10 CFR 50.90

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102-07330-MLL/MDD
September 9, 2016

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS)**
Units 1, 2, and 3
Docket Nos. STN 50-528, 50-529, and 50-530
Renewed Operating License Nos. NPF-41, NPF-51, NPF-74
Response to NRC Instrumentation and Controls Staff Request for Additional Information Regarding License Amendment Request to Revise Technical Specifications Related to Degraded and Loss of Voltage Relay Modifications

By letter dated April 1, 2016 [Agencywide Documents Access and Management System (ADAMS) Accession No. ML16096A337], Arizona Public Service Company (APS) submitted a license amendment request (LAR) pursuant to the provisions of Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3, requesting approval of proposed changes to the PVNGS Technical Specifications (TS). The proposed LAR would revise TS requirements related to the degraded and loss of voltage relays that are planned to be modified to be more aligned with designs generally implemented in the industry. Specifically, the licensing basis for degraded voltage protection will be changed from reliance on a TS initial condition that ensures adequate post-trip voltage support of accident mitigation equipment to crediting automatic actuation of the degraded and loss of voltage relays to ensure proper equipment performance.

By letter dated July 21, 2016 (ADAMS Accession No. ML16203A381), APS supplemented the LAR in response to U.S. Nuclear Regulatory Commission (NRC) Probabilistic Risk Assessment Operations and Human Factors Branch (APHB) staff request for additional information (RAI) (ADAMS Accession No. ML16181A334), dated June 29, 2016.

The Instrumentation and Controls Branch (EICB) of the NRC staff provided RAIs by NRC document, dated August 17, 2016 (ADAMS Accession No. ML16230A231). The Enclosure to this letter provides the APS response to the RAIs. The RAI responses do not affect the conclusions of the no significant hazards consideration determination [10 CFR 50.91(a)] provided in the original LAR.

No new commitments are being made in this submittal. Should you need further information regarding this response, please contact Michael D. Dilorenzo, Licensing Section Leader, at (623) 393-3495.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on : September 9, 2016
(Date)

Sincerely,

Lacal, Maria L(Z06149)

Digitally signed by Lacal, Maria L(Z06149)
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Enclosure: Response to NRC Instrumentation and Controls Staff Requests for Additional Information Regarding License Amendment Request to Revise Technical Specifications Related to Degraded and Loss of Voltage Relay Modifications

cc:

K. M. Kennedy	NRC Region IV Regional Administrator
S. P. Lingam	NRC NRR Project Manager for PVNGS
M. M. Watford	NRC NRR Project Manager
C. A. Peabody	NRC Senior Resident Inspector for PVNGS
T. Morales	Arizona Radiation Regulatory Agency (ARRA)

Enclosure

Response to NRC Instrumentation and Controls Staff Requests for Additional Information Regarding License Amendment Request to Revise Technical Specifications Related to Degraded and Loss of Voltage Relay Modifications

Introduction

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NRC Staff RAI 1:

In Attachment 4, *Technical Description of Modification of the Degraded and Loss of Voltage Relays*, of the LAR the licensee referred to Calculation 13-EC-PB-0202, *4160 V Degraded Voltage Relay (DVR) and Loss of Voltage Relay (LoVR) Setpoint & Calibration*, Revision 5. Figures 5-2 and 5-3 in Attachment 4, documents the final results of the Allowable Values derived in this calculation. These values correspond to the proposed Allowable Values in TS SR 3.3.7.4. Please provide or make Calculation 13-EC-PB-0202 available to the NRC staff for audit. The information in this calculation will be used to confirm the proposed Allowable Values in SR 3.3.7.4 conform to the criteria of Regulatory Guide 1.105, Rev. 3.

APS Response 1:

APS made the calculation available for review during the NRC Audit of August 26, 2016 (ADAMS Accession No. ML16230A604). APS staff provided an overview of the calculation and a discussion of the methodology used in the derivation of the TS Surveillance Requirement (SR) allowable values.

NRC Staff RAI 2:

Sections 5.11.2 and 5.11.3 documents the Work Order History of ABB Type 27N Relays and Agastat ETR Timers. Please provide or make data used to calculate the uncertainty limits available to the NRC staff for audit.

APS Response 2:

APS made the requested information available for review during the NRC audit of August 26, 2016 (ADAMS Accession No. ML16230A604).

NRC Staff RAI 3:

In Calculation 13-EC-PB-0202, where the parameters have been obtained from the vendors, explain how data provided is used to ensure conformance to 95/95 confidence level specified in Regulatory Guide 1.105, Rev. 3.

APS Response 3:

The channel uncertainty values in Calculation 13-EC-PB-0202, *4160 V Degraded Voltage Relay (DVR) and Loss of Voltage Relay (LoVR) Setpoint & Calibration*, Revision 5, are based on vendor provided accuracy and uncertainty information. These channel uncertainties were used to ensure that the limiting setpoints and corresponding TS allowable values adequately protect the analytical limits (ALs) determined by the electrical design calculations.

APS used the results of the instrument vendor's accuracy and uncertainty information, since APS does not have the instrument vendor's supporting data. APS does, however, have high confidence in the use of these values as protecting the ALs. This confidence is based on the following factors.

1. Historical data: The calculation contains tables of data from many work orders for the potential transformers [PTs, General Electric (GE)] and the under voltage relays [UVRs, ASEA Brown Boveri (ABB)]. There is limited work order data from another power plant for the secondary timer (Agastat timer). This data for the ABB relays and the Agastat timers were reviewed as part of NRC Staff audit on August, 26, 2016 (ADAMS Accession No. ML16230A604). The historical data for both the PTs and UVRs show that the instrument performance history supports the uncertainties provided in the vendor specifications. The historical data for the Agastat timers also support the vendor specifications, but with fewer data points.

2. Future monitoring: The PVNGS surveillance test program (procedure 73DP-9ZZ14, *Surveillance Testing*), of which the test procedure for this equipment is a part, has steps for tracking and monitoring out-of-tolerance (OoT) conditions. Procedure 73DP-9ZZ14 requires a Condition Report be written for an OoT condition to enter it into the Corrective Action Program. Notification of control room staff is also required. Procedure 82DP-0PP01, *Out of Tolerance Program Controls*, is specifically mentioned as guidance to be used in procedure 73DP-9ZZ14. The OoT program monitors for incipient failures. Monitoring will have two common results: (1) the tolerances are reasonable but the particular equipment is failing

and, therefore, needs to be repaired or replaced; or (2) the tolerance is determined to be unreasonable and the calculation and the related uncertainties need to be revised accordingly. The setpoints and related parameters are evaluated as part of the calculation revision process.

3. Margin for Agastat timer: In the application where the Agastat timer is used there is adequate margin between the setpoints and the limiting conditions to allow for some variation beyond the vendor data without encroaching on the ALs.