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 FACIL: STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Public 05000528
 STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Public 05000529
 AUTH. NAME: \ AUTHOR AFFILIATION
 VAN BRUNT, E.E. Arizona Nuclear Power Project (formerly Arizona Public Serv
 RECIP. NAME: RECIPIENT AFFILIATION
 KNIGHTON, G.W. Licensing Branch 3

SUBJECT: Requests extension from implementation deadline of 851130
 for justification for interim operation (JIO) re environ
 qualification of hydrogen recombiners, JIO encl.

DISTRIBUTION CODE: A048D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: OR/Licensing Submittal: Equipment Qualification

NOTES: Standardized plant. 05000528
 OL: 12/31/84
 Standardized plant. 05000529

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Arizona Nuclear Power Project

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Director of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

September 30, 1985
ANPP-33605-EEVB/BJA

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1 and 2
Docket Nos. STN 50-528(License No. NPF-41)/529
Extension Request for Environmental Qualification of Hydrogen Recombiners
File: 85-056-026; G.1.01.10

- References: (1) Letter from E. E. Van Brunt, Jr., ANPP, to G. W. Knighton, NRC, dated September 10, 1984 (ANPP-30476); Subject: Environmental Qualification Justification for Interim Operation.
(2) NUREG-0857, Supplement No. 7, "Safety Evaluation Report related to the operation of Palo Verde Nuclear Generating Station, Units 1, 2, and 3", dated December, 1984.

Dear Mr. Knighton:

Reference (1) submitted a Justification for Interim Operation (JIO) in order for ANPP to establish the environmental qualification of the hydrogen recombiners and associated control panels. Accordingly, by issuance of the full power Operating License for PVNGS Unit 1, the NRC Staff has imposed License Condition 2.C(6) for ANPP to environmentally qualify all electrical equipment important to safety prior to November 30, 1985. ANPP has successfully completed the qualification efforts for all of the JIOs submitted prior to the issuance of the PVNGS Unit 1 Operating License with the exception of the Hydrogen Recombiners. The new replacement Hydrogen Recombiner control panels have recently failed seismic qualification testing at the vendor's facilities.

ANPP requests an extension from the implementation deadline of November 30, 1985. This is an extension from the deadline imposed by 10CFR50.49 and the requirements of License Condition 2.C(6) of License NPF-41. The attachment to this letter contains a Justification for Continued Operation (JCO) for the Hydrogen Recombiners. The attached JCO is applicable to PVNGS Unit 1. Additionally, the attachment to this letter is a Justification for Interim Operation for PVNGS Unit 2.

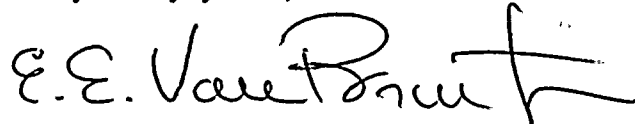
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If you have any questions on this matter, please contact Mr. W. F. Quinn of my staff.

Very truly yours,



E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/BJA/slh
Attachment

cc: E. A. Licitra (all w/a)
R. P. Zimmerman
A. C. Gehr
H. Garg
M. Ley

ATTACHMENT

Justification for Continued Safe Operation

PURCHASE ORDER NUMBER:

DESCRIPTION:

PROJECTED QUALIFICATION COMPLETION DATE:

13-NM-993

Containment Hydrogen Recombiner Assembly
and Recombiner Power Control Cabinet
Assembly

March 30, 1986

EQUIPMENT
TAG NUMBER

ENVI.
DESIG.

SAFETY FUNCTION

AN-HPA-D01,E01

III

Prevent concentration of hydrogen in the containment from reaching
4% by volume following a loss-of-coolant accident.

AN-HPB-D01,E01

III

Same as above

HISTORY:

The hydrogen recombiner system for the PVNGS units is composed of a recombiner process assembly and an associated control panel, both mounted on a skid, which were designed and supplied by the Energy Systems Group of Rockwell International. Equipment qualification testing of a prototype skid-mounted system to IEEE-323-1974 was commenced in 1976. The prototype testing was successfully completed in 1983 and the PVNGS recombiner system, including both the process assembly and the control panels, was deemed to be qualified to meet IEEE-323-1974. Subsequently, Rockwell discovered manufacturing material discrepancies with the production skid-mounted recombiner systems and on May 11, 1983, notified ANPP and other customers that the use of the prototype testing results for the production systems was compromised. ANPP then joined with Rockwell and other affected utilities to address and coordinate steps that should be taken to assure that production recombiner systems shipped were properly qualified.

As a result of these efforts, a decision was reached to develop a new qualified control panel for the recombiner system instead of attempting to upgrade the qualification level of the existing control panels. To implement this effort, new control panels were designed and built based on the generic requirements for the new control panels which were established in March, 1984. The seismic qualification criteria used in the seismic qualification of the new recombiner system were much higher than the PVNGS plant-specific requirements, because the seismic qualification was specified to envelope the requirements of all participating utilities. The qualification testing for the new control panels was expected to be completed by April 30, 1985, with documentation completed by November 1, 1985.

Completion of all qualification testing for the new control panels was delayed due to manufacturing problems and parts availability. However, as of September 9, 1985, all environmental testing, including irradiation and aging, had been successfully completed on the prototype panel and seismic testing was proceeding on a separate structural mockup of the new control panel. Even though the testing was several months behind schedule, the overall program was being expedited to meet the November 30, 1985, deadline imposed by License Condition 2.C(6).

On September 9, 1985, seismic testing of the mockup control panel was halted because of problems with the mounting of an internal lead shield. Meetings were immediately held with Rockwell to establish a corrective action plan, which is currently in progress. The plan adopted consists of two possible modifications to the new control panel design. The first solution is a relatively minor design change that minimizes impact on the panel design and will allow a rapid return to the test schedule with a high probability of success. A second or backup solution consisting of a major design change will be implemented if the first solution fails. Both solutions are being engineered at this time, but implementation of the backup solution will be held until the first solution has completed retest, because the more extensive modifications to the panel associated with the backup solution significantly impact the qualification schedule.

JUSTIFICATION FOR CONTINUED SAFE OPERATION:

The recombiner systems at PVNGS were manufactured and tested under a quality assurance program that meets the requirements of 10CFR50 Appendix B, except for manufacturing material traceability. Additionally, all pressure boundary components were designed and fabricated in accordance with ASME B & PV Code Section III, Class 2. The PVNGS recombiner systems have been demonstrated to be operable through hot functional testing and have been subjected to a 168 hour burn-in to eliminate infant mortality problems.

The PVNGS combustible gas control system consists of redundant hydrogen recombiner systems and a single hydrogen purge exhaust filtration unit. These components are designed to be utilized by any unit at the PVNGS site in the event of an accident. The PVNGS Unit 1 Technical Specifications require that two hydrogen recombiner systems be operable during normal operations. In the event that one of the hydrogen recombiner systems is inoperable for a period greater than 30 days, the hydrogen purge cleanup system must be operable. Either recombiner system or the hydrogen purge cleanup system is capable of controlling the expected hydrogen generation (associated with zirconium-water reactions, radiolytic decomposition of water, and corrosion of metals within containment) below its flammable limit during post-LOCA conditions.

In the event that the hydrogen recombiner system, using existing components, is unable to fully perform its intended safety function following a LOCA, the availability of the hydrogen purge cleanup system provides additional assurance that the required safety function can be performed and that a delay in the final qualification of the hydrogen recombiner system will not decrease the health and safety of the public. This alternate capability addresses the concern of paragraph (i)(1) of 10CFR50.49.

BEST EFFORTS:

It is evident from the history previously stated that measures were taken in a timely manner to qualify the existing PVNGS recombiner systems and that the difficulties encountered were not reasonably foreseeable. It is also evident that corrective actions were taken in a timely manner and further that current efforts will minimize the period required to bring the new control panels into compliance with all regulatory requirements.

ANPP will closely monitor Rockwell's adherence to the corrective action plan to expedite completion of the qualification program. Completion is presently expected on or before March 30, 1986. This projected completion date is associated with the full implementation of the backup solution. This date could be significantly improved upon if the first solution is successful.

