

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/89-03, 50-529/89-03 and 50-530/89-03

Docket Nos. 50-528, 50-529 and 50-530

License Nos. NPF-41, NPF-51 and NPF-74

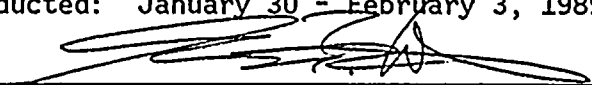
Licensee: Arizona Public Service Company
P. O. Box 21666
Phoenix, Arizona 85836

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

Inspection at: Wintersburg, Arizona

Inspection Conducted: January 30 - February 3, 1989

Inspected by:


G. R. Cicotte, Radiation Specialist

2-17-89
Date Signed

Approved by:


H. S. North, Acting Chief
Facilities Radiological Protection Section

2/21/89
Date Signed

Summary:

- a. Areas Inspected: Routine unannounced inspection by a regionally based inspector involving occupational exposure (including external exposure control, surveys and monitoring, and outage preparations), followup, and tours of the facility. Inspection procedures 30703, 83750, 83724, 83726, 83729, 92701, 84724, and 92716 were addressed.
- b. Results: No violations were identified in two of the three areas addressed. In one area, a violation of Technical Specification (TS) 3.3.3.8 was identified, involving failure to maintain operable the high range effluent particulate radiation monitors on Unit 2. The licensee's program appeared capable of meeting its safety objectives in the areas inspected.

DETAILS

1. Persons Contacted

- *J. G. Haynes, Vice President, Nuclear Production
- *J. M. Allen, Unit 1 Plant Manager
- *O. J. Zeringue, Unit 3 Plant Manager
- *W. H. Barley, Acting Site Radiation Protection Manager (Bartlett Nuclear)
- *R. M. Butler, Standards and Technical Support Director
 - K. Kutner, Environmental Programs Supervisor
 - M. W. Lantz, Senior Radiation Consultant
- *J. R. Mann, Central Radiation Protection Manager
- *K. R. Oberdorf, Unit 1 Radiation Protection Manager
- *R. B. Ochoa, Central Radiation Protection/Dosimetry Supervisor
- *A. G. Ogourek, Unit 2 Radiation Protection Manager
- *L. G. Papworth, Quality Assurance (QA) Director
 - T. D. Shriver, Compliance Manager
- *W. E. Sneed, Unit 3 Radiation Protection Manager
- *J. M. Sills, Radiation Protection Standards Supervisor

*Denotes personnel present at the exit interview held on February 3, 1989.

In addition, the inspector met and held discussions with other licensee and contractor personnel.

2. Occupational Exposure

A. Audits and Appraisals

The following audits/monitors were reviewed and representative corrective actions were verified to have been accomplished or scheduled:

<u>Audit/Monitor</u>	<u>Title</u>	<u>Date</u>
ST-88-0015	Hot Particle Control	1-5-88
CA-88-0052	Reporting of Hydrogen/Oxygen Monitor	6-30-88
MA-88-0042	Radiation Protection (RP) Training and Qualifications of Contractors	5-18-88
ST-88-0043	Control of RP Instrumentation	1-11-88
ST-88-0081	RP Technician (RPT) Qualification Guide	1-12-88
ST-88-0134	RPT Qualification Guide	1-27-88
ST-88-0184	Authorization to Exceed Administrative Exposure Limits	2-7-88
ST-88-0601	Instrument Calibration	5-27-88
ST-88-0800, 0801, 0802	Personnel Contamination Log	7-26-88
88-002	Organization and Staffing	2-16-88
88-008	Radiation Protection	5-26-88
88-009	ANPP Plant Chemistry	5-10-88

Corrective actions for the above matters were, in most instances, timely. Monitors ST-88-0800 to 0802 stated that followup would be in three weeks. However, the followup report was dated 11-30-88, four months after the monitor was issued. The concern addressed in this case was administrative in nature. Licensee efforts to address personnel contaminations are described more fully in paragraph 3, below.

Monitor MA-88-0042 referred to a lack of test criteria for acceptance of contractor RPTs. The licensee stated that contractor RPTs must now pass a comprehensive test before being assigned to responsible tasks.

Sample size selected for evaluation appeared to be small in some instances. For example, ST-88-0601 involved observation of one field instrument, of a type not allowed to be used for dose rate surveys. The scope of those audits reviewed, however, appeared capable of meeting the objectives of the licensee's QA program. Audits 88-008 and 88-009 were only briefly reviewed. Audit 88-008 was addressed in Inspection Report (IR) 50-528/88-22, 50-529/88-22, 50-530/88-21. Audit 88-009 was reviewed for exposure control aspects only. The scope of the audits was discussed with the Manager, QA and Monitoring.

B. Changes

No major changes to the licensee's facilities had occurred since the last inspection. The licensee stated that they were in the last stages of selecting a Radiation Protection and Chemistry Manager, a position currently filled by a contractor.

C. Training and Qualifications of New Personnel

The prior experience and the licensee's training of new licensee personnel in RP and chemistry for all three units was examined. In addition, approximately 30 representative records of General Employee Training (GET), Respiratory Protection Training (RPT), and other RP training of non-RP personnel were reviewed. No concerns were identified in the records examined.

D. External Exposure Control

External exposure records for several individuals were examined. In one record, a dose assessment had been performed on October 3, 1988, as the result of a missing dose monitoring device. At the time of the inspection, the record of the assessment had not yet been entered in the individual's exposure record file as required by the licensee's procedure. The result of the assessment had, however, been entered in the computerized record for the individual. The assessment had not yet been reviewed or sent to the Document and Data Control (DDC) group. The inspector discussed exposure record control with the Dosimetry Records Lead Technician, who stated that the records would have been checked prior to being sent to DDC. The



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licensee acknowledged the observation that the filing of the record did not appear timely.

Representative records of personnel likely to receive doses as specified in 10 CFR 20.101 and 102 were reviewed. NRC Forms 4 and 5 or their equivalent were verified to have been included and were properly completed. Notifications to individuals were verified to have been sent to terminating personnel in a timely manner. The licensee stated they did not have any occupationally exposed minors at the time of the inspection.

E. Internal Exposure Control

Individual assessments of intakes of airborne radioactivity, the licensee's bioassay methodology and controls, respiratory protection equipment, and records of internal exposure were examined. No examples of intakes approaching the limitations of 10 CFR 20.103 or 10 CFR 20.104(b) were observed.

The licensee was preparing to expand their respiratory protection equipment processing capability in preparation for the outage. Major decontamination effort associated with Unit 3 reactor coolant pumps (RCPs) is planned to be done in containment tents. Although the licensee was experiencing difficulty with process controls designed to minimize airborne radioactivity, such as the Gas Strippers, corrective maintenance of the affected systems was planned for accomplishment during the scheduled outage.

F. Control of Radioactive Materials and Contamination, Surveys, and Monitoring

The supply of portable instruments and maintenance capability were adequate to support the licensee's work. The licensee had improved tracking of personnel contamination events, as described in item 50-528/87-24-02, paragraph 3, below.

RPTs with whom radiation detection instruments were discussed appeared to be knowledgeable of their functions and limitations. The licensee maintains readily available copies of the most recent surveys of each plant area, in order to provide information to personnel prior to entry to cubicles. Each plant's dose rate and contamination status summary maps were up to date and appeared accurate.

The inspector requested the most recent survey of a catwalk on the 40' elevation of the Unit 1 Auxiliary Building (AUX). The catwalk was identified by signs and flashing lights as having area dose rates in excess of 1000 mrem/hr. The licensee stated that no survey of that specific portion of the room was available, as it had been sent to the DDC group for retention. The licensee further stated that surveys of high radiation areas are not performed on a routine basis, in order to maintain exposures ALARA. A survey performed later by the licensee revealed that dose rates had dropped significantly since the last known survey in 1988.



Efforts to minimize radioactive waste included instructions from the Unit 1 RPM to RPTs, to have them brief all personnel entering the radiologically controlled area (RCA) on how to minimize introduction or generation of waste material. The RPTs made recommendations to individuals regarding unnecessary equipment.

G. Maintaining Occupational Exposures ALARA

Discussion with several of the licensee's staff in various disciplines revealed that the licensee disseminates information on ALARA concepts and practices. Licensee personnel stated that the purpose was to involve all workers in the ALARA process. The licensee has an incentive program to encourage submission of productivity, quality, and ALARA suggestions from workers.

The licensee had recently assigned a new ALARA Supervisor whose qualifications were consistent with ANSI/ANS '3.1-1981, Selection, Qualification and Training of Personnel for Nuclear Power Plants.

In the areas inspected, the licensee's program appeared capable of meeting its safety objectives.

No violations or deviations were identified.

3. Followup

Item 50-528/88-40-01, 50-529/88-39-01, 50-530/88-38-01 (Closed)

This matter refers to a failure to follow procedure 75RP-OZZ08, Radiological Environmental Air Sample Collection (See IR 50-528/88-40, 50-529/88-39, and 50-530/88-38). The licensee's timely response to the Notice of Violation (NOV) included a commitment to brief the environmental programs (RP Standards) personnel on proper contractor oversight. The licensee had modified the procedure to provide greater control over the contractor's activities, and had reiterated to the contractor the need for procedural compliance. A review of environmental air sample data sheets (see next item, below), revealed a previous licensee-identified failure to follow procedure. That error, however, had occurred early in 1988 and had already been addressed and corrected by the licensee. RP Standards personnel were familiar with aspects of the problem, and the Manager, QA and Monitoring, expressed his intent to review the QA aspects of environmental monitoring contractor oversight. The inspector had no further questions on this matter.

Item 50-528/88-40-02, 50-529/88-39-02, 50-530/88-38-02 (Closed)

This matter refers to an NRC concern regarding QA calibration acceptance criteria for environmental monitoring air sampling equipment (see IR 50-528/88-40, 50-529/88-39, 50-530/88-38). The licensee was requested to provide information regarding the effect of the use of the method and records of previous sampling data. A review of that data revealed no additional concerns. The licensee, in response to concerns expressed by the inspector, had gone to a closer tolerance/lower range flow measurement device, with a total flow error well within the recommended



criteria of Regulatory Guide (RG) 8.25, Calibration and Error Limits of Air Sampling Instruments for Total Volume of Air Sampled. The inspector had no further questions on this matter.

Item 50-528/87-24-02, 50-529/87-25-01 (Open)

This matter refers to an NRC concern regarding frequency and tracking of personnel contamination/clothing contamination events (see IR 50-528/87-24, 50-529/87-25 and 50-528/88-33). The licensee had initiated a method for trending contamination incidents, and the RP Standards staff had made recommendations for improvement/reduction of contamination events. The licensee had initiated a training course entitled, Advanced Rad Worker Training, and had prioritized attendance to provide training to most of the Unit 3 and Unit 1 outage staffs prior to the start of the outages.

The licensee stated that the purpose of the training was to increase worker sensitivity to those actions most likely to result in a breakdown of radiological controls. The licensee expressed concern regarding personnel exiting the RCA without proper frisking. The licensee stated that a worker exiting Unit 3 had caused the PCM-1 whole body frisker to alarm, and an improper survey by an RPT had resulted in the temporary departure of the worker from the site while a small spot on his clothing was still slightly contaminated. The approximately 37,000 dpm/100 cm² contamination was discovered when the worker returned to the site the next day and the licensee conducted surveys of the worker's home as verification that the radioactive material had been recovered. No significant radiation dose was calculated to have been received by the worker. In part in addressing the incident, the licensee had issued memoranda to all three units' RP staffs regarding the possibility that PCM-1 alarms caused by noble gas activity could result in actual personnel contamination being misidentified as noble gas buildup on clothing.

The inspector concluded that the licensee was giving the matter appropriate attention. This matter will remain open pending future review of possible changes in the frequency of contamination incidents.

Item 50-529/88-17-L0 (Open)

This matter refers to the licensee identified inoperability of the following Unit 2 high range effluent radiation monitors:

RU-142	Steam Jet Air Ejector Condenser Off-Gas
RU-144	Main Plant Ventilation Exhaust
RU-146	Fuel Building Ventilation Exhaust

The timely Licensee Event Report (LER) #2-88-017-00, contained all the information required by 10 CFR 50.73.

At approximately 1330 MST on December 14, 1988, the licensee discovered that the particulate filters for RU-142 were not installed. The licensee checked the other monitors, RU-144 and RU-146, and found them to be in the same condition. The licensee installed filters in the monitors and



conducted an examination of the matter. The licensee determined that events described in LERs #2-88-009, dated September 13, 1988, and #2-87-009, dated May 6, 1987, were similar events, in that effluent radiation monitors were rendered inoperable due to the failure to properly install sample media.

A review of all three events verified that the noted observations were correct. The licensee was able to ascertain that the particulate and iodine channels of RU-142, RU-144, and RU-146 were operable on April 27, 1988. The licensee was unable to determine with certainty the date on which the filters were removed, but the licensee had concluded that the filters were probably removed when the maintenance department replaced the filter canisters with those of a different design, between April 27, 1988, and May 9, 1988.

The licensee stated that a Special Plant Event Evaluation Report (SPEER) would be issued upon completion of additional investigation.

All three units have experienced operability problems with process effluent monitors. Those periods of inoperability of process effluent airborne radioactivity monitors in Unit 2, not entirely beyond control of the licensee, e.g., as a result of either error or delay in restoration after maintenance, are noted below:

<u>Monitor(s)</u>	<u>Inoperability</u>	<u>Proximate Cause</u>
RU-141/142	9-28-88 (13 days)	error
RU-141	9-13-88 (7 days)	error
	8-21-88 (short)	error (surveillance not done in time)
RU-142	4-27-88 (231 days)	error (media not installed)
RU-143/144	12-6-88 (7 days)	equipment failure and error
	8-24-88 (short)	error
	4-15-88 (short)	error (alternate sampling monitor)
	3-24-88 (12 days)	programming errors
	3-8-88 (15 days)	equipment failure and error
RU-144	4-27-88 (231 days)	error (media not installed)
RU-145/146	3-21-88 (30 days)	equipment failure and error
	9-12-88 (11 days)	programming errors
RU-146	4-27-88 (231 days)	error (media not installed)

Review of licensee procedure 75RP-9XC05, Flow Calibration and Maintenance of Portable Air Samplers, Revision 7, dated October 27, 1988, revealed that for those periods of inoperability during which the Preplanned Alternate Sampling Program (PASP) was implemented, the same related issue of allowable air flow calibration tolerance existed for the alternate sampling cart/monitors, as had been observed in item 50-528/88-40-02, 50-529/88-39-02, 50-530/88-38-02, described above.

Technical Specification (TS) 3.3.3.8 states, in part:

"3.3.3.8 The radioactive gaseous effluent monitoring instrumentation channels shown in Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.1 are not exceeded...."



"APPLICABILITY: As shown in Table 3.3-12."

"ACTION:...."

"b. With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Semi-annual Radioactive Effluent Release Report why this inoperability was not corrected within the time specified...."

Table 3.3-12 states, for monitors RU-142, RU-144, and RU-146, that the minimum number of operable particulate sampler channels is one, and that ACTION 42 is to be taken. Applicability for RU-142 is modes 1, 2, and also 3 and 4 for those times when the air removal system is in operation. Applicability for RU-144 is at all times, and for RU-146, applicability is modes 1 through 4 or when irradiated fuel is present in the Fuel Building (FB).

ACTION 42 states, in part, that the channel is to be restored to OPERABLE status within 72 hours, or the PASP is to be initiated.

As the licensee was unable to determine the identity of the individual(s) who failed to install filters in monitors RU-142, RU-144, and RU-146, the licensee was able to confirm operability only until April 27, 1988. This inoperability remained undiscovered and continued until the licensee routinely attempted to remove the filter media, on December 14, 1988, at which time filters were properly installed and operability was restored. The failure to maintain the particulate sampler channels of the high range process effluent monitors operable, or to attempt to restore the monitors to operable status and initiate the PASP, appears to be a violation of Technical Specification 3.3.3.8 (50-529/89-03-01). Item 50-529/88-17-LO will remain open pending review of the licensee's examination.

No other violations or deviations were identified.

4. Facility Tours

All three units' Radwaste Buildings (RWB), AUX, and FB, were toured. Independent radiation measurements were made using NRC ion chamber survey instrument model RO-2, Serial #015843, calibrated 10-26-88 and due for calibration 4-26-89.

Housekeeping in the RWBs and FBs appeared to have improved slightly, while the AUXs appeared to have been maintained consistent with the last inspection. The Unit 1 normal FB ventilation supply air handling unit (AHU) exhibited a large amount of oil spillage, which the licensee's deficiency tag (attached to the AHU) identified as being from an overflowed sump within the AHU.

Several locks for high radiation areas in Units 1 and 2 had bent strike plates. One lock in Unit 1, on door A110, had a lock which appeared to be deteriorating (the entire unit wobbled in place), although it was

still operational. The inspector expressed concern as to the integrity of those locks which were not well-configured to protect against tampering. The licensee responded that a commitment to evaluate lock integrity was part of their response to the Notice of Violation and Proposed Imposition of Civil Penalties, EA-88-182, but that the evaluation was not yet completed.

One RM-20 frisker, in the 100' elevation of the Unit 1 AUX, had not had its' daily source check tag filled out for February 1, 1989. The master checklist, however, indicated that the source check had been performed. The inspector reminded the licensee that checking the completed tag is the method by which personnel attempting to frisk could be assured that the frisker was operational. The tag was completed later for that day.

All radiological postings observed were in accordance with licensee procedure and 10 CFR 20.203, "Caution signs, labels, signals and controls." The licensee's program appeared capable of meeting its' safety objectives.

5. Exit Interview

The inspector met with those individuals denoted in paragraph 1 at the conclusion of the inspection, on February 3, 1989. The scope and findings of the inspection were summarized. The licensee acknowledged the apparent violation described in paragraph 3.

