U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/84-49
50-529/84-33
50-530/84-23

Docket No. 50-528, 50-529, 50-530 License Nos. CPPR-141
CPPR-142
CPPR-143

Licensee: Arizona Public Service Company
P. O. Box 21666
Phoenix, Arizona 85836

Facility Name: Palo Verde Nuclear Generating Station - Unit 1, 2, 3

Inspection at: Palo Verde Site - Wintersburg, Arizona

Inspection conducted: November 5-9, 1984 and telephone conversations on November 13-14, 1984

Inspectors: Conrad I. Sherman — November 27, 1984
C. I. Sherman, Radiation Specialist — Date Signed

Wm Mark Grayson — November 27/84
W. M. Grayson, Radiation Specialist — Date Signed

Approved by: G P Yuhas — 11/28/84
G. P. Yuhas, Chief — Date Signed
Facilities Radiological Protection Section

Summary:

Inspection during the period of November 5-9, 1984 and telephone conversations on November 13-14, 1984 (Report No. 50-528/84-49, 50-529/84-33, 50-530/84-23

Areas Inspected: Routine unannounced inspection of preoperational test of the Radiation Monitoring System and NUREG-0737 Items II.B.3 and II.F.1; follow-up on inspector identified items; review of licensee commitments related to ALARA; follow-up on I&E notices. The inspection involved seventy (70) hours onsite by two regionally based inspectors.

Results: Of the areas inspected, no items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted - APS

L. Brown, Radiation Protection and Chemistry Manager
*B. Cederquist, Chemical Services Manager
J. Mann, Corporate Health Physicist
*+G. Perkins, Manager, Radiological Services
C. Russo, Manager, Audits and Monitoring
W. Ide, Director, Corporate Quality Assurance/Quality Control
*+T. Bloom, Licensing Engineer
*D. Yows, Emergency Planning
*R. Page, Manager, Emergency Planning
J. Ong, Radiation Protection Engineer
*W. Quinn, Manager, Licensing
*N. Meador, Licensing
*O. Zeringue, Technical Support Manager
*R. Ferguson, Startup Regulatory Interface Lead
*P. Hillner, Radwaste Manager
*R. Jacobs, QA Engineer
*R. Hamilton, Quality Monitoring Supervisor
*T. Smith, Jr., Compliance Engineer
*E. Sterling, Nuclear Engineering
J. Lucisero, ISEG
M. Simmons, Radwaste Foreman, Acting
M. Ingasie, Unit 1, Radwaste Manager
M. Ganett, ALARA Engineer
M. Lombard, ISEG

Contractor Personnel

D. Brown, Radiological Engineer, IRM
M. Moon, Radiological Engineer, Numanco
J. Balash, Engineer, Cal Test
S. Bump, Radiological Engineer, EI

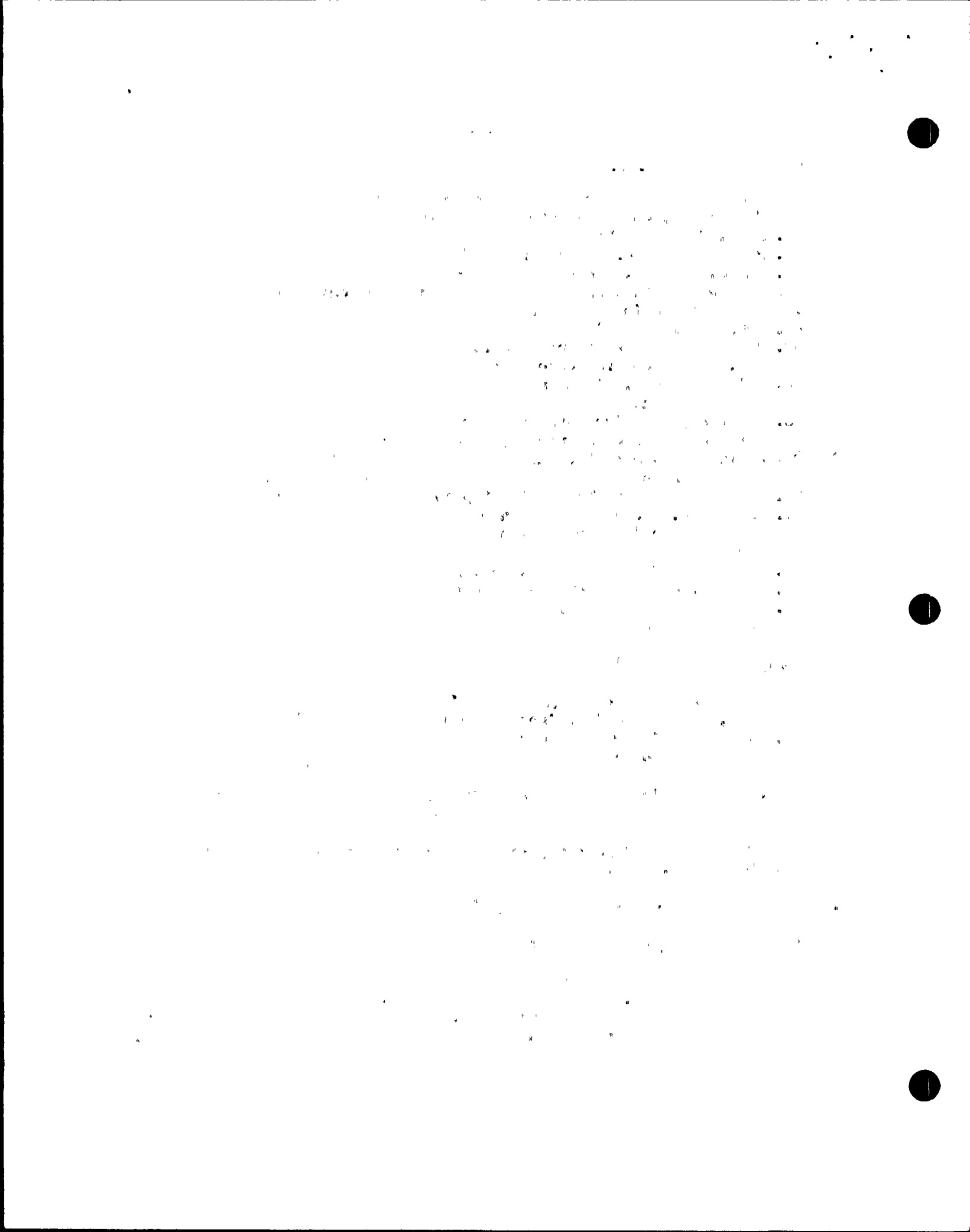
*Denotes those individuals attending the exit interview on November 9, 1984.

+Denotes individual participating in telephone conversations on November 13-14, 1984.

2. Action on Previous Inspection Findings

(Closed) (83-03-05) (83-30-01)

Inspector identified items related to fuel building ventilation exhaust radiation monitors. This item closed based upon licensee's satisfactory response to an item of deviation as described in NRC Inspection Report No. 50-528/84-34, page 8. The inspector had no further questions on this matter.



(Closed) (83-12-12)

Inspector identified item regarding vendor supplied transfer calibration records for the radiation monitoring system. By letter dated October 25, 1984, A. Rodgers to J. Bynum, Subject, 'Calibration Documentation for the RMS,' Nuclear Engineering provided the results of an audit of vendor calibration documents. This document provided satisfactory response to previously raised concerns about the calibration documents. The inspector had no further questions on this matter.

(Closed) (83-12-14)

Inspector identified item regarding time dependent correction factors for the post accident noble gas effluent channels. The licensee has developed correction factors and incorporated these in EPIP-14A. These correction factors, developed using an accident isotopic mix, are designed to be used only with the mid and high range monitor channels. The licensee plans to calibrate these channels using an accident source term mixture. Use of the low range monitor channel with the EPIP-14A time correction factors would lead to an incorrect result. The inspector noted that this procedure does not indicate that the 'Effective Age Correction Factor' is not applicable to the low range noble gas monitor channel reading. This is not expected to present any problem as the RMS will automatically select the mid range channel above a certain count rate corresponding to a high activity concentration.

The inspector had no further questions on this matter.

(Closed) (83-12-16)

Inspector identified item regarding particulate and iodine sampling considerations and procedures for analysis of particulate and iodine samples from the post accident sample system (PASS) and the post accident particulate and iodine release point samplers. As described in NRC Inspection Report 50-528/84-34, this open item consisted of four parts. The remaining open areas have been partially addressed by the licensee. These areas are completion of procedures for handling post accident samples and completion of methods and procedures for onsite analysis of the samples.

The licensee has revised EPIP-27 to include guidance in some of these areas. The inspector examined this procedure and noted the following.

- The procedure provides specific health physics guidance for work with potentially high activity samples.
- The procedures provides guidance for sampling the RCS and containment sump, containment atmosphere and the particulate and iodine release point samples.
- The procedure provides guidance for analysis of PASS liquid chemistry parameters and for coolant and containment radiochemistry parameters by reference to routine station procedures.

- Specific procedures and methodology for analysis of high activity particulate and iodine effluent release samples are not complete.

- The procedure provides adequate guidance for interplant sample transport.

The licensee representative responsible for chemistry programs indicated that additional work on procedures would provide specific guidance for handling high activity samples in the wet chemistry laboratory and for counting high activity samples on the gamma spectrometers.

This matter is considered closed based upon the licensee's plan to complete work in the remaining open areas and the fact that an administrative technical specification will likely require a PASS program to cover these matters. The inspector had no further questions on this matter.

(Closed) (83-12-18)

Item regarding the containment high range monitor cable environmental qualification. By letter dated September 10, 1984, the licensee provided their justification for interim operation and the qualification schedule to NRC, NRR. Any additional action in this area will be resolved by NRR.

The inspector had no further questions on this matter.

(Closed) (83-14-21)

Inspector identified item regarding installation of RMS. As described in NRC inspection report 50-528/84-34, page 1-3, the system installation and generic testing are complete. The preoperational tests, 92 PE 1SQ01-05 are in final stages of completion. The inspector had no further questions on this matter.

(Closed) (83-14-29)

Inspector identified item regarding completion of PASS procedures.

The licensee has established procedures in the following areas:

74CH 9ZZ90 Operation and Calibration;
74PR 92Z02 PASS Program;
74ST 1SS01 Surveillance;
74HF 1SS03, 74HF1SS04 Preoperational Test

The inspector examined 74CH9ZZ90, "Operation and Calibration of the Post Accident Sampling System," and observed operation of the process by the computer control console. The procedure appears to provide adequate specificity for operation in both manual and automatic control. The licensee will likely make further modifications to the procedure as necessary during the sixty day operational availability demonstration and training periods.

The PASS Program procedure and surveillance procedure are in final stages of completion. Preoperational test procedures were examined as previously described in NRC inspection report 50-528/84-34, page 7.

This matter is considered closed based upon satisfactory progress in completion of PASS procedures.

(Open) (83-12-15)

Inspector identified item regarding main steam line radiation monitor correction factor for low energy photons. The licensee has provided new correction factors and included these in EPIP 14A, Revision 3. Based upon discussion with contractor radiological engineers and the inspectors examination of correction factors provided in step 4.3.2.2, it appears that the factors provided in this procedure are still not correct. To resolve this matter, the licensee should be able to provide the inspector a verified and approved calculation establishing these correction factors. Completion of this aspect of NUREG 0737 item II.F.1-I is considered essential for NRC acceptance of noble gas post accident effluent monitoring. This area will be reexamined in a subsequent inspection.

(Open) (83-12-19)

Inspector identified item regarding the PASS. PASS status is as follows:

- At the time of inspection, the Unit 2 backup lab capability was not complete.
- The vendor demonstration test has been completed. Results of this test and the preoperational performance test 74HF-1SS03-04 will be examined during a future inspection.
- The licensee intends to perform system modifications to provide backup dissolved gas sample capability to the system (refer to 50-528/84-34, pp. 7-8). Any schedule requirements on completing this work will be controlled by NRR.
- The licensee is in the process of performing radiological reviews necessary to define the shielding envelope for the backup sample analytical procedures.
- The licensee is documenting analytical accuracy and sensitivity that may be obtained at various sample dilutions.
- The licensee has performed habitability studies of the Unit 2 lab in the event of a LOCA at Unit 1. These studies indicate worst case limiting dose rates of 15 rem (thyroid) per hour when a 1% iodine fraction available for release is used. The inspector indicated at the exit, the advisability of including guidance for performing iodine monitoring in the backup lab radiation protection guidance. EPIP-27 does not presently cover this item.

The PASS area will remain open until all commitments, license conditions and technical specification requirements are completed. Aspects of the PASS program are described by technical specification and as such, will likely be required at the time of license issuance.

(Open) (83-12-20)

Inspector identified item regarding availability of backup analytical capability for post accident samples. As indicated above, the licensee has not completed work to provide this capability at the Unit 2 lab. This area will be reexamined prior to license issuance.

(Closed) (84-13-03)

Inspector identified item regarding licensee response to RMS task force consultant report. As previously discussed in NRC Inspection Report No. 50-528/84-34, page 4, the inspector reviewed a memo to file from J. Stevens. The majority of items were also identified by the NRC inspection program and were followed as open items until resolution. Outstanding items remaining include:

- evaluation of heat tracing for airborne monitors;
- automatic gas monitor channel pressure compensation;
- RMS channel response, stability and sensitivity determinations.

The licensee is aware of these items and has plans to study and resolve these questions as well as the other items for which resolution has been initiated.

This matter is considered closed based on the licensee's satisfactory progress in initiating action to resolve other RMS discrepancies and work in progress on the items identified. The inspector has no further questions on this matter.

3. RMS Related Emergency Response Items

In review of EPIP-14A, the inspector noted that no guidance is provided on using the particulate and iodine samples from the plant effluent accident range monitors to aid in evaluating plant iodine release rates. NUREG 0737 item II.F.1-2 and the standard PASS Administrative Technical Specification detail the requirement to have a program providing for onsite analysis of these samples. While there is no specific NRC requirement to use these samples in assessing releases or determining protective actions, it is considered by the regional staff prudent for power reactor licensee's to plan for obtaining these samples expeditiously in the event of a release. It is noted that a similar observation was made in NRC Inspection Report No. 50-528/84-13 § 5.3, page 33. EPIP-14A alludes to use of lab analysis for steps 4.3.2 (Main steam line monitor activity release rate) and step 4.3.3 (isolated containment release rate) but not for 4.3.1 (effluent release point activity release rate).

The lack of detailed procedural guidance to verify release rates predicted by EPIP-14A by taking and analyzing grab samples may result in making unwarranted protective action recommendations when the recommendation is based on thyroid dose as determined by Appendix A to EPIP-14A.

It is expected that the licensee will review this matter and if changes are deemed necessary, they will be implemented prior to power operation.

No violations or deviations were identified.

4. Radiation Monitoring System Printout Capability

The licensee is taking adequate steps to resolve this matter (see NRC inspection report 84-34, page 9) prior to the operating license issuance by providing a hard copy output device.

No violations or deviations were identified.

5. Plateout Testing for RMS

By letter dated March 23, 1984, the licensee advised NRC, Region V of their plans to perform plateout and ventilation flow tests, and to provide details of the test program to the inspector. This letter was in response to an item of deviation dated December 9, 1983.

By letter dated October 19, 1984, the licensee submitted their proposed test program to NRC in the form of a purchase specification and vendor proposal. A preliminary review performed by the inspector concluded that the test program described would satisfactorily resolve the items raised in the Notice of Deviation. These items were to include tests to demonstrate samples of gases are representative of releases and tests to determine amount of plateout in sample system piping.

The licensee's proposed test provides for the following tests:

- Particulate size and mass distribution studies.
- Particulate plateout factor calculations.
- Mixing studies to verify representative sampling.
- Velocity flow traverses.

These tests will be performed according to the following schedule.

- Plateout studies in the plant vent sample lines.
- Plateout studies in the containment atmosphere sample lines.
- Flow traverses in the plant vent exhaust sample lines.
- Flow traverses in the fuel building exhaust sample lines.

- Mixing studies and verification of representative sampling in the plant vent sample lines.

The tests will be performed by a vendor experienced in this area.

Final results and implementation will be examined in a future inspection (Open, 84-49-01).

6. Safety Evaluation Report Review and Follow-up

The inspector reviewed licensee radiation protection and ALARA design considerations in Chapter 12 of the Final Safety Analysis Report (FSAR), and the Safety Evaluation Report (SER). No specific SER follow-up items were identified during this review. Selected licensee statements with regard to facility, equipment design and ALARA considerations were verified during a walkthrough of the Unit 1 radwaste building.

During the walkthrough the inspector expressed concern that wall coatings provided in the radwaste facility to facilitate decontamination appear to have been inconsistantly applied. FSAR Section 12.3.1.1.2.4 states that "Decontamination of potentially contaminated areas and equipment within the plant is facilitated by the application of suitable smooth-surface coatings to the concrete floors and walls." Multiple locations within the radwaste building were observed where wall coatings in potential areas of contamination were found to be partially coated, thinly coated, or not coated. This included but was not limited to Room 117 valve gallery, Room 124 valve gallery, and Room 220 evaporator room.

This concern was discussed with licensee representatives during the inspection and at the exit interview. The inspector noted that the licensee was aware of this condition and that an Engineering Evaluation Request (EER) No. 84-ZR-011 had been generated which is currently being evaluated by Nuclear Engineering. The inspector discussed the need for the licensee's ALARA group to determine the extent wall coatings are deficient and assure these concerns are factored in to the engineering evaluation.

No violations or deviations were identified.

7. Distribution and Control of I.E. Information Notice

The inspector verified that the licensee had received and reviewed for applicability the following IE Information Notices.

IN-84-34	Respirator User Warning - SCBA 4500 PSI Luxifer Cylinders
IN-84-40	Emergency Worker Doses
IN-84-50	Clarification of Scope of QA Programs for Transport Packages pursuant to 10 CFR Part 50, Appendix B.
IN-84-55	Seal table leaks at PWR.

IN-84-56 Respirator users notice for certain 5-min emergency escape SCBA.

IN-84-59 Deliberate circumventing of station health physics procedures.

IN-84-60 Failure of air-purifying respirator filters to meet efficiency requirement.

IN-84-61 Overexposure of diver in pressurized water reactor (PWR) refueling cavity.

Licensee responses were evaluated for seven information notices, and were found to be acceptable.

No violations of NRC requirements were identified.

8. Exit Interview

The scope and findings of this inspection were discussed on November 9, 1984 with the individuals denoted in paragraph one at the conclusion of the inspection.

Items remaining where satisfactory resolution prior to operating license issuance (OL) appeared to have been addressed by the licensee were discussed. These include:

Provision for an RMS data recorder device;
Deficiencies in transfer calibration data for RMS;
Completion of RMS calibration and preoperational tests.

Items remaining where the inspector felt additional effort to secure resolution prior to OL were also discussed:

Completing establishment of the PASS backup laboratory at Unit 2; Resolution of the main steam monitor correction factors; Completion of PASS analytical procedures and effluent analytical procedures.

Items that could be completed after OL or controlled by NRR were also discussed:

Environmental qualification of the high range monitor cable; Modifications to the PASS backup grab sample system; Consideration of possible additions to EPIP-14A; Items identified by RMS task force.

Findings related to ALARA considerations were also presented. The licensee agreed to provide follow-up information to the inspector regarding status of priority of the licensee's corrective actions.