

## Palo Verde 3

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### Initiating Events

**Significance:**  May 19, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to discontinue a reactor startup when required by procedure**

TS 5.4, "Procedures," requires that written procedures be implemented and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 2.b of this Regulatory Guide includes instructions for reactor plant startup. Procedure 40OP-9ZZ03, "Reactor Startup," Revision 2, provides instructions for monitoring anticipated critical position during a reactor startup. On May 19, 2001, this procedure was implemented to conduct a reactor startup of Unit 3. Due to personnel error, the reactor startup was allowed to continue after two consecutive anticipated critical positions indicated that the Unit 3 reactor would go critical below the (-)500 pcm position as described in CRDR 2391526. This finding is of very low safety significance because criticality did not occur below TS limits.

Inspection Report# : [2001003\(pdf\)](#)

**Significance:**  Feb 26, 2001

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Inadequate surveillance test procedure causes inadvertent reactor coolant system partial drain while shutdown**

TS 5.4, "Procedures," requires that written procedures be implemented and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 8.b.(1)(j) of this Regulatory Guide includes procedures to perform surveillance testing of the Emergency Core Cooling System. However, Procedure 73ST-9SI06, "Containment Spray Pumps and Check Valves - Inservice Test," Revision 9, which gives instructions for performing the CS pump surveillance test, was not adequately maintained. On February 26, 2001, performance of the steps as written resulted in water being inadvertently transferred from the Unit 3 reactor coolant system to the refueling water tank, while the unit was in Mode 5. The violation was of very low safety significance (Green) because operators had multiple methods and sufficient time to stop the inventory loss before the point where a loss of suction on safety injection pumps could occur. This violation is in the licensee's corrective action program as CRDR 2365447 and is being treated as an NCV.

Inspection Report# : [2001002\(pdf\)](#)

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### Mitigating Systems

**Significance:**  Oct 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**Mode 3 Entry with an auxiliary feedwater pump inoperable**

Technical Specification 3.0.4 requires, in part, that when a limiting condition for operation is not met, entry into a Mode or other specified condition in the Applicability shall not be made except when the associated actions to be entered permit continued operation in the Mode or other specified condition in the Applicability for an unlimited period of time. Technical Specification 3.7.5 requires that three auxiliary feedwater trains be operable in Modes 1, 2, and 3. Contrary to these requirements, on October 29 and November 2, 2001, [Unit 3] control room operators entered Mode 3

with the steam driven auxiliary feedwater pump inoperable (NCV 50-530/01-006-02). At the time, steam supply Valves 3JSGAUV134 and 3JSGAUV0138 were deenergized and closed under permit 59885 to be in compliance with TS 3.6.3 Action C.1. pending inservice valve testing. This issue is identified in the licensee's corrective action program as CRDR 2438386. This finding is of very low safety significance because it only affects the mitigating systems cornerstone and two other operable auxiliary feedwater trains were available.

Inspection Report# : [2001006\(pdf\)](#)

**Significance:**  Mar 31, 2001

Identified By: NRC

Item Type: FIN Finding

**Anomalies in testing and test results for essential cooling water heat exchangers leads to ineffective trending**

The inspector identified that the licensee was not effectively trending essential cooling water heat exchanger thermal performance. Ineffective heat exchanger performance trending could allow thermal performance to degrade below design bases limits without detection, which is a credible impact on safety. The essential cooling water system is a mitigating system. The finding was of very low safety significance, because the actual cumulative effect of these errors was less than the available thermal performance margin and in all cases, the heat exchangers remained operable.

Inspection Report# : [2001002\(pdf\)](#)

**Significance:**  Feb 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to promptly identify and correct an inadequate HPSI system venting procedure**

A non-cited violation was identified when the licensee failed to promptly identify and correct an inadequate surveillance procedure that was used to periodically vent the high pressure safety injection (HPSI) system. The procedure failed to include guidance for conducting HPSI system venting and the acceptance criteria to ensure successful venting. This failure resulted inadequate HPSI system venting since February 1997. This was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI. This violation was entered into the licensee's corrective action program as CRDR 2316659. The underlying technical issue, an inadequate surveillance procedure, was assessed by the significance determination process and determined to have very low safety significance because the high pressure safety injection system remained operable.

Inspection Report# : [2001004\(pdf\)](#)

**Significance:**  Jan 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Procedure and Operator Failure To Follow Procedure Results in Spent Fuel Pool Overfill**

Green. The inspectors determined that Procedure 40OP-9PC05, "Augmentation of Fuel Pool Cooling with Shutdown Cooling," Revision 13, was inadequate. On December 8, 2000, in Unit 3, this procedure was in use and did not provide guidance to isolate the suction of the spent fuel pool cooling pumps from the refueling water storage tank during the alignment of containment spray Pump B for spent fuel pool cooling. This resulted in transfer of 27,000 gallons of borated water from the refueling water tank to the spent fuel pool. Of this, 1,200 gallons spilled into the fuel building. The inspectors also determined that control room operators did not perform Procedure 40OP-9PC05, Step 7.3.14, which required an operator be posted to monitor spent fuel pool level during the evolution. This resulted in delayed detection of the incorrect lineup that caused the spent fuel pool overfill. The failure to maintain and implement a Regulatory Guide 1.33, Appendix A, recommended procedure for operation of the spent fuel pool cooling system, was a non-cited violation of Technical Specification 5.4. This non-cited violation was determined to have very low safety significance because the refueling water tank level did not drop below the Technical Specification required level during the event. (Section 1R14).

Inspection Report# : [2000011\(pdf\)](#)

**Significance:** N/A Aug 28, 2000

Identified By: NRC

Item Type: FIN Finding

**Supplemental inspection to address a change in performance indicated by the Unit 3 high pressure safety injection system performance unavailability indicator (White)**

This supplemental inspection was performed by the NRC to address a change in performance indicated by the high pressure safety injection system performance unavailability indicator. This change was primarily due to the inoperability of high pressure safety injection system Train B Valve 3JSIBUV636, between January 6 and March 28, 2000. This performance issue was self-revealing during the performance of Surveillance Procedure 73ST-9XI14, "Train B HPSI Injection and Miscellaneous SI Valves - Inservice Test." The valve failed during the surveillance test as a result of oxidation on electrical contacts. The licensee identified the root cause as the lack of a preventive maintenance task for inspecting electrical contacts in control circuits. Due to the licensee's acceptable performance in addressing this issue, white performance associated with the unavailability of high pressure safety injection system Train B will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program."

Inspection Report# : [2000012\(pdf\)](#)



**Significance:** Apr 22, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

**Emergency diesel generator fuel oil line failure due to a failure to follow a maintenance procedure**

On October 3, 1998, maintenance personnel failed to follow work order instructions for torquing fuel supply lines on the Unit 3 "A" Emergency Diesel Generator. As a result, a fuel supply line detached from a cylinder on the diesel generator during a load test conducted on April 22, 2000. This failure to follow a work order is a violation of Technical Specification 5.4.1. [This violation was entered into the licensee's corrective action program as CRDR 117562. This finding was determined to have a very low risk significance because the redundant Unit 3 "B" Emergency Diesel Generator was operable and the faulted emergency diesel generator was capable of supplying its associated loads for 17 hours which was sufficient to mitigate a loss of offsite power event.]

Inspection Report# : [2001004\(pdf\)](#)

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## Barrier Integrity



**Significance:** Nov 29, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

**Violation of Technical Specification 5.5.9.4.a.6 that requires steam generator tubes that have a wall thickness of less than 40 percent of the original tube wall to be plugged.**

Technical Specification 5.5.9.4.a.6 requires steam generator tubes that have a wall thickness of less than 40 percent of the original tube wall to be plugged. During the October 1998 eddy current tube inspection of Steam Generator 3-2, the licensee failed to identify a tube defect that exceeded the Technical Specification limit for a through-wall defect of 40 percent. The defect was subsequently identified during the next tube inspection that was performed in April 2000 and corrected. The steam generator tube was operated in violation of Technical Specification 5.5.9.4.a.6 for an entire cycle. This condition was identified by the licensee and corrective actions were specified in Condition Report/Disposition Request 117497. This condition was reported in LER 50-530/1998-006-00. This event did not approach or challenge the tube burst limit during the cycle that it was operated in an unplugged condition. Based on this fact, the risk significance of this issue was characterized as very low (Green) consistent with the significance determination process.

Inspection Report# : [2000010\(pdf\)](#)

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## Emergency Preparedness

**Significance:**  Sep 26, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to periodically test the ability to meet minimum emergency response facility staffing response times during off-hours.**

IR 05000528-02-04, IR 05000529-02-04, IR 05000530-02-04, IR 72-44/02-02; Arizona Public Service Company; 6/23/02 - 9/21/02; Palo Verde Nuclear Generating Station, Units 1, 2, and 3; Emergency Response Organization Augmentation Testing and Access Control. A noncited violation of very low safety significance was identified for failure to periodically test the ability to meet minimum emergency response facility staffing response times during off-hours. Off-hours exercises are only conducted once every 6 years, and off-hours quarterly pager and autodialer tests conducted over the past year were only functional tests that did not establish response times to the emergency facilities. Failure to adequately test the ability to meet minimum emergency response facility staffing response times during off-hours is a violation of 10 CFR 50.54(q), which requires that a licensee follow their emergency plans. Section 8.1.3, "Drills," of the Emergency Plan states that drills for the emergency organization are conducted periodically throughout the year to test response timing and emergency equipment and to ensure members of the Emergency Response Organization are familiar with their duties. Section 5.1.2.2 of Emergency Plan Implementing Procedure 08 requires that quarterly pager and autodialer testing be conducted to demonstrate minimum staffing response capability for the emergency facilities. Minimum staffing is defined in Table 1 of the Emergency Plan and includes positions and response times during normal and off-hours for each emergency facility. Contrary to the above, drills for the emergency response organization have not tested off-hours response timing periodically throughout the year. The last off-hours facility activation drill was conducted in 1999, and off-hours pager and autodialer tests conducted each quarter did not demonstrate response timing. The finding was determined to be a performance deficiency associated with emergency response organization augmentation testing. The finding was evaluated to be more than minor using the Emergency Preparedness Significance Determination Process because it affects the emergency preparedness cornerstone objective in that inadequate testing of the augmentation function can fail to identify problems in staffing the emergency facilities in a timely manner. The finding was evaluated as having very low safety significance (Green), since it was a failure of a regulatory requirement but not a failure to meet an emergency planning standard. This finding is in the licensee's corrective action process as Condition Report/Disposition Request 2532635 and is being treated as a noncited violation (50-528/02-04-01; 50-529/02-04-01; 50-530/02-04-01) in accordance with Section VI.A of the NRC Enforcement Policy (Section 1EP3).

Inspection Report# : [2002004\(pdf\)](#)

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## Occupational Radiation Safety

**Significance:**  Mar 23, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

### **Failure to wear a radiation monitoring device that continuously integrated the radiation dose rate in a high radiation area**

Green. Technical Specification 5.7.1.b states, in part, that any individual or group of individuals permitted to enter a high radiation area shall be provided with a radiation monitoring device that continuously integrates the radiation dose rate in an area. On October 14, 2001, the licensee identified that between October 9 and October 11, 2001, eight individuals used a non-functioning electronic dosimeter and entered high radiation areas. The cause of the electronic dosimeter problem was a vendor related firmware problem. The failure to wear a radiation monitoring device that continuously integrated the radiation dose rate in a high radiation area is a violation of Technical Specification 5.7.1. These events are described in the licensee's corrective action program, reference Condition Report/ Disposition Request CRDR 2432485. These events are being treated as a Non-Cited Violation. The safety significance of this finding was

determined to be very low (Green) by the Occupational Radiation Safety Significance Determination Process because having a nonfunctioning radiation monitoring device has a credible impact on worker safety, the occurrence involved personnel dosimetry related to measuring worker dose, and there was no overexposure or unintended dose as a result of this nonfunctioning dosimeter.

Inspection Report# : [2002002\(pdf\)](#)

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**Significance:** Feb 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to conduct adequate radiation surveys**

Three examples of a failure to conduct adequate radiological surveys. On December 21, 1999, radiological surveys failed to detect changing radiological conditions at the "B" concentrate monitor tank. On May 4, 2000, radiological surveys failed to detect changing radiological conditions at the "B" LPSI pump cyclone separator and changing radiological conditions following a drain down of the spent fuel transfer canal. As a result, radiological area postings and controls for these areas were inappropriate. These three examples of inadequate radiological surveys were a violation of 10 CFR Part 20.1501. This violation was entered into the licensee's corrective action program as CRDRs 113251, 117874 and 117970. These findings were determined to have very low risk significance because there was no overexposure or substantial potential for an overexposure and the ability to assess radiation doses was not compromised.

Inspection Report# : [2001004\(pdf\)](#)

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## Public Radiation Safety

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## Physical Protection

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**Significance:** Sep 26, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to mark a portion of a document as containing Safeguards information.**

IR 05000528-02-04, IR 05000529-02-04, IR 05000530-02-04, IR 72-44/02-02; Arizona Public Service Company; 6/23/02 - 9/21/02; Palo Verde Nuclear Generating Station, Units 1, 2, and 3; Emergency Response Organization Augmentation Testing and Access Control. A noncited violation of very low safety significance was identified for failure to mark a portion of a document as containing Safeguards information. On September 18, 2001, pursuant to 10 CFR 50.90, the licensee submitted to NRC Headquarters a change to its physical security plan. A portion (page) of this plan change included the size (number) of the armed response force used to defend all three units at Palo Verde and was not marked as containing "Safeguards Information." 10 CFR 73.21 requires, in part, that information regarding the size (number) of responding security forces be marked "Safeguards Information" in a conspicuous manner to indicate the presence of protected information. Following identification of this issue, the licensee withdrew all copies of this physical security plan change. The failure to conspicuously mark a portion of a document as "Safeguards Information" was determined to be a performance deficiency. The finding was evaluated to be more than minor because it affects a physical protection cornerstone objective and if left uncorrected it would become a more significant safety concern. Using the Physical Protection Significance Determination Process, the inspector determined the violation had very low safety significance because there were not more than two similar findings in four calendar quarters. Because of the very low safety significance (Green) and because the licensee included the finding in their corrective action program as Condition Report/Disposition Request 2433526, this finding is being treated as a noncited violation (50-528/02-04-02; 50-529/02-04-02; 50-530/02-04-02) in accordance with Section VI.A of the NRC Enforcement Policy (Section 3PP2).  
Inspection Report# : [2002004\(pdf\)](#)



**Significance:**  Sep 26, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to mark a drawing as containing Safeguards information.**

IR 05000528-02-04, IR 05000529-02-04, IR 05000530-02-04, IR 72-44/02-02; Arizona Public Service Company; 6/23/02 - 9/21/02; Palo Verde Nuclear Generating Station, Units 1, 2, and 3; Emergency Response Organization Augmentation Testing and Access Control. A noncited violation of very low safety significance was identified for failure to mark a drawing as containing Safeguards information. On June 27, 2002, the licensee maintained Drawing TY-GL-002 (sheet 1 of 1), which contained an overview block diagram of the Palo Verde new North Access Facility and the new Independent Spent Fuel Storage Installation (ISFSI) and was not marked as containing "Safeguards Information." 10 CFR 73.21 requires, in part, that information regarding the site-specific drawings that substantially represent the final design features of the physical protection system be marked "Safeguards Information" in a conspicuous manner to indicate the presence of protected information. Following identification of this issue, the licensee ensured that all copies of the drawing were properly marked. The failure to conspicuously mark the drawing as "Safeguards Information" was determined to be a performance deficiency. The finding was evaluated to be more than minor because it affects a physical protection cornerstone objective and if left uncorrected it would become a more significant safety concern. Using the Physical Protection Significance Determination Process, the inspector determined the violation had very low safety significance because there were not more than two similar findings in four calendar quarters. Because of the very low safety significance (Green) and because the licensee included the finding in their corrective action program as Condition Report/Disposition Request 2533054, this finding is being treated as a noncited violation (50-528/02-04-03; 50-529/02-04-03; 50-530/02-04-03) in accordance with Section VI.A of the NRC Enforcement Policy (Section 3PP2).

Inspection Report# : [2002004\(pdf\)](#)

**Significance:**  Nov 29, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to properly secure safeguards information.**

10 CFR 73.21(d)(2) states that, while safeguards information is unattended, the information shall be stored in a locked security storage container. Procedure 20DP-OSK43, Revision 4, paragraph 3.8.3, states that, while unattended, materials containing safeguards information shall be stored in an approved, locked safeguards storage container. Contrary to the above requirements, on July 28, 2000, the licensee left a safeguards safe unlocked outside the protected area. This condition was identified by the licensee and corrective actions were specified in Condition Report/Disposition Request 2308078. This condition was reported in LER 50-528;-529;-530/2000-S01-00. This issue was determined to be of very low safety significance (Green) by the significance determination process because there were not greater than two similar findings in the last four quarters.

Inspection Report# : [2000010\(pdf\)](#)

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## Miscellaneous

**Significance:** N/A Mar 19, 2002

Identified By: NRC

Item Type: FIN Finding

**Identification and resolution of problems.**

The licensee was generally effective at identifying problems and placing them into the corrective action program. The licensee effectively used risk information in prioritizing the extent of evaluation of individual problems and the schedule for implementation of corrective actions. The licensee effectively prioritized and evaluated issues with few exceptions. One exception involved a final operability evaluation which concluded that the main steam and feedwater isolation system actuation circuitry was operable took approximately 5 months to complete. Another example involved a failure to fully determine the extent of a condition associated with Borg-Warner check valve failures which resulted

in additional failures. Corrective actions, when specified, were implemented in a timely manner. Based on interviews conducted during this inspection, workers at the site felt free to input safety issues into the problem identification and resolution program (Section 4OA2).

Inspection Report# : [2002005\(pdf\)](#)

**Significance:** N/A Feb 22, 2001

Identified By: NRC

Item Type: FIN Finding

**Identification and resolution of problems was effective**

The licensee was effective at identifying problems and putting them into the corrective action program. The licensee's effectiveness at problem identification was evidenced by the relatively few deficiencies identified by external organizations (including the NRC) that had not been previously identified by the licensee during the review period. The licensee effectively used risk information in prioritizing the extent of evaluation of individual problems and the schedule for implementation of corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. However, there was one instance that is discussed below, where the licensee did not promptly identify and correct an inadequate procedure. Licensee audits and assessments were effective. Based on the interviews conducted during this inspection, workers at the site felt free to input safety issues into the problem identification and resolution program (Sections 4OA2.1b;2b;3b;4b).

Inspection Report# : [2001004\(pdf\)](#)

Last modified : December 02, 2002