

U. S. NUCLEAR REGULATORY COMMISSION

050311-851007

REGION I

Report Nos. 50-272/86-01
50-311/86-01

Docket Nos. 50-272
50-311

License Nos. DPR-70
DPR-75

Licensee: Public Service Electric and Gas Company
80 Park Plaza
Newark, New Jersey 07101

Facility Name: Salem Nuclear Generating Station - Units 1 and 2

Inspection At: Hancocks Bridge, New Jersey

Inspection Conducted: January 1, 1986 - January 31, 1986

Inspectors: T. J. Kenny, Senior Resident Inspector
B. M. Hillman, Reactor Engineer
D. F. Limroth, Project Engineer

Reviewed by: D. F. Limroth
D. F. Limroth, Project Engineer
Reactor Projects Section No. 2B, DRP

2/18/86
date

Approved by: L. J. Norrholm
L. J. Norrholm, Chief, Reactor Projects
Section No. 2B, Projects Branch No. 2, DRP

2/20/86
date

Inspection Summary:

Inspections on January 1, 1986 - January 31, 1986 (Combined Report Numbers 50-272/86-01 and 50-311/86-01)

Areas Inspected: Routine inspections of plant operations including: followup on outstanding inspection items, operational safety verification, maintenance, surveillance, review of special reports, licensee event followup, employee concern, and unplanned exposure. The inspection involved 117 inspector hours by the resident NRC inspector and 35 hours by region based inspectors.

Results: No violations are identified in this report. The report discusses two reactor trips and an unplanned exposure of a HP technician.

8603040062 860221
PDR ADOCK 05000272
Q PDR

DETAILS

1. Persons Contacted

Within this report period, interviews and discussions were conducted with members of licensee management and staff as necessary to support inspection activity.

2. Followup on Outstanding Inspection Items

(Closed) Inspector Follow Item (83-BU-07). This item concerns apparently fraudulent products sold by Ray Miller, Inc. The inspector verified that the actions outlined in the licensee's letters of March 14, 1984, and June 14, 1984, satisfied the requirements of Bulletin 83-07 and had been completed. This item is considered closed.

(Closed) Inspector Follow Item (272/84-08-07). This item was opened to track reactor vessel head vent valves to ensure they were incorporated into the Inservice Test program (IST). The inspector has verified that the valves are now part of the IST and considers this item closed.

(Closed) Violation (272/84-23-03). This violation was issued when functional testing was being performed on mechanical snubbers without an approved procedure. The inspector has verified that procedures now exist to perform functional testing of mechanical snubbers. This item is considered closed.

(Closed) Inspector Follow Items (272/84-25-01, 311/84-30-01). This item was opened to track the licensee's review of design changes, safety evaluations and field directives against the vendor manuals and station procedures. The licensee has established a vendor manual review program, now in effect, to review the inspector's concerns. This item is considered closed.

(Closed) Violation (272/84-32-03). This violation was a result of licensee personnel failing to comply with radiological postings. To preclude future incidents of this nature the licensee has implemented mandatory worker attendance for the required pre-work radiological briefing. The inspector has confirmed the licensee's implementation of these actions and has noted an improvement in radiological precautions. This item is considered closed.

(Closed) Inspector Follow Item (272/84-36-03). This item was opened when work on 4KV and 480V breakers had been misclassified for maintenance. Recent changes to Maintenance Department planning and several upgrades to the MEL (Material Equipment List) plus the issuance of field directives to clarify equipment classifications closes this item.

(Closed) Violation (272/84-42-06). The licensee failed to provide adequate procedures for maintaining and installing service water expansion joints. The inspector has confirmed the licensee's actions stated in

their letter dated February 21, 1985. The inspector also inspected the procedures, in place, which describe the installation of expansion joints. This item is considered closed.

(Closed) Inspector Follow Item (272/85-03-02, 272/85-03-03). These items were opened to review licensee's actions with regard to personnel errors. Within the past six months the licensee has instituted a disciplinary policy to deal with personnel errors. The inspector has noted that the amount of personnel errors has decreased. The inspector considers these items closed.

(Closed) Inspector Follow Item (272/85-03-04). This item was opened to review licensee corrective actions taken to prevent lapses in the fire protection and housekeeping programs. These actions were in the form of procedural changes requiring increased employee responsibility, management level plant inspections and assignment of departmental housekeeping areas. During recent inspections, the inspector noted an improvement in cleanliness. This item is considered closed.

(Closed) Inspector Follow Item (272/85-07-04, 311/85-07-05). This item was opened after a series of diesel generator failures were identified with the diesel generator overspeed trip device. The inspector has reviewed the revised monthly maintenance procedure and determined the guidance for the overspeed trip device inspection is acceptable. This item is considered closed.

(Closed) Violation (272/85-15-01, 311/85-17-02). This violation was issued because improper "on-the-spot" changes caused the Chemistry Instruction CH-3.5.012 "Gas Decay Tanks Sampling" to be inconsistent with Technical Specifications. The inspector has reviewed the licensee's response to the violation dated September 20, 1985, changes to procedures, and the change to the on-the-spot change procedure. The inspector concludes that the violation has been resolved. This item is closed.

(Closed) Violation (272/85-20-01). This violation was issued when a supervisor failed to quantify the amount of reactor coolant leakage during a leak rate test. The inspector has reviewed the licensee's submittal dated November 15, 1985, and has verified that the licensee has taken the necessary corrective action. This item is closed.

(Closed) Inspector Follow Item (272/85-23-01). This item was opened over concerns of uncorrected, repetitive low flow alarms on the waste gas analyzer. The analyzer is designed to continuously sample various portions of the waste gas system on 3-minute intervals. Insufficient flow from a sample point would cause a low flow alarm; however, it did not prohibit the analyzer from advancing to the next sample point nor

did it indicate which sample point was responsible for the low flow condition. The licensee has installed a design change to place the analyzer on hold when an alarm is received. The licensee has also instituted a troubleshooting guide to assist operators in identifying other analyzer malfunctions should they occur. The inspector considers this item closed.

(Closed) Deviation (311/81-20-01). This item was opened as a result of the licensee's failure to complete sign off requirements in a startup test. The licensee has conducted extensive training to increase the awareness of station personnel to verbatim compliance with procedures and the necessity of thorough review of test results. The inspector has not noted any recurrences. This item is closed.

(Closed) Unresolved Item (311/81-25-02). This item was opened to review licensee evaluation of minimum acceptable current readings on emergency core cooling system vital heat tracing tapes. The licensee determined low current readings were possible on short heat trace tapes and revised its surveillance procedures to inform operators of this possibility and actions necessary to determine reading validity. The inspector considers this item closed.

(Closed) Inspector Follow Item (311/83-13-03). This item was opened to follow licensee's corrective actions to preclude an unintentional boron dilution below 2000 ppm while in the refueling mode. Corrective actions consisted of additional precautions and procedural steps requiring immediate actions should boron concentration fall below 2050 ppm (previous procedures required action to be taken at 2000 ppm). The 2050 ppm limit was picked to give the operator adequate time for corrective actions to correct boron concentrations prior to falling below Technical Specification limits. The inspector considers this item closed.

(Closed) Inspector Follow Item (311/83-19-03). This item was opened to review a licensee evaluation of the intermittent or slow operation of relay actuations for "B" reactor trip breaker. The inspector has reviewed the evaluation and has witnessed subsequent testing of this breaker and considers this item closed.

(Closed) Inspector Follow Item (311/83-24-02 and 83-24-03). These items were opened to review the results of laboratory analysis performed on the charcoal of the fuel handling area and auxiliary building ventilation. The inspector reviewed the results of the laboratory analysis and noted that the results indicated that the charcoal was degraded due to various contaminants which appeared to be from cleaning solvents. The licensee has imposed restrictions on the use of solvents in the facility and replaced the charcoal. This item is considered closed.

(Closed) Inspector Follow Item (311/83-24-05). This item was opened to review an engineering evaluation of a transformer failure on the 4160V Vital Bus. The inspector reviewed the engineering evaluation and Supplemental LER report which delineates an isolated incident. The

inspector could not identify any similar incidents and considers this item closed.

(Closed) Inspector Follow Item (311/83-24-06). This item was opened to review an engineering review of a trip coil limit switch failure on an auxiliary feedwater pump. The inspector reviewed the engineering report and has confirmed that piping was replaced to eliminate water in the area that corroded the switch which prevented operation. The inspector considers this item closed.

(Closed) Inspector Follow Item (311/83-26-02). This item was opened to review the results of licensee review of setpoint drifts on undervoltage relays. The inspector reviewed the licensee's analysis, which concluded that a new, more reliable type of relay would have to be installed. The Design Change Requests have been developed and DCR 1EC-1895 has been scheduled for installation in the next refueling outage of Unit 1 (March 1986), and DCR 2EC-1896 has been completed on Unit 2. The inspector considers this item closed.

(Closed) Violation (311/84-08-02). This violation was issued when the licensee failed to maintain the residual heat removal operating instructions in accordance with Technical Specifications. The inspector has reviewed the licensee's submittal dated April 27, 1984, an engineering evaluation, and a Technical Specification change that changed the safety review process of the stations safety related documents. The inspector verified that the licensee has resolved the violation. This item is closed.

(Closed) Inspector Follow Item (311/84-13-01). This item was opened to review licensee corrective actions following an inadvertent actuation of the pressurizer overpressure protection system while starting a reactor coolant pump. The licensee has revised the procedure on filling and venting the reactor coolant system by requiring pressure to be between 325 and 360 psig prior to starting reactor coolant pumps. This pressure band has provided an adequate safety margin and no other incident of this type has been recorded. The inspector considers this item closed.

(Closed) Violation (311/84-13-04). This violation resulted from licensee failure to correct identified deficiencies in a timely manner, specifically the removal of packing materials and other combustibles from work areas. As a result of this violation, the licensee has aggressively enforced the station combustible material control program. The inspector has not noted a recurrence of this incident and considers this item closed.

(Closed) Inspector Follow Item (311/84-23-03). This item was opened to follow licensee corrective actions after an inadvertent intermediate range high flux trip occurred during a routine reactor shutdown. Subsequent licensee investigations revealed the trip was a result of a conservatively low setting (20% power level) on the high flux trip bistable. The bistable reset value was changed to the 25% power level required by

Technical Specifications and shutdown procedures were modified by requiring a check on bistable reset prior to reducing power below 10%. The inspector considers this item closed.

(Closed) Unresolved Item (311/85-07-02). This item addressed the training program being provided, by the licensee, for work on diesel generators. The inspector noted that the cause for the unresolved item was inadequate maintenance on a service water valve which supplied water to the diesel generator. The inspector has reviewed documentation of training, by the licensee, and notes that training is being conducted for diesel generator work and does not include valve maintenance; however training is being conducted for plant personnel for the maintenance and repair of valves. This item is considered closed.

(Closed) Violation (311/85-07-03). This violation was issued because the licensee failed to maintain procedure 2PD8.1.002, "Rod Position Indication Calibration" in accordance with Technical Specifications. The inspector has reviewed the licensee response to the violation dated June 3, 1985, changes to procedures, and the change to the on-the-spot change procedure. The inspector concludes that this violation has been resolved. This item is closed.

(Closed) Inspector Follow Item (311/85-07-07). This item was opened to track and review a design change to replace #22 Auxiliary Feedwater pump and 1C vital 125-volt battery. The review was also to include a 48-hour endurance test of the auxiliary feedwater pump. The inspector has reviewed the completed design changes and the 48-hour endurance test and found them acceptable. This item is considered closed.

(Closed) Unresolved Item (311/85-15-02). This item was unresolved pending licensee's decision regarding actions to be taken relative to inadequate connections for rod control on the reactor vessel head. The licensee has issued design change requests for both units and will replace the connectors with a new design. This item is closed.

(Closed) Unresolved Item (311/85-31-01). This item is closed. See Section 6 of this report for details.

3. Operational Safety Verification

3.1 Documents Reviewed

- Selected Operators' Logs
- Senior Shift Supervisor's (SSS) Log
- Jumper Log
- Radioactive Waste Release Permits (liquid & gaseous)
- Selected Radiation Exposure Permits (REP)
- Selected Chemistry Logs
- Selected Tagouts
- Health Physics Watch Log

- 3.2 The inspector conducted routine entries into the protected areas of the plants, including the control rooms, Auxiliary Building, fuel buildings, and containments (when access is possible).

During the inspection activities, discussions were held with operators, technicians (HP & I&C), mechanics, supervisors, and plant management. The purpose of the inspection was to affirm the licensee's commitments and compliance with 10 CFR, Technical Specifications, and Administrative Procedures.

- (1) On a daily basis, particular attention was directed to the following areas:
- Instrumentation and recorder traces for abnormalities;
 - Adherence to LCO's directly observable from the control room;
 - Proper control room shift manning and access control;
 - Verification of the status of control room annunciators that are in alarm;
 - Proper use of procedures;
 - Review of logs to obtain plant conditions; and,
 - Verification of surveillance testing for timely completion.
- (2) On a weekly basis, the inspector confirmed the operability of selected ESF trains by:
- Verifying that accessible valves in the flow path were in the correct positions;
 - Verifying that power supplies and breakers were in the correct positions;
 - Verifying that de-energized portions of these systems were de-energized as identified by Technical Specifications;
 - Visually inspecting major components for leakage, lubrication, vibration, cooling water supply, and general operating conditions; and,
 - Visually inspecting instrumentation, where possible, for proper operability.

(3) On a biweekly basis, the inspector:

- Verified the correct application of a tagout to a safety-related system;
- Observed a shift turnover;
- Reviewed the sampling program including the liquid and gaseous effluents;
- Verified that radiation protection and controls were properly established;
- Verified that the physical security plan was being implemented;
- Reviewed licensee-identified problem areas; and,
- Verified selected portions of containment isolation lineup.

3.3 Inspector Comments/Findings:

The inspector selected phases of the unit's operation to determine compliance with the NRC's regulations. The inspector determined that the areas inspected and the licensee's actions did not constitute a health and safety hazard to the public or plant personnel. The following are noteworthy areas the inspector researched in depth:

1. Unit 1

- a. Unit 1 operated at 100% power throughout this report period with the exception of those periods discussed below.
 - At 6:39 a.m. on January 16, 1986, the unit tripped from 100% power. The trip was caused by "Negative flux rate trip high." The sequence of events which caused the trip was subsequently assessed by the licensee and presented at a SORC Meeting. (The resident inspector attended the meeting.) The sequence of events are as follows:
 - An equipment operator was in the process of performing a routine tag-out on #1A Diesel Generator and was closing the breaker cabinet door when the unit tripped.
 - When the door was closed, 4KV vital bus differential relay, located in the breaker cabinet door to #1A Diesel Generator output breaker, partially tripped. This is a solid state relay that had been installed to replace the plunger type (originally installed) to

meet the seismic criteria. Although solid state, there are telephone contacts within the relay. It was one of these contacts that partially closed causing the actuation of the circuits that tripped 1A vital bus.

- When the 1A vital bus tripped, the shutdown control rod banks C and D dropped into the core resulting in a high negative neutron flux rate trip. (Within the rod control cabinet, there are two power supplies to the control rod groups. One supply, the normal supply, is from the output of the rod drive motor-generator set. The second, the alternate supply, is from the vital bus; in this case, bus 1A. The normal supply is usually at a slightly higher voltage than the alternate. During operation, a temporary failure or transient in the normal supply had caused a transfer to the alternate supply. This event, however, does not cause an alarm indicating a supply failure unless the supply remains low. In this instance, the voltage returned to normal once the load was removed.)
- All circuits functioned normally with the exception of those fed from 1A vital bus.

The licensee has identified several areas of concern.

- To what seismic criteria has the differential relays been designed?
- When the door is shut, does the shock exceed the seismic criteria?
- What can be done to alert the operator that only one power supply remains on the rod control?

The licensee has taken the following actions to preclude recurrence of a similar event:

- Alerted all operators via the night order book and news letter as to the effects on the differential relay when the cabinet doors are closed too hard.
- Instituted an investigation into the seismic criteria of the installed relays.
- Instituted an investigation into the possibility of placing an ammeter on the alternate power supply in order to ascertain if it is carrying the rod drive power supply.

The inspector will assess the results of the licensee evaluations when available.

After the licensee had determined the cause of the trip, taken corrective actions, and performed selected maintenance on the unit, it was returned to service at 2:00 a.m., January 18, 1986.

- On January 31, 1986 at 10:53 a.m., the reactor tripped from 100% power due to "11 Steam Generator (SG) Low Flow - Low Level." The trip was caused by a malfunction of 11BF19. The control room operator observed a decreasing level in #11 SG and noted that the feed regulating valve 11BF19 was calling for full demand flow; however, the valve was in the intermediate position. The operator shifted the controller to manual but was unable to get a response. Subsequent investigation by the licensee failed to identify the cause of the failure. Leaks were found in the control air system in the 11BF40 (feed regulating bypass valve) but could not be directly attributable to the cause of the failure. The licensee reviewed the trip with the SORC and concluded that, after testing all electrical circuits, completely blowing down the air system, instrumenting selected control signals to the valve, and X-raying the valves in the feed line for obstructions, the unit could return to power. No obstructions were identified in the areas that could be X-rayed. During startup, the signals and recorder traces were compared to the previous startup and no differences were identified.

At the time of the trip, 11 station power transformer was out of service to perform maintenance in the switchyard. The transformer was taken out of service at 5:00 a.m. on January 31 and the unit was in the action statement 3.8.1.1.

When the unit tripped, buses E and H were lost. (These are 4160-volt buses) As a result, 11 and 12 RCP's stopped. All vital buses remained energized and the inspector witnessed the correct use of the proper procedures to place the unit in a stable condition with all four steam generators in service. The unit performed as expected in the abnormal electrical line-up configuration with the remaining buses performing the expected load transfers that occur during a trip.

This report period ends with the unit in Mode 3 and the licensee performing selected work orders.

2. Unit 2

- a. Unit 2 began this report period in Mode 5 replacing the reactor coolant pump seals in 21 and 23 reactor coolant pumps.
- On January 15, 1986 at 5:47 a.m., the unit returned to service.
 - On January 15, 1986, the seal leak off from 22 reactor coolant pump (RCP) began to increase above the normal limit. The licensee adjusted the bypass flow around the leak-off flowmeter per procedure. (This is done to return the flow to mid-scale on the flow recorder.) On January 16, the flow began to increase slowly. The vendor (Westinghouse) recommended that the licensee should not exceed 8 gpm flow, and further recommended that shutdown commence if the flow reached 7 gpm. The seal leak-off continued to increase until, on January 19 at 3:00 a.m., the leak rate exceeded 7 gpm. At 3:05, the licensee commenced a normal shutdown. At 9:25 a.m., the licensee shutdown 22 RCP and reduced primary system pressure to slow down the seal leak-off flow. The unit was taken to Mode 5 and maintenance commenced.

The report period ends with the unit in Mode 4 with a startup in progress.

No violations were identified.

4. Maintenance Observations

The inspector reviewed the following safety related maintenance activities to verify that repairs were made in accordance with approved procedures and in compliance with NRC regulations and recognized codes and standards.

<u>Work Order Number</u>	<u>Maintenance Procedure</u>	<u>Description</u>
85.12.03.076.3		Calibration and retesting of Residual Heat Removal Pump Room cooler auxiliary switches ITD-7546 and ITD-7535.
85.07.1b.120.1	M11E.2 M32	21 Residual Heat Removal Heat Exchanger outlet valve 21CC16. The licensee checked the valve stroke and limit torque setting. Conducted a timed open and closure on the retest.

85.12.03.005.4	M3Q6 M32	The licensee cleaned and lubricated the roller assembly on Fan Cooler Unit 23 Breaker and retested.
85.12.01.015.1		Replacement and testing of 21 Service Water Strainer.

The inspector also reviewed the applicable work packages, stores issue documents, work procedures and completed documentation for work performed on No. 1A Diesel Generator. In his review, the inspector noted that no discrepancies were identified with the completed documents; however, after discussions with QA supervision, the inspector was informed of the following by the licensee. A governor which had been supplied by the manufacturer was not factory set to the proper speed for the Salem diesel. Further investigation by the licensee identified that the manufacturer had recommended a replacement governor for the diesel, and the licensee had received the new governor but the internal settings were improper for the design of the Salem diesels. The licensee has taken the following actions.

- Replaced the faulty governor with one that has been tested at the site.
- Will return the original governor and the first replacement governor to the manufacturer for an analysis.
- Will conduct an evaluation at the vendor's facility regarding testing and calibration of governors to preclude shipment of governors with same part number but with different settings.

The resident inspector will review the licensee findings when available.

No violations were identified.

5. Surveillance Observations

During this inspection period, the inspector reviewed in-progress surveillance testing as well as completed surveillance packages. The inspector verified that the surveillances were performed in accordance with licensee approved procedures and NRC regulations. The inspector also verified that the instruments used were within calibration tolerances and that qualified technicians performed the surveillances.

The following surveillances were reviewed:

Unit 1

- SP(O)4.6.2.1a Containment Systems - Spray System
Containment Spray Flow Path
- SP(O)4.6.3.1.2b Containment Systems - Containment Isolation
Phase "B" Isolation Check

Unit 2

- SP(O)4.3.3.7 Instrumentation - Post Accident Monitoring
Channel Check for Operability
- SP(O)4.4.1.2.1 Reactor Coolant System - RCP Status
Verifies Number of Loops in Operation for Startup
- SP(O)4.5.4.1 Emergency Core Cooling - B.I.T.
Demonstrates B.I.T. Operability
- SP(O)4.6.1.1a-I Containment Systems - Primary Containment 1
Demonstrates Integrity of Inner and Outer Escape
Lock Doors
- SP(O)4.5.2b Emergency Core Cooling - ECCS Subsystems
Demonstrates Valve Positions for ECCS Flow Paths

On January 10, 1986, the licensee took 1A diesel generator out of service to perform the 18-month Technical Specification requirements. The diesel was run fully loaded for one hour after maintenance with no identified problems. The procedure then calls for the diesel to idle for three minutes. During the idle time, the diesel tripped on overspeed. The first consideration was that the governor was not responding properly. The licensee replaced the governor and tested the diesel several more times but without success. The vendors for both the governor and the diesel were called by the licensee. The governor vendor recommended changing the governor again. Another governor was installed and tested. The unit then operated as designed. The diesel was returned to operable status within the allowable time delineated in the Technical Specification action statement. Subsequent investigation by the licensee identified the following:

- The first replacement governor was externally the same but internally different. Apparently the internal settings were wrong.
- The second replacement governor was compatible and was tested prior to starting up the diesel. This governor is currently installed. Refer to Section 4 for further information.

No violations were identified.

6. Review of Periodic and Special Reports

Upon receipt, the inspector reviewed periodic and special reports. The review included the following: inclusion of information required by the NRC; test results and/or supporting information consistent with design predictions and performance specifications; planned corrective action for resolution of problems, and reportability and validity of report information. The following periodic reports were reviewed:

- Unit 1 Monthly Operating Report - December 1985
- Unit 2 Monthly Operating Report - December 1985
- A report filed with the Commission dated January 27, 1986, with regard to a notification to the NRC Operations Center in accordance with 10 CFR 50.72 of an apparent violation of Technical Specification requirements which resulted in the inoperability of both Emergency Core Cooling System (ECCS) subsystems during operation in Mode 4 (hot shutdown). The inspector has reviewed the report and has determined that the licensee had made the notification in error and that Technical Specifications were not violated. The inspector also reviewed the action taken by the licensee to preclude further misunderstanding of the Technical Specification requirements for ECCS while in Mode 4. Accordingly, unresolved item 311/85-31-01 is acceptable.
- A special report filed with the Commission dated January 29, 1986, with regard to diesel generator non-valid test failure, as described in Regulatory Guide 1.108. The inspector has reviewed the report and concludes that the diesel generator failure was non-valid and caused by an external source. The inspector also concluded that the licensee made the proper report in accordance with Regulatory Guide 1.108, Revision 1 August 1977 Regulatory Position C.3.b.

No violations were identified.

7. Licensee Event Report Followup

The inspector reviewed the following LER to determine that reportability requirements were fulfilled, immediate corrective action was taken, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications.

Unit 2

LER 85-022 Reactor Trip/Safety Injection - Voltage Spike on 2C
Vital Instrument Bus.

This event was discussed in combined report 272/85-23 and 311/85-24. The inspector has reviewed the LER submitted by the licensee and has no further questions at this time.

8. Employee Concern

A site employee expressed concerns to the inspector about the apparently extreme sensitivity of the metal and explosive detectors that have been newly installed in the facility controlled access point. The employee also questioned the methods of hands-on searching performed by the security personnel when a search is necessary.

The inspector conducted an inspection to evaluate the employee's concerns with the following results:

- Metal and explosive detectors are being calibrated and tested in accordance with an approved procedure by the contracted vendor (supplier of the detectors) on a frequency recommended by the vendor.
- "Pat Downs" (hands-on searches) are being conducted in accordance with "NRR Supplemental Staff Position on Personal Search Requirements - September 30, 1977."

The inspector identified no violations of procedures or methods for performing the required searches.

9. Unplanned Exposure

At 10:30 on January 4, 1986, during the venting of the equalizing leg on the level column of 21 CVCS hold up tank, a health physics technician became contaminated with liquid.

Through body counts and evaluations performed by the licensee, the initial results indicate that the technician received a dose of 2 MPC hours from cobalt 58 and 1.4 MPC hours from cobalt 60 for a total of 3.4 MPC hours due to internal uptake. The weekly limit at Salem is 10 MPC hours.

The licensee:

- decontaminated the individual,
- performed whole body counts on the individual,
- had the individual examined by a doctor, and
- performed body waste analysis

The licensee is continuing to monitor the individual until the internal contamination has dissipated. An evaluation to determine the cause of the event was performed by the licensee with the following results:

- The licensee determined that the cobalt in the waste holdup tank could be eliminated by draining the reactor coolant system through the demineralizers instead of directly to the waste holdup tank.
- By utilizing the demineralizers, certain lead shielding can be removed in the area of the steam generator blow down monitors.
- New methods of venting instruments are in the process of being developed to preclude a recurrence of the incident.
- HP technicians and Instrument technicians participated in discussions concerning the incident in an effort to keep all involved personnel informed.

The inspector has reviewed documentation for the above and has no further questions at this time.

10. Exit Interview

At periodic intervals during the course of the inspection, meetings were held with senior facility management to discuss the inspection scope and findings. An exit interview was held with licensee management at the end of the reporting period. The licensee did not identify 2.790 material.