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July 10, 1985

REGION VISE

U. S. Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596-5368

Attention: Mr. D. F. Kirsch, Acting Director
Division of Reactor Safety and Projects

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. 50-530
NRC Violation 50-530/85-09/06
NRC Deviation 50-530/85-09/03, 05
File: 85-019-026; D.4.33.2

Reference: Letter from D. F. Kirsch (NRC) to E. E. Van Brunt, Jr. (ANPP),
dated June 11, 1985, Subject: NRC Inspection Report
50-529/85-14, 50-530/85-09
NRC Inspection of Palo Verde Units 2 and 3

Dear Sir:

This letter refers to the inspection conducted by Messrs. M. Peranich, S. Stein, and K. Hooks on March 25-29, 1985. Based on the results of this inspection, one Notice of Violation and one Notice of Deviation were issued concerning the new fuel racks in Unit 3, classification of components listed in the FSAR and cable tray design.

Our responses to the Notice of Violation and the Notice of Deviation are provided as Attachments A and B, respectively.

Very truly yours,

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

EEVB/TRB/jle
Attachments

cc: A. C. Gehr (All with Attachments)
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ATTACHMENT A

NRC NOTICE OF VIOLATION
50-530/85-09/06

10CFR 50, Appendix B, Criterion V, as implemented by Section 17 of the FSAR states in part that "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings and shall be accomplished in accordance with instructions procedures or drawings."

Joseph Oat Corporation Drawing No. 6676 "Typical Module-New Fuel Racks" states in the general inspection notes that all welds shall be visually examined per Quality Control Procedure No. QC-8012-60, "Visual Examination of Welds." Quality Control Procedure No. QC-8012-60 states in Section 5.0, "Acceptance Standards" that "The weld surface and adjacent base material shall be essentially free of weld splatter and slag and shall be free of arc strikes," and that "The minimum size of fillet welds shall be as indicated on the shop drawings."

Contrary to the above, new fuel rack modules, 1A3, 1B1, 1B2, 1B3, 1E1, and 1E2, intended for installation in Unit 3 were found to have vendor welds exhibiting areas of incomplete fusion, slag, unconsumed filler material, undercut, spatter, lack of penetration, etc.

All welding identified above was inspected and accepted by Quality Control inspectors of the Joseph Oat Corporation for module 1A3 on July 21, 1980, for modules 1B1, 1B2, and 1B3 on August 6, 1980, and for modules 1E1 and 1E2 on December 4, 1980.

1. Corrective Steps Which Have Been Taken and the Results Achieved

Representatives from Combustion Engineering (CE), Bechtel and Joseph Oat Corporation have performed a preliminary examination of the six (6) Unit 3 new fuel racks identified in the subject violation. The examination identified conditions similar to those which were identified by the NRC relative to the welding. Also, two 3" welds located behind the backing plate (Joseph Oat drawing 6678 and 6679) are missing on several racks. NCR WC-1321 was issued to document the identified conditions and was interimly dispositioned to inspect the new fuel racks.

The following action will be taken to evaluate the conditions discovered on the new fuel racks.

A re-analysis of the Joseph Oat report, "Stress Analysis of Fuel Storage Racks for ANPP PVNGS," will be performed using the original design criteria indicated in the purchase order to establish the minimum design welding configuration. The re-analysis will include the missing welds identified during the visual examination.

CE will be responsible for the performance of a weld inspection of the Unit 3 new fuel racks to determine the compatibility of the existing conditions to that of the assumptions made in the re-analysis.

Based on the combined results of the re-analysis and weld inspection, CE will recommend action on the nonconformance conditions which presently exist on the new fuel racks.

CE will be responsible for weld inspection of the new fuel racks in Units 1 and 2 as required. The criteria for these additional inspections will be defined based on the results of the weld inspection for Unit 3.

CE will be responsible for a sample review and inspection of other Joseph Oat-supplied equipment to PVNGS.

The root causes of the noted conditions and subsequent violation have been determined to be:

1. Discrepancies between the Acceptance Standards as defined in Section 5.0 of the Joseph Oat Corporation Quality Control Procedure for Visual Examination of Welds, 8012-60, Rev. 0, and the actual as-built weld conditions were not identified during the review process.

2. CE's Quality Assurance program failed to reveal that a potential existed at Joseph Oat Corporation for a breakdown in this vendor's Quality Control program.

2. Corrective Steps Which Will Be Taken to Avoid Further Items of Nonconformance

To address the root causes of this condition the following actions will be performed:

1. Joseph Oat Corporation will review their in-house Quality Control program which was used in the fabrication of the new fuel racks. The intention of this review is to identify what deficiencies existed in that program at the time the new fuel racks were fabricated which could have resulted in the failure to meet approved inspection standards. CE will perform a review of Joseph Oat findings to ensure the adequacy of the Joseph Oat Quality Control program and any necessary Joseph Oat corrective actions.
2. CE will review in-depth the Joseph Oat Quality Control Inspection procedure for Visual Examination of Welds to determine the adequacy of the procedure as applied to the new fuel racks. Appropriate corrective action will be identified and taken, as necessary.
3. CE will evaluate their own Quality Assurance program to determine if their existing procedures for qualification and in-shop surveillance of a vendor to CE Specifications No. 00000-WQC-5.1, "Vendor Quality Control Specification for Power Supply Group (PSG) Quality Class 2A," is adequate.

3. Date When Full Compliance Will be Achieved

The re-analysis of the stress report, performance of the Unit 3 new fuel racks weld inspection, sample review and inspection of other equipment supplied by Joseph Oat to PVNGS, and the actions to address the root causes are expected to be completed by August 15, 1985.

Nonconforming conditions identified during the Unit 3 weld inspection will be corrected, as necessary, prior to fuel receipt for Unit 3.

Weld inspection of the new fuel racks for Units 1 and 2 will be performed as necessary, based on the results of the re-analysis and Unit 3 weld inspections. If necessary, this action will be completed prior to the storage of any additional new fuel received for the respective units.

ATTACHMENT B

NOTICE OF DEVIATION
50-530/85-09/05 and 03

1. The Palo Verde FSAR in Table 3.2-1, "Quality Classification of Structures, Systems and Components," lists the quality assurance classification for new fuel racks as being Quality Class Q and Seismic Category I. Additionally, page 3.2-37, note No. 4, of the FSAR states that Quality Assurance Class (Q) requires compliance with 10CFR 50, Appendix B.

Contrary to the above, under its contract with Bechtel Corporation, the licensee's prime contractor, Combustion Engineering procured new fuel racks from a subvendor, Joseph Oat Corporation, under Combustion Engineering Specification No. 00000-WQC-5.1, "Vendor Quality Control Program Specification for PSG Quality Class 2A." Items designated by Combustion Engineering as Class 2A do not have a Quality Assurance Program applied which provides for compliance with 10CFR 50 Appendix B.

2. Contrary to the current approved design of Drawing 13-E-ZAC-043 Revision 17 and Design Change Package 3CC-ZJ-038, a vertical member of cable tray hanger No. H106 in the Unit 3 lower cable spreading room is not located within one inch of the structural steel center line and was not identified nor analyzed as required by the Design Change Package.

50-530/85-09/05

1. Corrective Steps Which Have Been Taken and the Results Achieved

An investigation was initiated to determine what quality program CE applied to the fabrication of the new fuel racks. The racks are designated in the FSAR as being Quality Class "Q" and Seismic Category I. The following are the results of the investigation.

CE has identified that the new fuel racks are designed to store new fuel in a noncritical configuration. To fulfill this function, the new fuel racks are required to remain intact following a seismic event while maintaining the minimum surface-to-surface separations between bundles under all of the following conditions:

1. A fuel assembly dropped from a height of 2.0 feet, which then falls horizontally across the top of the rack (Note: a subsequent fuel rack modification has been completed to provide suitable structural support to withstand a fuel assembly dropped from a height of 4.5 feet);
2. Safe Shutdown Earthquake (SSE);
3. A tensile load of 5,000 pounds on any one cavity;
4. Fabrication tolerances;
5. Fully loaded rack.

The design analysis was performed by CE's subvendor, Joseph Oat Corporation and was reviewed and approved by CE.

Since the new fuel racks are not credited with preventing or mitigating the consequences of any postulated accidents, they were designed and constructed in accordance with the CE Power Supply Group (PSG) Quality Class 2 Specification - WQC-5.1. The new fuel racks were classified as PSG Quality Class 2A and are appropriately qualified as Seismic Category I. CE has documentation to support this position. The CE 2A Quality Program includes procedural controls and requirements for vendor approval, qualification of welders, use of approved welding procedures, inspection and test, material traceability, and corrective actions. CE and their subvendor, Joseph Oat Corporation, have a complete record of all inspections, tests and procedures involved in the rack manufacturing process.

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To clarify the Palo Verde FSAR, Table 3.1-1, "Quality Classification of Structures, Systems and Components," a SAR Change Notice will be initiated to add a footnote clarifying the actual Quality Assurance program for the new fuel racks. The Quality Assurance program does not fully meet the criteria of 10CFR 50 Appendix B. However, since the only safety related function of these racks is to maintain the minimum surface-to-surface separation between fuel bundles, a modified QA program is acceptable. The design, specific components, and fabrication processes critical to the structural integrity of the fuel racks provide that this equipment will withstand the effects of the SSE and remain functional as per Regulatory Guide 1.29.

2. Corrective Steps Which Will Be Taken to Avoid Further Items of Nonconformance

The apparent cause of this deviation was the inconsistencies between the Quality Class called for in the FSAR and the Quality Program implemented by CE.

Consequently, Bechtel Engineering has begun a review of the CE documentation for the FSAR safety-related components provided by CE to determine if any other quality classification inconsistencies exist.

3. Date When Full Compliance Will Be Achieved

The SAR Change is expected to be approved by ANPP by September 1, 1985. The Engineering review of the CE documentation is also expected to be completed by September 1, 1985. At that time, any additional required actions will be planned and scheduled for resolution as needed.

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1. Corrective Steps Which Have Been Taken and the Results Achieved

At the time of the NRC Inspection, Bechtel Engineering conducted a preliminary review of hanger No. H106 and concurred with the NRC Inspector that the condition did not meet design requirements. A subsequent in-depth review has shown (as described below) that incorrect conclusions were reached during the preliminary review with the NRC Inspector.

Engineering has performed a verification inspection of the support. This support is a vertical column member supported by a slab floor and only attached at the top to a structural steel beam to provide lateral stability. An engineering review has determined that it is acceptable to attach the top end of column supports to beam members without regard to the offset from the structural steel beam vertical centerline because the slab floor carries the column support dead weight in lieu of the beam member. The concern is with torsion on horizontal structural steel beam members caused by the dead weight of hangers located offset from the beam centerline. Therefore, the support is acceptable as is, and no further action is required for Units 1, 2, or 3.

2. Corrective Steps Which Will Be Taken To Avoid Further Items of Noncompliance

Engineering will revise Note 13 on Drawing 13-E-ZAC-043 to clarify that the one-inch offset limitation is applicable to hangers exclusively supported off structural steel. Engineering has reviewed other applicable raceway drawings and has determined that no other revisions are necessary.

3. Date When Full Compliance Will Be Achieved

Drawing 13-E-ZAC-043 will be revised by DCN by July 12, 1985.