Palo Verde Nuclear
Generating Station

David Mauldin
Vice President
Nuclear Engineering
and Support

TEL (623) 393-5553
FAX (623) 393-6077

Mail Station 7605
P.O. Box 52034
Phoenix, AZ 85072-2034

10 CFR 50, Appendix B

102-04639-CDM/TNW/JAP
December 20, 2001

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-37
Washington, DC 20555-0001

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Notification of Intent to Use CENTS Code

Dear Sirs:

Pursuant to Generic Letter (GL) 83-11, Supplement 1, this letter serves as the 3 month notification to the NRC of Arizona Public Service Company's (APS) intent to use the generically approved CENTS code for PVNGS accident and reload analyses, beginning with Unit 2, Cycle 11. APS' compliance with the guidelines contained in GL 83-11, Supplement 1, are documented in the Enclosure to this letter. The date of the first licensing application for the CENTS code is the start up of Unit 2, Cycle 11, scheduled for April 2002.

APS commits to the NRC to implement the guidelines of Generic Letter 83-11, Supplement 1, Attachment 1 for the use of the CENTS code.

If you have any questions, please contact Thomas N. Weber at (623) 393-5764.

Sincerely,

Michael J. Wisnia
for CDM.

CDM/TNW/JAP

Enclosure

cc: E. W. Merschoff
L. R. Wharton
J. H. Moorman

A001

Rec'd
01/23/02

ENCLOSURE

APS' Response to Guidelines of GL 83-11, Supplement 1, Attachment 1, for CENTS Code Implementation

Generic Letter (GL) 83-11, Supplement 1, Attachment 1, Guidelines for Qualifying Licensees to Use Generically Approved Analysis Methods

The date of Arizona Public Service Company's (APS') first licensing application for the use of the CENTS code is the Cycle 11 start up of Palo Verde Nuclear Generation Station (PVNGS) Unit 2. Unit 2 is currently scheduled to start up for Cycle 11 in April 2002.

In accordance with Generic Letter 83-11, Supplement 1, APS will implement the guidelines delineated in Generic Letter 83-11, Supplement 1, Attachment 1 for the use of the CENTS code. Implementation of these guidelines will demonstrate APS' qualification to use this approved code for its appropriate application. To document its qualification in this manner, APS is providing to the NRC its application of the guidelines as described below.

Guideline 1: Eligibility

The only codes and methods that are addressed by this process are those that NRC has reviewed and approved generically, or those that have been otherwise accepted as part of a plant's licensing basis. The use of new methodology or a change to an existing methodology is not applicable to this process.

APS' Implementation:

CENTS has been generically approved by the NRC for the calculation of transient behavior in pressurized water reactors (PWRs) designed by Westinghouse Electric Corporation-Combustion Engineering Nuclear Products (WEC-CENP) (reference 1). Amendment 137 to PVNGS' Technical Specifications (TS) has been issued (reference 2) authorizing the use of this code at the PVNGS. This amendment adds the CENTS code to TS 5.6.5b, which lists the analytical methods used to determine the core operating limits.

The CENTS code was generically approved by the NRC (reference 1) for the calculation of transient behavior in PWRs designed by WEC-CENP subject to 5 limitations. All of these limitations will be adhered to as reviewed and approved by the NRC (reference 2).

Guideline 2: Application Procedures

In-house application procedures, which ensure that the use of approved methods is consistent with the code qualification and, in most instances, with the approved application of the methodology, should be established and implemented. Because of the bounding nature of many licensing transient analyses, it may not be necessary to

have formulated application procedures for each transient. These procedures should contain a section describing the application of the code and a section delineating the code limitations and restrictions, including any defined in the licensing topical report, correspondence with the NRC, and the SER. ..... Therefore, in-house application procedures should have the proper controls to preclude such a misapplication but should also include the flexibility to allow comparison tests between the different methodologies to show that a conservative assessment can be made.

APS' Implementation:

In-house existing Nuclear Fuel Management (NFM) Analyses Control and Design Control procedures ensure the use of approved methods that are consistent with code qualifications. A CENTS based Safety Analysis Basis Document[1] section has been written that delineates the CENTS code limitations and restrictions, including those defined in the topical report, correspondence with the NRC, and the NRC Safety Evaluation for the CENTS code. Furthermore, Software Quality Assurance (SQA) procedures ensure that proper controls are in place for the procurement, development, control, and use of non-process computer programs.

Guideline 3: Training and Qualification of Licensee Personnel

A training program should be established and implemented to ensure that each qualified user of an approved methodology has a good working knowledge of the codes and methods, and will be able to set up the input, to understand and interpret the output results, to understand the applications and limitations of the code, and to perform analyses in compliance with the application procedure. Training should be provided by either the developer of the code or method, or someone who has been previously qualified in the use of the code or method.

APS' Implementation:

A core group of PVNGS engineers have been trained and qualified in the use of CENTS by the code vendor (WEC-CENP) and have gained extensive experience with the code through participation in a joint engineering effort with WEC-CENP for the Unit 2 Replacement Steam Generator/Power Uprate Project. Additional PVNGS engineers have also been trained to perform CENTS based analyses through a combination of classroom and on-the-job training.

[1] Safety Analysis Basis Document – Provides a comprehensive description of reload safety analyses and UFSAR Chapter 15 event design bases.

Guideline 4: Comparison Calculations

Licensees should verify their ability to use the methods by comparing their calculated results to an approved set of benchmark data, such as physics startup tests, measured flux detector data during an operating cycle, higher order codes, published numerical benchmarks, analyses of record, etc. These comparisons should be documented in a report which is part of the licensee's quality assurance (QA) records. Significant, unexpected, or unusual deviations in the calculations of safety-related parameters should be justified in the report. All comparisons with startup test data should agree within the acceptance criteria defined in the plant startup test plan.

APS' Implementation:

CENTS to CESEC benchmarking analyses were performed by a team of WEC-CENP and PVNGS engineers under the WEC-CENP QA Program as part of the Replacement Steam Generator/Power Uprate Project for the old Steam Generator/Pre-uprate conditions. This work has been completed and the results are summarized in the CENTS Computer Code Benchmark Report for PVNGS.

Guideline 5: Quality Assurance and Change Control

All safety-related licensing calculations performed by a licensee using NRC-approved codes and methods should be conducted under the control of a QA program which complies with the requirements of Appendix B to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR 50). The licensee's QA program should also include the following:

(1) a provision for evaluating vendor (or other code developer) updates and implementing those updates, if applicable, in codes, methods, and procedures; and
(2) a provision for informing vendors (or code developers) of any problems or errors discovered while using their codes, methods, or procedures.

APS' Implementation:

NFM analyses and design control and SQA procedures currently meet the requirements of guideline 5. Provisions for evaluating and implementing vendor or code developer updates for codes, methods, and procedures are established under the PVNGS SQA procedures. Provisions for informing WEC-CENP of any problems or errors discovered while using their codes, methods, or procedures have been incorporated into the NFM analysis control procedure. In selected cases, these provisions may also be implemented in accordance with the PVNGS corrective action program.

References:

(1) Acceptance for Referencing of Licensing Topical Report CE-NPD 282-P, "Technical Manual for the CENTS Code," from M. J. Virgilio, USNRC to S. A. Toelle, ABB CE, dated March 17, 1994

(2) Palo Verde Nuclear Generating Station, Units 1, 2, and 3 – Issuance of Amendments RE: Various Administrative Controls, from L. R. Wharton, USNRC, to G. R. Overbeck, APS, dated October 15, 2001