

DETAILS

1. Persons Contacted

D. Army, Maintenance Engineer
J. Basile, General Manager Nuclear Power Generation
M. Blatt, Acting Director, Regulatory Affairs
A. Brescia, I&C Supervisor
K. Burke, General Manager, Administrative Services
J. Cullen, Radiation Protection Manager
J. Curry, Chief Operations Engineer
W. Ferreira, Radiation Protection Administrator
W. Graber, Acting General Manager, Environmental Health and Safety
J. Higgins, Chemistry Manager
C. Jackson, Vice President Nuclear Power
J. Mooney, Electrical Engineer
H. Morrison, Operations Superintendent
A. Nespoli, Major Projects Manager
M. O'Kelley, Rad Waste, General Supervisor
J. Quirk, Test and Performance Engineer
M. Skotzko, Security Administrator
M. Smith, Acting General Manager Technical Support
T. Walsh, Instrument and Control Engineer

The inspectors also interviewed other licensee employees including members of the operations, health physics, technical support, maintenance, construction, corporate engineering staff, and security personnel.

2. Licensee Action on Previously Identified Inspection Findings

(Closed) Unresolved Item (50-247/80-17-05) Examination of Leak Path from PAB. The licensee has recaulked the area from penetration area to the Feed Pump Building. No leak paths are presently identified.

(Closed) Unresolved Item (50-247/81-05-01) Appendix J test of Fan Cooler Unit Containment Isolation Valves not performed. The licensee had conducted a 10 CFR 50, Appendix J test on fan cooler No. 22 and 25 with acceptable leak rates.

(Closed) Unresolved Item (50-247/82-01-01) During the witnessing of the licensee's surveillance test PTM-18, areas of concern were identified. (1) Drainline cap was replaced on discharge valve No. 21 RAR (MWR 03513); (2) Reachrod Guideplates were secured. (MWR 00911, 00912, 00913, 00914 dated January 29, 1982); (3) The page system has been repaired in the area of RHR pump; (4) Door leading from 5' PAB elevation has been repaired.

(Closed) Unresolved Item (50-247/80-17-01) Emergency lighting found disconnected in Auxiliary Feed Pump Room. The licensee has issued a surveillance test PTM 49-3, which monitors condition of emergency lighting.

(Closed) Unresolved Item (50-247/80-17-02) Floor drains from upper level to lower level (15') clean out plug removed. The licensee has put normal drain system into service. Drain plug has been modified to allow blowout of drains.

(Closed) Unresolved Item (50-247/80-17-03) Cable Bundle Areas wetted down. The licensee has reviewed this item, and no apparent damage has occurred as a result of the inadvertent wetdown.

3. Licensee Management Changes

The following management changes were announced by the licensee:

- a) William Graber became Acting General Manager, Environmental Health and Safety, effective September 21, 1982;
- b) Ronald Gauny became Deputy General Manager of Environmental Health and Safety, effective September 27, 1982. Mr. Gauny came to Consolidated Edison Company from Houston Lighting and Power Company;
- c) Stan Wisla, Manager, Environmental Health and Safety, joined the staff of Charles Jackson, Vice President, Nuclear Power, effective September 21, 1982;
- d) Kevin Burke, Director, Regulatory Affairs, became General Manager, Administrative Services, effective October 1, 1982.
- e) Michael Blatt became Acting Director, Regulatory Affairs, effective October 1, 1982; and,
- f) Malcolm Smith became Acting Manager, Technical Support, effective September 7, 1982.

4. Operational Safety Verification

The inspector verified:

- Proper control room manning and access control;
- Operators adhering to approved procedures for ongoing activities;
- Adherence to limiting conditions for operations observable from the control room;

- No abnormalities on instrumentation and recorder traces;
- Operators understood the reasons for annunciators which were lit, and that timely corrective action was being taken;
- Nuclear Instrumentation and other reactor protection systems are operable;
- Control rod insertion limits are in conformance with technical specification requirements;
- Containment temperature and pressure indications were in conformance with technical specification requirements;
- No abnormalities indicated on radiation monitor recorder traces; and,
- Onsite and offsite emergency power sources available for automatic operation.

The inspector reviewed the control room log, shift supervisor's log, tagout log, operating orders, significant occurrence reports, daily leakrate calculations, shift turnover check sheet, and diesel operability log to obtain information concerning operating trends and activities, and to note any out-of-service safety systems.

During routine entry and egress from the protected area (PA), the inspectors verified:

- Access controls are in conformance with security plan requirements for personnel, packages and vehicles;
- Gates in the PA barriers are closed and locked if not attended;
- Isolation zones are free of visual obstructions and objects that could aid an intruder in penetrating the PA.
- Personnel radiation monitoring equipment is operable, and that equipment and materials are being monitored prior to release for unrestricted use.

No violations were identified.

5. Plant Tours

During the course of the inspection, the inspector made observations and conducted tours of the following areas during regular and back-shifts:

- Turbine Building
- Control Room
- Diesel Generator Rooms
- Primary Auxiliary Building
- Security Control Building
- Auxiliary Feed Pump Building
- Cable Spreading Room

- Maintenance and Operations Building
- Perimeter Fence
- Transformer Yard
- Intake Structure
- Spent Fuel Handling Building
- Containment Building
- Utility Tunnel

The following items were observed or verified:

- General Plant/equipment conditions including operability and verification of standby equipment;
- Inspected plant areas for fire hazards, fire alarms, extinguishing equipment, actuating controls, fire fighting equipment, and emergency equipment for operability.
- Ignition sources and flammable materials are being controlled;
- Combustible material and debris are promptly removed from the facility;
- Plant housekeeping and cleanliness practices are in conformance with approved programs;
- Excess equipment and material is returned to storage areas;
- Critical clean areas are controlled in accordance with procedures, when required;
- Activities in progress are being conducted in accordance with administrative controls and approved procedures. Verified these activities do not interfere or have the potential to interfere with the safe operation of the facility; and,
- Reviewed a sample of equipment tagouts to verify compliance with Technical Specifications limiting conditions for operation regarding removal of equipment from service.

Findings:

- A. During routine tours of the above-listed areas, the inspectors noted significant improvements in the cleanliness of the plant and associated housekeeping controls. One area, the utility tunnel, showed the most notable improvement in cleanliness. The inspectors have perceived that the licensee is displaying an aggressive attitude towards housekeeping as evidenced by memorandums issued by management detailing area responsibility for cleanliness and management's responsiveness to areas identified that need improvement. One such area needing additional housekeeping attention, the lower levels of the Primary

Auxiliary Building, was identified to the licensee shortly before the end of the reporting period. The inspectors will view this area especially for cleanliness and housekeeping controls during the next reporting period.

- B. During the tour of the utility tunnel, the inspectors noted that the city water pipe appeared corroded. The inspectors reminded the licensee's representative of a recent Technical Specification change which takes credit for the use of city water as a backup supply for the Auxiliary Boiler Feed Pump System. The inspectors also conveyed that the city water pipe should be maintained accordingly. The licensee agreed and stated that a program would be initiated to evaluate the current status of the pipe, and appropriate action implemented as necessary to remedy any defects, and maintain the pipe in accordance with applicable codes and standards. This issue is unresolved pending review of licensee's actions. (50-247/82-19-01)
- C. On a regular basis, the inspectors reviewed the control and use of the Maintenance Work Request system (MWR), and associated tagging procedures. During one review, the inspectors noted that one tag (170407) on Fan Cooler Unit (FCU) No. 21 breaker controller was in place on the breaker, and indicated that the breaker was to be "racked out." The breaker was in fact "racked in" and energized. The inspectors determined that the Maintenance Work Request was previously closed out, and that the tag should have been removed.

Discussions with licensee management revealed that a new tagout system has already been developed, but not yet implemented because it could add confusion to the refueling outage during its initial implementation phase. The new tagout system should alleviate the identified problem.

During subsequent tours, the inspectors specifically looked at tagging controls, and found no other inadequacies. The inspectors consider this an isolated case, and adequate corrective action is in progress. Additionally, the licensee reminded operators to be sure to complete the MWR procedure, and accordingly remove the tags.

No violations were identified.

6. Operability of Engineered Safeguard Features

- A. The inspector verified through direct observation, and procedural review, the operability of a selected ESF system.

The inspection criteria included:

- A walkdown of the accessible portions of selected system;
- System lineups checked against plant drawings;

- Verified hangers and supports were operable;
- Cleanliness of breakers, instrumentation cabinets;
- Instrumentation is properly valved and calibrated;
- Valves in proper position, power available, locked and sealed, as required by checkoff lists; and,
- Local and remote control positions correctly established.

Accessible valve lineups and flow paths for the Post Accident Hydrogen Removal System were inspected, and verified against checkoff list COL-16.

B. Additional ESF system operability was determined by observation of:

- Valves in the system flow paths in the correct position;
- Power supplies and breakers are aligned for components that must activate upon initiation signals;
- Major component leakage, lubrication, cooling water supply, and general conditions which might prevent fulfillment of their functional requirements; and,
- Instrumentation essential to system activation or performance operable.

ESF systems inspected included portions of:

- Diesel generators fuel supply; and,
- Residual heat removal system.

No violations were identified.

7. Safety System Challenges

A. Inadvertent Safety Injection Actuation

On September 20, 1982, while in hot shutdown, the licensee experienced an inadvertent safeguards actuation caused by a spurious signal generated while conducting high main steam flow calibrations. Injection of water did not take place since the safety injection pumps were in the pull-to-lock position as required for plant conditions. The licensee is reviewing the event to determine the cause.

The inspector was in the control room when the spurious signal was generated, and observed the actions of the control room operators in responding to the event. The event took place while the operators were placing the plant on Residual Heat Removal (RHR) with two reactor coolant pumps in service, and one RHR pump in service. All Engineering Safeguards Features, that were not intentionally defeated, functioned as designed.

The inspector discussed the event with the Manager, Nuclear Power Generation and Chief Operations Engineer. The licensee informed the inspector that the calibration of main steam flow, and other tests that could cause a safety injection, should not be performed while in hot shutdown in the future. The licensee made the appropriate notifications to the state and the NRC, and documented the event on a Significant Occurrence Report 82-250. The licensee restored the emergency systems back to a standby status, terminated testing, and continued cooldown.

B. Inadvertent Overpressurization System Actuation

Inspection Report 50-247/82-09 identified the circumstances which shifted the arming temperature of the OPS system 55°F to the left (lower). This gave the operators an extremely narrow band to operate within, during a finite period during cooldown.

On September 20, 1982, while in hot shutdown at 220°F and 420 PSI, the OPS system armed as indicated by arming lights. The operators acknowledged the alarm, reviewed the plant pressure and RCS temperature, and closed the pressurizer relief valve block valves in the shut position. Subsequently, the PORV cycled, however, no steam or water was discharged to the pressure relief tank. Plant conditions were re-examined and verified to be not in an overpressurized condition. The licensee performed an engineering evaluation, and reset the OPS actuation back to its original setpoint (55°F shift higher) to permit extended operation at the stated plant parameters.

The licensee notified the resident inspectors of this event. The cause of the actuation has not been determined. The inspectors verified, by a review of control room charts, that the Reactor Coolant System (RCS) was not overpressurized. The licensee documented this event on a Significant Occurrence Report (SOR), and reviewed the report. The SOR was sent to engineering for final evaluation and disposition.

8. Containment Isolation Lineup

To ensure licensee's ability to maintain and exercise containment isolation, the inspector verified by observation:

- That manual valves required to be shut, capped and/or locked met operating mode;
- That motor or air-operated valves were not mechanically blocked and power was available, where required.

The inspector conducted:

- Visual inspection of piping between containment and isolation valves for leakage; and,
- Inspection of selected electrical penetrations.

The following valves and penetrations were included in this inspection:

- Valve No. 869A - Containment Spray System
- Valve No. 869B - Containment Spray System
- Valve No. 1234 - Containment Air Sample
- Valve No. 1235 - Containment Air Sample
- Valve No. 1236 - Containment Air Sample
- Valve No. 1237 - Containment Air Sample

Also, electrical penetrations 22, 36, 49, and 51 were inspected in the electrical penetration area. All penetrations were verified to be pressurized to at least 47 psig.

No violations were identified.

9. Containment Building Purging and Venting Survey - 1981

The following licensee documents were reviewed:

- System Operating Procedure SOP 5.2.4, Revision 2;
- System Description, Section 11; and,
- FSAR.

The inspector verified that in accordance with Procedure SOP 5.2.4, the licensee did not initiate containment purge while the reactor was at power, during 1981.

The accumulated time for containment pressure relief for 1981 is 671 hours. The licensee initiates pressure relief when the containment pressure approaches 1.5 psig. Safety injection actuation is set slightly below 2.0 psig.

10. Independent Limiting Condition for Operation Verification

The inspector independently verified equipment status to determine that Technical Specification limiting conditions for operation requirements were being met for the following:

- Isolation Valve Seal Water System. IVSW tank is maintained at 52 psig, and contains a minimum of 144 gallons of water;
- Fire Protection System. Cable spreading room halon system pressure is maintained at 360 psig;

- Diesel Fuel Oil. A minimum of 41000 gallons of fuel contained in on-site storage tanks; and,
- Diesel Generator Day Tank Levels were found acceptable.

No violations were identified.

11. Sampling Program Review

The inspectors reviewed sampling results for the following tests to verify conformance with regulatory requirements:

- Boric Acid Storage Tank, boron concentration performed during the month of September;
- Spent Fuel Pool, boron concentration performed during the month of September;
- Reactor coolant gross activity during the month of September; and,
- Refueling Water Storage Tank, boron samples for the month of September.

No violations were identified.

12. Surveillance Observations

- A. The licensee's surveillance equipment and program provides assurance that required pumps, fans, valves, and other instrumentation will perform their required functions.

The inspectors' verification of the licensee's surveillance program includes:

- Review of surveillance procedure for conformance to technical specification requirements, and verify proper licensee review/approval;
- Verification of test instrumentation calibration;
- Observations of portions of system removal from service. Confirmation that LCO's are met when operational mode requirements are specified;
- Observation of portions of the conducted surveillance test;
- Observation of portions of the system's restoration to service;

- Review test data for accuracy and completeness. Independently calculated selected test results to verify accuracy;
- Confirmation that surveillance test documentation is reviewed and test discrepancies are rectified;
- Verification that test results meet technical specification requirements;
- Verification that testing was done by qualified personnel; and,
- Verification that surveillance schedule for this test was met.

The following surveillance test was witnessed:

- PT-R6 Main Safety Valves Setpoint Determination, Revision 6.

Findings:

The inspector verified that each main safety valve opened within the allowable tolerance of its setpoint.

B. Additional Surveillance Test Verification

Portions of the following surveillance tests were witnessed, by the inspectors. The tests were:

- Scheduled in accordance with the TS, where applicable;
- Procedures were being followed;
- Testing was performed by qualified personnel;
- LCO's were met, when applicable; and,
- Restoration of systems was correctly accomplished.

The tests witnessed were:

- PT-R22A, Steam Driven Auxiliary Boiler Feed Pump Full Flow Test, Revision 1;
- PT-R7A, Motor Driven Auxiliary Boiler Feed Pump Full Flow Test, Revision 1;

- PT-R26, IVSWS Type B&C Testing on Isolation Valves 552 and 519; and,
- PTM-42, Boric Acid Pump Operability Test, Revision 4.

No violations were identified.

13. Facility Maintenance

The inspector reviewed portions of safety-related corrective and preventive maintenance, and determined through observations and reviews of records that:

- The maintenance activity did not violate limiting conditions for operation;
- Redundant components are operable if required;
- Required administrative approvals, and tagouts were obtained prior to initiating the work, if required;
- Approved procedures were being used, where required;
- The procedures used were adequate to control the activity;
- The activities were being accomplished by qualified personnel;
- Replacement parts and materials being used are properly certified;
- Preventive Maintenance Program is functioning in accordance with approved procedures;
- Radiological controls are proper, and that they are being properly implemented;
- Ignition/fire prevention controls were appropriate, and were implemented, where required;
- QC hold points were observed, and provided independent verification of specific points, if required; and,
- Equipment was properly tested prior to return to service.

Portions of the following maintenance activities were observed and reviewed:

Containment Fan Cooler Unit 24. The licensee noted that the amperage reading on the No. 24 fan cooler motor dropped below the amperage readings on the other fan coolers. Further investigation identified that the

coupling between the fan and the motor had separated. The licensee issued MWR 4600 dated September 2, 1982, to replace the coupling and the inboard and outboard bearings. The inspector reviewed work step lists and material tags. The inspector also witnessed amperage and vibration readings.

Containment Fan Cooler Coil Leaks. During the reporting period, prior to entering the refueling outage on September 17, 1982, the licensee identified fan cooler coil leaks in No. 21, 22, and 24 fan coolers. One tube in No. 21 FCU and one tube in No. 24 FCU was plugged in accordance with Procedure 2CM-14.41, MWR 4683. The other leaks were monitored by the licensee through the plant cooldown. The licensee is developing an inspection program to determine the cause of the fan cooler coil degradation.

No violations were identified.

14. Licensee Event Reports Followup

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications.

- LER 82-031/99X-0 Service Water Leak, Fan Cooler Motor Coolers
- LER 82-032/01T-0 Reopening of a Failed Automatic Containment Isolation Valve
- LER 82-033/99X-01 Fan Cooler Coil Leaks
- LER 82-034/03L-0 Charging Pump No. 22 Head Gasket Leak
- LER 82-037/99X-0 Fan Cooler Coil Leaks

LER 82-033/99X and LER 82-037/99X Fan Cooler Coil Leaks

The licensee is developing a program to determine the cause of the fan cooler coil leaks. The coil leaks are of a particular concern, since the coils were installed during the 1980-81 outage, subsequent to leakage problems with the old fan cooler coils. The licensee has conducted some boroscope inspections without conclusive results. Additional inspections and eddy current testing are scheduled for the current outage. This item remains unresolved pending NRC review of the licensee's inspection programs, and corrective actions. (50-247/82-19-02)

15. Radiation Protection Controls

During routine facility tours, the inspectors verified radiation protection controls were properly established by:

- Observing that licensee's HP policies/procedures are being followed;
- Observing portions of area surveys performed by licensee's personnel, and confirming licensee's survey results by independent measurement;

- Verifying by observation and review that the requirements of current RWP's are appropriate, and are being followed.

Findings:

- A. During the period between September 2-8, 1982, approximately 180 people entered containment, in order to repair a sheared coupling on Fan Cooler Unit (FCU) No. 24, and other minor repair work.

Personnel entering the various work areas wore appropriate protective clothing, and appropriate radiological controls were established. The licensee noted, however, that the airborne activity concentration was 3-11 times the maximum permissible concentration for Co⁶⁰ and I¹³¹, and conservatively calculated stay times. During this work period, approximately 13 people exceeded 40 MPC hours during a seven-day period. The maximum calculated exposure was 66 MPC hours. The quarterly limit is 520 MPC hours. 10 CFR 20.103 requires that the intake of airborne activity be minimized as far below the concentrations listed in Appendix B of 10 CFR 20 as reasonably achievable. Whenever the intake by an individual exceeds this 40 hour control measure, the licensee shall perform an evaluation, and take actions to prevent recurrence.

The actions to prevent recurrence as stated in the licensee's evaluation, memorandum dated September 15, 1982 from W. Graber to S. Wisla are as follows:

1. All operable emergency fan cooler fans will be operated with flow through the charcoal filters in addition to the normal iodine clean-up systems commencing 24 hours prior to hot shutdown. (This should result in a nominal 60,000 CFM iodine clean-up cycle.)
2. Containment Purge Valves will be adjusted as soon as practicable after their availability (cold shutdown) to increase flow via the Containment Purge Exhaust.
3. The damper in the plenum servicing the PAB and VC will be adjusted to optimize air exhaust balance favoring the VC while still maintaining the PAB under slight negative pressure.
4. After depressurization, known leakers will be locally ventilated by installing elephant trunks from the leakers to containment exhaust. This effort will be based on ALARA considerations (external exposure as compared with internal exposure.)
5. Anti-"C" usage will be evaluated in order to minimize the potential for iodine skin contamination.

Should item 1 above reduce radioiodine airborne concentrations below MPC, items 2 through 5 will be reevaluated, and may be deleted if found to be superfluous.

This information was discussed with the licensee, the Resident Inspector, and the NRC Region I Health Physics Specialist Inspectors. No violation was identified. Coincidental with this event, eight people became externally contaminated with iodine, noting concentrations as high as 93 nanocuries during body count scans of the thyroid. This was determined to be external contamination based on I₂ decay half lives. The licensee performed skin dose evaluations for this skin contamination. This information was also discussed with specialist inspectors.

- B. During periodic reviews of radiological conditions throughout the facility, the inspector noted that airborne activity in the Primary Auxiliary Building (PAB) was unexpectedly high, (2×10^{-9} uc/ml, primarily Rb88). The licensee took appropriate action limiting access to the area, and requiring appropriate protective respiratory measures.

The cause of this airborne activity apparently stems from two sources as follows:

1. Excessive leakage from the charging pump packings; and,
2. Charging pump drains to the radwaste system are clogged, and leakage from the packings are being diverted to the PAB floor drains.

When this occurs, the licensee switches to another charging pump. No other action is apparent. This was discussed with licensee representatives, who stated that the charging pump drains would be cleared prior to startup.

No violations were identified.

16. Physical Security

During the course of the inspection, the inspectors observed the implementation of the security plan by noting:

- The security organization is properly manned, and that security personnel are capable of performing their assigned functions;
- Persons and packages are checked prior to allowing entry into the protected area;
- Selected vital area barriers are not degraded;

- Vehicles are properly authorized, searched, and escorted or controlled within the protected area;
- Persons within the protected area display photo identification badges, persons in vital areas are properly authorized, and persons requiring escort are properly escorted;
- Communications checks are conducted and proper communication devices are available;
- Compensatory measures are employed when required by security equipment failure or impairment; and,
- Response to threats or alarms or discovery of a condition that appears to require additional security precaution is consistent with procedures and the security plan.

No violations were identified.

17. Review of Monthly and Periodic Reports

Monthly Operating Reports

The Monthly Operating Report for August, 1982 was reviewed. The review included an examination of selected Maintenance Work Requests, and an examination of significant occurrence reports to ascertain that the summary of operating experience was properly documented.

Findings:

The inspector verified through record reviews and observations of maintenance in progress that:

- The corrective action was adequate for resolution of the identified items;
- The information in the reports was identified as licensee event reports, where required, per TS 6.9.1.7; and,
- The Operating Report included the requirements of TS 6.9.1.6.

No violations were identified.

18. Refueling Outage

The licensee commenced a refueling outage, scheduled for 97 days, on September 18, 1982. Work scheduled during the outage includes:

- Refueling, Fuel Shuffle
- Eddy Current Profilometry Hot and Cold Legs
- Radiograph Thermal Sleeves
- Sludge Lancing S/G Secondary Sides
- Electrical Penetration Modifications (Electrical/Environmental Qualification)
- Preventative Maintenance Work
- Fan Cooler Leakage Investigation/Evaluation
- Physics Testing

Refueling operations are scheduled to start on the 43rd day of the outage.

No violations were identified.

19. Unresolved Items

An item about which more information is required to determine whether it is acceptable, or an item of noncompliance is considered unresolved. Paragraphs 5 and 14 contain unresolved items.

20. 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.