

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/90-19, 50-529/90-19 and 50-530/90-19

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

Licensee: Arizona Nuclear Power Project
P. O. Box 52034
Phoenix, Arizona 85072-2034

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

Inspection at: Palo Verde Site, Wintersburg, Arizona

Inspection Conducted: April 8, 1990 through April 13, 1990, and April 18 -
20, 1990

Inspected by:

A. D. Johnson
A. D. Johnson, Enforcement Officer

5/18/90
Date Signed

M. Cillis
M. Cillis, Senior Radiation Specialist

5/18/90
Date Signed

Approved by:

F. A. Wenslawski
F. A. Wenslawski, Chief
Facilities Radiological Protection Section

5/18/90
Date Signed

Summary:

Inspection during the period of April 8, 1990 through April 13, 1990, and April 18 - 20, 1990 (Inspection Report Nos. 50-528/90-19, 50-529/90-19 and 50-530/90-19):

Areas Inspected: Special unannounced inspection by two regionally based inspectors of Allegation Nos. RV-A-90-0020 and RV-A-90-0021 involving the adequacy of the licensee's radiological control program during a walkout of contractor radiation protection technicians during the period of March 27, 1990 through April 5, 1990; including occupational exposure, control of radioactive materials and contamination, surveys, and monitoring and facility tours. Inspection procedures 30703, 83729 and 93702 were addressed.

Results:

Most of the information provided by the individuals concerning radiation protection practices during a walkout of radiation protection technicians between March 26, 1990 and April 6, 1990, was found to be correct. The findings discussed in the report indicate isolated problems were experienced during the walkout; however, they do not represent a programmatic breakdown of the licensee's radiation program. Three non-cited violation involving failure to follow procedures were identified (see section 5, Concern (a) and (p)).



DETAILS1. Persons Contacted:Licensee Personnel

- J. M. Levine, Vice President, Nuclear Production
- *D. R. Heinicke, Plant Manager, Unit 2
- +,*T. R. Bradish, Compliance Manager
- +P. W. Hughes, General Manager, Radiation Protection
- *J. M. Sills, Acting Manager, Radiation Protection Technical Support
- +,*A. G. Ogurek, Radiation Protection Manager, Unit 2
- K. Oberdorf, Radiation Protection Manager, Unit 1
- A. D. Jackson, Radiation Protection Supervisor, Unit 2
- M. M. Wagner, Radiation Protection Supervisor, Unit 3
- J. J. Betti, Quality Assurance/Monitoring Supervisor
- G. M. Jones, Radiation Protection Supervisor, Unit 2
- J. P. Cox, Radiation protection Supervisor, Unit 1
- +,*M. D. Shea, Lead Health Physicist, Radiation Protection Technical Support

USNRC

D. Coe, Palo Verde Senior Resident Inspector

Contractor Personnel

- +L. Barry, Senior Engineer, RP Technical Support, Bartlett Nuclear, Inc.
- +J. G. Barnes, Senior Engineer, RP Technical Support, Bartlett Nuclear Inc.

+Denotes attendance at April 11, 1990, exit interview.

*Denotes attendance at April 13, 1990, exit interview.

In addition the inspectors met and held discussions with other licensee and contractor staff.

2. Allegation Files RV-90-A-0020 and RV-90-A-0021 Followup Inspection (MC 83729 and 93702)A. Background

Allegations received by the Region V staff during a walkout of radiation protection technicians on March 26, 1990, were examined. The allegations were received in the Region V office on March 28th, March 30th, March 31st and April 3, 1990.

The initial call received on March 28th, which includes a portion of the concerns documented in allegation RV-90-A-0020, identified that maintenance was performed on a reactor coolant pump at Palo Verde Unit 2 without proper adherence to radiation protection procedures, in that continuous radiation protection coverage was not provided, and that frisking required in a hot particle zone was not



performed. In addition the individual stated, that due to a strike involving radiation protection technicians and deconners, Palo Verde was cutting corners on radiological protection in order to get the work done. These concerns were immediately brought to the licensee's attention in a telephone discussion that was held with the Vice President, Nuclear Production on March 28, 1990, by a Region V staff member. The telephone discussion was followed up with a Region V letter, dated March 28, 1990, which was faxed to the licensee on that date. The letter requested that the licensee inform the Region V office regarding the matters presented in the allegation. All of the concerns raised in the allegations were brought to the licensee's attention.

B. Management Review

In response to the above allegations implying a significant reduction in radiation safety, the Chief of the Region V's Facilities Radiological Protection Section (FRPS) was initially dispatched to the site to evaluate the adequacy of the licensee's contingent plans and actions for coping with the walkout of contractor radiation protection (RPTs). The Region V management representative arrived on site on the afternoon of April 4, 1990, at which time he was informed that the walkout was in the process of being terminated. Notwithstanding the pending conclusion of the walkout, an evaluation was performed by the Chief, FRPS to determine the adequacy of the licensee's methods for coping with the situation. Attention was focused on the Unit 2 refueling outage. The results of this evaluation are discussed in Section C of this report. Two Region V representatives were dispatched to the site on April 8, 1990, to examine the specific concerns that were raised in the allegations. The specific concerns that were addressed and the results of this examination are discussed in Sections 3 and 5 of this report.

C. Facility Tour on April 4, 1990

Tours of the Containment, Auxiliary, and Refueling Buildings were conducted. Work was observed involving the removal of the working shield plug from the "B" reactor coolant pumps (RCPs) impeller cavity and installation of the shield on the seal plug. Three senior RPTs were covering the job: one in the immediate work area, one in the nearby staging area and one at the Steam Generator No. 2 control point established on the 100' level of the Containment Building. This control point had multiple video screen coverage of the RCP job as well as for steam generator work which was not being performed at the time. Continuous audio transmission between the work site and the control point was also available. More than adequate radiological protection coverage appeared to be provided. Other areas toured appeared to be adequately posted and otherwise controlled. No significant evidence of radiation protection program breakdowns were observed. The radiological control "island" access to the radiological controlled areas (RCAs) was well staffed and functioning smoothly. Personnel appeared knowledgeable and competent at their specific tasks. A number of



radiation protection (RP) personnel were queried and all voiced the opinion that adequate radiological protection job coverage was being provided and that jobs were not being worked when coverage wasn't available.

Discussions were held with the general manager, radiation protection (GMRP), the Unit 2 plant manager, the Unit 2 radiation protection manager and the acting head of central radiation protection. These individuals consistently stated that only critical path work was being accomplished, that many smaller jobs were being put off and that adequate radiological coverage was being provided through the combination of a reduction in the scheduled work and shifting of RP resources. The vice president, nuclear production echoed this position to the executive vice president during a senior staff meeting on April 5, 1990, which the inspector attended. During a discussion with the Unit 2 plant manager, he stated that to this point in the refueling outage, approximately 50 percent of scheduled work had been accomplished and the remainder left undone. The supervisor of QA monitoring stated that his field people had been sensitized to the concern for inadequate radiological coverage and his staff had not identified any significant concerns. The GMRP did state that some isolated cases of failure to have strict adherence to radiation protection procedures had been identified. The examples cited were not significant or pervasive.

Based upon direct observations and discussions with numerous licensee personnel, it was concluded that the licensee's radiation protection program was adequately coping with the walkout of contractor RPTs. No effort was made during this portion of the visit to review any specific allegations; rather, the effort was devoted at an overview to determine the adequacy of interim controls. It was concluded that the licensee's radiation protection program was meeting its safety objectives.

D. Contact With the Licensee and the Allegor

During the week of April 8, 1990 through April 13, 1990, the two NRC inspectors that were dispatched to the site on April 8, 1990, met with the licensee's staff and with the individuals providing the allegations who had identified fifteen items of concern (see section 3, below). The inspectors verified each item of concern with the individual and then notified the licensee of the specific details of the concerns. The inspectors met with other members of the licensee's permanent and contractor staff and reviewed the results of the licensee's investigation that was initiated as a result of the request made in the March 28, 1990, letter. All items were the same as those that had been previously identified during the period between March 28, 1990 through March 31, 1990. The results of the licensee's investigation as of April 13, 1990, and the inspectors' findings into the allegations are discussed in section 5, below.

3. Facility Tours

Several unannounced tours of the licensee's facilities were conducted during the inspection period of April 8, 1990, through April 13, 1990. Independent measurements were made using an ion chamber survey instrument, Model RO-2, serial number 897, due for calibration on May 7, 1990. The inspectors talked to workers that were encountered during the tours and observed work that was in progress at the time that the tours were conducted. The following observations were made during tours conducted in Unit 2:

- (a) Posting and labeling practices were consistent with 10 CFR Parts 19.11 and 20.203.
- (b) Work practices were in accordance with licensee's ALARA program.
- (c) Portable radiation survey instruments were in current calibration.
- (d) Cleanliness was good on the first tour and was observed to have been improved on during the subsequent tours that were conducted.

Work observed inside the Containment Building included steam generator eddy current operations, minor RCP activities, plant cleanup activities, and other miscellaneous activities. Work inside the Refueling Building primarily consisted of RCP refurbishment activities. Work activities appeared to be well coordinated between the maintenance crews and RP personnel. Continuous RP surveillance was being provided for all steam generator and RCP work. Workers questioned were pleased with the RP surveillance that was being provided. The inspector observed RP personnel performing routine and hot particle surveys in accordance with the applicable REP's and as required by licensee procedures.

A number of RP personnel and maintenance workers were questioned about radiological work practices during the walkout that had occurred the week before. All stated that activities were hectic and somewhat confusing at the onset of the walkout (i.e., first day or two) by some of the contractor RP staff; however, everyone stated that adequate radiological controls had been provided. RP personnel stated that they had to work a little harder and longer; however, work was either cancelled or rescheduled when adequate coverage wasn't available. Workers that were questioned substantiated what the inspector had learned from the discussions that were held with RP personnel. The worker stated they felt that the RP organization did a good job under the circumstances. The workers stated that there may have been some delays in performing hot particle surveys during the first night of the walkout, but things had improved when they returned to work the following day. Personnel stated that RP coverage improved with each passing day of the walkout. The improvements were attributed to the rescheduling of work and the addition of RP personnel reassigned from other radiation protection groups at the site.

The inspectors did note that RP personnel were in the habit of not returning their self-indicating-dosimeters (SIDs) after exiting from



radiologically controlled areas. This appears to be a common practice in all units and was a concern that was raised in the allegations. Licensee procedures do not clearly address when the SIDs are to be returned after exiting from an RCA. This was brought to the licensee's attention during the inspection. The licensee's staff was aware that this was a common practice and were in the process of addressing the concern.

4. Licensee Investigation

The two inspectors dispatched to the site on April 8, 1990, held discussions with the licensee's staff to determine the status of their investigation into the matters addressed in the NRC's March 28, 1990, letter and subsequent discussions.

The licensee's staff informed the inspectors on the status of their investigation and provided the inspectors with draft copies of the information they had documented to date. The licensee's staff stated that some of the concerns that were raised by the allegor appears to have been substantiated; however, the licensee made it clear that there could be some changes since their investigation had not yet been completed. The licensee expected to complete their investigation within the 30 day response time prescribed in the NRC letter of March 28, 1990.

The licensee appeared to be performing an in depth investigation of the allegations. The licensee's Quality Assurance (QA) group had been apprised of the concerns and were assigned to provide an independent overview of RP activities. A review of QA monitoring activities (e.g., reports) that were performed between the period of March 27, 1990, and April 10, 1990, were reviewed. No significant radiological concerns had been identified by QA personnel.

5. Review of Specific Concerns

The allegations identified approximately eighteen separate items of concern. Fifteen items were identified in allegation RV-90-A-0020 and three items were identified in allegation RV-90-A-0021. Each concern was reviewed by the licensee's staff and selected concerns were independently examined by the inspectors. Individuals were interviewed, tours of the Unit 2 Containment Building, Auxiliary Building, Radwaste Building and Refueling Building were conducted, applicable procedures and survey records were reviewed and discussions were held with the licensee's staff. The following are the specific concerns that were identified followed by the inspectors findings. It should be noted that some of the concerns were combined into one items due to the nature of the concern that was identified.

Concern (a)

On March 27, 1990, inadequate radiation protection surveillance was provide during maintenance on an unspecified reactor coolant pump (RCP) in Unit 2 was stated to be as follows:



- (1). Hot particle surveys of personnel were not performed at the required 30 minute intervals. A similar concern had been identified from another maintenance worker who had removed some scaffolding from one of the reactor coolant pump bays at Unit 1.
- (2). Continuous RP surveillance was not provided as required by the REP during two hours of work that was conducted on March 27, 1990, in Unit 2. A similar concern had been identified from a maintenance worker who had removed some scaffolding from a reactor coolant pump bay at Unit 1.
- (3). Unsupervised junior radiation protection technicians (RPT) were being utilized as senior RPTs.
- (4). Hot particle survey records were being fudged.

Controlling Documents

- (1) Technical Specifications, 6.11, "Radiation Protection Program", states: "Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained, and adhered to for all operations involving radiation exposure."
- (2) Procedure 75RP-9RP06, "Hot Particle Control" states in part:

"Section 5.3.2 Individuals implementing this procedure shall be qualified in accordance with applicable sections of RP-021, "Radiation Protection Qualification Guide."

"Section 6.3.2 Personnel working within HPCA's shall be monitored by RP personnel (at the job site, if possible) at approximately 30 minute intervals. Monitoring should be performed more frequently, depending on the extent of the hot particle hazard (e.g., more particles, high contact work, high activity particles, etc.). Monitoring shall consist of scanning the individual's hands, feet, areas of bare skin or skin tight clothing, and any high contact areas using a frisker, a RO-2, a RO-2A, or a RO-2M (site modified RO-2/RO-2A0 as appropriate based on ambient radiation levels."
- (3) REP 2-90-1005-B, dated February 28, 1990, "2A & 2B: Disassembly of RCP's for Seal Housing Removal", Part IV required the need for continuous RP surveillance and that hot particle surveys be performed at approximately 15-30 minute intervals. The decision for performing the hot particle surveys every 15-30 minutes was made on March 4, 1990.
- (4) Controlling document listed under concern (b), below also apply.



Findings

Items (1). & (2), above (Closed):

These items were substantiated as shown on "Personnel Hot Particle Monitoring Log Sheets" and discussions that were held with workers and RPTs identified in the allegation. The licensee's preliminary investigation was found to be consistent with the findings identified by the NRC inspectors. The examination disclosed that there was at least one isolated case in Unit 2 whereby only one hot particle survey was performed over a two hour period for RCP work performed under REP 2-90-1005-B. The worker added that RPTs were at the control point that was used to control both steam generator and RCP work; however, the RCPs were dedicated to coverage of the steam generator work and the crew working the RCP's were given little attention.

The examination disclosed that two work crews had been assigned to perform steam generator (SG) work and RCP work in Unit 2 on March 27, 1990. The SG crew assigned to remove manway studs and the SG diaphragm signed in on REP 2-90-1105-A and the RCP crew assigned to remove kittybones from the RCP 2B seal housing signed in on REP 2-90-1005-B during the afternoon of March 27, 1990 (e.g., between 1:30 PM and 2:00 PM). Three RPTs signed in on REP 2-90-1105-A and one RPT signed in on REP 2-90-1005-B for the period of time that a crew of Unit 2 workers had been assigned to perform work the the RCPs; however, after entering the containment the RPT provided surveillance over steam generator work. Three other RPTs who were at the RP control point between 1:30 pm and 4:30 pm only provided surveillance over work performed by the steam generator crew. It should be noted that the same control point was used to control both SG and RCP work. The Unit 2 worker named in the allegation stated that RP had initiated and maintained head set communications with SG crew, but had not established communications with the RCP crew. The Unit 2 worker added that he and other co-workers were not able to get the RPTs attention whom were assigned to the SG crew except for two occasions during the two hour period that the RCP crew was in the hot particle zone. The Unit 2 worker said that he had received only one hot particle check during the two hours (e.g., at 3:30 pm) that he was in the area. He said that he was unable to attract RP's attention as he and some RCP co-workers were attempting to exit the area. The worker stated that the RCP crews had to cut themselves out of their protective clothing and proceeded to the control point. The Unit 2 worker reported that no RP personnel were present and so the RCP crew proceeded to frisk themselves out of the area at approximately 4:00 pm.

The RPTs in the area while the Unit 2 RCP crew were there stated that they had only performed one hot particle survey of the RCP crew during the two hour period (e.g., at 3:30 pm) that they were in the containment building.

The inspectors also held a discussion with a maintenance worker from Unit 1 who stated that he had not received continuous RP surveillance and was not checked for hot particles during the removal of some scaffolding as required by the REP for work that he had performed in a reactor coolant pump bay during the Unit refueling outage. The worker stated that he



thought that the REP number was 2426B. The worker added that contractor RP personnel who would have been responsible for providing the coverage and hot particle surveys had been terminated at the completion of the job. A review of personnel hot particle log sheets and REP's 1-90-2426-B and 1-89-2431-B disclosed that the worker had worked under both REP's. The REP related to reactor coolant pump work was REP 1-89-2431-B. REP 1-89-2431-B did require hot particle surveys and continuous RP surveillance.

The inspectors were informed that the radiation protection staff was counselled as a result of the findings identified from the licensee's investigation in the matters discussed in this part and other parts of this report. The theme of the counselling included subject material such as: procedure compliance, attention to detail, a clarification of hot particle survey requirements and a clarification of the requirement for providing continuous RP coverage.

It was concluded that there was an apparent violation of the instructions prescribed on REP 2-90-1005-B and REP 1-89-2431-B, which required that hot particle surveys be performed at 15 to 30 minute intervals. The violation is not being cited because the criteria in 10 CFR Part 2, Appendix C, Section V.G of the Enforcement Policy was satisfied (NCV 50-529/90-19-01).

It was concluded that the RPTs in Unit 2 were not aware that they had the responsibility for providing continuous surveillance for the RCP work crew assigned to remove the kittybone from RCP 2B seal housing and that continuous coverage was not provided for the work performed by the Unit 1 worker assigned to remove some scaffolding. This is an apparent violation of the instructions provided on REP 2-90-1005-B and REP-89-2431-B. The apparent violation is not being cited because the criteria specified in 10 CFR Part 2, Appendix C, Section V.G of the Enforcement Policy was satisfied (NCV 50-529/90-19-02).

The RCP workers from both Unit 1 and Unit 2 that were interviewed stated that generally very pleased with the RP staff and the services that they received from RP before and after the events that are discussed herein. Both workers felt that these were isolated events.

The above observations were discussed with the licensee's staff at the exit interview. The licensee acknowledged the inspectors findings.

Items 1 and 2 above are closed.

Item (3), above (Open)

This item was partially substantiated. The inspectors reviewed control point logs, surveys, talked to numerous junior and senior RPT,s, and conducted unannounced tours of work areas. No evidence of improper use of junior RPTs were discovered during the tours. Senior RPTs stated that they supervised and observed all work performed by junior RPTs. Junior RPTs stated that they had received specific work instructions from the senior RPTs and and were not allowed to perform certain tasks unless the task was witnessed by a senior RPT.



The inspectors noted that the majority of hot particle surveys that were taken during the period of March 27, 1990 through April 6, 1990, had been performed by junior RPTs. All of the surveys had been countersigned by a senior RPT. The senior RPTs stated that they had observed the junior RPTs perform the surveys either by direct observation or by a video system. The inspectors could not verify whether all such surveys had been performed under the direct supervision of a senior RPT. Several of the junior RPTs stated that they had received training on how to perform hot particle surveys at other facilities and from the senior RPTs at ANPP.

The examination revealed that both junior and senior RPTs had successfully completed the licensee's site access training, general employee training and respiratory training programs. Prior to employment senior RPTs are required to take a contractor pre-hire (Training course number NRZ03) examination. In addition the senior RPTs are provided with another week of site specific training (Training course number NRZ02) pursuant to the requirements prescribed in Section 3.4 of procedure 15DP-OTR45, "Radiation Protection Technician Qualification Requirements and Training Program Description." This training course includes instructions on how to perform hot particle surveys and is concluded with practical demonstration of a hot particle survey which is performed by each of the senior RPTs attending the training course. The same training course is not provided to junior contractor RPTs. Training requirements for contractor junior RPTs are not clearly defined in procedure 15DP-OTR45. The inspector also noted that OJT, NRJ05-I-00, manual for junior and beginning level technicians does not include provisions for qualifying junior RPTs to perform hot particle surveys. The Unit 2 lead and senior radiation protection staff stated that a night-order (see controlling documents under Concern (b)) issued on January 1, 1990, authorizes the use of junior RPTs to perform hot particle surveys with the direct supervision by a qualified senior RPT.

A review of OJT manuals disclosed that some of the sign-offs for the on-the-job tasks listed in the manual were signed by individuals who were not listed as authorized designated individuals in memorandum, 204-00443-AGO, dated January 26, 1990. OJT training manual, NRJ05-I-00, and procedure RP-021 requires that individuals authorized to evaluate and sign-off OJT tasks be designated.

During the tours, the inspectors did note that activities performed by junior RPTs were conducted under the direction and supervision of senior RPTs.

The above findings were discussed with the licensee's staff during the inspection and at the exit interview. The inspectors informed the licensee that the instructions in the night order, procedure 15DP-OTR45, RP-021 and the OJT manual, NRJ05-I-00 were not consistent with one another and training requirements for contractor junior RPTs were not clearly addressed in procedure 15DP-OTR45. The licensee acknowledged the inspectors findings by stating that an evaluation would be conducted. This item will be examined during a subsequent inspection (50-529/90-19-03).

Item (4), above (Open):

The licensee's evaluation of whether there were any intentional falsification of the survey log was still in progress at the time of this inspection. A personnel hot particle monitoring log sheet for March 27, 1990, indicated that the required hot particle surveys of the RCP crew were performed at the 15-30 minute intervals between approximately 2:00 pm and 4:00 pm. The preliminary investigation indicates that the documentation of the surveys was an administrative oversight and not a deliberate attempt to conceal the failure to perform surveys. The data provided to the NRC inspectors regarding this matter would tend to support the licensee's conclusion that a deliberate attempt was not made to falsify survey records. The inspectors identified one additional irregularity with the documentation of a personnel hot particle monitoring log sheet. Log sheet, #2-90-05134 showed that two surveys of workers had been performed at approximately 12 minutes and 27 minutes after the workers had exited from the Containment Building. This item was brought to the licensee's attention for further evaluation.

Item 4 above is open. This item will be examined during a subsequent inspection.

Inspector Observation:

During the review of the items listed under this concern it became apparent to the inspectors that RPTs were surveying themselves for hot particles as they exit from hot particle zones.

The inspector asked several RPTs and the licensee's staff if an individual could perform an adequate survey of him and/or herself using an R0-2 survey instrument. Most individuals stated that they probably could not perform a good frisk of themselves.

The inspectors discussed this concern at the exit interview. The licensee's staff agreed to evaluate this item (50-529/90-19-04).

Concern (b):

Untrained and unqualified junior RPTs were performing senior RPTs functions.

Controlling Documents:

- (1) Technical Specifications, 6.3, "Unit Staff Qualifications" states in part: "each member of the unit staff shall meet or exceed the minimum qualifications of ANS 3.1-1978 and Regulatory Guide 1.8, September 1975..."

ANSI/ANS-3.1-1978, "American National Standard for Selection and Training of Nuclear Power Plant Personnel"

Section 4.5 of the above standard states in part: "Individuals in training or apprentice positions are permitted to perform work for which qualifications has been demonstrated in order to obtain the



required experience. An interpretation of the standard which was published in the July 1986 issue of Nuclear News magazine states in part: "Individuals in training or apprentice positions who do not meet the qualification requirements may perform work under the direction and observation of a qualified individual."

- (2) RP-021, "Radiation Protection Technician Qualification Guide" This procedure describes the radiation protection technician on-the-job (OTJ) training requirement standards and outlines the qualification pathways for each technician.
- (3) Training course NRJ05, "Jr./Beginning level OJT Standard" This standard is used to document the employee's ability to demonstrate specific competencies for a particular job position.
- (4) Unit 2 Radiation protection night order, dated January 1, 1990. This night order describes how junior radiation protection technicians may be used. The night order states that junior RPTs may perform the following tasks without direct supervision:
 - (a) Release surveys for vehicles and equipment.
 - (b) Personnel contamination monitor (PCM) alarm response.
 - (c) Control point manning (including LHRA door guard).
 - (d) Miscellaneous duties as assigned by Lead RPTs.

The night order states that the following tasks require direct supervision by a senior (ANSI 3.1-qualified) RPT:

 - (a) Radiological surveys (radiation, airborne, contamination)
 - (b) Personnel decontamination.
 - (c) Job coverage.
 - (d) Any task requiring an RP signature except tasks specifically listed above.
- (5) Unit 2 memorandum number 204-00443-AGO, dated January 26, 1990. This memo designates specific individuals who are authorized to conduct, evaluate and sign-off OJT training for task(s), system(s), or duty area(s).

Findings (Closed):

This item was partially substantiated and is also addressed under Item (3) of Concern (a), above and in other concerns listed below.

This item is closed.



Concern (c):

Deconners whom were not qualified were performing radiological control functions.

Controlling Documents:

See Concern (b), above.

Findings (Closed):

This item was substantiated; however, no violations were identified. The inspectors held discussions with the named individuals, reviewed survey records, held interviews with numerous licensee and contractor RP and decontamination personnel, reviewed OJT training records, reviewed RP logs and conducted tours of the licensee's facilities.

The examination disclosed deconners were provided opportunities to broaden their qualifications by participating in the licensee's on-the-job training program prescribed in licensee procedure RP-021, "Radiation Protection Technician Qualification Guide." The individuals that were named in the allegation were actually junior radiation RPTs. Both individuals and other junior RPTs and deconners who were questioned stated that they had not performed any senior RPT's functions. The individuals added that most of their activities were closely supervised by senior RPTs or that they had performed work that they have demonstrated proficiency in and were authorized to perform without direct supervision. Some junior RPTs stated that they had been counseled specifically that they could not perform any task unless they could demonstrate that they were qualified to perform the given task.

This item is closed.

Concern (d):

Two deconners were the only individuals assigned to provide radiation protection surveillance over work performed inside the Unit 2 Containment Building on the night of March 29, 1990. Neither of the individuals were qualified or trained to perform these functions.

Controlling Documents:

See Concern (b), above.

Findings (Closed)

This item was not substantiated. The examination of this item by both the licensee and NRC inspectors' included a review of security records and interviews with the individuals named in the allegation.

The security records for the period of March 28, 1990, through April 5, 1990, showed that senior RPTs were inside the Containment Building anytime junior RPTs were also inside the Containment Building. The two individuals named were actually junior RPTs. Both individuals denied



being the only individuals inside the Containment Building without being under the direct supervision of a qualified senior RPT.

This item is closed.

Concern (e):

A senior RPT had instructed two other RPTs that they did not have to perform hot particle surveys and they could ignore the four hour stay time before exiting the Containment Building to perform a hot particle check with a PCM-1B personnel monitor.

Controlling Documents:

Procedure 75AC-9RP01, "Radiation Exposure and Access Control", Section 2.1.23 requires that individuals ensure that a whole body frisk by PCM or equivalent is performed every four hours, or as directed by RP, if any protective clothing is worn in the RCA. Additionally, Appendix A of procedure 75RP-9RP06 states in part: "All personnel working within the radiologically controlled area should perform a whole body frisk using a PCM-1, or equivalent, at least every four hours, if any protective clothing has been worn during that period."

Finding (Closed):

This item was not substantiated by the licensee or the NRC. Two RPTs, who were about to exit the Containment Building after spending approximately three hours in protective clothing, were requested to perform an additional task which was expected to take 30 minutes. The involved RPTs informed the lead RPT that made the request that it would take significantly longer to perform the task and this would not allow them to perform the required PCM-1B check four hour check. The two RPTs denied that the lead RPT informed them that the hot particle checks were not required and that the four hour stay time could be ignored. The examination disclosed that a major point of contention between the two RPTs and lead RPT was whether the individuals could have completed their newly assigned task and still have time perform the PCM-1B check within the four hour period. The two RPTs and lead RPT brought the matter to the attention of the RP shift supervisor for resolution. The two RPTs exited the containment without performing the additional task and performed their PCM-1B checks before their four hour checks were due.

This item is closed.

Concern (f):

Unit two had seven personnel contamination events within a seven hour period on March 31, 1990.

Controlling Documents:

N/A



Finding (Closed):

This item was not substantiated by the licensee or the NRC. Personnel contamination logs for the period of March 25, 1990 through April 3, 1990, were examined. In addition the inspectors held a discussion with the contractor RPT assigned to maintain the personnel contamination records as required by licensee procedures.

The examination disclosed that no personnel contamination events had occurred on March 31, 1990. The inspectors verified that the individual contamination events that occurred during this period of time were in agreement with the personnel contamination logs sheets. The contractor RPT interviewed stated that he was on duty on March 31, 1990, and was certain that no personnel contaminations occurred that day. The RPT stated that it was a rather slow day on March 31st because a lot of work had been canceled or rescheduled.

This item is closed.

Concern (g):

RP coverage was inadequate in that RPTs were expected to perform hot particle checks in two separate locations.

Controlling Documents:

N/A

Findings (Closed):

This item was substantiated (see concerns (a, b and c), above). Discussions held with workers and RPTs revealed that things were hectic for the first day or two following the walkout and that RPTs had to work harder and longer hours. This included performing hot particle checks in more than one location. The RPTs queried felt that except for a few instances, RP surveillances of work activities were maintained at a high standard.

This item is closed.

Concern (h):

An injury occurred in Unit 1 on March 30, 1990, because workers neglected safety procedures in a high radiation area.

Controlling Documents:

N/A

Findings (Open):

The examination revealed that the licensee's investigation of the injury was still incomplete at the time of this inspection.



This item is open. This item will be examined during a subsequent inspection.

Concern (i):

Untrained junior RPTs manned the Containment Building control point.

Controlling Documents:

See Concern (b), above.

Findings (Closed):

This item was not substantiated. Senior and junior RPTs questioned about this item denied that untrained RPTs were assigned to man the control points. Junior RPTs stated that all of their activities were performed under the direction and supervision of a fully qualified RPT. The review of control point logs and security records did not reveal any information to substantiate this item.

This item is closed.

Concern (j):

An untrained decontamination technician (DC) was assigned to issue dosimetry.

Controlling Documents:

Documents listed in Concern (b), above and procedure 75RP-9RR99, "Exposure Tracking During RRACS Outage"

Findings (Closed):

This concern was substantiated. The involved DC saw there was a shortage of dosimetry clerks around the RP island and requested permission from a lead RPT to assist in the recording of exposures that individuals had received while working in radiologically control areas. The lead RPT gave the DC permission to record the exposures, as read from workers' self-indicating-dosimeters and alarming dosimeters, into the licensee's computerized exposure tracking system. The DC had not been provided with the same job related training that was provided to other dosimetry clerks. The DC felt that she could perform this function solely from observing other dosimetry clerks. The lead RPT observed the involved DC until he was convinced that the technician could safely perform the function. The DC denied that she had issued any kind of dosimetry equipment to personnel.

On-the-job training records for the work that was performed by the DC had not been initiated as required by licensee controlling documents referenced under concern (b), above.



The inspectors discussed the above findings with the licensee's staff and at the exit interview. The licensee informed the inspectors that this item would be evaluated.

This item is closed.

Concern (k):

Radiation Exposure Permits were frequently modified to suit conditions if exposure estimates could not be met.

Controlling Documents:

Procedure 75RP-9ZZ44, "Radiation Exposure Permits" and 75RP-ORP01, "Radiation Protection Program."

Findings (Closed):

This item was substantiated; however, no violation or deviations were identified. The examination disclosed that licensee procedures require that REP's be reviewed and upgraded monthly if a change in radiological conditions or job scope requires an increase in radiological controls. The inspectors' verified that the reviews and upgrades of selected REP's were consistent with licensee procedures.

This item is closed.

Concern (l):

RPT's sign out for their self-indicating-dosimeters and alarming dosimeters and do not always return them if their work assignment is changed. In some cases the RPT's do not sign in on a new REP.

Controlling Documents:

Procedure 75AC-9RP01, "Radiation Exposure and Access Control" and the procedures listed under concern (k), above.

Findings (Open):

This item was substantiated from internal audits conducted by the licensee's staff. The licensee informed the inspectors that they were aware of the problem and were in the process of evaluating it for the purpose implementing appropriate corrective actions.

This item is open. This item will be examined during a subsequent inspection.

Concern (m):

On March 29, 1990, Unit 2 a worker who exited from an RCA with facial contamination was reported to be working on an unidentified valve having radiation measurements of 1000 mrem/hr gamma, 8 rads/hr beta and 160 mrad of smearable contamination levels. The worker was reported to be wearing a single set of protective clothing and did not wear a respirator.

Controlling Documents:

- (1) Procedure 75AC-9RP06, "Respiratory Equipment Usage in the RCA", Appendix-D, Section 4.1 which states in part: "Respirators should be worn for any work in areas where general contamination is >50,000 dpm/100cm², until or unless air samples indicate no airborne hazard has been created by that work." and Section 4.2 states in part: "Respirators should be worn for any tour or visual inspections in areas where general contamination is >100,000 dpm/100cm², until or unless air samples indicate no airborne hazard has been created by such activities."
- (2) Procedure 75AC-9RP02, "Radioactive Contamination Control", Section 3.2.7 and Appendix A provides in part: "Disposable protective clothing shall be worn in High Contamination Areas and Hot Particle Control Areas (e. g., >50,000 dpm/100cm²-beta gamma an >1000 dpm/100 cm² alpha)."

Findings (Open):

The licensee's investigation of this item was still in progress at the time of this inspection.

The inspectors asked several contractor and ANPP junior and senior RPT's if they were aware of any guidance provided in licensee procedures for prescribing the use of respirators and protective clothing. None of the RPTs were aware of instructions or guidance provided in the referenced procedures.

This item is open. This item will be examined during a subsequent inspection.

Concern (n):

Finger rings were not prescribed for two insulators whom were assigned to shield a pipe in Unit 1 on the LPSI "B" system having contact radiation measurements of 40 rem/hr. It took approximately ten minutes to complete the work.

Controlling Documents:

- (1) 10 CFR Part 20.101 (a) establishes a limit of 18.75 rem/quarter to the hands and forearm and to the feet and ankles.
- (2) Procedure 75RP-9ZZ11, "Special Dosimetry" Procedure 75RP-9ZZ11 provides instruction and guidance for issuing dosimetry where exposure to individuals may be localized to a specific part of the body.

Findings (Open):

This item was referred to the licensee for evaluation. The licensee's evaluation of the item was still in progress at the time of this inspection. A review of procedure 75RP-9RR99 conducted by the inspectors



revealed that the procedure does not appear to provide clear and concise instruction as to when both finger rings and wrist badges should be considered for monitoring extremities.

This item is open. This item will be examined during a subsequent inspection.

Concern (o):

Three Unit 2 contract RPTs were not given steam generator (SG) mock-up training as required by REP's 2-90-1108 pre-job briefing package.

Controlling Documents:

REP 2-90-1108 pre-job briefing package. It should be noted that the pre-job briefing check list for REP 2-90-1108 stated: "Pre-job briefing requirements:... (1). All personnel breaking the plane of the SG are required to attend mock-up training."

Findings (Closed):

This item was not substantiated. The item was turned over to the licensee for investigation. A review of the licensee's investigation report and related documents was conducted during the inspection. The licensee's investigation disclosed:

- (1) Two of the RPTs named by the alleger had completed SG mock-up training on February 14, 1990.
- (2) The third RPT named by the alleger had not received SG mockup training; however, the RPT did not cover any operations involving work that broke the plane of the SG.

This item is closed.

Concern (p):

On April 2, 1990, a junior RPT removed several bags of trash from the containment area having readings ranging from 120 mrem/hr to 920 mrem/hr on contact with the bags. The RPT did not wear gloves or a lab coat and failed to escort the trash down the elevator pursuant to the special instructions provided on REP 2-90-4301-A.

Controlling Documents

- (1) Technical Specifications, 6.11.1 which states: "Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure."
- (2) Procedure 75RP-9ZZ61, "Radioactive Material Storage and Control" Section 5.3.3 of the procedure requires: "Radioactive material



shall be escorted by a RP tech for all transfers > 100 mrem/hr contact with package."

- (3) REP 2-90-4301-A required an RPT escort for movement of high reading trash.

Findings (Closed)

This item was substantiated. The inspectors held discussions with all of the involved individuals. The following information was obtained:

- (1) A contractor lead RPT and two decontamination technicians had been assigned to transfer approximately six bags of radioactive waste from the Containment Building to the high level storage area of the Radwaste Building.
- (2) Radiation measurements on contact with the bags ranged from 120 mrem/hr up to 250 mrem/hr. The lead RPT stated that they had to transfer the bags from the Containment Buildings personnel entry point which was a posted contamination area to a cart which was to be used to further transfer the bags from the 140' elevation of the Auxiliary Building to the 100' elevation of the Radwaste Building. The RPT stated that he performed a radiation and contamination survey of the bags prior to handing them to the two deconners who placed them on the cart and stood guard over the bags until the RPT could exit from the contaminated area. The RPT stated that he had worn the protective clothing prescribed on the REP and that the two deconners who were located on the clean side had worn a lab coat and gloves. The RPT stated that no contamination was found on the external surfaces of the bags prior to transferring them to the two deconners.
- (3) The RPT stated that a survey of the cart was taken after all the bags were loaded onto the cart. Radiation measurements on contact with the cart were reported to be 80 mrem/hr and 30 mrem/hr at 18" from the cart's surface. The RPT added that he instructed the deconners to escort the trash down to the 100' elevation of the Auxiliary Building. The deconners were instructed to move the cart to the left of the elevator door and wait there until the RPT could exit from the contaminated area.

Discussions held with the two decontamination technicians were in agreement with what the RPT had said; however, the two decontamination technicians stated that they did not hear the RPT state that they should guard the cart after reaching the 100' elevation of the Auxiliary Building. The two deconners stated that after reaching the 100' elevation of the Auxiliary Building they proceeded to transfer the material over to the 100' level of the Radwaste Building. After reaching the Radwaste Building the two deconners left the cart at the RP control point and proceeded to return to the 140' elevation of the Auxiliary Building. The deconners stated that no one was present at the Radwaste Building RP control point when the cart containing the trash was moved to that location.



Both the RPT and deconners stated that they ran into each other at the 100' elevation of the Auxiliary Building as the deconners were about to return up to the 140" level. The RPT asked the deconners where the cart was and the deconners informed him that they had moved it to the Radwaste Building. The RPT stated that he immediately went to the Radwaste Building and completed the transfer by moving the trash into the high level storage area. The RPT subsequently gave the two deconners a verbal reprimand for failure to remain guard over the material. The RPT stated that provided the deconners with further counseling by apprising them of the requirements prescribed in the REP and licensee procedure.

The above findings were discussed with the licensee's staff and were brought to the attention of the individuals attending the exit interview. The inspectors informed the licensee that failure of the RPT and deconners to comply with REP 2-90-4301-A and procedure 75RP-9ZZ61 was an apparent violation. The violation is not being cited because the criteria in 10 CFR Part 2, Appendix C, Section V.G of the enforcement policy was satisfied (NCV 50-529/90-19-05).

This item is closed.

6. Exit Interview

The inspectors met with the individuals identified in paragraph (1) at the conclusion of the inspection. The scope and findings of the inspection were summarized. The licensee was informed of the NCV's identified in paragraphs 5, Concerns (a) and (p).

