# U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF INSPECTION AND ENFORCEMENT

#### Region I

Report No. 50-286/81-12

Docket No. 50-286

License No. DPR-64 Priority Category C

Licensee: Power Authority of the State of New York 10 Columbus Circle New York, New York 10019

Facility Name: Indian Point Nuclear Generating Station, Unit 3

Inspection at: Buchanan, New York

Inspection conducted: September 1, 1981 to October 15, 1981

Inspectors:

Resident Inspector dent pector

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K.a. M. Brean McBrearty. Region Inspector

Approved by:

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H! Kister, Acting Chief, Indian Point Resident Section, Division of Resident and Project Inspection

# Inspection Summary:

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Inspection on September 1, 1981 to October 15, 1981 (Inspection Report 50-286/81-12) Areas Inspected: Routine onsite and regular and backshift inspections of plant operations including shift logs and records; licensee action on previous inspection findings; observation of physical security; review of monthly and periodic reports; plant tour; planned outage to replace the main transformer; surveillance; maintenance; fan cooler unit leaks, steam generator leak; and TMI Action Plan requirements. The inspection involved 155 inspector-hours by the resident inspectors and 44 hours by 2 regional based operations and NDE specialists.

Results: No items of noncompliance were identified.

# DETAILS

#### 1. Persons Contacted

- M. Albright, Instrument and Control Superintendent
- J. Brons, Resident Manager
- C. Connell, Reliability and Performance Supervisor
- J. Dube, Security and Safety Supervisor
- D. Halama, Q.A. Superintendent W. Hamlin, Assistant to the Resident Manager
- W. Josiger, Superintendent of Power
- J. Perrotta, Radiological and Environmental Services Superintendent
- A. Picciano, Q.A. Audit Specialist
- S. Munoz, Technical Services Supervisor
- E. Tagliamonti, Operations Superintendent
- J. Vignola, Maintenance Superintendent
- R. Hess, Westinghouse, Engineer
- R. Ingraham, Westinghouse, Coordinator, ET Level III
- H. Houserman, Zetec, ET, Level II
- E. McKee, Zetec, ET, Level II A

The inspector also interviewed and observed other licensee employees including members of the operations, health physics, technical services, maintenance, and security staffs.

2. Licensee Actions on Previous Inspection Findings

(Closed) Inspector Follow Item (50-286/78-01-02) Monitor PASNY's control of interface with UE&C. May's outage activities will provide some basis. The inspector reviewed correspondence (monthly status report), received by the licensee from UE&C, and found the documents to be detailed, and informative to the licensee. The licensee reviews other correspondence of phone conversations documenting current progress of ongoing projects being engineered by UE&C.

(Closed) Inspector Follow Item (50-286/78-01-23) Monitor interface between PASNY and Con Ed, related to Con Ed performance of modification work. The May outage should provide basis. Con Ed no longer does modification work for PASNY.

(Closed) Inspector Follow Item (50-286/79-14-02) Safety Hazards in MCC (Motor Control Center). This area has been re-inspected, and no safety hazards were identified.

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(Closed) Deficiency (50-286/79-19-03) Changes were made to four procedures without proper authorizations, and two cancelled changes are still posted to two procedures. The changes in question TPCN (Temporary Procedure Change Notice) 76-28 to Procedure PEP-RCS-1 and TPCN 78-34 to SOP-RPC-4 have been removed. Administrative Procedure 3 has been revised to disallow pen and ink changes to procedures. The TPCN form usage has been clearly defined in AP-3.

(Closed) Deficiency (50-286/79-19-04) Periodic procedure review program inadequately implemented in that comments generated were not incorporated or resolved in a timely manner. AP 3 has been modified, and a Procedure Review Form has been developed to complete a review in a timely manner. The PORC secretary now keeps a record of procedural reviews. The inspector reviewed the secretary's record and found it up to date.

(Closed) Inspector Follow Item (50-286/79-19-05) Method for controlling and documenting periodic review needs to be evaluated and improved. See closure statement for 79-19-04.

(Closed) Inspector Follow Item (50-286/79-19-06) Discrepancies concerning several different procedures which should be corrected, but are not items of noncompliance. The inspector reviewed the licensee's revision to AP-3, and has no further questions in this area.

(Closed) Inspector Follow Item (50-286/79-19-07) Potential problem areas concerning maintenance procedures, checkoff lists, and index which need detailed review during future inspections. The inspector has reviewed maintenance procedures, checkoff fists, and indexes, and consideres this item closed based on no new items of concern.

(Closed) Deficiency (50-286/79-23-03) Failure to remove combustibles in vital areas. Recent tours, by the inspector, of the vital areas did not identify any combustibles.

(Closed) Noncompliance (50-286/81-02-01) Failure to maintain security doors secure. The inspector has reviewed the licensee's response, and action for the above item, and considers this item in compliance.

(Closed) Noncompliance (50-286/81-02-02) Failure to maintain security doors secure. The inspector has reviewed the licensee's response, and action for the above item, and considers this item in compliance.

(Closed) Unresolved (50-286/81-10-01) Reason for the Feed Regulation Valve Linakge Failure. The licensee discovered that the shaft bearing, for the linkage, had seized due to lack of lubrication. This in turn hampered the linkage from turning freely, causing the arm to break. The licensee has rebuilt the linkages on all four feed regulation valves, and has added a surveillance item to check the linkages every refueling outage. (Closed) Inspector Follow Item (50-286/81-10-02) Repair of Atmospheric Relief Valves. The inspector witnessed portions of the repair, and testing of the atmospheric relief valves. All of the atmospheric relief valves have been repaired.

#### 3. Plant Tour

- A. During this report period, on normal and backshift inspections, the inspector conducted routine entries into the protected area of the plant, including the control room, PAB, fuel building, and containment. During the inspection activities, the inspector had discussions with operators, technicians (HP & I&C), mechanics, foremen, supervisors, and plant management. The inspector conducted the inspection to affirm the licensee's commitments and compliance with 10 CFR, Technical Specifications, and Administrative Procedures. Particular attention was directed in the following areas:
  - Control room annunciators, assuring that the operators understood the reason and the importance for each, and that corrective action was being taken for each.
  - Control room, shift supervisor, senior operator and watch personnel logs, assuring that trends, out of specification readings and anomolities, if any, were being challenged, and that the logs were in compliance with regulatory requirements.
  - That panel board displays and system lineups were in compliance with the licensee's procedures for safe operation.
  - That pressure and temperature relationships in the containment, primary and secondary systems were in compliance with operating procedures.
  - That protected area access controls were in conformance with the security plan, including sufficient guards to perform duties and that selected gates and doors were closed and locked.
  - That selected ESF trains were operable in accordance with Technical Specifications and plant procedures.
- B. The inspector conducted biweekly inspections in the areas mentioned in paragraph "A" above, observing where possible:
  - Surveillance being conducted on plant parameters and equipment involving safety. Surveillance results are documented in paragraph 5 of this report;
  - Ongoing ESF maintenance being conducted to assure compliance with licensee's procedures. Maintenance results are documented in paragraph 6 of this report;

- Selected liquid and gaseous samples to verify conformance with regulatory requirements prior to release;
- Boric acid samples to confirm proper boric acid level for plant operation;
- Visual observations of operating equipment and piping systems to ascertain if any leakage paths, vibration, unlocked normally locked valves, obstructions to valve operators, and loose supports existed;
- Shift turnovers including a review of shift turnover sheet; and
- In general observation of the following for compliance with regulatory requirements:
  - Proper completion and use of selected radiation work permits;
  - 2) Proper use of protective clothing and respirators;
  - Proper personnel monitoring practices (wearing of badges and use of monitoring equipment);
  - Ignition sources and flammable materials are being controlled to assure that they are in accordance with licensee procedures;
  - 5) Equipment tagouts for conformance with controls for removal of equipment from service; and,
  - 6) Plant housekeeping cleanliness practices for conformance with approved licensee programs.
- C. During the inspection effort listed above, the inspector reviewed the following procedures, documents, or tests, as required:
  - Radioactive Waste Release Permit #508 (gaseous)
  - Radioactive Waste Release Permit #474 on 33 S/G (liquid)
  - Radioactive Waste Release Permit #475 on 31 MT (liquid)
  - Radioactive Waste Release Permit #476 on 33 S/G (liquid)
  - Radioactive Waste Release Permit #479 on 32 MT (liquid)
  - RE-HPP-1.1 ALARA Philosophy
  - RE-HPP-9.1 Transportation of Radioactive Material
  - Security Station and Radio Checklists

- Various Shift Turnover Checksheets

- Technical Specifications for Verification of Limiting Condition for Operation for:
  - RHR Systems
  - Service Water System
  - RCS for Cold Shutdown Condition
  - CVCS for Cold Shutdown Condition
- Jumper Log and Administrative Procedure AP-13
- Administrative Procedure AP-7 Radiation Safety Program
- POP 1.1 Plant Heatup from Cold Shutdown
- POP 3.3 Plant Cooldown Hot to Cold Shutdown
- COL-EL-5 Diesel Generators
- COL-FW-2 Auxiliary Feedwater System
- COL-RW-2 Service Water System
- D. The inspector had findings in the below-listed areas:
  - During inspection of the radiation records (NR&CForm 4) of selected vendor employees, it was noted that a change had been made to Administrative Procedure #7, Radiation Safety Program. (Temporary Procedure Change Number 81-74-AP). The inspector questioned the clarity of the change. Subsequent discussions with licensee management indicated the licensee's intent for the change was to have the Station Manager countersign radiation exposure authorizations in order for an individual to exceed 5000 m rem per year, but in no case would an individual be allowed to work in a radiation area with an exposure record of over 2225 m rem for the quarter.
  - 2) During a tour of the containment, the inspector was observing a routine radiation surveillance being conducted by the licensee, and noted that radiation readings (in the vicinity of the low point drain valve on the RHR system was 24 rem. The inspector witnessed the shielding of the valve which brought the levels to the 200 to 300 m rem range. After discussion with licensee management, the valve was flushed by the operations department resulting in the levels being reduced to 100 to 200 m rem range without the shielding.
  - 3) During a tour of the diesel generator building an oil leak was found by the inspector around the lube oil cover on the seventh cylinder on the left side of the diesel looking from the generator end. The leak was identified to the licensee by the inspector. This item remains unresolved pending repair of the leak. (50-286/81-12-01)

4) During a tour of the service water pump room, the inspector noted that the housekeeping in the area underneath the service water pumps was not up to the standard found in other areas of the plant. The lack of housekeeping in this area was identified to the licensee. The item remains unresolved pending cleanup of the area. (50-286/81-12-02)

## 4. Planned Outage to Replace the Main Transformer

On September 5, 1981, the licensee performed a procedure controlled plant shutdown to perform reactor containment B&C valve testing, and replace one of the main transformers. The inspector witnessed selected portions of the maintenance, surveillance, and operational activities being conducted by the licensee. Details of these activities are documented in sections (5 and (6 of this report.

While returning to service, following the outage, two events were noted by the licensee:

- The first was the fan cooler leak in #34 fan cooler unit. The leak was discovered by the licensee during the testing of the service water system following the installation of three new zurn strainers. Refer to section 7 of this report for details on the FCU, and section 6-B-1 for details on the zurn strainers.
- The second was a steam generator tube leak in #31 steam generator. Refer to section 8 of this report for details.

At the end of this report period, the unit was in a cold shutdown condition with the licensee performing and evaluating the NDE examination of #31 steam generator. The inspector will continue to observe the results in this area.

No items of noncompliance were identified.

# 5. Surveillance

A. The inspector observed portions of four surveillance activities being conducted on safety-related equipment to ascertain the following:

- That test instrumentation was properly calibrated;
- That the redundant system or component was operable;
- That properly approved procedures were used by qualified personnel; and,
- That the acceptance criteria were met.

Tests observed:

| 3PT-M11 | Turbine 1st Stage Pressure   |
|---------|------------------------------|
| 3PT-M36 | Process Radiation Monitoring |
| 3PT-M28 | NI Comparator & Rate Circuit |
| 3PT-M5  | Pressurizer Pressure         |

No items of noncompliance were identified.

- B. The inspector observed portions of four surveillance activities being conducted on safety-related equipment and conducted an indepth review of those activities to ascertain the following:
  - That the conditions listed in "A" above were met;
  - That the test data was accurate and complete;
  - That proper reviews, by the licensee, had been conducted;
  - That the results of the tests met technical specification requirements; and,
  - That the testing was done within the required surveillance schedule.

Tests observed and reviewed:

- 3PT-R25 Isolation Valve Seal Water System Test
- 3PT-R9 Containment Penetration and Weld Channel Pressurization System
- 3PT-R35 Containment Isolation Valve Leakage Test

(3PT-R25, 3PT-R9, and 3PT-R35 make up the requirements for the B&C testing required by technical specifications)

- 3PT-CS=15 Auxiliary Boiler (motor driven) Feed Pump and Check Valve Operability ISI Test
- 3PT-CS-19 Steam Driven Auxiliary Boiler Feed Pump Operational Test
  350°F
- 3PT-Q-20 Auxiliary Boiler Feed Valve Testing

No>items@ofononcompliance were identified.

- 6. Maintenance
  - A. The inspector selected maintenance activities being conducted on ESF equipment to ascertain that redundant trains were in service, and that approved procedures and qualified personnel were conducting the maintenance.
  - B. The inspector observed portions of maintenance activities listed below to ascertain the following:

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- The activities did not violate a limiting condition for operation;
- That redundant components were operable;
- That equipment was tagged out in accordance with licensee approved procedures;
- That approved procedures, adequate to control the activity, were being used by qualified technicians;
- That Q.C. hold points were observed, and that materials were properly certified;
- That radiological controls were proper and in accordance with licensee approved radiation E.A.'s; and,
- That the equipment was properly tested prior to return to service.
- 1) Service Water Zurn Strainer #31 Replacement

Documents reviewed:

- Maintenance Request No. 1813
- Modification Procedure 80-03-039 SWS, Rev. 2
- Pürchase Order 81-IP-03737
- Job Order 1344
- Hydrostatic Test Report and certificate of compliance from the manufacturer.

No items of noncompliance were identified.

2) Manway Gasket Replacement on #31 and #34 Steam Generators

Documents reviewed:

- Maintenance Requests 2301 and 2302
- Procedure 3-CM-RCS-2 (Steam Generator Primary Manway and Replacement)
- Purchase Order 81-IP-1192 and certification papers for the replacement gaskets and Fel Pro used for the maintenance activity
- Radiation Exposure Authorization 2128
- Quality control receiving inspection report RMR 12207
- Torque wrench racalibration records for torque wrenches 5607 and 5608

No items of noncompliance were identified.

Documents reviewed: FCU Motor Heat Exchanger Change Procedure 3-CM-SW-3 Work Permit #3841 Radiation Exposure Authorization 2129 Work Request #2312-2316

Fan Cooler Unit Motor Heat Exchanger Replacement

- Purchase Order No. 81-IP-1830 (RTV used) Purchase Order No. 81-IP-1305 (red rubber gaskets) Purchase Order No. 80-IP-3359 (motor cooler units)
- Q.A. Audit Report 57HE
- Receiving Inspection Report RMR-15368

No items of noncompliance were identified.

4) Fan Cooler Unit #34 Leaks

Documents reviewed:

3)

- Work Permit 2331
- Work Step List

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- Purchase Order No. 81-IP-0802
  - 80-IP-3480
  - 80-IP-2959 80-IP-3231
- Weld data check list for Joint #FFW-FCU-34 (left)
  - FFW-FCU-34 (right)
- Modification package #80-3-094-FCU -
- Certificate of conformances for the purchase orders listed above
- Receiving Inspection Report No. 14923 (solder) 17183 (solder 14297 (solder)
  - 14593 (CuNi 90/10 Alloy)

No items of noncompliance were identified.

5) Atmospheric Steam Dump Valves PCV-1134 through PCV-1137

Documents reviewed:

- Work Permit #3749
- Work Request M-1-2167-3C
- Modification Package 3-CM-MRS-1
- Drawing #70-99-1007-33 (part of work package)

- Weld Data Checklists (part of work package)
- Liquid Penetrant Examination Report IP3NPP
- Weld Material Requisition #10943
  - 10940 10942
  - Torque wrench calibration data for 5564
- Purchase Order No. 78-IP-1725

| 80-TP- | 2387 |
|--------|------|
| 00 11  | 2007 |
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| 78-IP- | 1220 |

- Certification papers for the purchase orders listed above
  - Receiving Inspection Report No. 14156 (ĝasket)
    - 7432, 7459 (valve packing)
    - 19470 (atmospheric dump valve internals)

No items of noncompliance were identified.

7. Fan Cooler Unit Leaks

During testing of the service water system, after the installation of new Zurn strainers in the discharge lines of 3 service water pumps, leaks developed in #34 fan cooler unit (FCU) stub tubes. Three of the leaks were repaired by soldering (normal method for repair). One of the leaks could not be soldered successfully, and was repaired by plugging the tube.

The inspector made an inspection of the repairs and found two smalled is leaks in the vicinity of where the licensee had previously made repairs. After discussion with the licensee, the leaks were repaired using the soldering method. The inspector reviewed documentation of the repairs. (See paragraph 6-B-4).

No items of noncompliance were identified.

8. Eddy Current Examination of Steam Generator Tubes

During hydrostatic testing of the reactor coolant system a cold leg tube leak was detected in the tube at row 12, column 2 of steam generator (S.G.) #31. In accordance with the facility technical specification 6.9.1.7.C, a prompt notification was made to the NRC Region I on September 29, 1981.

Subsequent to finding the leak eddy current examination of all cold leg tubes and 6% of the hot leg tubes in S.G. #31 revealed numerous tubes exhibiting significant indications. As a result the licensee established a program, in accordance with technical specification 4.9, which included the eddy current examination of all of the cold leg tubes in the remaining three steam generators.



The inspection of number 31 steam generator tubes, which encompassed the total length of each cold leg tube around the U-bend to the top support of the hot leg, revealed no defects above the first support plate with the exception of three tubes adjacent to the leaking tube. The leak and the indications in the adjacent tubes were located between the first and second support plate.

Based on the location of indications in S.G. #31, NRC approval was requested by the licensee for eddy current\_examination of cold leg tubes up to the second support plate in the remaining steam generators.

The inspector reviewed procedures and records, interviewed licensee representatives, and observed activities associated with the eddy current examination of S.G. tubes and the evaluation of related data. This was done to ascertain compliance with the facility technical specification, regulatory requirements, and applicable ASME code requirements.

A. Procedure Review

The inspector's review included the following:

- Mechanical Plug Installation Procedure No. 3-CM-RCS-5
- Steam Generator Tube Eddy Current Inspection Procedure No. 3-PM-0-RCS-1
- Procedure No. MRS 2.4.2 Gen. 23, Revision 2, "Multi-frequency Eddy Current Inspection of Steam Generator Tubing - Preservice and Inservice"

#### B. Observations

The inspector's observations included the eddy current examination of the following tubes in S.G. #33:

| ROW  | COLUMN |
|------|--------|
| 11   | 62     |
| 12   | 62     |
| 17   | 62     |
| 21   | 62     |
| 41   | 63     |
| 39   | 63     |
| 38   | 63     |
| 37   | 63     |
| 35   | 63     |
| 33   | 63     |
| - 32 | 63     |
| 30   | 63     |
| 29   | 63     |

The examinations were conducted from a data collection station which was established outside the Unit 3 containment.

Examination data were collected by Westinghouse Electric Corporation personnel on magnetic tape and on strip charts.

Data interpretation and evaluation was done by Zetec personnel at an off-site location.

Personnel involved with data collection were certified to Level I, and were under the direction of a Level III individual. The Zetec personnel were certified to Level II and Level II.A. The Level II.A. individual was responsible for final evaluation of all data.

C. Inspection Status as of October 15, 1981

| <u>Steam Generator</u>                                    | 31  | 32  | 33  | 34  |
|---|-----|-----|-----|-----|
| Tubes exhibiting indications > 40% thru wall              | 298 | 207 | 149 | 119 |
| Tubes exhibiting ind∄cations<br>> 20% ∠ 40% thru wall     | 68  | 132 | 150 | 140 |
| Tubes exhibiting indications requiring further evaluation | 235 | 97  | 189 | 60  |

The above status represents the total number of tubes to be examined. The licensee has not yet determined the total tubes which will require plugging.

The licensee has pulled 4 tubes with varying degrees of degradation for evaluation. The tubes are as follows:

| Row 12 | Column 66 | 40% indication                 |
|--------|-----------|--------------------------------|
| Row 17 | Column 55 | 40% indication                 |
| Row 22 | Column 46 | Possible indication            |
| Row 22 | Column 66 | Clean tube with copper present |

Tubes 2, 3 and 4 were sent to Westinghouse for analysis. Visual signs of pitting was present on the tubes that exhibited indications, but no conclusions have been ascertained, to date, as to what is causing the pitting. Unresolved item (50-286/81-12-03).

Tube 1 was sent to Battelle Labs in Columbus, Ohio for analysis. To date, no conclusions have been ascertained, as to the cause of the pitting.

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Sludge samples have been drawn from the areas where the tubes were removed. The samples have been split and representative portions have been sent to Westinghouse and Battelle for analysis. To date, no conclusions have been presented to the licensee. Unresolved Item (50-286/81-12-04)

No items of noncompliance were identified.

## 9. Review of Monthly and Periodic Reports

A. Monthly Operating Reports

The Monthly Operating Reports for July and August of 1981 were 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.

B. 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; and,
- The Operating Report included the requirements of TS 6.9.1.6.

The inspector has no further questions on the reports reviewed.

#### 10. Review of TMI Action Plan Category B Requirements

Reference: NUREG 0737 "TMI Action Plan Requirements"

- A. II.B.4.2.B Training for Mitigating Core Damage
  - Position: Licensees are required to develop a training program to teach the use of installed equipment and systems to control or mitigate accidents in which the core is severely damaged. They must implement the program and complete the initial training program by October 1, 1981.

Inspector Findings:

The inspector has reviewed documentation which indicates that the initial program has been completed with the exception of I and C technician training. Training has been conducted with the I and C technicians but no formal documentation exists. The licensee is preparing an I and C technician training program to be implemented when preparation is completed. The inspector will follow the progress of this training program (50-286/81-12-05).



- B. II.E.1.2.1.B.2 Implement Auxiliary Feedwater System Safety Grade Instiation Circuits
  - II.E.1.2.2.C.2 Implement Auxiliary Feedwater System Safety Grade Flow Indication
  - Position: Indication circuits are safety drade. Flow indication is safety grade.

Inspector Findings:

The licensee states in PASNY letter, Bayne to Eisenhut dated December 30, 1980 in response to NRC letter of October 31, 1981, the auxiliary feedwater system (AFWS) was originally specified as safety related. At the time of construction, the Quality Control Program had applied to components of the AFWS. The licensee considers the AFWS a safety related system falling within their Quality Assurance Program.

Based on a post review by NRR, the inspector considers these items closed.

- C. III.D.3.3.1 Improved In-plant Iodine III.D.3.3.2 Instrumentation Under Accident Conditions
  - Position: The licensee was required to provide equipment and associated training and procedures for accurately determining the airborne iodine concentration in areas within the facility where plant personnel may be present during an accident.

Inspector Findings:

The inspector verified that the licensee has portable iodine measuring devices SAM-2/RD-22 and RM-14/HP-210 which can use the silver zeolite cartridges. Various emergency kits throughout the plant have an ample supply of silver zeolite cartridges. The licensee also has approved procedures to be used in conjunction with the above devices. The procedures are REHPP3.4, Rev. 1 and IP-1015 of the Emergency Plan.

No items of noncompliance were identified.

#### 11. Unresolved Items

An item about which more information is required to determine acceptability is considered unresolved. Two paragraphs 3.D.3, 3.D.4 and 8C contain unresolved items.

# 12. 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.

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