1)

5.4.3.2 Evacuation of Owner Controlled Areas

The auditors reviewed Procedure SP69.030.01, "Evacuations During an Emergency", and found that it provided guidelines for evacuation during local and site radiation emergencies. The procedure mentioned that the guardhouse portal monitors would be used for personnel monitoring and actions to be taken when individuals are found to be contaminated.

When guardhouse portal monitors are not used (i.e. in case of an immediate site evacuation) health physics technicians were instructed to frisk personnel in remote assembly areas. The procedure failed to address contamination limits, decontamination supplies, and relied on ad hoc instructions.

(See findings in Section 5.1)

5.4.3.3 Personnel Accountability

The auditors reviewed Procedure SP69.030.02, "Personnel Accountability", and noted that it described accountability for six assembly areas in the event of a local evacuation. In addition, the procedure indicated that Security personnel would perform accountability during a site evacuation by checking badge racks

in the guardhouses. The procedure failed to provide a clear description of the method of accountability, and instructions for the Shift Security Supervisor to report accountability results to the appropriate element in the emergency organization.

Procedures described actions the Shift Security Supervisor would take to attempt to establish whether a person unaccounted for was missing but in addition, Procedure SP69.080.01 "Search and Rescue," required the Radiation Protection Manager to carry out the same actions.

(See findings in Section 5.1)

5.4.3.4 Personnel Monitoring and Decontamination

The auditors reviewed Procedures: SP62.040.01, "Personnel Decontamination"; SP69.030.01, "Evacuations during an Emergency"; SP69.030.03, "Contamination Control During Emergencies"; and SP 69.040.01, "Personnel Injury/Illness", which described conditions governing the monitoring and decontamination of individuals and vehicles. Procedure SP62.040.01 instructed the user to record names, extent of contamination, and methods used but no reference was made to the types of instruments or to followup actions (e.g. bioassays).

Procedure SP62.040.01 specified contamination limits above which decontamination was required. Additionally, the same procedure was unclear about who was authorized to use chemicals to decontaminate personnel.

Procedures SP62.040.01 and SP69.030.03 did not address methods used to decontaminate and failed to clearly indicate the location of instruments and supplies.

(See findings in Section 5.1)

5.4.3.5 On-Site First-Aid/Rescue

The auditors reviewed Procedures SP69.040.01, "Personnel Injury/Illness", and SP69.080.01, "Search and Rescue".

Procedure SP69.080.01 gave no instructions concerning the location of emergency kits nor described specific equipment and supplies. In addition, the procedure failed to describe the composition of the team (e.g. types of expertise).

The auditors determined that procedures SP69.040.01 adequately identified: methods for recovering, transporting, receiving and handling injured persons who may also be contaminated, and interfaces with offsite medical treatment facilities.

(See findings in Section 5.1)

5.4.4 Security During Emergencies

The auditors determined that procedure instructing security personnel about responsibilities and methods concerning security and access control during emergencies was lacking.

(See findings in Section 5.1)

5.4.5 Repair and Corrective Actions

The auditors determined that the licensee lacked a procedure describing: responsibilities, lines of command, precautions and methods necessary to perform repair and corrective actions under severe accident conditions.

(See findings in Section 5.1)

5.4.6 Recovery

The auditors reviewed section 9.0, of the Emergency Plan and Procedure CIP-10, "Recovery". The organizational authority for entering a recovery phase was specified in the procedure. The auditors noted that an evaluation of plant operating conditions, as well as radiological conditions was necessary prior to entering the recovery phase and was discussed in Section 9.1 of the Emergency Plan. Section 9.2 of the Emergency Plan described necessary notifications that would be made to individuals and agencies prior to entering a recovery mode, but key positions in the recovery organization were not identified.

(See findings in Section 5.1)

5.4.7 Public Information

The auditors reviewed Section 8.4, of the Emergency Plan, Procedures CIP-16, "Public Affairs - Emergency Notifications", and CIP-17, "Emergency Communications Centers Activations", and determined that the procedures identified organizations involved in news dissemination. The method for coordinating dissemination of information to the various locations was specified in the procedures; however, procedure appendices failed to list, names and telephone numbers.

Procedure CIP-16 described methods for initial dissemination of information to the news media prior to establishment of the Emergency News Center in the Old Mill Inn, Ronkonkoma, New York, and identified spokespersons, sources of information, and the means for coordinating information among the spokespersons. Printing and distribution of public information material had not been accomplished (See Section 6.2 of this report).

Rumor control methods were described in Section 5.5.1, of the Emergency Plan. Three hundred telephones in 11 District Offices and Executive Headquarters, were established for responding to public inquiries, but procedure for handling incoming calls had not been developed.

Based on the above findings, improvements in the following areas are required to achieve an acceptable program:

- Prepare and distribute public information material regarding the actions to be taken by individuals within the Emergency Planning Zone. (50-322/82-01-34)

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

The auditors reviewed Section 8.3 of the Emergency Plan and Procedure SP69.062.01 and determined that the procedure specified adequate frequencies for inventorying, calibrating and maintaining emergency equipment, and provided for a supervisory review of the completed checklists. In addition, existing procedures specified operational checks to be performed prior to use during emergencies.

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

5.5.2 Drills and Exercises

The auditors reviewed Sections 8.1.2 and 8.1.3, of the Emergency Plan, and determined that types of drills and the frequency of each were specified as follows.

Communications - Annually; other communication tests monthly or quarterly.

Fire - Quarterly

Medical - Annually

Radiological Monitoring - Annually

Health Physics - Semiannually

Emergency Exercise - Semiannually

The bases for drills, participation by offsite agencies, observers and controllers, performance criteria, records, and critiques were discussed in the Emergency Plan. However, an Implementing Procedure for Drills and Exercises was lacking.

(See findings in Section 5.1)

5.5.3 Review, Revision and Distribution of Emergency Plan and Procedures

The auditors reviewed Section 8.2 of the Emergency Plan and noted that the Nuclear Review Board and the Review of Operations Committee were responsible for review of the Emergency Plan and the Emergency Plan Implementing Procedures

on an annual basis. Administrative Procedure 12.006.01 "Station Procedures, Preparations, Review, Approval, Change, Revision and Cancellation", and the status listing printout identified which groups performed procedure reviews and specified periodic review cycles. However, the review cycle for Emergency Implementing Procedures was not specified, and quarterly telephone number checks were not specified.

The Emergency Plan and procedures were reviewed by the Emergency Preparedness Task Group and approved according to Procedure 12.006.01. Names, titles and phone numbers were still under review and distribution was limited to information copies. Although the Emergency Plan did not contain a list of plan holders, procedure 12.006.02, "Station Procedure Control Distribution", had a listing of individuals and facilities who would receive controlled emergency preparedness documents. The auditors noted that the NRC was not on the distribution list as required by 10 CFR 50, Appendix E, IV.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matters should be considered for improvement:

- Develop provisions for a periodic review cycle, a quarterly telephone number check and a controlled distribution list for the Emergency Plan; distribute controlled copies of emergency preparedness documents and ensure that the NRC, New York State and Suffolk County receive updated copies. (50-322/82-18-35)

5.5.4 Audits of Emergency Preparedness

The auditors noted that although Section 8.2 of the Emergency Plan mandated an annual audit of Emergency Plan and procedures under the cognizance of the Nuclear Review Board, a schedule for conducting the audits had not been developed. Surveillance audits by the onsite quality assurance group have been conducted for: training, drill observation and emergency classification.

Based on the above findings, this portion of the licensee's program appears to be acceptable, but the following matter should be considered for improvement:

- Complete the schedule for auditing the emergency preparedness program. (50-322/82-18-36)

6.0 COORDINATION WITH OFFSITE GROUPS

6.1 Offsite Agencies

The auditors reviewed Sections 5.3, 5.4, Appendix B of the Emergency Plan and Procedure 69.041.01, "Offsite Medical Assistance", and contacted four offsite support agencies.

The auditors verified that offsite agencies had participated in drills, exercises and training. Agency representatives contacted by the auditors had an under-

standing of their responsibilities during an emergency and expressed satisfaction with the licensee's support and coordination. The Wading River Fire District, for example, attended biweekly meetings with the licensee to inspect and "walk-down" onsite structures for the purpose of fire protection, and maintained a working relationship with: onsite fire brigades, offsite fire support, and rescue units.

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

6.2 General Public

The auditors reviewed Procedure CIP-16, "Public Affairs - Emergency Notifications", and the licensee's proposed press kit. Although public information material was ready for publication, the licensee was waiting approval from the Suffolk County and the State of New York. (See finding in Section 5.4.7).

6.3 News Media

The auditors reviewed Procedures CIP-16, "Public Affairs Emergency Notification", and CIP-17, "Emergency Communication Centers Activation", Section 5.2.9, of the Emergency Plan, and toured the Emergency News Center.

The auditors determined that the licensee had prepared a press kit for distribution to the press immediately prior to the annual full-scale exercise. The proposed press kit included information about the emergency plan, radiation, accident sequences, and a site fact sheet. Space allocated for media personnel at the Old Mill Inn appeared to be adequate. (See related finding in Section 1.3)

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

7.0 Drills and Exercises and Walk-Throughs

7.1 Program Implementation

The auditors reviewed the licensee's drill and exercise program and determined that twenty-two drills were performed during the period May 23, 1982 through August 20, 1982. Critique forms identified improvement items and corrective actions taken.

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

7.2 Walk-through Observation

7.2.1 Offsite Radiological Surveys

The auditors conducted a walk-through of an offsite radiological survey by a team of two individuals. The scenario consisted of being called in to perform offsite monitoring.

On the whole, individuals showed the basic skills necessary to perform assigned tasks, and familiarity with equipment, facilities and procedures. Equipment deficiencies were noted (e.g. radiation instruments were not calibrated, radio transceivers were inoperative).

(See related findings in Section 4.2.1.1)

8. Key Individuals Contacted

Licensee Personnel

*H. Blauer	Chairman Emergency Planning
G. Cassiano	Sr. QA Engineer
*M. Cordaro	VP Engineering
*C. Daverio	Nuclear Operations Support
*N. DiMascio	Plant Engineer
T. Forte	Public Affairs
I. Freilicher	VP Public Affairs
R. Hudson	Public Affairs
*D. Lankford	Assoc. Dir. of Nuclear Information
*M. Miele	Health Physics Engineer
B. Nazzaro	Watch Engineer
B. Petricek	Chemistry Engineer
*R. Plaskun	Mgr. Power Engineering
*M. Pollack	VP Nuclear
S. Quinan	Maintenance Coordinator
R. Reen	Security Supervisor
*W. Renz	Scientist
J. Rivello	Shoreham Plant Manager
J. Schmitt	Radiochemistry Engineer
*J. Weismantle	Mgr. of Power Engineering
R. Werner	Operating QA Supervisor

*Denotes those also present at the exit meeting.

- In addition to the above, team members interviewed personnel from plant operations and radiation protection staff, corporate personnel; and local, county and state officials.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

SEP 13 1982

Docket No. 50-322
CAL No. 82-24

Long Island Lighting Company
ATTN: Dr. M. C. Cordaro
Vice President of Engineering
175 East Old Country Road
Hicksville, NY 11801

Gentlemen:

This refers to a meeting between Mr. W. O. Uhl, President, and other members of the Long Island Lighting Company staff, and Mr. N. M. Terc and other members of the NRC Emergency Preparedness Implementation Appraisal team, which was held at the Shoreham Nuclear Power Station on September 2, 1982, and to telephone conversations between Dr. M. C. Cordaro, and Mr. Terc on September 9, 1982 and between Dr. Cordaro and Mr. G. L. Snyder on September 10, 1982. With regard to the matters discussed relating to emergency preparedness, we understand that you will undertake and complete the following actions:

I. Prior to fuel loading:

1. Administration

- A. Assign corporate and onsite Emergency Planning Coordinators (EPCs) on a permanent basis who shall be given direct working level responsibility and authority over all aspects of the development and maintenance of the emergency preparedness program. Revise normal organization charts, position analysis descriptions, and other related documents to reflect the EPCs assignments and to describe the scope of their duties, authorities, and reporting chains.
- B. Design, implement, and document a program to coordinate emergency preparedness activities including such things as technical information exchange, training, and site familiarization tours. Coordination on a continuous basis is needed between the site and corporate headquarters, the general public, offsite support agencies, and the news media.

2. Emergency Organization

- A. Revise your emergency organization, and Emergency Plan to:
 - (a) describe all functional areas of response and emergency tasks;
 - (b) provide for all response sequences;

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- (c) clarify responsibilities and inter-relationships between the various organizational elements; and
 - (d) provide an organizational structure within the Operational Support Center (OSC) that will meet the demands of its emergency functions.
- B. Demonstrate, after personnel involved are trained and qualified, that the augmentation of your emergency organization can be accomplished within the time-frames specified in NUREG-0654.
3. Facilities and Equipment
- A. Complete installation and operational testing of meteorological equipment, radiation and non-radiation monitors, and the plant process computer needed in the control room to support emergency classification, assessment and response functions.
 - B. Complete installation of instrumentation in the Technical Support Center needed to provide data for support of operations.
4. Alternate Laboratory Facilities
- Provide a permanent, onsite, back-up capability for performing chemical and radiochemical analysis during emergency situations.
5. Assembly/Reassembly Areas
- Ensure that provisions have been made at assembly/reassembly areas for accountability, and radiological assessment and protection on a continuous basis for personnel remaining onsite during severe accident conditions. In addition, make provisions for transportation of personnel to offsite locations suitable to protect them from inclement weather and for which provisions have been made for radiological protection, personnel monitoring and decontamination.
6. Medical Treatment Facilities
- Complete medical treatment facilities and provide equipment and supplies necessary to ensure that such facilities will be able to perform their intended functions during emergencies.
7. Decontamination equipment
- Place decontamination equipment, instrumentation, supplies, and decontamination procedures in those locations where personnel would be decontaminated during emergencies, and provide a method for handling a number of contaminated individuals.

8. Expanded Support Facilities

Specify facilities in the vicinity of the site which will be used for expanded support in the event of a continued large scale response to an emergency situation. Incorporate a description of such facilities in the Emergency Plan.

9. Emergency Kits and Emergency Survey Instrumentation and Equipment

Provide dedicated instruments and supplies in accordance with Procedure SP 69.062.01 and ensure that they are operational and readily available for emergency use.

10. Meteorological Equipment

Complete the installation and calibration of meteorological instrument readouts in the Emergency Response Facilities needed to perform dose assessment functions during accidents.

11. Respiratory Protection Program

Complete the respiratory protection program needed to support emergency response activities (e.g., fitting and testing of respirators); provide respiratory protection for persons expected to remain onsite during site and general emergencies; and provide for the continuous availability of air for self contained breathing apparatus.

12. Protective Clothing

Provide protective clothing at the locations necessary to support emergency response functions consistent with the types and levels of radioactive contamination expected during accidents.

13. Communications Equipment

Complete the installation and operational testing of communications and notifications systems described in the Emergency Plan Implementing Procedures. In the event that restrictions continue to be imposed by local authorities, an alternative measure will be proposed by LILCO and agreed to by the NRC.

14. Emergency Plan and Implementing Procedures

A. Review Emergency Plan Implementing Procedures and make revisions to:

- (a) Clarify required actions and the duties and responsibilities of personnel performing these actions;

- (b) Correct ambiguities, inconsistencies, omissions, errors, wordy discussions, unnecessary references, lists of contents, and other extraneous materials which do not help the users to perform their duties during emergencies;
 - (c) Provide specific cross-references to other procedures in the action steps needed to further detail and clarify actions;
 - (d) Include lines of command, communications, and information flow necessary to perform emergency tasks and response actions; and
 - (e) Ensure that emergency response tasks are coordinated between the appropriate elements of the emergency organization and are consistent with the organizational structure.
- B. Provide Emergency Plan Implementing Procedures and other procedures needed to implement the Emergency Plan, including the following:
- (a) In-plant surveys during emergencies;
 - (b) Repair and corrective actions during emergencies;
 - (c) Security during emergencies;
 - (d) Radiation protection during emergencies;
 - (e) Drills and exercises;
 - (f) Sampling and analysis of post-accident liquid wastes;
 - (g) Sampling and analysis of primary coolant during accidents;
 - (h) Sampling and analysis of containment air during accidents;
 - (i) Sampling and analysis of stack effluents during accidents;
 - (j) Calibration procedures for the above, when pertinent;
 - (k) Alarm response procedures; and
 - (l) Emergency operations procedures.

15. Public Information

Prepare and distribute public information material regarding the actions to be taken by individuals within the Emergency Planning Zone.

16. Training

- A. Complete the development of the training program to include the:
- (a) Designation of an individual to coordinate emergency preparedness training;
 - (b) Development of written instructor qualifications;
 - (c) Development of a pass/fail performance criteria for written tests used to qualify emergency personnel;
 - (d) Revision of lesson plans to specify performance objectives consistent with your implementing procedures;
 - (e) Development of lesson plans and training courses for: personnel monitoring/decontamination, inplant surveys, post-accident sampling, repair and corrective actions, radwaste operations, and general employee training.
- B. (a) Complete training of all emergency response personnel in existing emergency related equipment and procedures.
- (b) Retrain at least 25 percent of all emergency response personnel in new emergency related equipment and procedures. Such personnel shall be selected so as to provide trained individuals in all functional areas of emergency response.

II. Prior to attaining a power level greater than five percent:

16. Training (Continued)

- B. (c) Complete retraining of all emergency response personnel in new emergency related equipment and procedures.

17. Post-Accident Sampling

Complete the installation and assure the operability of facilities and equipment incorporating the guidance of NUREG-0737 for the following:

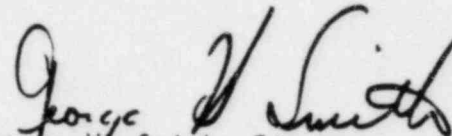
- (a) Sampling and analysis of post-accident primary coolant;
- (b) Sampling and analysis of post-accident containment atmosphere;
- (c) Sampling and analysis of post-accident gas and particulate effluents; and
- (d) Sampling and analysis of post-accident liquid wastes.

SEP 13 1982

If our understanding of your planned actions, described above is not in accordance with the actual plans and actions being implemented, please contact Mr. H. W. Crocker of this office by telephone (215) 337-5208 within 24 hours of the receipt of this letter.

In addition, if any circumstance develops which could delay the planned completion of any of the above items, please contact Mr. Crocker at your earliest convenience.

Sincerely,



George H. Smith, Director
Division of Emergency Preparedness
and Operational Support

cc:

W. O. Uhl, President
M. S. Pollock, Vice President - Nuclear
J. Rivello, Plant Manager
J. L. Smith, Manager of
Special Projects
Director, Power Division
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Local Public Document Room (LPDR)
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