U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-322/81-19

Docket No. 50-322

License No. CPPR-95 Priority -- Category B

Licensee: Long Island Lighting Company

175 East Old Country Road

Hicksville, New York 11801

Facility Name: Shoreham Nuclear Power Station

Inspection at: Shoreham, New York

Inspection conducted: November 9-13, 1981

Inspectors: R. L. Nimitz — 4/30/82
R. L. Nimitz, Radiation Specialist — date signed

R. L. Nimitz for — 4/30/82
R. E. Baer, Radiation Specialist — date signed

date signed

Approved by: Edward A. Greenman — 4/30/82
E. G. Greenman, Chief, Facilities Radiation Protection Section, Technical Programs Branch — date signed

Inspection Summary:
Inspection on November 9-13, 1981 (Report No. 50-322/81-19)
Areas Inspected: Special, announced preoperational inspection of the licensee's radiation protection and radioactive waste management programs including: organization; personnel selection, qualification and training; internal and external exposure control; facilities and equipment, and radioactive waste management. The inspection involved 54 inspector-hours on site by two NRC region based inspectors.
Results: No violations were identified.

DETAILS

1. Persons Contacted

L. J. Calone, Chief Technical Engineer
*N. J. DiMascio, Plant Engineer - Health Physics
D. M. Durand, Lead Start-up Engineer - Balance of Plant
*T. F. Gerecke, QA Manager
P. C. Kwaschyn, Assistant Engineer - Radiochemistry
R. A. Loper, Technical Support Manager
*M. L. Miele, Health Physics Engineer
*J. P. Morin, Senior Licensing Engineer
A. R. Muller, Acting Operational QA Engineer
*R. J. Petricek, Plant Engineer - Radiochemistry
*J. Rivello, Plant Manager
J. T. Rose, QA Engineer
*J. F. Schmitt, Radiochemistry Engineer
*A. C. Todoro, Operations QA

Contractors

J. Bengtson, NUS Corporation - Training Supervisor
T. S. Bulischeck, NUS Corporation - Principal Engineer

USNRC

*J. C. Higgins, Senior Resident Inspector

*denotes those present at the exit interview on November 13, 1981.

2. Purpose of Inspection

This inspection was performed to determine if the licensee is providing for health physics staff, training, procedures, facilities, instruments, and equipment, adequate to comply with regulatory requirements and commitments made in the Final Safety Analysis Report (FSAR).

In addition, the inspection was performed to verify that the components of the liquid, solid,and gaseous waste systems are as described in the FSAR, that the licensee has conducted preoperational tests of waste systems to verify their operability and that the licensee's effluent and process monitoring program is adequate and conforms with the FSAR description.

Due to the extent of program review required, and the status of the licensee's Radiation Protection and Radioactive Waste Programs, a complete preoperational review was not performed at this time. The major findings of this portion of the program review are contained in the Annex to this report.

The program review will be completed during a subsequent onsite inspection prior to reactor fuel load (50-322/81-19-01).

3. Radiation Protection Organization

The inspector reviewed the licensee's Radiation Protection Organization with respect to the following:

-- Final Safety Analysis Report (FSAR) Chapter 12, "Radiation Protection."

-- FSAR Chapter 13, "Conduct of Operations."

-- Regulatory Guide 8.8, Revision 3, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Station Will Be As Low As Reasonably Achievable."

-- Shoreham Procedure SP No. 12.002.01, Revision 4, "Organization and Administration," dated December 31, 1979.

-- Shoreham Procedure SP No. 61.001.01, Revision 0, "Health Physics Program - Policy and Objectives," dated November 18, 1976.

a. Description

The inspector's review of Shoreham Nuclear Generating Station's Radiation Protection organization indicated that the licensee has established an organization consistent with that described in FSAR Section 13.1.2.1. This structure is depicted in Figure 1 (see end of this report).

The inspector's review of procedure SP No. 12.002.01 indicated that the procedure showed the Radiation Protection organization that was depicted in the FSAR, excluding the position of Health Physics Foreman. Station management stated that the procedure was to be revised by January 1, 1982 to reflect this additional position. (50-322/81-19-02).

Regarding the reporting level of the Health Physics Engineer, i.e. Radiation Protection Manager (RPM), the inspector noted that Regulatory Guide 8.8 states in Section c.b.(3), that the RPM has a safety function and responsibility to both employees and management that can best be fulfilled if the individual is independent of station division such as operations, maintenance, or technical support, whose prime responsibility is continuity or improvement of station operability. This section also states that the RPM should have direct recourse to responsible management in order to resolve questions related to the conduct of the Radiation Protection Program.

The review of the organization with respect to the Regulatory Guide recommendations indicated that the Health Physics Engineer, i.e., RPM, reports to the Plant Manager through the Chief Technical Engineer.

The Chief Technical Engineer's primary responsibility, as described in the FSAR, is to provide technical support in the areas of Nuclear Physics, Radiation Protection, Plant Chemistry and overall station support. The inspector noted that, excluding Radiation Protection, the other responsibilities of the Chief Technical Engineer were associated with continuity or improvement of station operability. This was noted to be inconsistent with the Regulatory Guide recommendations.

The above was discussed with licensee representatives who indicated that the intent of the guide was being met in that the Health Physics Engineer had direct access to the Plant Manager to resolve matters concerning plant or public safety and that the Plant Manager was supporting the Health Physics Engineer.

The inspector's review of station documents relative to the above indicated that FSAR Section 12.1.1.2 states that the Health Physics Engineer has direct access to the Plant Manager when he believes items concerning plant and public safety are not being observed and that the Health Physics Engineer may request the Plant Manager to halt immediately any operation he deems unsafe. This concept was also reflected in procedure SP No. 12.002.01.

Based on discussions with the Health Physics Engineer, the inspector determined that this individual had direct access to the Plant Manager to resolve health and safety matters and was being actively supported by the Plant Manager.

The inspector indicated the reporting level of the Health Physics Engineer would be reviewed further (50-322/81-19-25).

The inspector discussed the status of the Corporate Radiation Protection Organization with the Health Physics Engineer. The discussions indicated that the organization described in procedure SP No. 12.002.01 and the FSAR was no longer correct in that corporate Radiation Protection personnel were now reporting to one Vice President instead of two. This change had apparently occurred in October, 1980. This new organization is depicted in Figure 1 (see end of this report).

The licensee's station management indicated procedure SP No. 12.002.01 would be revised by January 1, 1982 to reflect the correct corporate organization (50-322/81-19-03).

The inspector's discussions with the Health Physics Engineer, relative to site organizational interfaces with the corporate radiation protection organization, indicated a Nuclear Operations Corporate (NOC) Policy on Radiation Protection and ALARA was being written. This policy would define the organizational interfaces and responsibilities of the corporate and site organizations. The Health Physics Engineer indicated the NOC policy was to be in place by the time of fuel load (50-322/81-19-04).

b. Staffing

The inspector reviewed the current and proposed Radiation Protection Organization staffing level with respect to that presented in FSAR Section 13.1.2.

The following table depicts the current, the FSAR proposed, and the staffing level indicated by the Health Physics Engineer that would be needed to support fuel load.

Table 1
Radiation Protection Organization
Staffing Level

Position	Current Level	FSAR Level	Level Needed for Fuel Load	Deficit(1)
RPM	1	1	1	0
Engineers	1	1	4	3
Foremen	0	1	2	2
Technicians	3	9	19	16
Clerks	0	0	1	1
Current Total	5			Total 22

(1) Deficit = Fuel Load Level minus Current Staff Level

Based on the above information and discussions with the licensee's Health Physics Engineer, the inspector determined that the organization's current staffing level would be deficient by approximately 22 individuals for fuel load.

The discussions indicated that the licensee was actively recruiting potential candidates to fill the organization vacancies. It was noted however, that at the time of this inspection, apparently only two job offers had been made. Considering the need to train and qualify the newly hired individuals, the inspector noted that, at the time of fuel load, the licensee may not be fully staffed with trained and qualified permanent personnel.

The inspector's discussion with the Health Physics Engineer indicated that in the event sufficient staffing was not available for fuel load, contractor radiation protection personnel would be trained and qualified to augment the staff (50-322/81-19-05).

c. Responsibilities and Authorities

The licensee established and implemented procedure SP No. 61.001.01, to describe the responsibilities and authorities of personnel in the area of Radiation Protection. The procedure describes: the responsibilities and authorities of the Health Physics Engineer and Watch Engineer; and the responsibilities of the Plant Manager, Station supervision, **and individuals.**

Regarding the reponsibilities and authorities of other members of the site Radiation Protection Organization, the procedure indicates that under the supervision of the Health Physics Engineer, personnel with proper training shall assume such responsibilities and perform all duties as may be delegated or assigned by the Health Physics Engineer.

The inspector's review of the above area indicated no apparent formal delegation or assignment of responsibilities was in place other than position descriptions.

The inspector's review of the position description for the Plant Engineer - Health Physics, indicated that description was generic (i.e. described all Plant Engineers). The inspector noted that the manner in which the description was written would not prevent an individual with no background or experience in radiation protection from assuming the position.

In addition, the position description provided to the inspector indicated that the Plant Engineer directs certain functions and activities. Included were: trouble shooting and repair of state of the art equipment which includes a BWR reactor, solid state electronic instrumentation, radiation monitoring equipment and process computer; the Station Maintenance Work Request Program; and Preventative Maintenance Program. Excluding the reference to radiation monitoring equipment, the inspector noted that the other functions and activities did not appear to be those a Plant Engineer - Health Physics would be responsible for. Regarding the position description of a Health Physics Foreman, no description had been established for this particular position.

Regarding Health Physics Technician responsibilities and authorities, the inspector noted that two position descriptions were apparently in place for this position. A generic description, dated November 1973, was in place which addressed all Electric Production Department Control Technicians (Nuclear) while a second description provided separate descriptions for Health Physics, Radiochemistry and Instrumentation and Control Technician's responsibilities. No description of authorities were included with either description (50-322/81-19-06).

4. Selection, Qualification and Training

The inspector reviewed the selection, qualification, and training programs for selected members of the licensee's onsite organization. The review was with respect to the following:

- FSAR Section 12.5, "Health Physics Program"
- FSAR Section 13.1, "Organizational Structure of Applicant"
- FSAR Section 13.2, "Training Program"
- ANSI-N18.1, 1971, "Selection and Training of Nuclear Power Plant Personnel."
- Regulatory Guide 1.8, Revision 1, "Personnel Selection and Training," dated September 1975.
- Procedure SP No. 12.003.01, Revision 7, "Personnel Qualifications and Responsibilities", dated September 7, 1981.
- Procedure SP No. 12.014.01, Revision 2, "Personnel Training Requirements," dated March 26, 1979.
- Procedure SP No. 12.014.04, Revision 0, "Training Responsibilities," dated September 28, 1978.
- Procedure SP No. 61.040.01, Revision 3, "Health Physics Technician Qualification Program".

a. Selection Criteria

The licensee has established and implemented procedure SP No. 12.003.01 to define, among other items, the minimum qualifications responsible supervisory and non-supervisory station personnel must meet for particular station positions. Appendix 12.3 to the procedure provides the qualification requirements. The Appendix references the appropriate station positions identified in FSAR Section 13.1.3.

FSAR Section 13.1.3.1, describes the minimum qualifications requirements for responsible station personnel needed at the time of initial fuel loading, or when appointed to the active positions. Included are the selection criteria for the Health Physics Engineer, Plant Engineers and Technicians. No selection criteria for a Health Physics Foreman is presented either in the procedure or the FSAR (50-322/81-19-07).

FSAR Section 12.5.1.2, "Personnel Experience and Qualifications", provides a general description of the Health Physics Engineer's responsibilities. However, no personnel experience or qualification requirements are contained in this section.

The review of the selection criteria for the Health Physics Engineer indicated that the minimum qualification (i.e., selection) requirements for this position, as provided in procedure SP No. 12.003.01 (FSAR Section 13.1.1.22), are not consistent with those of Regulatory Guide 1.8. The FSAR Section requires 4 years of experience in radiation protection of which at least 3 years of this experience shall be at a nuclear facility. The Regulatory Guide recommends at least five years professional level experience in applied radiation protection and recommends that at least three years of this professional experience be in applied radiation protection work in a nuclear facility dealing with radiological problems similar to those encountered in nuclear power stations, preferably in an actual nuclear power station.

The review of the selection criteria for the Plant Engineer -Health Physics, as provided in procedure SP No. 12.003.01 (FSAR Section 13.1.3.1.15), indicates that the criteria are generic to a Plant Engineer. The criteria indicates that the engineer is to have a Bachelor of Science Degree in Engineering, or a high school diploma and 4 years experience in a responsible technical position. This criteria provides no details as to the minimum radiological background and experience needed. The procedure also was noted to reference FSAR Section 13.1.3.1.14.

The review of the selection criteria for the position of Health Physics Foreman indicated that, although a computer print-out of the station organization was provided to the inspector that referenced the position, the position was not identified in procedure SP No. 12.003.01 or the FSAR. The inspector noted that ANSI-N18.1, 1971, requires that supervisors not requiring licenses have a high school diploma or equivalent and a minimum of four years experience in the craft or discipline supervised.

The review of the selection requirements for the position of Health Physics Technician, as provided in procedure SP No. 12.003.01 (FSAR Section 13.1.3.1.23) indicates that the Health Physics Technician is to have a minimum of 3 years experience. Of the 3 years experience, one year may be related technical training, while two years experience will be in their specialty. Of the two year specialty experience, the Health Physics Technician is to have at least six months hands-on training/experience at a nuclear facility. This selection requirement was noted to be inconsistent with procedure SP No. 61.040.01 which indicates that a technician will have a high school diploma or equivalent and have a minimum of two years experience in the particular field. The procedure did not provide information as to the nature of work performed during the two years.

The licensee's Health Physics Engineer indicated that the selection criteria would be revised to address this by April 1, 1982 (50-322/81-19-08).

Using the selection criteria of ANSI-N18.1, 1971, and Regulatory Guide 1.8, the inspector compared the criteria to the experience and training background of the current Radiation Protection staff.

The comparison indicated the Health Physics Engineer and two of the three technicians met the criteria in Regulatory Guide 1.8 and ANSI-N13.1, 1971 respectively. The remaining technician's resume was not available for review.

The inspector noted that the Plant Engineer - Health Physics met the minimum selection criteria presented in the FSAR.

The experience and training background of additional Health Physics personnel will be reviewed prior to fuel load (50-322/81-19-09).

b. Training and Qualification

The inspector's review of the licensee's Health Physics Organization training program indicated that FSAR Section 13.2.1.7, "Training Programs for Non-Licensed Personnel," describes the initial training of, among other individuals, Health Physics Supervisors and Health Physics Technicians. The supervisors are to receive the G.E. Radiological Engineering course or equivalent, while technicians are to receive G.E. Health Physics Technology or equivalent training.

The licensee's procedure SP No. 12.014.01, Revision 2, "Personnel Training Requirements," defines the program requirement for training Shoreham Nuclear Power Station, permanent and temporary personnel. The procedure requires the establishment of, among other training programs, a Non-licensed Management and Supervisory Personnel Training Program and a Health Physics Technician Training Program.

The licensee has established procedure SP No. 61.040.01, Revision 2, "Health Physics Technician Qualification Program," for qualifying and specifying the minimum training requirements for technicians. No apparent formally documented training and qualification program for professional level Health Physics personnel was in place.

The inspector's review of procedure SP No. 61.040.01 indicated that the procedure provide for qualification of Health Physics Technicians through several means. It was noted, however, that no uniform acceptance criteria for the evaluation of an individual's qualifications was included in the procedure.

This was discussed with licensee's representatives who indicated appropriate evaluation criteria would be established by April 1, 1982 (50-322/81-19-10).

c. General Employee Training

Shoreham Nuclear Power Station procedure SP No. 12.014.01 requires that a General Employee Training Program be established to provide all Shoreham Nuclear Power Station permanent personnel familiarization with plant administrative controls, security, health physics, emergency plans, quality assurance, and industrial safety to the extent required by their job. Temporary personnel assigned to the station are to receive general employee training in accordance with FSAR Sections 13.2.1.8.2 and 13.2.1.8.3 which requires that training be given in the above areas to the extent necessary to assure safe execution of their duties.

The licensee established and implemented procedure SP No. 12.014.03, Revision 1, "General Employee Training Program," dated May 18, 1978, to establish the methods of implementation of training.

The inspector review of the licensee's General Employee Training Lesson Plan for Health Physics indicated that it was approved by both the Training Coordinator and the Health Physics Engineer on July 10, 1978.

In addition, the licensee has established procedure SP No. 12.014.04 to clarify the specific responsibilities of the Training Coordinator and station Section Heads to meet the objectives of the station training program.

Due to time limitations, the General Employee Program was not completely reviewed and will be reviewed during a subsequent inspection prior to fuel load (50-322/81-19-11).

5. Exposure Control

The inspectors reviewed the licensee's Exposure Control Program with respect to the following:

- Final Safety Analysis Report (FSAR), Chapter 12, "Radiation Protection"
- 10 CFR 20, "Standards for Protection Against Radiation"
- Regulatory Guide 8.2, "Administrative Practices in Radiation Monitoring."
- Regulatory Guide 8.4, "Direct Reading and Indirect Reading Pocket Dosimetry"
- Regulatory Guide 8.7, "Occupational Radiation Exposure Records System"
- Regulatory Guide 8.9, "Acceptable Concepts, Models, Equations, and Assumptions for a Bioassay Program"

- Regulatory Guide 8.26, "Application of Bioassay for Fission and Activation Products."

a. External Exposure Control

The licensee has established the following procedures for external exposure control at Shoreham Nuclear Power Station (SNPS):

- SNPS Procedure SP No. 61.010.01, Revision 2, "Restricted Area Access Control," dated August 1, 1978

- SNPS Procedure SP No. 61.010.03, Revision 0, "Radiation and Radioactive Material Area Designations and Signs," dated October 28, 1976

- SNPS Procedure SP No. 61.012.01, Revision 0, "Personnel Dose Limits and Guides," dated July 9, 1976

- SNPS Procedure SP No. 61.012.05, Revision 0, "Authorization to Exceed Dose Guides," dated February 10, 1977

- SNPS Procedure SP No. 61.018.01, Revision 1, "Radiological Survey Schedule and Locations," dated September 7, 1978.

The inspector's review of the area indicated that FSAR Section 12.1.3, "Operational Considerations," provides details regarding the licensee's use of personnel monitoring devices.

The FSAR indicates that beta-gamma TLD badges or film badges are worn at all times by all permanent and temporary plant personnel who enter a Controlled Access Area. The TLD or film badges are to be processed monthly. Direct or indirect reading pocket dosimeters will supplement the badges. The pocket dosimeter readings will be used to keep a running total of an individual's dose prior to TLD or film badge readout. Plant personnel are to read the pocket dosimeters and record personnel radiation doses after performing work under a Radiation Work Permit. The FSAR indicates that, as a minimum, the dosimeter readings are read and the **exposures recorded at least once** during a working day.

The review of the licensee's External Dosimetry Program indicated the permanent external dosimetry personnel monitoring system for Shoreham NPS had not been obtained by the station at the time of the inspection. Licensee Health Physics representatives indicated the equipment to be used had been selected but a purchase order had not yet been issued. As a result, the licensee has not established dosimetry system operations, calibration or quality assurance procedures.

The inspector discussed the above with the licensee's Health Physics representatives and indicated that, considering the time necessary to obtain the equipment, to establish and implement dosimetry system

procedures and perform pre-operational testing of the system, the dosimetry system may not be fully operational by fuel load.

The licensee's Health Physics representatives acknowledged the inspector's comments and indicated that a vendor supplied external dosimetry system (TLD) would be in place at fuel load if the in-house program was not fully operational.

The inspector noted that the licensee plans to utilize direct reading dosimeters of various ranges to maintain exposure accountability between readings of TLD badges.

The licensee has established administrative exposure guides. These guides are 1000 mrem whole body per quarter and 4000 mrem whole body per year. A calendar quarter has been established. The first quarter begins in January and each quarter is not less than 12 consecutive weeks and not greater than 14 consecutive weeks.

Because the licensee remains to fully establish the External Exposure Control Program, the inspector indicated the program will be reviewed during a subsequent inspection prior to fuel load (50-322/81-19-12).

b. Internal Exposure Control

The licensee has established the following procedures for internal exposure control at SNPS:

- SNPS Procedure SP No. 61.020.03, Revision 2, "Contaminated Area Designations and Signs," dated March 19, 1981

- SNPS Procedure SP No. 61.030.03, Revision 2, "Airborne Activity Limits, Guides and Signs," dated August 1, 1978

- SNPS Procedure SP No. 62.004.03, Revision 0 "Bioassay Program," dated May 15, 1980.

The inspector's review of this program area indicated that FSAR Section 12.5, "Health Physics Program," provides details regarding the licensee's internal exposure control program.

The FSAR indicates that bioassay and/or whole body counting of permanent plant personnel is to be performed once per year or more frequently, depending on the work conditions and use of respiratory protective equipment. Bioassay and/or whole body counting of contractor employees will be performed when an individual or group of individuals has had a potential exposure in excess of the limits established in 10 CFR 20.103.

The inspector's review of this area indicated the licensee has obtained a shadow-shield whole body counter (WBC) for performing in-vivo analyses. The use of the counter is described in procedure

SP No. 62.004.03. This procedure provides guidance for review and evaluation of WBC results. When a count is verified to be greater than 10% of a maximum permissible organ burden (MPOB), the procedure requires that an evaluation be performed and the Health Physics Engineer be notified.

The inspector's review of the procedure indicated that the use of 10% of a MPOB as the criteria for follow-up evaluation would not ensure compliance with 10 CFR 20.103. In certain cases, 10% of a MPOB would exceed the amount observed in a whole body count of an individual who had sustained an intake which exceeded the 40 hour control measure specified in 10 CFR 20.103(b)(2). Whenever the exposure of an individual exceeds this control measure, an evaluation is to be performed or action to prevent recurrence is to be taken. Licensee Health Physics representatives acknowledged the above and indicated this matter would be reviewed (50-322/81-19-13).

Regarding in-vitro bioassays, the inspector noted that procedure SP No. 62.004.03 provides no guidance for the performance of the bioassay measurements other than the need for the measurements is to be made by the Health Physics Engineer. In addition, the procedure provides limited guidance for collection, handling or transport of bioassay samples (e.g., sample preservation).

Regarding a Bioassay Quality Assurance Program, the inspector noted that no program had been established for either in-vivo or in-vitro bioassays. The guidance provided in Regulatory Guide 8.26 will provide information in this area.

The inspector noted that the licensee was in the process of establishing the bioassay program. The inspector indicated that this program would be reviewed during a subsequent inspection of this program area prior to fuel load. (50-322/81-19-14).

c. Exposure Evaluation

The licensee has established the following procedures for evaluation and investigation of possible unusual exposures:

- SNPS Procedure SP No. 61.012.07, Revision 1, "Investigation of Unauthorized Exceeding of Administrative Dose Guides or NRC Limits," dated September 4, 1980

- SNPS Procedure SP No. 61.060.11, Revision 0, "Radiological Incident Report (RIR)," dated June 2, 1977

- SNPS Procedure SP No. 62.004.23, Revision 0, "Investigation of Lost, Damaged, or Offscale Dosimetry," dated July 28, 1977.

The inspector's review of the above procedures indicated they were established to ensure the evaluations required by 10 CFR 20.201 are performed and that appropriate steps are taken to prevent recurrence.

The review indicated however, that the procedures did not address the reporting requirements of 10 CFR 50.72, "Notification of significant events." In addition, the procedures did not provide guidance relative to monitoring of pocket dosimeters and/or TLD badge lost rates. The inspector noted that an increase in loss rate may indicate a breakdown in the licensee's exposure control program.

The above matters will be reviewed during a subsequent inspection of this program area prior to fuel load (50-322/81-19-15).

d. Dosimetry Issuance, Records and Reports

The licensee has established the following procedures for dosimetry issuance, records and reports at SNPS:

- SNPS Procedure SP No. 61.050.11, Revision 2, "Health Physics Exposure History, Records and Reports," dated March 27, 1979.

- SNPS Procedure SP No. 62.004.01, Revision 3, "Station Personnel Monitoring Program," dated February 5, 1979.

The inspector's review of the above procedures indicated the procedures provided for obtaining and maintaining radiation exposure information in accordance with 10 CFR 20.101, "Radiation dose standards for individuals in restricted areas," and 10 CFR 20.401, "Records of surveys, radiation monitoring and disposal." The procedures also addressed the reports required by 10 CFR 20.408, "Reports of personnel monitoring on termination of employment or work."

The inspector noted that procedure SP No. 61.050.11, Section 8.3.1, indicates that radiation exposure information is to be supplied at the request of an employee in accordance with 10 CFR 20.409.

10 CFR 20.409 was noted to deal with notifications to individuals upon termination or overexposure. These notifications are required and were not to be made "at the request of an employee."

In addition, the personnel monitoring reports required by 10 CFR 20.407 were not addressed in the procedures.

Based on the above review, the licensee does not have a complete dosimetry records and reporting program established.

In addition, no personnel were assigned to process exposure information.

The inspector indicated this area will be reviewed during a subsequent inspection prior to fuel load (50-322/81-19-16).

e. Respiratory Protection Program

The licensee has established the following procedures for respiratory protection at SNPS:

- SNPS Procedure SP No. 61.030.03, Revision 2, "Airborne Activity Limits, Guides and Signs," dated August 1, 1978

- SNPS Procedure SP No. 62.032.01, Revision 2, "Respiratory Protection Program," dated August 3, 1981.

- SNPS Procedure SP No. 62.032.10, Revision 1, "Atmosphere Supplying Respirators," dated August 1, 1978

- SNPS Procedure SP No. 62.032.30, Revision 0, "Air Purifying Full Face Respirators," dated May 5, 1977

- SNPS Procedure SP No. 62.032.60, "Respiratory Protection Equipment Cleaning and Inspection," dated September 22, 1977

- SNPS Procedure SP No. 62.032.70, Revision 0, "Control of Respiratory Protection Equipment," dated September 22, 1977.

The inspector's review of this area indicated that FSAR Section 12.1.4, "Respiratory Protection," describes the management policy and objectives of the SNPS Respiratory Protection Program. The subjects addressed in the policy are consistent with those of Regulatory Guide 8.15, "Acceptable Programs for Respiratory Protection." The review indicated the subjects were addressed in procedure SP No. 62.032.01. The inspector noted, however, that the subject of use of engineering controls instead of respirator protection was provided limited discussion in the procedure.

The review of procedure SP No. 62.032.01 indicated the procedure did not incorporate the guidance provided in IE Bulletin No. 78-07, Protection Afforded by Air-Line Respirators and Supplied-Air Hoods, dated June 12, 1978. The procedure indicated a hood protection factor of 2000 could be used with minimum airflow to the hoods. This was not consistent with the requirements of the bulletin.

The inspector's review of this program area also indicated the following:

- no procedures for operation of the respiratory protective equipment fitting booth had been developed

- no procedures for determination of breathing air quality were established nor did the procedures require checking of air quality prior to use of atmosphere-supplying respirators

- no apparent program for determination of the medical status of respiratory protection equipment users was in place

- no program to relate bioassays to the effectiveness of the respiratory protection program was in place.

The inspector indicated that the review of the remainder of the respiratory protection program would be performed during a subsequent inspection prior to fuel load (50-322/81-19-17).

6. Facilities and Equipment

The inspector reviewed the licensee's onsite Radiation Protection facilities and equipment with respect to that described in Shoreham Nuclear Power Station (SNPS) Final Safety Analysis Report Section 12.5, "Health Physics Program."

a. Facilities

The inspector's review of this area indicated the licensee has provided a Health Physics Field Office at the main access control point (elevation 15' of the Turbine Building). The office is to be used by the Health Physics Foreman and technicians in the performance of their routine duties. These duties will include counting of contamination and air samples, issuance of radiation work permits, documentation of radiation surveys, and storage of portable radiation detection instruments. In addition, the office will have a console which provides a computer terminal. The terminal will indicate the radiological status of various plant radiation monitoring systems and will also provide dosimetry record data.

Inspector discussions with the licensee's Health Physics Engineer indicated an annex was being built, adjoining the current Administration Building. The annex will have space allotted for external dosimetry issuance and processing, respiratory protection training, whole body counting and radiation worker training.

Because the licensee was in the process of constructing additional Health Physics facilities, the inspector indicated the above area would be reviewed during a subsequent inspection prior to fuel load (50-322/81-19-18).

b. Equipment

(1) Portable and Laboratory

The following tables provide a comparison of the equipment that the licensee indicated would be available at fuel load and the number that was presently on hand. Table 2 lists the laboratory

(analytical) instrumentation, Table 3 lists the supplemental portable instrumentation which is to be in place in the Reactor and Radioactive Waste Processing Control Rooms, Table 4 lists the portable radiation survey instruments including continuous and portable grab air samples, and Table 5 lists personnel monitoring devices and miscellaneous radiation detection instruments.

TABLE 2
LABORATORY

	FSAR	ON HAND
1. NaI well type	1	1
2. Low Background proportional	1	3(1)
3. 4096 Multichannel Analyzer	1	1
4. Liquid Scintillation Counter (Tritium)	1	0
5. Theromoluminscence Dosimetry Reader	1	0
* GM COUNTER (Smears)	1	1 Mini Scaler H.P. 210

* Health Physics Office
(1) 1 Manual and 2 Automatic

TABLE 3
SUPPLEMENTAL PORTABLE

	Radwaste Control Room		Reactor Control Room	
	FSAR	On Hand	FSAR	On Hand
1. GM Survey	1	0	1	0
2. Ionization	1	0	1	0

TABLE 4
Health Physics Instruments
-Portable- (FSAR Section 12.5.2.2.2.)

TYPE	FSAR	ON HAND
1. G.M. Survey 0-80,000 MR/HR	18	8
2. G.M. Survey 0-50,000 MR/HR	30	8
3. IONIZATION 0-5,000 MR/HR	24	20
0-50,000		5
4. G.M. 0.1 - 1,000 R/HR	8	2
5. NEUTRON REM COUNTER 0.2 MR - 10 R/HR	2	0
6. ALPHA 0-2,000,000 CPM	2	0
7. CAM MOVING FILTER CHARCOAL -GAS	3	0
8. AIR SAMPLER (LO VOL) 1 - 4 CFM	18	1
9. AIR SAMPLER (HI VOL) 4 - 40 CFM	9	1

TABLE 5

Miscellaneous Rad Monitoring

Item	Location	FSAR	On Hand
1. SRD(1) - 200 MREM	H.P.O.(2)	500	120
2. SRD - 500 MREM	H.P.O.	250	0
3. SRD - 1 REM	H.P.O.	100	50
4. SRD - 5 REM	H.P.O.	50	20
5. SRD - 20 REM	H.P.O.	25	10
6. SRD - 200 REM	H.P.O.	5	0
7. TLD 10^4 REM	H.P.O.	750	0
8. PERSONNEL RAD MONITOR (Audible Alarm)	H.P.O.	18	12
9. PORTAL MONITOR Exit from Controlled Area 15' El. Security Building		5	0
10. W.B.C.		1	1

(1) SRD = Self Reading Dosimeter

(2) H.P.O. - Health Physics Office

Based on the above review, the licensee remains to obtain additional instrumentation in order to meet FSAR commitments.

The inspector indicated this matter will be reviewed during a subsequent inspection prior to fuel load (50-322/81-19-19).

(2) Area Radiation Monitoring

Documents Reviewed

System Description No. 1020.631, "Radiation Monitoring"

System Description No. 1020.640, "Area Radiation Monitoring."

The inspector determined that an Area Radiation Monitoring System (described in FSAR Section 12.3.4) was installed. The system consists of 41 gamma detectors (30 General Electric (G.E.) and 11 Nuclear Measurements Corporation (NMC)). Approved operation and calibration procedures were available for the G.E. supplied systems. Draft calibration procedures were in place for the NMC units.

The inspector indicated that the calibration of the area radiation monitoring system would be reviewed during a subsequent inspection prior to fuel load (50-322/81-19-20).

7. Radioactive Waste Management

The inspectors reviewed selected portions of the licensee's Radioactive Waste Management Program with respect to: SNPS FSAR Chapter 11, "Radioactive Waste Management;" Chapter 12, "Radiation Protection;" Chapter 13, "Conduct of Operations;" and Chapter 14, "Initial Tests and Operations."

Documents Reviewed

System Description No. 1020.714, "Radwaste Offgas Treatment System"

System Description No. 1020.715, "Process Sampling System"

System Description No. 1020.716, "Liquid Radwaste Recovery System"

System Description No. 1020.710, "Low Conductivity Liquid Radwaste"

System Description No. 1020.712, "Regenerant Chemical Liquid Radwaste"

System Description No. 1020.711, "High Conductivity Liquid Radwaste"

System Description No. 1020.718, "Liquid Radwaste Spent Resin"

System Description No. 1020.719, "Liquid Radwaste Evaporator Bottoms"

SNPS Procedure SP-23.716.01 Revision 2, "Liquid Radwaste Recovery," dated October 30, 1981

SNPS Procedure SP-23.718.01 Revision 1, "Liquid Radwaste Spent Resin," dated December 21, 1979

SNPS Procedure SP-23.719.01 Revision 0, "Liquid Radwaste Evaporator Bottoms," dated December 1, 1977

SNPS Procedure SP-71.002.01 Revision 1, "Radiochemistry Section Policy and Objectives," dated August 3, 1978

SNPS Procedure SP-12.002.01 Revision 4, "Organization and Administration," dated December 31, 1979

SNPS Procedure SP-12.003.01 Revision 7, "Personnel Qualifications and Responsibilities," dated September 7, 1981

System Description No. 1020.713, "Radioactive Solid Waste System"

System Description No. 1020.717, "Liquid Radwaste Discharge"

SNPS Procedure SP-23.717.01 Revision 0, "Liquid Radwaste Discharge," dated May 1, 1978

SNPS Procedure SP-23.715.01, Revision 1, "Sampling System," dated August 13, 1980.

a. Program Responsibility

The responsibilities for implementing various aspects of the Radioactive Waste Program were assigned to various departments including Radiochemistry, Health Physics, Operations, and Maintenance. No individual however, had been assigned the overall responsibility for coordinating Radioactive Waste Program activities.

Procedures SP No. 12.002.01 and SP No. 12.004.01 indicated that the Radiochemistry Engineer was delegated the responsibility for monitoring all plant gaseous and liquid effluents. The oversight of solid radioactive waste system operation, solid radioactive waste packaging, and transportation of radioactive waste were not identified in either procedure.

The inspector discussed the above with licensee representatives. The discussions indicated an individual would be assigned to oversee Radioactive Waste operations (50-322/81-19-21).

b. Liquid and Gaseous Waste

The inspector review of this area indicated that the licensee is in the process of completing liquid and gaseous waste system operating procedures. These procedures were being developed from the start-up tests of the various systems. No estimated completion date was given for the procedures other than they would be completed by fuel load.

The inspector verified through visual inspection that the major components of the liquid and gaseous waste system (described in FSAR Section 11.2 and 11.3) were installed.

The inspector indicated the Liquid and Gaseous Waste Program will be reviewed during a subsequent inspection prior to fuel load. (50-322/81-19-22)

c. Solid Radioactive Waste

The inspector's review of this area indicated the performance tests for the Solid Waste System are scheduled to be performed between June and August 1982. The system is expected to be operational by September 1982.

The licensee is reviewing the method to be used to package any solid waste, i.e., paper, contaminated equipment.

The review indicated no Solid Radioactive Waste Handling, Storage and Transportation Program (including Quality Assurance program) has been established.

The inspector indicated the solid radioactive waste system will be reviewed during a subsequent inspection prior to fuel load (50-322/81-19-23).

d. Effluent Monitoring/Control

The inspector's review of this area indicated all process and effluent monitoring instrumentation has not been installed. Operating and calibration procedures were in place for the Main Steam Line and Reactor Building Refueling Level Exhaust Monitor. However, procedures remained to be developed for the majority of the monitors. This included procedures for calibration and functional testing of the monitors.

During the review, the inspector noted that the liquid radioactive waste monitor system logic apparently did not isolate the liquid effluent line on detector failure. This was discussed with licensee representatives who indicated the matter would be reviewed and appropriate corrective action taken (50-322/81-19-24).

8. Exit Interview

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection. The inspector summarized the purpose, scope, and findings of the inspection.

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Radiation Protection Organization

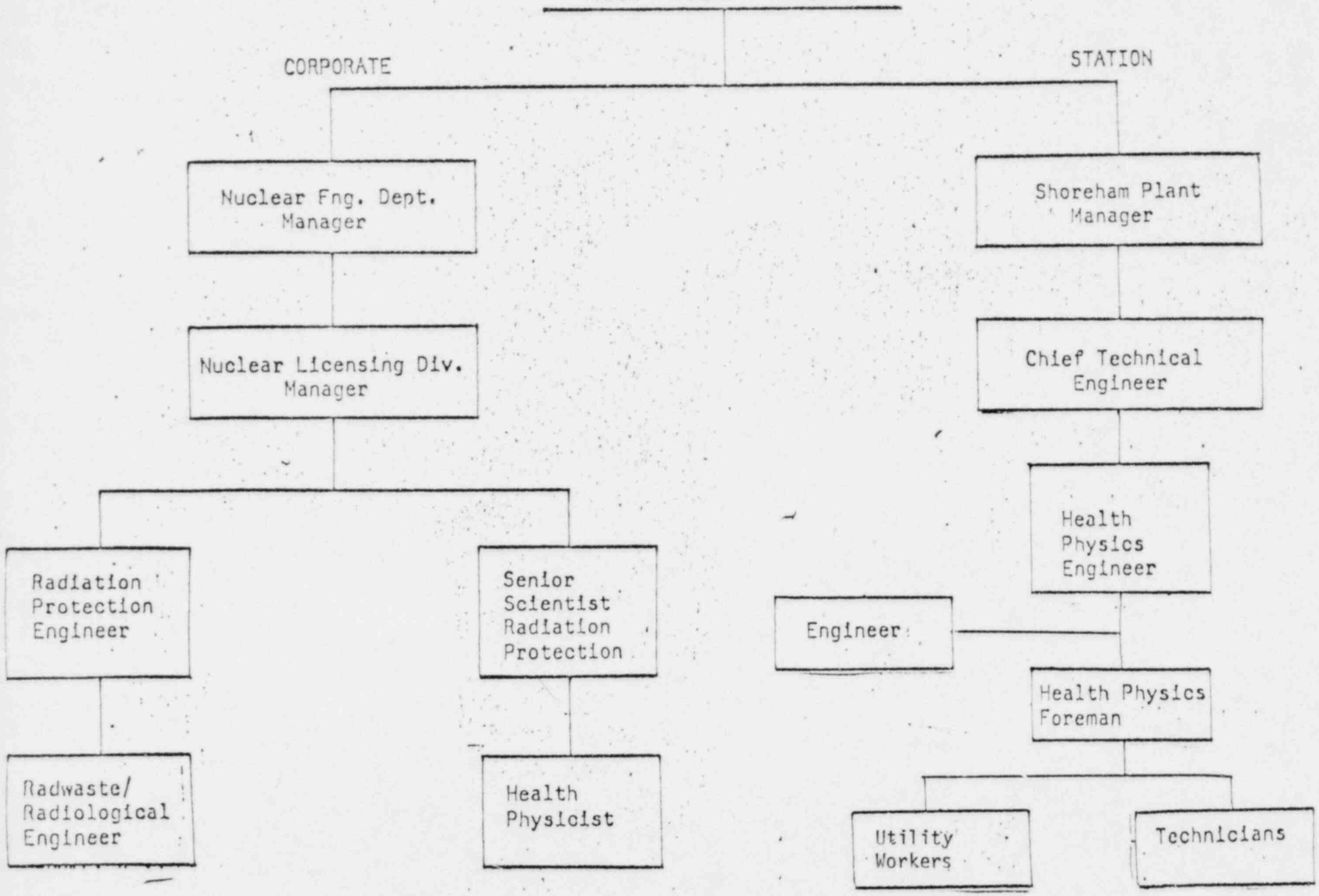

FIGURE 1

Annex to NRC Region I Inspection Report

Shoreham Nuclear Power Plant
Pre-operational Inspection
(Radiation Protection/Radioactive Waste)

The initial site visit identified the following matters which should be addressed by the applicant prior to fuel load.

A. Radiation Protection Organization

The review of this area identi ed the following:

- The current Radiation Pr tion organization staffing level is not adequate to support fuel load activities. (Section 3.b.)

- The responsibilities and authorities of all members of the Radiation Protection organization is not described. In addition, several positions are described by stationwide, generic descriptions (Section 3.c.).

B. Selection, Qualification and Training

The review of this area identified the following:

- Selection and qualification criteria has not been established for all positions in the Radiation Protection Organization. In addition, the criteria for certain positions is not consistent with established standards. (Section 4.2, 4.b)

- The current Radiation Protection Technician Training Program does not include uniform acceptance criteria for evaluation of a technician's ability to implement procedures (Section 4.b).

C. Exposure Control

The review of this area identified the following:

1. External Exposure Control

- The permanent External Exposure Monitoring Program is not fully established. In additional all necessary equipment is not on-hand (Section 5.a).

2. Internal Exposure Control

- Internal exposure evaluation procedures contain incorrect investigation levels and provide no guidance for initiation of bioassay sample collection. In addition, no Quality Assurance Program exists for the Bioassay Program (Section 5.b).

3. Exposure Evaluations

- The current exposure evaluation procedures do not address notifications to NRC in accordance with 10 CFR 50.72 (Section 5.c).

4. Exposure Records

- The exposure records program is not fully established (Section 5.d).

5. Respiratory Protection Program

- An approved respiratory program is not in place. In addition, the use of engineering controls instead of respiratory protection is not adequately addressed (Section 5.e).

D. Facilities and Equipment

The review of this area identified the following:

- All FSAR described instrumentation was not yet on site (Section 6.b(1))

- Calibration and operation procedures remain to be established and approved for all area radiation monitoring equipment (Section 6.b(2)).

E. Radioactive Waste Management

The review of this area identified the following:

- An individual had not been assigned to coordinate Radioactive Waste Program activities including solid radioactive waste system operation, radioactive waste handling and packaging, and radioactive waste transportation (Section 7.a.)

- A Solid Radioactive Waste Handling, Storage and Transportation Program (including quality assurance) has not been established. (Section 7.c).