



Palo Verde Nuclear  
Generating Station

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10 CFR 50.90

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July 30, 2003

U.S. Nuclear Regulatory Commission  
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11555 Rockville Pike  
Rockville, MD. 20852

**Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Units 1, 2, and 3  
Docket Nos. STN 50-528/529/530  
Supplement to Request for Amendment to Technical Specifications  
(TS) 3.2.4, 3.3.1, and 3.3.3, to also Revise TS 5.4.1(f)**

- References 1) APS Letter 102-04864-CDM/TNW/DWG, "Request for Amendment to Technical Specifications: 3.2.4, Departure From Nucleate Boiling Ratio (DNBR), 3.3.1, Reactor Protective System (RPS) Instrumentation - Operating, 3.3.3, Control Element Assembly Calculators (CEACs)", dated November 7, 2002, from C.D. Mauldin, APS to USNRC
- 2) NRC Safety Evaluation (SE), Acceptance for Referencing of Topical Report CENPD-396-P, Rev. 01, "Common Qualified Platform" and Appendices 1, 2, 3 and 4, Rev. 01 (TAC No. MA1677), dated August 11, 2000

Dear Sir or Madam:

In Reference 1, Arizona Public Service Company (APS) provided a request to amend PVNGS Technical Specifications (TS) in support of the Core Protection Calculator System (CPCS) upgrade in each PVNGS unit. Since the submittal of the referenced letter, an additional administrative Technical Specification was identified as requiring a change.

Technical Specification 5.4.1(f) makes reference to document CEN-39(A)-P, CPC Protection Algorithm Software Change Procedure, for controlling software changes in the legacy CPCS. Software changes associated with the upgraded Common Q CPCS are controlled in accordance with CE-CES-195, Software Program Manual for Common Q Systems, as previously reviewed and approved by the NRC (Reference 2). This change will reflect the Common Q document, CE-CES-195, in Technical Specification 5.4.1(f).

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Supplement to Request for Amendment to Technical Specifications (TS) 3.2.4, 3.3.1,  
and 3.3.3, to also Revise TS 5.4.1(f)

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The TS change proposed in this supplement does not affect the previously proposed TS pages and is within the scope of the no significant hazards consideration provided in Reference 1.

No new commitments are being made to the NRC by this letter. Should you have any questions, please contact Thomas N. Weber at (623) 393-5764.

Sincerely,



Enclosures:

- Notarized affidavit
- Arizona Public Service Company's Evaluation

Attachments:

1. Proposed Technical Specification Pages (mark-up)
2. Proposed Technical Specification Pages (retyped)

cc: Regional Administrator, NRC Region IV  
J. N. Donohew  
N. L. Salgado  
A. V. Godwin

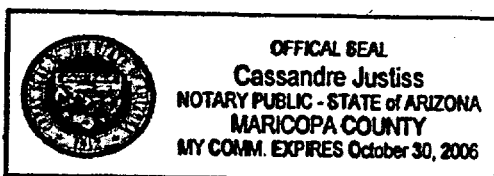
STATE OF ARIZONA       )  
                                      ) ss.  
COUNTY OF MARICOPA   )

I, David Mauldin, represent that I am Vice President Nuclear Engineering and Support, Arizona Public Service Company (APS), that the foregoing document has been signed by me on behalf of APS with full authority to do so, and that to the best of my knowledge and belief, the statements made therein are true and correct.

David Mauldin  
David Mauldin

Sworn To Before Me This 31<sup>st</sup> Day Of July, 2003.

Cassandra Justiss  
Notary Public



Notary Commission Stamp

## **Arizona Public Service Company's Evaluation**

### **Supplement to Proposed Amendment to Technical Specifications (TS) 3.2.4, 3.3.1, and 3.3.3, to also Revise TS 5.4.1(f)**

- 1. DESCRIPTION**
- 2. PROPOSED CHANGE**
- 3. BACKGROUND**
- 4. TECHNICAL ANALYSIS**
- 5. REGULATORY SAFETY ANALYSIS**
- 6. ENVIRONMENTAL CONSIDERATION**
- 7. REFERENCES**

## **1.0 DESCRIPTION**

This letter is a supplement to the original request (Ref. 1) to amend Operating Licenses NPF-41, NPF-51, and NPF-74 for Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3, respectively in support of the replacement/upgrade of the existing Core Protection Calculator System (CPCS).

This change would revise the PVNGS Technical Specifications to correctly reflect the procedure used to modify CPC software associated with the upgraded Common Q CPCS provided by Westinghouse.

## **2.0 PROPOSED CHANGE**

In the license amendment request submitted November 7, 2002 (Ref. 1), Arizona Public Service (APS) sought approval to make changes to Technical Specifications (TS) in support of implementation of the replacement Common Q CPCS at PVNGS. Subsequently, APS has identified the need to request an additional TS change to support the CPCS replacement. Currently, section 5.4.1(f) of PVNGS Technical Specification requires that:

*"Modifications to the CPC software (including changes of algorithms and fuel cycle specific data) shall be performed in accordance with the most recent version of "CPC Protection Algorithm Software Change Procedure," CEN-39(A)-P, which has been determined to be applicable to the facility."*

Procedure CEN-39(A)-P (Ref. 2) provides guidance associated with the legacy CPCS. Implementation of the Common Q CPCS will require that procedure CEN-39(A)-P be replaced with its Common Q CPCS equivalent which is "CE-CES-195, Software Program Manual for Common Q Systems" (Ref. 3). Therefore, APS proposes to change TS 5.4.1(f) to state the following:

*"Modifications to the CPC software (including changes of algorithms and fuel cycle specific data) shall be performed in accordance with the most recent version of "Software Program Manual for Common Q Systems," CE-CES-195, which has been determined to be applicable to the facility."*

## **3.0 BACKGROUND**

The basic Common Q CPCS design concept was approved by the NRC and documented in the NRC Safety Evaluation (SE) Acceptance for Referencing of Topical Report CENPD-396-P, Rev. 01, "Common Qualified Platform" and Appendices 1, 2, 3 and 4, Rev. 01, dated August 11, 2000 (Ref. 4).

This Safety Evaluation (SE) also approved the use of the software operation and maintenance plan found in Section 7 of the Software Program Manual (SPM) for the Common Q Systems, CE-CES-195. Section 4.3.1.f of the SE states the following:

#### **4.3.1.f Software Maintenance Plan**

*CENP treats both the maintenance and the operation phases of the software life cycle together in SPM Section 7, "Software Operation and Maintenance Plan." CENP used IEEE Std 1219-1992, "IEEE Standard for Software Maintenance," as a guide. Activities associated with the operation and maintenance phase include:*

- 1. Problem/modification identification, classification and prioritization;*
- 2. Problem analysis;*
- 3. Solution design;*
- 4. Solution implementation;*
- 5. Solution / system test; and*
- 6. Delivery.*

*The staff has reviewed the plan for maintenance of the software as described in the SPM and concludes that it exhibits the characteristics for management, implementation, and resources as set forth in BTP HICB-14 and is, therefore, acceptable.*

Section 7 of CE-CES-195 provides guidance for making changes to CPCS software similar to the guidance found in CEN-39(A)-P.

## **4.0 TECHNICAL ANALYSIS**

The proposed change in this supplement is to revise the wording of the Procedure portion of the Administrative Controls Technical Specifications (TS) 5.4.1 to reflect the NRC approved software maintenance procedure associated with Common Q software.

CE-CES-195, Software Program Manual for Common Q Systems, Revision 1 was submitted by CENP (Westinghouse) to the NRC for review and approval. The NRC staff found CE-CES-195 to be consistent with NRC guidelines for software operation and maintenance (Ref. 4).

This supplement to APS' proposed TS change (Ref. 1) provides an additional change to the Technical Specifications that is needed to support implementation of the Common Q CPCS at PVNGS. This change is administrative in nature and only serves to reflect a previously NRC approved document associated with the Common Q CPCS.

## **5.0 REGULATORY SAFETY ANALYSIS**

This proposed change to TS 5.4.1(f) to revise the referenced CPC software change control procedure is a supplement to the Reference 1 proposed TS change submittal, and is within the scope of the initial no significant hazards consideration determination provided in the Reference 1 submittal.

## **6.0 ENVIRONMENTAL CONSIDERATION**

This supplement to the proposed amendment in Reference 1 does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environment impact statement or environmental assessment needs be prepared in connection with the proposed amendment.

## **7.0 REFERENCES**

1. APS Letter 102-04864-CDM/TNW/DWG, "Request for Amendment to Technical Specifications: 3.2.4, Departure From Nucleate Boiling Ratio (DNBR), 3.3.1, Reactor Protective System (RPS) Instrumentation - Operating, 3.3.3, Control Element Assembly Calculators (CEACs)", dated November 7, 2002, from C.D. Mauldin, APS to USNRC
2. CEN-39(A)-P, CPC Protection Algorithm Software Change Procedure
3. CE-CES-195, Software Program Manual for Common Q Systems, Westinghouse Electric Company LLC
4. NRC Safety Evaluation (SE), Acceptance for Referencing of Topical Report CENPD-396-P, Rev. 01, "Common Qualified Platform" and Appendices 1, 2, 3 and 4, Rev. 01 (TAC No. MA1677), dated August 11, 2000

Attachment 1

**Proposed Technical Specification Pages  
(mark-up)**



## 5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

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- 5.4.1 Written procedures shall be established, implemented, and maintained covering the following activities:
- The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978;
  - The emergency operating procedures required to implement the requirements of NUREG-0737 and to NUREG-0737, Supplement 1, as stated in Generic Letter 82-33;
  - Quality assurance for effluent and environmental monitoring;
  - Fire Protection Program implementation; and
  - All programs specified in Specification 5.5.
  - Modification of core protection calculator (CPC) addressable constants. These procedures shall include provisions to ensure that sufficient margin is maintained in CPC type I addressable constants to avoid excessive operator interaction with CPCs during reactor operation.

Modifications to the CPC software (including changes of algorithms and fuel cycle specific data) shall be performed in accordance with the most recent version of "CPC Protection Algorithm Software Change Procedure," CEN-39(A)-P, which has been determined to be applicable to the facility. Additions or deletions to CPC addressable constants or changes to addressable constant software limit values shall not be implemented without prior NRC approval.

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## 5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

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- 5.4.1 Written procedures shall be established, implemented, and maintained covering the following activities:
- The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978;
  - The emergency operating procedures required to implement the requirements of NUREG-0737 and to NUREG-0737, Supplement 1, as stated in Generic Letter 82-33;
  - Quality assurance for effluent and environmental monitoring;
  - Fire Protection Program implementation; and
  - All programs specified in Specification 5.5.
  - Modification of core protection calculator (CPC) addressable constants. These procedures shall include provisions to ensure that sufficient margin is maintained in CPC type I addressable constants to avoid excessive operator interaction with CPCs during reactor operation.

Modifications to the CPC software (including changes of algorithms and fuel cycle specific data) shall be performed in accordance with the most recent version of the "Software Program Manual for Common Q Systems", GE-CES-195, which has been determined to be applicable to the facility. Additions or deletions to CPC addressable constants or changes to addressable constant software limit values shall not be implemented without prior NRC approval.

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**Proposed Technical Specification Pages  
(retyped)**

## 5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

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- 5.4.1 Written procedures shall be established, implemented, and maintained covering the following activities:
- a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978;
  - b. The emergency operating procedures required to implement the requirements of NUREG-0737 and to NUREG-0737, Supplement 1, as stated in Generic Letter 82-33;
  - c. Quality assurance for effluent and environmental monitoring;
  - d. Fire Protection Program implementation; and
  - e. All programs specified in Specification 5.5.
  - f. Modification of core protection calculator (CPC) addressable constants. These procedures shall include provisions to ensure that sufficient margin is maintained in CPC type I addressable constants to avoid excessive operator interaction with CPCs during reactor operation.

Modifications to the CPC software (including changes of algorithms and fuel cycle specific data) shall be performed in accordance with the most recent version of "CPC Protection Algorithm Software Change Procedure," CEN-39(A)-P, which has been determined to be applicable to the facility. Additions or deletions to CPC addressable constants or changes to addressable constant software limit values shall not be implemented without prior NRC approval.

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## 5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

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- 5.4.1 Written procedures shall be established, implemented, and maintained covering the following activities:
- a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978;
  - b. The emergency operating procedures required to implement the requirements of NUREG-0737 and to NUREG-0737, Supplement 1, as stated in Generic Letter 82-33;
  - c. Quality assurance for effluent and environmental monitoring;
  - d. Fire Protection Program implementation; and
  - e. All programs specified in Specification 5.5.
  - f. Modification of core protection calculator (CPC) addressable constants. These procedures shall include provisions to ensure that sufficient margin is maintained in CPC type I addressable constants to avoid excessive operator interaction with CPCs during reactor operation.

Modifications to the CPC software (including changes of algorithms and fuel cycle specific data) shall be performed in accordance with the most recent version of the "Software Program Manual for Common Q Systems", CE-CES-195, which has been determined to be applicable to the facility. Additions or deletions to CPC addressable constants or changes to addressable constant software limit values shall not be implemented without prior NRC approval.

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