ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Licenses: NPF-41
NPF-51
NPF-74

Licensee: Arizona Public Service Company
P.O. Box 53999
Phoenix, Arizona

Facility Name: Palo Verde Nuclear Generating Station, Units 1, 2, and 3

Inspection At: Wintersburg, Arizona

Inspection Conducted: April 1-5, 1996

Inspectors: J. Blair Nicholas, Senior Radiation Specialist
Plant Support Branch

Gilbert L. Guerra, Jr., Radiation Specialist
Plant Support Branch

Approved: Blaine Murray 4/18/96
Blaine Murray, Chief, Plant Support Branch Date
Division of Reactor Safety

Inspection Summary

Areas Inspected: A routine, announced inspection of the liquid and gaseous radioactive waste management and radiological environmental monitoring programs was performed and included the following areas: organization and management controls, training and qualifications, quality assurance program, liquid and gaseous radioactive waste effluent systems including effluent radiation monitoring systems, safety-related air cleaning ventilation systems, radiological environmental monitoring program, meteorological monitoring program, and reports of environmental monitoring operations and radioactive effluent releases.

Results:

Plant Support:

- The licensee effectively managed the radioactive waste effluent and radiological environmental monitoring programs (Section 1).

- An excellent training program was implemented for personnel responsible for performing radioactive waste effluent activities. All radiological monitoring technicians were trained and qualified to perform radioactive waste effluent activities. The licensee maintained a well trained, qualified, and experienced staff to effectively implement the radioactive waste effluent and radiological environmental monitoring programs (Section 2).

- Excellent, comprehensive quality assurance audits, nuclear assurance evaluation reports, and quality assurance monitoring reports of the radioactive waste effluent and radiological environmental monitoring programs were performed (Section 3).

- The licensee effectively implemented the liquid waste effluent and gaseous radioactive waste effluent programs. A good testing and calibration program was established for the radioactive waste effluent instrumentation and radiation monitors (Sections 4).

- A good program was established for testing the safety-related air cleaning systems (Section 5).

- A very good radiological environmental monitoring program was implemented (Section 6.1).

- A recent modification to the meteorological tower provided for the implementation of an excellent meteorological monitoring program which achieved a greater than 90 percent data recovery rate (Section 6.2).

- Excellent Annual Radioactive Effluent Release Reports and Annual Radiological Environmental Operating Reports were submitted in a timely manner and contained all of the required information in the proper format. Proper land use censuses were performed (Section 7).

Summary of Inspection Findings:

- No violations or deviations were identified.

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting

- Attachment 2 - List of Documents Reviewed

DETAILS

1 ORGANIZATION AND MANAGEMENT CONTROLS (84750)

The inspectors reviewed the licensee's organization, staffing, and lines of authority as they related to the radiological monitoring department and the chemistry support department within the chemistry department, which were responsible for implementing the radioactive waste effluent and radiological environmental programs, to verify compliance with the requirements in Technical Specification 6.2.

The chemistry department, headed by the site chemistry director, was divided into four departments: chemistry operations, chemistry support, radiological monitoring, and training. The radiological monitoring department was responsible for conducting the radioactive waste effluent program, and the chemistry support department was responsible for conducting the radiological environmental monitoring program. The inspectors concluded that the chemistry department organizational structure satisfied the requirements of the Technical Specifications.

The inspectors reviewed the staffing of the radiological monitoring department and the chemistry support department and determined it to be adequate and in accordance with licensee's commitments. The licensee had experienced no turnover of personnel implementing the radioactive waste effluent and radiological environmental monitoring programs since the previous NRC inspection of these areas.

Procedures were reviewed for the assignment of responsibilities for the management and implementation of the radioactive waste effluent program. These procedures identified the responsibilities, duties, and authority of the radiological monitoring department personnel. (Attachment 2 contains a list of documents reviewed.) The radiological monitoring department was assigned the responsibility for sampling and analyzing waste effluents, preparing radioactive waste release permits, evaluating the radioactive waste effluent releases, calculating the radiation doses resulting from the releases to the environment, and maintaining radioactive waste effluent release data. The inspectors determined through discussions and observations that the radiological monitoring technicians were familiar with the requirements of the radioactive waste effluent program and maintained a high level of performance. The duties and responsibilities of the radiological monitoring department were effectively implemented.

The licensee's central laboratory on site was managed by the chemistry support department and processed the radiological environmental monitoring samples and performed the required analyses. The inspectors reviewed procedures for the implementation of the radiological environmental monitoring program. (Attachment 2 contains a list of documents reviewed.) These procedures provided instructions for the collection, documentation, and analyses of environmental media samples collected around the station site.

The central laboratory was also responsible for the calibrations and preventive maintenance on the environmental air samplers. The inspectors determined that the duties and responsibilities specified in the Offsite Dose Calculation Manual were being implemented by the central laboratory personnel. The personnel in the central laboratory were effectively implementing the radiological environmental monitoring program.

2 TRAINING AND QUALIFICATIONS (84750)

The inspectors reviewed the chemistry department training and qualification program for personnel implementing the radioactive waste effluent program to determine compliance with Technical Specifications 6.3 and 6.4.

The inspectors reviewed the initial and continuing training programs for the radiological monitoring technicians. It was determined that the licensee's training program was implemented in accordance with station procedures.

Based on the review of personnel training records, it was verified that all of the radiological monitoring technicians had completed the required initial training and annual continuing training to be qualified to perform all of the required tasks involved in performing radioactive waste effluent releases.

The inspectors determined that the experience, training, and working knowledge of the personnel responsible for implementing the radioactive waste effluent program met the training and qualification requirements.

The inspectors noted that the personnel involved in the radiological environmental monitoring program had been in their positions for several years and were well qualified to perform their assigned duties. The inspectors determined that the experience, training, and working knowledge of the personnel responsible for implementing the radiological environmental monitoring program were satisfactory.

3 QUALITY ASSURANCE PROGRAM (84750)

The inspectors reviewed the quality assurance audit program regarding the radioactive waste effluent and radiological environmental monitoring programs' activities to determine compliance with the requirements in Technical Specification 6.5.2.8.

The inspector reviewed the audit schedules for the period 1994 through 1996. The audit schedule indicated that the audits of the radioactive waste effluent and radiological environmental monitoring programs and the Offsite Dose Calculation Manual were performed concurrently on an annual basis. This audit schedule was in compliance with the Technical Specification audit frequency requirements.

Audit and surveillance reports of quality assurance activities performed during 1994, 1995, and thus far in 1996 of the radiological waste effluent and radiological environmental monitoring programs were reviewed for scope, thoroughness of program evaluation, and timely followup of identified deficiencies. The three annual audits were conducted on February 21 through

March 2, 1994, March 14-24, 1995, and February 13-23, 1996. As a result of the audits, 15 Condition Report/Disposition Requests (CRDR) were initiated. At the time of the inspection, all of the CRDRs generated during the 1994 and 1995 audits were closed. There had not been sufficient time since the completion of the 1996 audit for all of the CRDRs generated during the that audit to be closed.

The inspectors reviewed the qualifications of the quality assurance auditors and technical specialists who conducted the audits. The audits were performed by qualified personnel who were knowledgeable in radiological waste effluent programs, radiological environmental monitoring programs, and Offsite Dose Calculation Manual requirements at nuclear power facilities. The audits were technically comprehensive and provided excellent program evaluation and management oversight. The audits met Technical Specification requirements.

The inspectors reviewed 14 nuclear assurance evaluation reports and quality assurance monitoring reports performed in 1994 and 1995 in the areas related to the performance of the radiological waste effluent and radiological environmental monitoring programs. The quality assurance surveillances were satisfactory to evaluate the licensee's performance and provide periodic management oversight. (Attachment 2 contains a list of documents reviewed.)

During the time period 1993 through 1996, the licensee had used two contractor laboratories to perform required radiochemistry analyses on radioactive waste effluent composite samples. The licensee had performed an audit of one of the radiochemistry laboratories on September 22-23, 1993, and was using a Nuclear Procurement Issues Committee (NUPIC) quality assurance audit No. QAO-94-460 of the second radiochemistry laboratory to evaluate the performance of each of the two contractor laboratories in performing their analytical functions and to retain their current status on the licensee's approved vendor's list. The licensee had also used two contractors to perform laboratory charcoal adsorber analyses on the station's safety-related air cleaning systems. The licensee used NUPIC quality assurance audit No. 94-007 conducted November 15-17, 1994, of one of the contractors and NUPIC quality assurance audit No. 95V-16 conducted May 2-5, 1995, of the second contractor to evaluate the performance of the two contractors in performing their analytical functions and to retain their current status on the licensee's approved vendor's list. An annual evaluation of each of the contractors was conducted by the licensee. The inspectors reviewed these audits performed on each of the four contractors and found the audits to be comprehensive and satisfactory to evaluate each of the contractor's abilities to perform their respective Technical Specification required analyses and surveillance activities.

4 LIQUID AND GASEOUS RADIOACTIVE WASTE EFFLUENTS (84750)

The inspectors reviewed the liquid and gaseous radioactive waste effluent programs including liquid and gaseous waste processing, liquid and gaseous waste sampling and analyses, procedures for control and release of liquid and gaseous radioactive waste effluents, and gaseous effluent radiation monitor tests and calibrations to determine compliance with the requirements in Technical Specifications 3/4.11, 6.8.4.g, and 6.14; and in the Offsite Dose Calculation Manual, Sections 2, 3, 4, and 5; and Tables 2-2, 3-1, and 3-5.

4.1 Liquid Effluents

The inspectors reviewed the licensee's implementation of the secondary system liquid waste effluent program as described in the Offsite Dose Calculation Manual to ensure compliance with the sampling and analyses requirements, analyses sensitivities, analytical results, and surveillance tests associated with the liquid waste processing systems.

The inspectors reviewed selected surveillance tests governing the disposition of liquid waste effluents. These surveillance tests provided for the sampling and analyses of the secondary liquid waste tanks and sumps in each unit prior to release to the retention basins and subsequent discharges from the retention basins to the evaporation ponds on site. There were no liquid radioactive waste effluents released from the site. The inspectors observed a radiological monitoring technician collect a liquid waste sample from the Unit-1 Chemical Waste Neutralization Tank B on April 4, 1996, and perform chemical (pH) and radiochemistry analyses (principal gamma emitters and tritium) on the sample in preparation for discharge to the retention basins on site. All aspects of the chemical waste neutralization tank sampling and analyses were performed in accordance with approved procedures.

The inspectors reviewed selected batch liquid waste surveillance tests performed during 1994 and 1995. It was determined that the processing, sampling, and analyses of the secondary liquid waste tanks and sumps and the approval and performance of batch liquid waste discharges to the retention basins and evaporation ponds on site were conducted in accordance with Technical Specification and Offsite Dose Calculation Manual requirements. Quantities of radionuclides in the liquid waste effluents discharged to the evaporation ponds on site were within the limits specified in the Offsite Dose Calculation Manual.

The inspectors determined that no major equipment or design modifications were made to the liquid waste management systems in the three units during 1994 and 1995.

4.2 Gaseous Effluents

The inspectors reviewed the licensee's implementation of the gaseous radioactive waste effluent program and Offsite Dose Calculation Manual to ensure compliance with analyses requirements, analyses sensitivities, analytical results, procedures, offsite dose results, and operational tests

and calibrations of equipment and radiation monitors associated with the radioactive gaseous waste processing systems.

The inspectors reviewed selected surveillance tests governing the release of gaseous radioactive waste effluents. These surveillance tests provided for the sampling and analyses of the radioactive gaseous waste effluents, calculation of effluent release rate, calculation of projected offsite radionuclide concentrations and doses, and verification of gaseous effluent radiation monitor setpoints prior to release; and verification of effluent discharge flow rates and effluent volume discharged. The inspectors observed a radiological monitoring technician collect continuous release ventilation samples from the Unit-3 fuel building exhaust system for analyses of particulates, iodine, and noble gases on April 3, 1996, to update the continuous release permit for that gaseous effluent release point. The inspectors also observed a radiological monitoring technician collect a grab sample from the Unit-3 waste gas surge tank for analysis of noble gases (principal gamma emitters) on April 3, 1996, in preparation for release of the waste gas surge tank. The inspectors noted during both observations that the radiation monitoring chemistry technicians carried, referred to, and followed the appropriate sampling procedures while performing the sample collections. All aspects of the fuel building exhaust system and the waste gas surge tank sample collections were performed in accordance with approved procedures.

The inspectors observed a radiological monitoring technician perform the weekly update of the Unit-3 fuel building exhaust vent continuous gaseous effluent release permit using the analytical data collected from the weekly ventilation samples. The inspectors also observed a radiological monitoring technician prepare the batch gaseous release permit and calculate the projected dose assessment and effluent radiation monitor setpoints for the release of the Unit-3 waste gas surge tank, set and verify the plant vent radiation monitor setpoints according to the release permit, obtain the required approvals from a Unit-3 senior reactor operator and the shift supervisor, and deliver the completed release permit to the control room for initiation and performance of the waste gaseous effluent release.

The inspectors reviewed selected gaseous waste release permits, which included continuous releases from each unit's ventilation systems (plant vent and fuel building exhaust vent) and batch releases from each unit's waste gas storage tanks and containment. It was determined that the analyses of the gaseous effluents and the approval of the radioactive gaseous waste releases were conducted in accordance with Technical Specification and Offsite Dose Calculation Manual requirements. Quantities of gaseous radionuclides released were within the limits specified in the Offsite Dose Calculation Manual. Also, offsite doses had been calculated according to Offsite Dose Calculation Manual methodologies and were well below required limits. Particulate effluent composite sample analyses for gross alpha, strontium-89, and strontium-90 were performed and met Offsite Dose Calculation Manual requirements. (Attachment 2 contains a list of documents reviewed.)

The inspectors determined that no major equipment or design modifications were made to the liquid waste management systems in the three units during 1994 and 1995.

4.3 Effluent Radiation Monitoring Systems

The inspectors reviewed selected gaseous waste effluent radiation monitor source check, channel check, channel functional test, and channel calibration records for each unit to determine compliance with Offsite Dose Calculation Manual, Table 2-2, requirements. All records reviewed indicated that the gaseous waste effluent radiation monitoring instrumentation was properly maintained, tested, and calibrated in compliance with Offsite Dose Calculation Manual requirements. (Attachment 2 contains a list of documents reviewed.)

5 SAFETY-RELATED AIR CLEANING VENTILATION SYSTEMS (84750)

The inspectors reviewed the safety-related air cleaning ventilation system testing program to determine compliance with the requirements in Technical Specifications 3/4.7.7 (Control Room Essential Filtration System), 3/4.7.8 (Engineered Safety Features Pump Room Air Exhaust Cleanup System), and 3/4.9.12 (Fuel Building Essential Ventilation System).

The inspectors reviewed selected records of surveillance tests and test results for the maintenance and testing of the safety-related air cleaning ventilation systems which contained high efficiency particulate air filters and activated charcoal adsorbers. The inspectors verified that the licensee's surveillance tests provided for the required periodic functional checking of the ventilation systems' components, evaluation of the high efficiency particulate air filters and activated charcoal adsorbers, and in-place filter testing of the filter systems. The inspectors reviewed records and test results for the control room essential filtration system, engineered safety features pump room air exhaust cleanup system, and fuel building essential ventilation system. Since some of the surveillance tests were only required to be performed at 18-month frequencies, the inspectors reviewed the last completed surveillance test for each of the safety-related air cleaning ventilation systems named above and verified that the previous two surveillance tests were performed as required at the 18-month frequency. The operational tests, in-place filter tests, and activated charcoal laboratory surveillance tests were performed in accordance with approved procedures. The activated charcoal surveillance tests were performed by a contract laboratory.

All surveillance test results were verified to be within Technical Specification limits. The inspectors noted that the Technical Specification requirement for testing the safety-related air cleaning ventilation systems activated charcoal adsorber material after every 720 hours of operation was tracked by the control room and the system engineer on a surveillance test performed monthly. Run-time meters were installed on all of the filter trains for the control room essential filtration system in Units 1, 2, and 3 and on the filter trains for the fuel building essential ventilation system in Units 1 and 2. Installation of run-time meters on the fuel building essential ventilation system filter trains in Unit-3 was in progress. The meters registered the number of starts and run time since the performance of the previous charcoal adsorber surveillance test on each filter train.

The inspectors performed a walkdown visual inspection with the system engineer of the safety-related air cleaning systems named above in Units 1, 2, and 3. The visual walkdown was performed in accordance with Section 5.5 of American Society of Mechanical Engineers ASME N510-1989. The walkdown external inspection of the identified ventilation systems indicated no visual problems with the systems' housing and ducts, local instrumentation, and filter unit components visual from the outside of the ventilation units. All doors were tightly closed and locked, tamper-proof seals were installed, and all gaskets were in place and not leaking. No external damage to the ventilation units was identified. All filter housings and ducts were well maintained. The areas surrounding the ventilation units were clean, free of debris, and the ventilation units were adequately lighted inside and outside to provide for visual inspection of housings and components.

The safety-related air cleaning ventilation systems conformed to the commitments in the Updated Safety Analysis Report and met the Technical Specification requirements. The safety-related air cleaning systems were tested in accordance with Technical Specification requirements, and all test results were within Technical Specification limits.

6 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM (84750)

The inspectors performed a review of the radiological environmental monitoring program to determine compliance with the requirements in Technical Specification 6.8.5.h and in the Offsite Dose Calculation Manual, Section 6.

6.1 Radiological Environmental Monitoring Program

The inspectors reviewed the licensee's implementation of the radiological environmental monitoring program to ensure compliance with the sampling and analyses requirements, analyses lower limits of detection, analytical results, and reporting limits specified in the Offsite Dose Calculation Manual. Procedures for implementing the radiological environmental monitoring program were also reviewed. (Attachment 2 contains a list of documents reviewed.) All sample analyses for the radiological environmental monitoring program were performed by the licensee's central laboratory on site.

Three technicians in the central laboratory were responsible for implementing and maintaining all aspects of the radiological environmental monitoring program. The inspectors interviewed the personnel involved and determined that they were familiar with the requirements of the program for which they were responsible and each maintained a high level of understanding and performance.

The inspectors accompanied and observed licensee personnel collect a number of environmental media samples at locations described in the radiological environmental monitoring program. Approved procedures were used for the collection and handling of the environmental samples. The following types of sampling locations were inspected: airborne, surface water (evaporation ponds and reservoir on site), well water, vegetation, and thermoluminescent dosimeters. The equipment at the sampling locations was operational and calibrated. During the inspection of the selected environmental sampling

locations, the inspectors verified that the sampling locations were as described in the Offsite Dose Calculation Manual. An operational check of each air sampler was performed with a calibrated air flow meter with each filter exchange. The air samplers were rebuilt on an annual frequency. The inspectors verified that all air samplers currently in use were properly maintained and calibrated.

The licensee previously participated in the Environmental Protection Agency's Interlaboratory Comparison Program as required by the Technical Specifications. However, now, since the Interlaboratory Comparison Program is no longer available, the licensee will be using a vendor to provide quality control samples for evaluating the licensee's analytical capabilities in the central laboratory.

The facilities used by the licensee including the environmental media sample storage and preparation areas were inspected. The central laboratory was equipped with the necessary chemicals, labware, and analytical instrumentation to perform the required radiological analyses.

The collection, processing, and analyses of radiological environmental media samples were conducted in accordance with the Offsite Dose Calculation Manual.

6.2 Meteorological Monitoring Program

The inspectors reviewed the meteorological monitoring program to determine agreement with the recommendations of NRC Regulatory Guides 1.23 and 1.97, and the American National Standards Institute-American Nuclear Society (ANSI-ANS) Standard 2.5-1984, and compliance with Technical Specification 3/4.3.3.4.

The inspectors inspected the meteorological tower and associated monitoring instrumentation. The licensee had implemented a modification to the meteorological tower which improved the licensee's ability to access the information from the meteorological tower's instrumentation, significantly reducing the need to manually obtain the required data. All instrumentation was found operational and properly maintained and calibrated.

The inspectors reviewed selected meteorological instrumentation calibration procedures and associated records. The inspectors determined that the meteorological sensing and recording equipment had been calibrated semi-annually. The calibrations were conducted in accordance with approved procedures for the wind speed, wind direction, and air temperature difference instrumentation. The meteorological tower was equipped with dual equipment for wind speed, wind direction, and temperature sensing instrumentation at the 35 and 200 foot elevations. Meteorological data was available each units' control room and the site's emergency response facilities. The meteorological monitoring instrumentation calibration procedures and the calibration records for the last calibration conducted were reviewed. All records reviewed indicated that the meteorological monitoring instruments were being properly maintained, tested, and calibrated at the required frequencies.

The licensee had obtained greater than 90 percent data recovery during 1994 and 1995.

7 REPORTS OF ENVIRONMENTAL MONITORING OPERATIONS AND RADIOACTIVE EFFLUENT RELEASES (84750)

The inspectors reviewed the licensee's Annual Radioactive Effluent Release Reports for 1993, 1994, and the 1995 draft data to determine compliance with the requirements of 10 CFR 50.36(a)(2), Technical Specifications 6.9.1.8 and 6.14, and the Offsite Dose Calculation Manual, Section 7.1. These reports were written in the format described in NRC Regulatory Guide 1.21, Revision 1, June 1974, submitted in a timely manner, and contained the information required by the Offsite Dose Calculation Manual.

The licensee reported one abnormal release from Unit-1 during 1993. The abnormal release from Unit-1 occurred on February 17, 1993. The release occurred through the chemical volume control system holdup tank strainer, which was removed for maintenance, while operations was attempting to obtain a pre-holdup ion exchanger effluent sample. Approximately 3.74E-02 curies were released. Specific release information was documented in Permit No. 931039, and a detailed description of the event was documented in Condition Report/Disposition Request 1-3-0091. The health and safety of the public was not compromised during the event.

The licensee reported three abnormal releases from Unit-2 during 1993. The first abnormal release from Unit-2 occurred on March 10, 1993. Approximately 16,000 gallons of contaminated condensate was spilled. The condensate was contaminated as a result of a steam generator tube rupture that occurred on March 14, 1993. Approximately 6.45E-02 curies were released. Specific release information was documented in Permit No. 932081, and a detailed description of the event was documented in Condition Report/Disposition Request 2-3-0116. The health and safety of the public was not compromised during this event. The second abnormal release from Unit-2 occurred on May 2, 1993, when approximately 100 gallons of water overflowed from the blowdown demineralizer sump. Approximately 1.35E-05 curies were released, of which 1.11E-05 curies were tritium. A detailed description of the event was documented in Condition Report/Disposition Request 2-3-0298. The health and safety of the public was not compromised during this event. The third abnormal release from Unit-2 occurred on July 21, 1993, when approximately 25 gallons of water escaped from the condensate storage tank transfer pump seal line. Approximately 1.55E-05 curies were released. Specific release information was documented in Permit No. 932144, and a detailed description of the event was documented in Condition Report/Disposition Request 2-3-0456. The health and safety of the public was not compromised during this event.

The inspectors reviewed the licensee's descriptions and followup actions concerning the abnormal releases and determined that the licensee had taken appropriate corrective actions. At no time were any Offsite Dose Calculation Manual dose or release concentration limits exceeded.

The licensee reported no unplanned, abnormal releases during 1994 and 1995.

During the time period reviewed, revisions 6, 7, 8, 9, and 10 to the Offsite Dose Calculation Manual were properly documented in the appropriate Annual Radioactive Effluent Release Reports as required. Effluent monitoring instrumentation had not been out of service in excess of Technical Specification requirements during the time period reviewed.

The inspectors reviewed the Annual Radiological Environmental Monitoring Reports for 1993, 1994, and 1995 (draft), to determine compliance with the reporting requirements in the Technical Specification 6.9.1.7 and the Offsite Dose Calculation Manual, Section 7.2. The reports were submitted in a timely manner and contained the required information. Any discrepancies or missed samples were reported. The inspectors determined that the Offsite Dose Calculation Manual sampling, analyses, and reporting requirements were met.

The inspectors noted that the land use censuses were conducted in accordance with Technical Specification requirements. The results of these land use censuses were documented as required in the appropriate Annual Radiological Environmental Operating Report.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

*R. Bouquot, Section Leader, Nuclear Assurance
L. Drinovsky, Senior Advisor, Radiological Environmental Monitoring Program
*R. Fullner, Department Leader, Nuclear Assurance
D. Gibson, Radiological Monitoring Technician
C. Gray, Environmental Technician, Central Laboratory - Chemistry
*R. Henry, Site Representative, Salt River Project
L. Johnson, Department Leader, Chemistry Support - Chemistry
K. Kutner, Senior Advisor, Radiological Effluents
*D. Larkin, Senior Engineer, Nuclear Regulatory Affairs - Compliance
C. Mighells, Senior Advisor, Training
J. Morrison, Senior Advisor, Radiological Monitoring System
T. Murphy, Section Leader, Radiological Monitoring - Chemistry
R. Routolo, Senior Technician, Radiological Monitoring - Chemistry
M. Ryberg, Radiological Monitoring Technician
*J. Scott, Director, Site Chemistry
*D. Sneed, Team Leader, Central Laboratory - Chemistry
*R. Sorensen, Department Leader, Radiological Monitoring - Chemistry
C. Warner, Environmental Technician, Central Laboratory - Chemistry
J. Wetzel, Radiological Monitoring Technician

1.2 NRC Personnel

*K. Johnson, Senior Resident Inspector
*D. Carter, Resident Inspector

*Indicates those present at the exit meeting on April 5, 1996.

In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

2 EXIT MEETING

An exit meeting was conducted on April 5, 1996, at the Palo Verde Nuclear Generating Station. During this meeting, the inspectors reviewed the scope and findings of the inspection as detailed in this report. The licensee did not express a position on the inspection findings documented in this report. The licensee did not identify as proprietary any information provided to, or reviewed by the inspectors.

ATTACHMENT 2

List of Documents Reviewed

PROCEDURES:

74AC-9CY11 Radiological Environmental Monitoring Program (REMP) Administrative Control, Revision 4 August 1, 1995

74DP-0CH01 Laboratory Analytical Control Manual, Revision 0, April 1, 1996

74IG-0CH05 Intra/Inter Laboratory Cross Checks, Revision 0, April 1, 1996

74RM-0EN02 Radiological Environmental Air Sample Collection, Revision 6, August 1, 1995

74RM-0EN03 Water, Food Products and Sediment Sample Collection, Revision 7, December 13, 1995

74RM-0EN09 Quarterly Radiological Environmental Sample Analysis Verification, Revision 3, July 19, 1995

74RM-0EN10 Weekly Radiological Environmental Sample Collection Verification, Revision 2, August 1, 1995

Surveillance Test Procedures:

33ST-9HF01 Surveillance Testing for the Aux/Fuel Building Nuclear Air Treatment System, Revision 1, February 13, 1996

33ST-9HJ01 Control Room AHU Airflow Capacity and Pressurization Test, Revision 0, September 20, 1995

36ST-9GR03 Calibration of Flow Control Channel Gaseous Radwaste, Radwaste Building Exhaust, Revision 5, October 7, 1994

36ST-9RG02 Meteorological System Calibration (Redundant System), Revision 7, October 13, 1995

36ST-9RG03 Meteorological System Calibration (Primary System), Revision 4, October 13, 1995

40ST-9HF01 ESF Pump Room Air Exhaust Cleanup System Operability Test, Revision 2, September 22, 1994

40ST-9HF02 Fuel Building Essential Ventilation System Operability Test, Revision 3, September 22, 1994

ATTACHMENT 2 (cont)

41ST-1HJ01 Control Room Essential Filtration System Operability Test, Revision 6, September, 22, 1994

73ST-9HF02 Fuel Building AFU In-Place HEPA Filter Leak Test, Revision 0, August 1, 1984

73ST-9HF04 Fuel Building/ESF Pump Room Essential Air Filtration Train "A" Carbon Analysis, Revision 0, November 26, 1985

73ST-9HJ02 Control Room AFU In-Place HEPA Filter Leak Test, Revision 1, January 18, 1988

73ST-9HJ05 Control Room Essential Filtration Train "B" Carbon Analysis, Revision 0, November 11, 1985

74ST-9GR01 Gaseous Radwaste Explosive Gas Monitoring System Channel Check, Revision 2, July 5, 1995

74ST-9SQ06 Effluent Surveillance Test of RU-12 and FIT-33, Revision 4, May 12, 1995

74ST-9SQ12 Effluent Flowpath Process Flow Calibration, Revision 2, September 20, 1995

74ST-9SQ15 RU-143 and RU-144 Quarterly Functional Test Procedure, Revision 1, April 22, 1994

74ST-9SQ16 RU-145 and RU-146 Quarterly Functional Test Procedure, Revision 2, January 12, 1996

74ST-9SQ21 Radiation Monitoring Calibration Test for Baseline Process Monitors, Revision 4, September 15, 1995

74ST-9SQ26 Radiation Monitoring Calibration Test for RU-143, Revision 4, October 5, 1995

74ST-9SQ27 Radiation Monitoring Calibration Test for RU-144, Revision 3, September 15, 1995

74ST-9ZZ02 Chemical Waste Neutralization Tank Surveillance Test, Revision 4, January 27, 1995

74ST-9ZZ07 Secondary System Waste Discharge, Revision 2, April 15, 1994

74ST-9ZZ08 Turbine Building Waste Discharge, Revision 3, November 14, 1995

ATTACHMENT 2 (cont)

AUDITS AND SURVEILLANCES:

Nuclear Assurance Evaluation Reports:

ER-94-0064 Secondary Waste Discharge, October 28, 1994
ER-94-0314 Surveillance Testing System, September 2, 1994
ER-95-0020 Unit 3 Chemistry/RMS, January 11, 1995
ER-95-0041 Unit 1 Chemistry/RMS, January 19, 1995
ER-95-0320 Site Chemistry/Environmental Health and Safety, April 6, 1995
ER-95-0506 Chemistry/Effluents, May 24, 1995
ER-95-0576 Chemistry/Effluents, June 10, 1995
ER-95-0776 Radiological Monitoring, September 12, 1995
ER-95-0944 Radiological Monitoring, November 7, 1995

Quality Assurance Monitoring Reports:

94-0009 Gaseous Radiological Release Permits, January 10, 1994
94-0183 Effluent Monitoring/Chemistry Cleaning, April 28, 1994
94-0205 Gaseous Radioactive Release Permits/Surveillance Testing, May 6, 1994
94-0274 REMP Sample Collection/Analysis, June 29, 1994
94-0275 Gaseous Radioactive Release Permits, July 1, 1994

Quality Assurance Audits:

94-001, Radiological Environmental Monitoring Program, February 21-March 2, 1994
95-005, Radiological Effluent and Environmental Monitoring, March 14-24, 1995
96-003, Radiological Effluent and Environmental Monitoring Program, February 13-23, 1996

ATTACHMENT 2 (cont)

Vendor Audits:

APS Vendor Audit File 93-012-201, conducted September 22-23, 1993
NUPIC Audit QAO-94-460, conducted October 31-November 2, 1994
NUPIC Audit 94-007, conducted November 15-17, 1994
NUPIC Audit 95V-16, conducted May 2-5, 1995

REPORTS:

Semiannual Radioactive Effluent Release Reports for 1992 and 1993
Annual Radioactive Effluent Release Reports - 1994 and 1995 (draft)
Annual Environmental Operating Reports - 1993, 1994, and 1995 (draft)

MODIFICATION PACKAGES:

Effluent Monitor Normal Range-to-High Range Overlap Control Software Modification
Meteorological Tower Modification
Effluent Monitor Flow Control Modification

OTHER:

Offsite Dose Calculation Manual
- -Revision 8, July 1, 1994
- -Revision 9, January, 27, 1995
- -Revision 10, December, 6, 1995

Chemistry department training records

Engineering Sketch Pad Job No. 13-NC-SQ-200 - Sample Line Plateout, Revision 2, December 10, 1990