

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

REGION III

Report No. 50-295/80-12; 50-304/80-12

Docket No. 50-295; 50-304

License No. DPR-39; DPR-48

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: Zion Nuclear Power Station, Units 1 and 2

Inspection At: Zion Site, Units 1 and 2

Inspection Conducted: March 29 through June 1, 1980

Inspectors:

W. S. Little
for J. E. Kohler
W. L. Fisher
for D. E. Miller

7/2/80

7/3/80

J. R. Waters (Training)

Approved By:

W. S. Little
W. S. Little, Chief
Reactor Projects Section 1-2

7/2/80

Inspection Summary

Inspection on March 29 through June 1, 1980 (Report No. 50-295/80-12;
50-304/80-12)

Areas Inspected: Routine resident inspection of plant operational safety, maintenance, surveillance, licensee event reports, Inspection and Enforcement Bulletins, plant trips, calibration, preparation for refueling, refueling activities, containment purging, turbine cracking, independent inspection, and radiation protection. The inspection involved 361 inspector hours on site by two NRC inspectors.

Results: Of the areas inspected, two items of noncompliance were identified (infraction-failure to hold-up radioactive gas for 45 days prior to release, Section II.5.a.; deficiency-failure to report an unplanned, accidental radiation release, Section I.14).

DETAILS

Section I

1. Persons Contacted

N. Vandke, Plant Superintendent
*L. Soth, Operating Assistant Superintendent
*R. Ward, Senior Operating Engineer
E. Fuerst, Unit 1, Operating Engineer
*J. Gilmore, Unit 2, Operating Engineer
*G. Pliml, Administrative and Technical Service Assistant Superintendent
D. Howard, Radiation Protection Supervisor
*J. Maryiani, Technical Staff Supervisor
H. Studman, Quality Assurance Supervisor
P. LeBlond, Nuclear Engineer
T. Parker, Assistant Technical Staff Supervisor
A. Krawczak, Technical Staff Engineer
A. Ockert, Technical Staff Engineer

2. Summary of Operations - March 29 through June 1, 1980

Unit 1

The unit operated the entire reporting period at power levels up to 100%. No reactor trips occurred.

Unit 2

The unit operated at power levels up to 100%. One reactor trip occurred (April 3, 1980, Paragraph 3). Unit 2 cycle 5 refueling outage scheduled for 56 days commenced on May 2, 1980.

3. Unit 2 Reactor Trip - April 3, 1980

At 1730 on April 3, 1980, Zion Unit 2 tripped from 99% power level during a thunder and lightning storm. It is believed that the trip was caused by a lightning strike. The strike caused an over voltage condition in the power supply cabinets supplying power to the control rods. The affected power supply tripped causing two banks of rods to fall into the core giving a rate trip. All required systems performed as necessary.

No items of noncompliance were identified.

4. Unit 2 Cycle 5 Refueling

Unit 2 began a planned refueling estimated to last 56 days on May 2, 1980. All major Three Mile Island Modifications are planned as well as a containment integrated leak rate test.

5. Forty-eight Inch Purge Valves - Purging of Reactor Containment

As a result of the NRC's request of October 30, 1979, Commonwealth Edison committed in a December 14, 1979 letter to NRR to maintain containment purge valves in the closed condition whenever the reactor is not in cold shutdown conditions until an engineering analysis is performed to show: all isolation valves greater than three inch nominal diameter used for containment purge and vent are operable under the most severe design basis accident flow condition and can close within the time stated in technical specifications, design criteria or operating procedures. This requirement is also included in item B.5 of the Confirmatory Order of February 29, 1980.

The licensee performed the required analysis and informed the resident inspector of Zion's intention to begin purging before entering cold shutdown. Review of the engineering analysis showed that the forty-eight inch purge valves would be able to close against the most severe design basis flow conditions with no restrictions on degree of opening. Purging of Unit 2 containment with the reactor in the hot condition occurred on May 2, 1980.

Information regarding purging at the Zion Station was forwarded by Commonwealth Edison to NRR on May 22, 1980.

6. Voluntarily Entering a Limiting Condition for Operation

The inspector discussed with the licensee the regulatory reporting requirements regarding voluntarily entering a limiting condition of operation for the purposes of preventative maintenance.

As discussed with the licensee, it is the NRC position that voluntarily entering a limiting condition of operation for the purpose of preventative maintenance is permissible as long as the reactor is in the mode specified by the particular limiting condition at the end of the time period without resulting in an irregular shutdown such as a reactor trip from a high power level. Additionally, such actions are not reportable.

No items of noncompliance were identified.

7. High Density Spent Fuel Rack Inspection

During the inspection period the licensee began receiving high density spent fuel storage racks. These racks will be placed in the Zion Spent Fuel Pool resulting in a storage capacity increase from 868 to 2112 fuel assemblies authorized by the Atomic Safety and Licensing Board Decision of February 14, 1980. The inspector reviewed the documentation required to be generated for each rack. As of this inspection report, no racks have been placed in the spent fuel pool.

During the management exit on June 2, 1980, the inspector stated that all requirements regarding documentation must be completed prior to fuel rack installation. Additionally, the licensee must notify the inspector prior to installation so that appropriate portions of the installation and initial testing may be reviewed by the NRC.

The licensee is aware of the documentation requirements and will notify the inspector prior to installation.

No items of noncompliance were identified.

8. 1A Charging Pump

As referenced in Inspection Report 50-295/80-01; 50-304/80-01, the 1A charging pump was damaged due to an operating error. Subsequently, it was decided to replace the pump rather than repair it. The pump was then destructively examined.

Destructive examination revealed clad cracking on the inside surface areas and boric acid attack. A Region III NDE inspector reviewed the NDE results and discussed the licensee's proposed corrective actions. The licensee is putting together a special report which will detail the findings and proposed corrective actions. The report should be available within two weeks and will be reviewed by Region III.

This item is open and is numbered 50-295/80-12-01.

9. Bergen-Paterson Steam Generator Snubbers

During the reporting period, Unit 2 generator snubbers were removed and sent to a full scale testing facility operated by Bergen-Paterson in New Hampshire. The testing was required because of fluid leaks which were identified in Unit 1 snubbers. These leaks are described in Inspection Report 50-295/79-27.

The testing to date indicates that the snubber is acceptable for continued duty. However, during testing a deviation was identified in the control valve assembly bleed rate. As a result of this deviation the snubbers were declared inoperable and Zion Unit 1 planned to shut-down by June 2, 1980 as required by technical specification to effect modifications to the control valve assemblies.

Zion Unit 2 is currently in a refueling outage and will modify the control valve assemblies prior to reactor startup.

This item is being carried as open and was previously numbered 295/79-27-02.

10. Unresolved Items

- a. (Closed) Unresolved Item 50-295/80-07-04: Status of 90 day implementation items for confirmatory order:
- D.1 Staffing
 - D.2 PSNRC
- b. (Closed) Unresolved Item 50-304/79-17-01: The licensee performed required Unit 2 RWST liner repairs. The repairs were inspected by a Region III NDE inspector.

No items of noncompliance were identified.

11. Loss of Refueling Cavity Water to the Containment

During the preparations made for refueling of Zion Unit 2, the maintenance department installed temporary sump pump hoses to pump clean refueling water that might be leaking by the refueling boot into the reactor cavity sump back to the reactor drain tank. The reactor cavity sump normally discharges to radwaste. The installation was completed and the refueling cavity was flooded up to the normal refueling elevation.

The licensee discovered that the temporary hose from the reactor cavity sump pump was connected to valve 2DT-9152A instead of 2DT-9152B. The result of this error was to connect the reactor cavity sump directly to the refueling cavity without the ability to isolate the refueling cavity water. In the event that 2DT-9152A or any of the temporary hose connections began leaking, the leak would be unisolatable.

In order to rectify this situation on May 12, 1980, the licensee decided to attempt to freeze seal the line between 2DT-9152A and the refueling cavity (line 2DT-031). When the freeze seal was established, the flange incorrectly installed on valve 2DT-9152A could be installed on valve 2DT-9152B using the freeze seal as a temporary isolation point, allowing the temporary hose to be correctly attached to valve 2DT-9152B.

During the corrective action, the freeze seal blew out spilling approximately 2,000 gallons of refueling cavity water into the lower portion of the containment where it was collected in the containment sump and processed through radwaste. Maintenance workers in the area immediately stuffed rags into the fitting on the bonnet of 2DT-9152A to restrict the flow, and five hours later an underwater diver entered the refueling cavity and installed a damage control plug into the four inch drain line (2DT-031) stopping the leakage. The licensee then correctly attached the hose to valve 2DT-9152B.

The radiological consequences were assessed initially by control room personnel who considered the possibility of an off site release. Control room management initiated a site alert and alerted NRC by red phone. The site alert was shortly cancelled when no increases of radioactivity above nominal plant conditions on site or off site were observed on in-plant monitoring equipment.

Eight of the workers became contaminated with refueling water. Whole body counting showed persistent Co-60 and Cs-137 contamination of two workers not exceeding 11% of the maximum permissible body burdens for these radio nuclides. The underwater diver received approximately 90mRem of exposure.

The resident inspector responded to the incident. He was backed up by a site team headed by the regional director and other senior members of his staff.

The licensee's subsequent investigation into the event identified deficiencies in two maintenance instructions (MI-1, MI-6). The instructions were both changed with appropriate sign-off to insure the reactor cavity is isolated correctly with proper installation of a flange on valve 2DT-9152B. Additionally, the licensee identified discrepancies in the valve tags on 2DT-9152A and B which were corrected.

Finally the licensee has identified possible deficiencies in the freeze plugging procedure MO13-1 which permitted an inadequate freeze plug installation. Possible changes to the freeze plug procedures are being reviewed by the licensee at this time.

A final review by the resident inspector determined that the event was not reportable under 10 CFR 50.72 reporting requirements but was reported. The licensee's management system identified the incorrect temporary sump connection and during corrective action a freeze plug failed to hold.

This item will be considered unresolved pending final review by the licensee of the freeze plug procedure. (50-295/80-12-02)

No items of noncompliance were identified.

12. Meetings Attended During Inspection

March 31, 1980	NRC Region III Training	Glen Ellyn, IL
April 7, 1980	Zion Chamber of Commerce	Zion, IL
April 11, 1980	CECo Corporate Meeting on Health Physics Appraisal	Glen Ellyn, IL
April 21, 1980	Town Meeting	Zion, IL
May 7, 8, 1980	Zion/Indian Point Task Action	Chicago, IL
May 13, 14, 1980	Corporate Management Meeting	Chicago, IL

13. Unit 2 Turbine Cracking

Cracks were discovered in the A and C low pressure turbine spindles on Unit 2. The cracked low pressure sections will be replaced with new spindles which were purchased and are on site.

The B low pressure spindle was examined and found to have no cracks.

No items of noncompliance were identified.

14. Radiation Release - April 1, 1980

The details pertaining to this release are covered in Section II, Paragraph 5.c. of this report. This accidental, unplanned radiation release was not reported to the NRC within one hour as required by 10 CFR 50.72 and the failure to meet the reporting requirements is an item of noncompliance.

The licensee has taken steps to prevent recurrence of the noncompliance. Nuclear Stations Division Managers Directive No. 014A, May 15, 1980 requires reporting within one hour, minor unplanned, accidental releases which escape the plant and are detectable either through sampling, or observation of a recording monitor. The inspectors stated that no reply to this item of noncompliance will be required since corrective action has been taken.

15. Operational Safety Verification

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the months of April and May, 1980. The inspector verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of Unit 2 reactor building and the turbine and auxiliary building were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector by observation and direct interview verified that the physical security plan was being implemented in accordance with the station security plan.

The inspector observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. During the month of May, 1980, the inspector walked down the accessible portions of the Aux Feed systems to verify operability. The inspector also witnessed portions of the radioactive waste system controls associated with radwaste shipments and barreling.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under technical specifications, 10 CFR and administrative procedures.

No items of noncompliance were identified.

16. Monthly Maintenance Observation

Station maintenance activities of safety related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with technical specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and, fire prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety related equipment maintenance which may affect system performance.

The following maintenance activity was observed/reviewed:

Removal of U-2 Reactor vessel head and intervals, W. R. Z-06176

No items of noncompliance were identified.

17. Monthly Surveillance Observation

The inspector observed technical specifications required surveillance testing on the charging, RHR, and safety injection systems and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with technical specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspector also witnessed portions of the following test activities:

Reactor Protection and logic system testing.

18. 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'S

Unit 1

80-12 1B Diesel unavailable
80-13 Area Monitor ORT-AR09 read low
80-14 Containment vent monitor failure
80-15 Failure of Aux. Bldg. ex. monitor
80-16 Steam flow channel out of spec.
80-17 0 Diesel Gen. tripped
80-18 Failure of both SW supplies to 1C Aux. Feed pump
80-19 0 Diesel Gen. tripped
80-20 Failure of 1RT PR-26
80-21 Missed surveillance on safeguards logic

Unit 2

80-13 S.G. pressure comparator shifted high
80-14 S.G. pressure transmitter shifted low
80-15 2B Diesel Gen. tripped
80-16 214 Inverter trip
80-17 Loss of Normal Feed to Bus 249

19. IE Bulletin Followup

For the IE Bulletins listed below the inspector verified that the written response was within the time period stated in the bulletin, that the written response included the information required to be reported, that the written response included adequate corrective action commitments based on information presentation in the bulletin and the licensee's response, that licensee management forwarded copies of the written response to the appropriate onsite management representatives, that information discussed in the licensee's written response was accurate, and that corrective action taken by the licensee was as described in the written response.

IEB 80-04 Analysis of a PWR Main Steam Line Break With Continued Feedwater Addition

20. Surveillance

The inspector observed technical specifications required surveillance testing (other than calibrations and checks) on the charging, RHR, and safety injection systems and verified that testing was performed in accordance with technically adequate procedures, that results were in conformance with technical specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during testing were properly reviewed and resolved by appropriate management personnel.

No items of noncompliance were identified.

21. Preparation for Refueling

The inspector verified that technically adequate procedures were approved for Unit 2 Cycle 5 refueling which commenced on May 2, 1980. The inspector verified that the licensee's 10 CFR 50.59 safety evaluation of the reload core showed that prior NRR review is not required. The inspector also reviewed the licensee's program for overall outage control.

No items of noncompliance were identified.

22. Refueling Activities

The inspector verified that prior to the handling of fuel in the core, all surveillance testing required by the technical specifications and license s procedures had been completed; verified that during the outage the periodic testing of refueling related equipment was performed as required by technical specifications; observed three shifts of the fuel handling operations (removal, inspection and insertion) and verified the activities were performed in accordance with the technical specifications and approved procedures; verified that containment integrity was maintained as required by technical specifications; verified that good housekeeping was maintained on the refueling area; and, verified that staffing during refueling was in accordance with technical specifications and approved procedures.

No items of noncompliance were identified.

23. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection on June 2, 1980 and summarized the scope and findings of the inspection activities. The licensee acknowledged the inspectors comments.

Section II

Prepared by D. E. Miller
Reviewed by W. L. Fisher

W. L. Fisher

1. Rad/Chem Department Organization

Since the special health physics appraisal program, conducted on March 10-21, 1980, the following organizational changes have been made:

- a. Mr. D. R. Howard was transferred to Zion Station to replace the Rad/Chem Supervisor. The replaced Rad/Chem Supervisor was transferred to CECo headquarters to fill the Radwaste Management Coordinator position which Mr. Howard had occupied.
- b. Two additional Rad/Chem Foreman positions have been filled by reassignment. One individual was previously assigned as a Chemist and one as a Radiation Protection and Chemistry Instructor with the training department.

A Rad/Chem Foreman is now on duty on all shifts.
- c. Chemists and Health Physicists have been given specific assignments for which they are responsible.

The organization now consists of a Rad/Chem Supervisor, a Station Chemist, a Station Health Physicist, three Chemists, three Health Physicists, two Engineering Assistants, a Lead Rad/Chem Foreman, four Rad/Chem Foremen, and twenty-two Rad/Chem Technicians.

2. Qualifications

- a. The two recently appointed Rad/Chem Foremen appear to meet the requirements for Supervisors not requiring AEC licenses listed in Section 4.3.2 of ANSI N18.1-1971 as required by Technical Specification 6.1.D.
- b. The newly assigned Rad/Chem Supervisor has been with CECo since 1968. He spent four years at Zion Station, during which time he: conducted preoperational testing of reactor coolant, radwaste, and radiation monitoring systems; performed startup testing of radwaste systems; and had a six month assignment as a Rad/Chem Foreman. During the past six years he has held the position of Radwaste Management Coordinator with CECo headquarters. Licensee Technical Specification 6.1.D requires that the Rad/Chem Supervisor meet or exceed the qualifications for Radiation Protection Manager (RPM) listed in Regulatory Guide 1.8 dated September, 1975. Based on a cursory review by the inspector, it appears that the currently assigned Rad/Chem Supervisor does not meet these requirements. However, other Rad/Chem Department Managers may qualify.

During a meeting with station management on May 2, 1980, the licensee stated that a resolution concerning the Rad/Chem Supervisor's qualifications as RPM, or other possible methods of compliance with Regulatory Guide 1.8, would be pursued with NRR. This matter is considered unresolved pending NRR review of licensee submittals.

3. Logs

On April 1, 1980, the licensee started maintaining a radiation chemistry technician shift logbook. The log contains significant items occurring during the shift, shift instructions, job assignments, and shift turnover information. Log entries are made by department supervisors and technicians.

4. Waste Gas Hold-Up System

Because there have been no planned Gas Decay Tank (GDT) releases since June, 1979, the inspector reviewed the operation of the system. There are six 600 cubic foot GDT's, which can be charged to 100 psi. According to the licensee, the GDTs and cover gas header contents can provide tank cover gas, as Hold-Up Tank (HUT) volumes are reduced, and can be compressed into the GDTs when HUT volumes increase. The licensee calculates system gas-liquid balance daily.

The inspector learned that nitrogen is added to the header system when the GDT pressure is low as a result of clean-up processing of the HUT liquids and/or primary coolant charging. These manual nitrogen additions to the system are not measured. System operation discussions with various licensee representatives revealed that the gas-liquid balance calculations were being performed by the technical staff without knowledge that the Operations Department frequently adds these unspecified quantities of nitrogen to the system.

Since hydrogen and other noncondensable gases are evolved from HUT liquids to the cover gas and since nitrogen is frequently added to the system, it would appear that over long periods of time there should be sufficient net gains in system gas quantities to require gas decay tank hold-up and discharge.

During discussions, the licensee stated an intent to:

- a. Include nitrogen additions in their daily gas-liquid balance calculations.
- b. Perform leak-rate testing of the GDT's during the current outage.
- c. Place nine flow meters in various locations in the waste gas system within the next nine months to aid in identifying areas of leakage.
- d. Perform leak testing of the Unit 2 let-down system during the current outage.

Because radioactive gases might have been inadequately contained, measured, and released, this matter is considered unresolved pending completion of the above work.

5. Unplanned Gaseous Releases

a. Gas Decay Tank - May 6, 1980

At 1000 hours on May 6, 1980, the licensee started draining Hold-Up Tank (HUT) "0" to the Hold-Up Tank room floor, which drains to the auxiliary building equipment sump "A." The water drained from the HUT contained a high silica content from backwash of another plant system, and the draining was being performed to remove this high silica water from the system. The "B" equipment operator was instructed to stop the draining when about 5% of tank capacity remained, thus preventing the uncontrolled release of vent header cover gas from the tank's open drain.

During the tour of the auxiliary building, the inspector noted at 1130 hours: that HUT "0" indicated 7% full; that Gas Decay Tank (GDT) 1B, valved to the cover gas header to provide regulated cover gas, was at 88 psi; and that the gas header pressure was 2.2 psi. According to the "B" operator and the radwaste log book, shortly after 1200 hours the operator, suspecting that something was wrong, went to the HUT room and heard gas escaping from the HUT "0" drain line. He then closed the drain valve at 1230 hours and informed the Radwaste Foreman of the gas release. At about 1245 hours, the Radwaste Foreman notified the Shift Foreman, who notified a Health Physicist. At 1445 hours the inspector noted: that HUT "0" indicated 6% full; that GDT 1B was at 13 psi; and that the cover gas header pressure was 2.9 psi. The released gas was swept from the HUT room through the normal auxiliary building ventilation pathway and was discharged mainly from the Unit 1 stack.

Subsequent analysis of the gas remaining in GDT 1B indicated that the radioactive content was two thirds Xe-133 and one third Kr-85. Based on auxiliary building effluent gas monitor 1RTPR-25 chart traces, the release duration was about 90 minutes, of which about 70 minutes could be interpreted as the length of time gas was being vented from the tank. Based on the chart traces, isotopic content, and monitor calibration, the total release was about 2.7 curies of noble gas at an average release rate of about 470 $\mu\text{Ci}/\text{sec}$. The maximum release rate was about 520 $\mu\text{Ci}/\text{sec}$, about 1% of the technical specification instantaneous release limit for noble gases of 60,000 $\mu\text{Ci}/\text{sec}$. The apparent major cause of this event was erroneous HUT "0" level indication, which read 6% full when the tank was empty.

Licensee Technical Specification 3.12.1.C.4.2 states that radioactive gaseous wastes collected in the gas decay tanks shall be held a minimum of 45 days before being released, except during purge and fill operations associated with refueling and reactor startup. Since part of the header and GDT 1B contents were released without hold-up for decay, this matter is considered an item of noncompliance.

The licensee has placed an information tag on the HUT "0" level gauge indicating that 6% is empty, and the instrument and control group is to recalibrate level instrumentation.

No items of noncompliance were identified.

b. Makeup to Unit 1 Refueling Water Storage Tank (RWST) on April 24, 1980

Similar events to the following have occurred several times previously. At 1030 hours on April 24, 1980, during normal makeup to the RWST with water from the Primary Water Storage Tank, increased effluent noble gas activity from the auxiliary building was observed. The release lasted about 45 minutes. The RWST is vented into the room in which it is housed in the auxiliary building. Based on the chart traces, isotopic content, and monitor calibration, the total release was about four curies of noble gas at an average release rate of 1600 $\mu\text{Ci}/\text{sec}$. The maximum release rate was about 2700 $\mu\text{Ci}/\text{sec}$, about 5% of the technical specification instantaneous release limit for noble gases of 60,000 $\mu\text{Ci}/\text{sec}$. No particulates or halogens were released.

About one week after this event, an internally leaking valve on a cross connecting line from the Unit 1 let-down system was identified as the probable source of the primary coolant which was introduced into the RWST during filling. Once the primary coolant was in the RWST, the entrained noble gases evolved and were released to the auxiliary building and swept out by the normal ventilation.

The valve was repaired with no similar subsequent occurrence.

No items of noncompliance were identified.

c. Draining of Liquid from 2B Mixed Bed Demineralizer on April 1, 1980

On April 1, 1980, at about 1800 hours, a licensee representative collected a liquid sample from the 2B mixed bed demineralizer as part of a routine monthly surveillance program. He apparently forgot to close a valve. As a result of investigating increased effluent activity from the auxiliary building vent, at about 1910 hours, the open valve was discovered and closed.

About 700 gallons of the primary coolant had drained through the open valve and was contained in the Auxiliary Building Equipment Drain Tank (ABEDT). This tank is vented through a charcoal and particulate filter to the monitored auxiliary building effluent. Once the primary coolant was in the ABEDT, the entrained noble gases evolved and were released.

Based on the chart traces, isotopic content, and monitor calibration, the total release was about ten curies at an average release rate of about 2600 $\mu\text{Ci}/\text{sec}$. The maximum release rate was about 7600 $\mu\text{Ci}/\text{sec}$, about twelve percent of the technical specification instantaneous release limit for noble gases of 60,000 $\mu\text{Ci}/\text{sec}$.

No items of noncompliance were identified.

6. Management Exit

At the conclusion of the inspection, a management meeting was held on May 6, 1980 with Mr. Howard, describing the scope and findings.