

## Palo Verde 1

### 3Q/2015 Plant Inspection Findings

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## Initiating Events

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## Mitigating Systems

**Significance:** G Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Verify the Design of the Essential Spray Pond System Crosstie Valves**

The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, involving the failure to maintain adequate design control measures associated with the ultimate heat sink. Specifically, the essential spray pond crosstie valves did not meet design requirements established in Regulatory Guide 1.117, "Tornado Design Classification," as described in the Updated Final Safety Analysis Report. If the crosstie valves were damaged by a tornado, the licensee would not have enough available water inventory to meet the mission time of the essential spray pond system during accident conditions. The licensee has added steps to their emergency operating procedure to instruct operators to open the crosstie valves during the initial response to a loss of coolant accident and is evaluating potential plant modifications. The licensee has entered this issue into the corrective action program as Palo Verde Action Request 4633058.

The failure to verify the design of the essential spray pond system in accordance with Regulatory Guide 1.117 was a performance deficiency. The inspectors determined that this performance deficiency was more than minor because it affected the protection against external factors attribute of the Mitigating Systems Cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, if the crosstie valves were damaged by a tornado, the licensee would not have enough available water inventory to meet the mission time for one train of the essential spray pond system during accident conditions. The inspectors performed the initial significance determination for the performance deficiency using NRC Inspection Manual 0609, Appendix A, Exhibit 2, "Mitigating System Screening Questions," dated July 1, 2012. The finding required a detailed risk evaluation because it involved the potential loss of a safety system. Specifically, after at least 13 days of spray pond operation, operators were required to open the spray pond cross-connect valve to enable one train of the ultimate heat sink to use both trains of spray pond inventory. A Region IV senior reactor analyst performed a detailed risk evaluation. The design basis accident mission time was 30 days. However, the probabilistic risk assessment mission time was only 24 hours. Since the spray ponds could still perform the probabilistic risk assessment function for the probabilistic risk assessment mission time, this finding was of very low safety significance (Green). The change to the core damage frequency was much less than 1E 7/year. The finding did not contribute to the large early release frequency. Because the most likely cause of the finding does not reflect current licensee performance, no cross-cutting aspect is assigned to this finding.

Inspection Report# : [2015002](#) (*pdf*)

**Significance:** G Dec 31, 2014

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

### **Failure to Verify the Adequacy of the Design of the Diesel Fuel Oil Cooler**

Green. The inspectors reviewed a self-revealing Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control" for the station's failure to adequately review the suitability of materials of the diesel fuel oil cooler. Specifically, the Unit 2 "A" diesel generator fuel oil cooler design allowed for the interface of two dissimilar metals which promoted galvanic corrosion. This corrosion ultimately affected the structural integrity of the cooler which rendered the "A" essential spray pond inoperable. In response to this, the licensee has replaced all six of the fuel oil cooler covers and initiated a design change to remove the fuel oil cooler from service. The licensee has entered the issue into the corrective action program as Condition Report Disposition Request 4543394.

The failure to verify the adequacy of the design of the diesel fuel oil cooler was a performance deficiency. The performance deficiency is more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone to ensure the availability, reliability, capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the Unit 2 "A" diesel fuel oil cooler design allowed for the interface of two dissimilar metals which promoted galvanic corrosion. The corrosion ultimately affected the structural integrity of the cooler which rendered the Unit 2 "A" spray pond inoperable. In accordance with NRC Inspection Manual 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The finding screened to a detailed risk evaluation because it involved a potential loss of one train of safety related equipment for longer than the technical specification allowed outage time. A Region IV senior reactor analyst performed the detailed risk evaluation. The change to the core damage frequency was  $1.5E-7$ /year (Green). The dominant core damage sequences included loss of offsite power events that lead to station blackout conditions. The gas turbine generators and the auxiliary feedwater system helped to minimize the risk. The inspectors determined this finding has no cross-cutting aspect because it is not indicative of current performance.

Inspection Report# : [2014005](#) (pdf)

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Security**

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary.

Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

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