U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-352/93-32
50-353/93-32

Docket Nos. 50-352
50-353

License Nos. NPR-39
NPR-85

Licensee: Philadelphia Electric Company
Correspondence Control Desk
P.O. Box 195
Wayne, PA 19087-0195

Facility Name: Limerick Nuclear Generating Station, Units 1 and 2

Inspection At: Limerick, Pennsylvania

Inspection Conducted: November 29 - December 3, 1993

Inspector: RL Nimitz 1/21/94
R. L. Nimitz, CHP, Senior Radiation Specialist date

Approved by: JW Payne for 11/21/94
R. Bores, Chief, Facilities Radiation Protection Section date

Areas Inspected: Announced inspection of the radiological controls program at Units 1 and 2. Areas reviewed included preparation and planning for the Unit 1 refueling outage, radiological controls program enhancements, receipt and handling of slightly irradiated fuel from the Shoreham Nuclear Power Station, routine radiological controls performance, High Radiation Area access controls, and radioactive material and contamination controls. The inspector also reviewed the circumstances surrounding and corrective actions taken following identification of unauthorized entries by personnel into an area posted as a High Radiation Area (Unit 1 Safeguards Room 309).

Results: Radiological controls planning and preparation for the upcoming outage at Unit 1 were very good, as were the radiological controls for the receipt and handling of slightly irradiated fuel from Shoreham. The inspector noted continuing initiatives by the licensee to enhance the radiation protection program. Overall controls for radioactive material and contamination were generally good, however areas for improvement were identified. Areas for improvement of

administrative controls of keys for locked High Radiation Area controls were also identified in that multiple key sets were available that were not identified on key inventory sheets. All keys were present and key inventory sheets were revised to reflect current key inventories.

The inspector's review of radiological controls for the on-going mini-outage at Unit 1 indicated that, overall, effective radiological controls were implemented for the work activities reviewed. An apparent violation of Technical Specification 6.11 was identified involving one individual who was not properly signed in on the applicable radiation work permit. In addition, three examples of an apparent violation of Technical Specification 6.11 were also identified in that three individuals made separate unauthorized entries into an area posted as a High Radiation Area (Unit 1 Safeguards Room 309).

DETAILS

1.0 Individuals Contacted During Inspection

1.1 Licensee Personnel

* R. Boyce, Plant Manager
* D. Helwig, Vice-President, Limerick Generating Station
* G. Murphy, Manager Radiation Protection
  D. Neff, Regulatory Engineer
  J. Risteter, Manager Radiological Engineering
  R. Scott, Project Manger
* G. Stewart, Engineer-Experience Assessment

* Denotes those individuals attending the exit meeting on December 3, 1993.

The inspector also contacted other licensee individuals during the course of this inspection.

1.2 NRC Personnel

* T. Easlick, NRC Resident Inspector
* R. Temps, Project Engineer

* Denotes those individuals attending the exit meeting on December 3, 1993.

2.0 Purpose and Scope of Inspection

This was an announced inspection of the radiological controls program. Areas reviewed during the inspection were important to health and safety and included the following.

- preparation and planning for the Unit 1 refueling outage
- radiological controls program enhancements
- receipt of fuel from the Shoreham Nuclear Generating Station
- routine radiological controls performance
- high radiation area controls
- radioactive material and contamination controls
- unauthorized entries into a posted High Radiation Area

3.0 Planning and Preparation for the Refueling Outage

3.1 General

The inspector reviewed the licensee's planning and preparation for the upcoming Unit 1 refueling outage. The outage is scheduled to commence on January 28, 1994, and last approximately 42 days. The evaluation of licensee's performance in this area was based on review of documentation and discussions with cognizant personnel.

The following matters were discussed.

- increase in staffing of the radiological controls organization, including station's method of ensuring supervisory control of contracted radiation protection personnel
- qualifications of personnel
- special training including use of mock-ups
- increased supplies and shielding
- radiation protection personnel review of work packages and dose reduction methods
- exposure goals development and monitoring
- availability of portable ventilation systems to minimize use of respiratory protective equipment
- use of lessons learned from post-job evaluations of completed work activities particularly those that contributed the majority of total aggregate exposure during previous outages
- personnel contamination control efforts, and
- station contamination controls.

The inspector also reviewed selected aspects of the licensee's ALARA Program to support the outage. The review was with respect to criteria contained in the following:

- 10 CFR 20.1, Purpose;
- Regulatory Guide 8.8, Information Relevant to Ensuring that Occupational Radiation Exposure at Nuclear Power Stations will be As Low As Is Reasonably Achievable;
- Regulatory Guide 8.10, Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As is Reasonably Achievable;
- NUREG/CR-3254, Licensee programs for Maintaining Occupational Exposure to Radiation As Low As Is Reasonably Achievable;
- NUREG/CR-4254, Occupational Dose Reduction and ALARA at Nuclear Power Stations; Study on High Dose Jobs, Radwaste Handling and ALARA Incentives.

3.2 Findings

The following observations were made by the inspector.

- The licensee plans to augment the radiation protection staff with 50 senior level (ANSI qualified) and 18 junior level (non-ANSI qualified technicians). The technicians will be supervised by licensee personnel.

- Areas of the station were assigned to dedicated work teams to plan work in the assigned areas. The licensee assigned a "management sponsor" to each team. Essentially all major work was reviewed from a radiological controls perspective and applicable radiation work permits drafted.

- Mock-ups were being used to enhance work planning and training of workers. Mock-ups available included undervessel mock-ups, valve mock-ups, and control rod drive mock-ups.

- Lessons learned from previous outages were being incorporated into the outage planning (e.g., work on traversing incore probe (TIP) tubing).

- Twenty new portable ventilation systems were obtained for use during the outage.

- The licensee obtained and plans on using remote read-out continuous air monitors to provide for remote monitoring of work location airborne radioactivity levels.

- The licensee's personnel contacted other stations for assistance on specific planning matters (e.g., use of ventilation systems). Of particular note was the licensee's efforts to incorporate program enhancements identified during a recent visit to a Swedish BWR facility. A detailed action list of potential program enhancement items was developed from the visit.

- Since the outage would be conducted following required implementation of the revised 10 CFR Part 20, the licensee was actively training station personnel on the changes to 10 CFR Part 20. Contractor personnel were also to be provided appropriate training on the revised 10 CFR Part 20.

Based on the above review, the inspector concluded that the licensee's planning and preparation for outage work tasks was very good.

Within the scope of this review, no safety concerns or violations were identified.

4.0 Program Enhancements

The inspector reviewed the licensee's on-going efforts to enhance the radiation protection program. The following observations were made.

- The licensee continues to pursue enhancements to the radiological controls program. For example, the following enhancements were initiated by the licensee.

  - The licensee developed a radiological occurrence program issue assessment plan. The plan provided for a comprehensive review of radiological occurrences and development of program enhancement initiatives.

  - The licensee initiated actions to improve the routine surveillance program through establishment of a radiation survey standard.

  - The licensee developed a performance improvement plan for radiation work permit paperwork.

  - The licensee implemented a shiftly radiation work permit audit program.

- The licensee continues to maintain and implement the radiological controls continuous improvement plan. The plan originally identified about 172 items (Phase I Items) for potential enhancement. Phase I items principally were associated with the Unit 2 fuel leak and the Unit 2 Refueling outage. These items principally involved items for enhancement identified through, for example, self-audits or NRC inspections. The general objectives of the Phase I program were to assess the existing program, establish new management and a mission for the program, enhance radiological awareness of the station, and address the Unit 2 fuel leak and establish a post Unit 2 outage improvement plan. Of the 172 Phase I items, about 14 remain open.

  An additional 106 items were generated during Phase II of the plan. The Phase II items were principally associated with post-Unit 2 outage continuing improvement initiatives. The general objectives of the Phase II program were to improve the organizational structure of the radiological controls organization and provide more detailed expectations and job performance standards to improve technician skills and more clearly delineate radworker roles and responsibilities. Phase II generated about 106 items of which 34 remain open. The remaining items from Phase I and Phase II are being tracked.

- The licensee developed a Human Factors Action Plan. The plan is being used to enhance performance in the radiological controls posting area.

- The licensee's Independent Safety Engineering Group (ISEG) performed an evaluation of the corrective action process to identify opportunities to improve the effectiveness of developing and implementing corrective actions and provide recommendations to the station. The evaluation was issued in November 19, 1993.

Based on the above review, the inspector concluded that the licensee was aggressively attempting to identify areas for enhancement in the radiological controls program.

No safety concerns or violations were identified.

5.0 Receipt of Fuel from the Shoreham Nuclear Power Station

The inspector reviewed the licensee's fuel receipt and cask handling activities. The licensee receives slightly irradiated fuel from the Shoreham Nuclear Power Station. At the time of this inspection the licensee received shipment No. 14 of 33 planned shipments. The review was with respect to applicable station procedures.

The inspector made selected independent radiation measurements of the shipment cask for shipment No. 14 upon its arrival. The inspector also inter-compared all radiation survey and contamination survey measurements made at the Shoreham Station to support the shipment with those surveys made at the Limerick Station to support cask handling and unloading.

The following matters were reviewed.

- initial arrival of the shipment via rail
- inspection and surveying activities prior to transport of the shipment into the protected area
- transfer of the shipment into the reactor building and subsequent transfer to the refueling floor
- all arrival radiation and contamination surveys for shipment No. 14 and all previous shipments.
- shipping packages for selected empty casks shipped back to Shoreham including all applicable radiation and contamination surveys
- qualification and training of selected personnel authorized to provide radiological controls for the shipping activities.

No safety concerns or violations were identified. Overall licensee controls of receipt, cask handling, and shipping activities was considered to be of high quality.

8.0 External and Internal Exposure Controls

The inspector reviewed the implementation and adequacy of radiological controls at Limerick Units 1 and 2.

The evaluation of the licensee's performance was based on discussions with cognizant personnel, independent inspector observations during tours of Limerick Units 1 and 2, observations of on-going work activities, and review of documentation.

The inspector's review principally focused on review of work activities at Limerick Unit 1, which was experiencing a mini-outage.

During the inspector's tours and discussions, the following elements of the licensee's external and internal exposure control program:

- posting, barricading and access control, as appropriate, to Radiation, High Radiation, and Airborne Radioactivity Areas;
- personnel adherence to radiation protection procedures, radiation work permits, and good radiological control practices;
- use of personnel contamination control devices;
- use of dosimetry devices;
- use of respiratory protection equipment (as appropriate);
- installation, use and periodic operability verification of engineering controls to minimize airborne radioactivity;
- records and reports of personnel exposure;
- adequacy of radiological surveys to support pre-planning of work and on-going work;
- adequacy of supply and performance checks of survey instruments; and
- worker and technician knowledge of radiological conditions.

The review was with respect to criteria contained in applicable licensee procedures and 10 CFR 20, Standards for Protection Against Radiation.

The inspector reviewed the following work activities.

- hydrolazing of condenser tubes on the Unit 1 "C" waterbox (Unit 1 Turbine Building 217' elevation)

- work on the high pressure coolant injection (HPCI) pump vacuum tank level gauge (Unit 2 177' elevation)

- fuel inspection activities (Unit 1/2 refueling floor)

- work on Unit 1 west bank hydraulic control units (Reactor Building 253' elevation)

The inspector's review indicated that overall, very good radiological controls were provided for the work activities reviewed. Radiological surveys and controls were appropriate for the tasks. Technicians and workers were knowledgeable of radiological conditions.

The following apparent violation was identified.

- The inspector's review of on-going fuel inspection activities on the Unit 1/2 refueling floor on November 29, 1993, at 3:30 p.m. identified that the radiological controls technician, suited in protective clothing and performing on-going surveys for fuel inspection activities, was not properly signed in on the applicable radiation work permit (No. 93-0035, Revision 3, Perform Fuel Inspection Activities and Unpacking in the Spent Fuel Pool) for the activity. Specifically, the technician had not signed the "compliance sheet" for the permit, as required by Procedure A-C-107, Revision 0. Section 7.7.4 of A-C-107 requires that the RWP compliance sheet be signed to indicate that the worker has read, understood, and will comply with the RWP requirements. The individual was, however, signed in on the computer access log (live-time access control) at the time. The individual was immediately informed of the need to be signed in on the RWP compliance sheet by a radiation protection supervisor and directed to sign the RWP compliance sheet. The individual, according to the licensee, was well aware of the RWP requirements and believed he had signed the permit. The licensee subsequently performed a complete inventory of all Refuel Floor RWPs to identify any additional examples. None were found. The inspector noted that failure to adhere to the radiation protection procedure was an apparent violation of Technical Specification 6.11 which requires adherence to radiation protection procedures.

  The inspector noted the violation was of minor safety consequence and it was corrected immediately. However, similar observations, also associated with work on the refueling floor, had been made by the NRC during an inspection in January 1993. (Reference NRC Combined Inspection Nos. 50-352/93-04; 50-353/93-04). A non-cited violation was issued for the previous observations. The inspector reviewed this violation relative to NRC's Enforcement Policy (10 CFR Part 2, Appendix C., Section VII.B.1). In light of recurrence of this matter, the inspector concluded that this violation should be cited. (50-352/353-93-32-01)

The following additional observation was made.

- Inspector review of work on the high pressure coolant injection (HPCI) pump vacuum tank level gauge (Unit 2 177' elevation) identified that the individual performing the work apparently expected the tank to be drained. When the individual found the tank to be full, the inspector noted that the individual did not inform the operations group of the apparent full tank and his expectations that the tank was to be drained. Rather, the individual initiated actions to drain the tank and inform radiation protection for support. The inspector informed licensee representatives who indicated that this matter would be reviewed.

9.0 Radioactive Material Control and Contamination Control

The inspector reviewed the adequacy and effectiveness of radioactive material, contaminated material, and contamination controls at Units 1 and 2. The following matters were reviewed.

- personnel frisking practices
- use of proper contamination control techniques at work locations, including control of hot particles
- posting and labeling (as appropriate) of contaminated and radioactive material
- efforts to reduce the volume of contaminated trash including steps to minimize introduction of unnecessary material into potentially contaminated areas, and
- adequacy of contamination surveys to support planning for and support of on-going work

The evaluation of the licensee's performance in this area was based on independent observations by the inspector and discussions with cognizant personnel. The inspector observed personnel frisking practices and observed surveys and release of materials at radiological control access points.

The inspector's review indicated that, overall, control of radioactive and contaminated material appeared good. However, opportunities for improvement, as demonstrated by the following observations, were identified.

- On November 30, 1993, at 9:00 a.m., the inspector observed a Chemistry Technician reach into a radiological control area (RCA) at the entrance to the Unit 2 turbine building to obtain ear plugs. The rope boundary had dropped and was apparently not observed by the technician. The individual subsequently entered the RCA. The individual was later counseled. The ear plugs had apparently been moved due to work in the area. A new ear plug dispensing area was established outside the boundary.

As a result of other identified weaknesses in postings, the licensee has taken action to enhance the posting in the RCA. (See Section 11 of this report.)

- On November 30, 1993, at 9:00 a.m. sections of safety railings were protruding out of the RCA and touching personnel clothing (coats) at the access area to the unit 2 turbine building. The coats were frisked and moved. The safety railings were move back into the RCA.

No violations were identified. The inspector's review indicated overall contamination controls were good but areas for improvement were identified.

10. High Radiation Area Controls

10.1 General

The inspector reviewed the licensee's High Radiation Area Access Controls. The review was with respect to criteria contained in applicable Technical Specifications and licensee procedures. Areas reviewed were posting and barricading, locking access points (as appropriate), key controls, and general access controls.

The evaluation of the licensee's performance in this area was based on discussions with individuals, independent review of access controls during station tours, and review of procedures.

10.2 Findings

The licensee maintains two different key sets for High Radiation Area Access Controls. One set (Level I keys) provides access to areas with radiation dose rates between 1 R/hr and 10 R/hr. A second set (Level II keys) provides access to areas with radiation dose rates greater than 10 R/hr. The inspector's review of key accountability at the Health Physics field office indicated the following.

- A second complete set (@ 25 keys) of Level I keys was not included on inventory tally sheets. All keys were present however, and they were being inventoried.

- A second complete set (7 keys) of Level II master keys was not included on inventory tally sheets. These keys also were being inventoried and were all present.

- Two sets of different keys were both labelled B-22. One set was apparently keys used for padlocks.

- The licensee's procedures do not provide any guidance to the staff as to actions to be taken following loss of a master key to locked High Radiation Areas. Loss

of a master key results in loss of control of all locked High Radiation Areas accessed by the master key.

The licensee immediately updated the inventory tally sheets to reflect the correct key inventory. The inspector verified that the inventory tally sheets were updated on December 3, 1993. Since the licensee did perform audits and inventory of keys not listed on the inventory, all keys were present and accounted for, and the keys were under the administrative control of radiological controls personnel, no violation was identified. However, lack of a complete key inventory was considered a weakness that was promptly corrected by the licensee. The licensee indicated the matter associated with actions to be taken following loss of a master key would be reviewed.

The inspector's independent check of access controls during station tours indicated that locked High Radiation Areas were properly secured and posted.

No violations were identified.

11.0 Unauthorized Entries Into A posted High Radiation Area

11.1 General

On November 19, 1993, the licensee determined that a firewatch (Firewatch C) had entered a posted High Radiation Area (Room 309 in the Unit 1 reactor building) in apparent violation of radiation protection program requirements. Subsequent licensee review determined that two other firewatches (Firewatch A and Firewatch B) also entered the room in apparent violation of radiation protection program requirements.

The inspector reviewed the circumstances surrounding the entries, the magnitude of potential unplanned radiation exposures (external and internal) of the firewatches, and the licensee's corrective actions. The inspector also reviewed the preliminary findings of the licensee's incident review team chartered to review the unauthorized entries into the posted High Radiation Area.

The evaluation of the licensee's performance in this area was based on discussions with cognizant personnel, tours of the areas entered by the firewatches, review of radiation survey data and radiation work permits, and review of written statements.

11.2 Background

During operation of either the high pressure coolant injection (HPIC) system or the reactor core isolation cooling (RCIC) system, Room 309 on the 217'elevation of the Unit 1 Reactor Building (normally a Radiation Area), is re-posted as "High Radiation Area, RWP Required-No Entry". The re-posting is performed due to increased radiation dose rates in the room from reactor steam (HPCI or RCIC) passing through pipes in the room.

Both doors (No. 199 and 190) to the room are normally re-posted in anticipation of RCIC and HPIC runs, before actual start of the systems. The RWP for general access to the area (RWP No. 93-05326-01) is also normally suspended, thereby prohibiting general access into the room. The additional controls are specified in RWP No. 93-06057, which provides radiological controls for test running of the RCIC system. When the systems are not running, the doors are de-posted and access can be gained through either door. Rope boundaries were installed in the room to limit access to piping therein.

11.3 Specifics

In anticipation of a planned RCIC run on the morning of November 19, 1993, the existing RWP (No. 93-05326-01) for access to Room 309 in the Unit 1 reactor building was suspended at 9:48 a.m. that morning, thereby preventing access using the permit. Also, the two doors to Room 309 were re-posted at 11:00 a.m. as "High Radiation Area - RWP Required." The RCIC system was tested from 11:15 a.m. to 12:03 p.m.

Following the RCIC run (11:15 a.m. to 12:03 p.m.) a radiation protection technician was assigned to resurvey the room, remove the additional posting, and re-activate the suspended general access RWP for the room. While preparing to perform surveys shortly before 1:35 p.m., to check radiation levels prior to de-posting, the technician observed a firewatch (Firewatch C) attempting to enter the room through door 199 to Room 309, despite the door being posted as a "High Radiation Area - RWP Required." The radiation protection technician directed the firewatch's attention to the posting. The firewatch was also informed not to enter the area.

Because of the need to perform his firewatch duties, the firewatch contacted his supervisor and requested instructions. The supervisor suggested to the firewatch that he check the other door and perform his assigned watch duties if entry could be gained from the other door.

> Note: Unknown to the supervisor, the other door (No. 190) was also posted "High Radiation Area-RWP Required."

The firewatch (Firewatch C) subsequently entered Room 309 at 1:35 p.m. on November 19, 1993, via door no. 190, apparently not noticing that this door also was posted "High Radiation Area-RWP Required."

> Note: According to RWP instructions, the doors to Room 309 were to be posted as "High Radiation Area, RWP Required-No Entry."

While in the room, the firewatch (Firewatch C) encountered the radiation protection technician who was at the far end of the room performing radiation surveys to support de-posting of the room. The technician directed the firewatch to exit the room and initiated a radiological occurrence report due to violation of postings. The individuals

exited via door 190. The firewatch was not on an approved RWP for entry in to the room. Subsequent to the surveys, the two doors to Room 309 were de-posted at 2:35 p.m. that day.

11.4 Licensee Actions

Subsequent to identification that the firewatch (Firewatch C) had entered into Room 309 in the Unit 1 Reactor Building in apparent violation of door postings, the licensee took the following immediate and long-term corrective actions.

- The licensee assembled a multi-discipline team to perform a review of the event, identify root causes, and recommend corrective actions.

- The firewatch (Firewatch C) that was identified inside Room 309 was counseled. In addition, he was restricted from the protected area.

- Radiation Work Permit (RWP) No. 93-06057, which provided radiological controls for running of the RCIC, was revised on November 23, 1993, to require enhanced posting and access control to Room 309. Specifically, it was revised to require that stations, placards and rope boundaries be placed in front of the doors to the room. It also provided guidance for notifying security personnel of a change in status of room.

- The licensee reviewed computer access print-outs for the room. Two other firewatches (Firewatch A and Firewatch B) were determined to have entered the room subsequent to the 11:00 a.m. posting of the door. Firewatch A entered the room at 11:35 am. and Firewatch B entered the room at 12:35 p.m. on the same day and prior to its de-posting, also in apparent violation of the door postings.

  Note: Preliminary inspector discussions with licensee personnel indicated that the RCIC run occurred between 11:15 a.m. and 12:03 p.m. on November 19, 1993.

  The two fire watches (Firewatches A and B) were counseled prior to their resumption of job responsibilities. The counseling included remedial training on radiation protection practices and management expectations.

- A personnel exposure assessment for the two individuals was performed. Although radiation dose rates for Room 309 were not available during actual running of HPCI or RCIC, the licensee used measured radiation dose rates from the RCIC Room on elevation 177' to estimate potential exposures. The dose rates in the room were determined with the RCIC system running. No significant radiation dose rates were encountered. The additional exposure was determined to be minimal. A general area airborne radioactivity sample was collected in the

room from 11:15 a.m. to 11:45 a.m. on the same day. No significant airborne radioactivity was identified.

- On November 19, 1993, a generic announcement was made to the work force that performs firewatch duties. The announcement addressed the event and the actions that should have occurred.

- On November 22, 1993, shift stand-downs were initiated to emphasize the importance of radiological controls and to ensure the process for complying with radiation boundaries was understood.

- Radiation protection management committed to notify the firewatch group of changes in postings of Room 309. Also, rope barricades and stations will be placed in front of the doors to ensure personnel are aware of the potential changed conditions within the room.

- A lessons learned bulletin was posted in all firewatch group assembly areas. The bulletin describes the event and corrective steps to prevent recurrence.

- Guidance documents for firewatch personnel were revised to include enhancements to ensure management/supervisory evaluation, from a radiological controls perspective, of all new fire barrier deficiencies.

- A detailed review of door access print-outs during previous HPCI/RCIC runs for Units 1 and 2 was performed to ensure personnel complied with access control requirements. The review extended back for a six month time period (to May 1993) and did not identify any similar concerns.

- The radiation protection technician who posted the doors to Room 309 as "High Radiation Area-RWP Required" instead of High Radiation Area, RWP Required-No Entry" was counseled on attention to detail regarding adherence to RWP coverage requirements.

- Action was initiated by the Industrial Risk Management organization to review and implement improvements to ensure timely correction of fire barrier deficiencies. The work task, which had resulted in the need for the firewatch, had been completed 24 hours prior to the entry of the firewatch personnel into the area.

- On December 3, 1993, the licensee held briefings with appropriate station groups who perform repetitive tasks in areas that are subject to a temporary changes in radiological conditions. The briefings addressed attention to detail of postings and management expectations regarding adherence to radiological postings.

- On December 3, 1993, the licensee issued a station wide bulletin that described the event and highlighted the need to be aware of postings and adhere to the posting requirements.

11.5 NRC Review

The inspector's review indicated the following.

- No significant external or internal exposure of firewatch personnel occurred during their unauthorized entry into Room 309. The inspector's review indicated that radiation levels in the area were such (based on licensee calculations and inspector reviews) that no substantial potential for a significant personnel exposure was present.

- The inspector independently reviewed previous entries into the both the Unit 1 and Unit 2 Safeguards Rooms for the past 6 months and verified compliance with applicable radiation work permit and High Radiation Area access control requirements.

- At the time of the inspection, the licensee had not yet issued the final evaluation report by the multi-disciplined review team. However, the inspector's review of the preliminary report indicated the review was comprehensive.

  The inspector noted that immediate corrective actions taken appeared appropriate and comprehensive. The licensee had also initiated long term corrective actions as discussed above. However, since the licensee had not yet issued the final evaluation report, the inspector was not aware of the scope and depth of all long term corrective actions.

- The inspector's review of the circumstances surrounding the entries, review of the licensee's investigation, discussions with personnel and review of signed statements did not indicate apparent willfulness associated with the unauthorized entries. It appeared that the firewatches did not notice the change in postings of the doors to room 309.

The inspector identified the following apparent violations.

- Unit 1 Technical Specification 6.11 requires, in part, that procedures for personnel radiation protection be prepared consistent with the requirements of 10 CFR Part 20 and be adhered to for all operations involving personnel radiation exposure.

Procedure A-C-107, Revision 1, Radiation Work Permit Program and Radiological Controlled Area Access Requirements, states in Section 5.0 that all workers are responsible for complying with established posting in the radiological controlled area (RCA). Further, Section 7.6 of the same procedure states that personnel requiring access on a radiation work permit (RWP) shall proceed to the Access Control Building/Health Physics Field Office and inform Health Physics of the activity to be performed in the RCA.

The inspector noted that despite both doors (No. 199 and 190) to Room 309 in the Unit 1 reactor building being posted as a "High Radiation Area-RWP Required," three firewatches made separate unauthorized entries into the room at 11:35 a.m., 12:35 p.m., and 1:35 p.m., respectively on November 19, 1993, and did not comply with the posting. Specifically, the individuals did not obtain the required RWP and did not inform Health Physics of the activity to be performed. The unauthorized entries represent violations of Technical Specification 6.11. (50-352/353-93-32-01)

The inspector noted that these apparent violations were identified by the licensee and that immediate corrective actions, as discussed above, were taken. Certain long term corrective actions were also taken as discussed above. The inspector's review indicated that no significant personnel exposures occurred. In addition, no recent problems with High Radiation Area access controls were identified that might have served as precursor events for which corrective actions reasonably could have been expedited to prevent the November 19 events.

The inspector noted that the apparent inadvertent entry of three individuals, on separate occasions, into a posted High Radiation Area without meeting posted High Radiation Area access control requirements was a significant matter. Consequently, the inspector concluded that this is a violation of Technical Specification 6.11.

In addition, the following observations were made by the inspector.

- The RWP Survey/Coverage Additional Requirements Form, appended to the RWP for running the RCIC, stated that a lapel air sample shall be taken. No lapel air sample was taken. The inspector noted that, in addition to the firewatches who entered the room, a radiation protection technician also entered the room controlled by the permit. A general area air sample was taken, however, which indicated no significant airborne radioactivity.

- The RWP Survey/Coverage Additional Requirements Form also required that the room be posted "Hi Rad, RWP Reqd, No Entry." The inspector noted that the

area was not posted with a "No Entry" sign. The room was posted "High Radiation Area-RWP Required."

The above observations indicated apparent inattention to detail. The licensee indicated that the above observations would be reviewed. The license's review had identified the apparent incorrect posting.

12.0 Station Tours

The inspector toured the station periodically during the inspection. The inspector considered overall housekeeping to be generally very good.

13.0 Exit Meetings

The inspector met with licensee representatives (denoted in Section 1.0) on December 3, 1993. The inspector summarized the purpose, scope and findings of the inspection. The licensee acknowledged the findings.