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 AUTH.NAME AUTHOR AFFILIATION
 VAN BRUNT,E.E. Arizona Nuclear Power Project (formerly Arizona Public Serv
 RECIP.NAME RECIPIENT AFFILIATION
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SUBJECT: Responds to NRC 880317 ltr re violations noted in Insp Repts
 50-528/87-37,50-529/87-36 & 50-530/87-38.

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Arizona Nuclear Power Project

P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

161-00951-EEVB/BJA
April 15, 1988

Docket Nos. STN 50-528/529/530

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

- References: (1) Letter from R. J. Pate, NRC, to E. E. Van Brunt, Jr., ANPP, dated March 17, 1988. Subject: Violations Identified During Inspection Nos. 50-528/87-37; 50-529/87-36; 50-530/87-38.
- (2) Letter from E. E. Van Brunt, Jr., ANPP, to U. S. NRC Document Control Desk dated November 20, 1987 (161-00667). Subject: Equipment Qualification Audit Open Items.

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Response to Notice of Violation: 50-528/87-37, 50-529/87-36
and 50-530/87-38
File: 88-A-056-026

This letter is provided in response to the Notice of Violation transmitted to ANPP by Reference (1). The violations were identified during the NRC's team inspection of ANPP's equipment qualification program. A restatement of the violations and the ANPP responses to the violations are provided in the attachments to this letter.

If you have any additional questions on this matter, please contact Mr. A. C. Rogers at (602) 371-4041.

Very truly yours,

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

EEVB/BJA/jle
Attachments

cc: J. B. Martin (all w/a)
T. J. Polich
G. W. Knighton
E. A. Licitra
A. C. Gehr

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Attachment 1
Notice of Violation

Arizona Nuclear Power Project
P. O. Box 52034
Phoenix, Arizona 85072-2034

Docket Nos. 50-528, 50-529, 50-530
License Nos. NPF-41, NPF-51, NPF-74

As a result of the inspection conducted on November 2-6, 1987, and in accordance with NRC Enforcement Policy, 10CFR Part 2, Appendix C, the following violations were identified:

1. Contrary to paragraph (f) of 10CFR50.49, at the time of the inspection Limitorque valve operators inside containment were not shown to be qualified because of deviations from qualification test specimen configurations. Specifically, one operator had a grease fitting installed in a grease relief, and another operator did not have a T-drain at the low point of the motor.

This is a Severity Level IV violation (Supplement I).

2. Contrary to paragraph (f) of 10CFR50.49, at the time of the inspection the ANPP files did not adequately document qualification of in-containment transmitters because the installation configuration differed from the qualification test configuration. Specifically, sheath cracks in vertical top entry conduit could permit standing water to collect against the transmitter's Conax cable entrance seal, possibly violating the seal qualification and thus failing to provide the integrity required for transmitter qualification.

This is a Severity Level IV violation (Supplement I).

3. Contrary to paragraph (f) of 10CFR50.49, at the time of the inspection the ANPP files did not adequately document qualification of dual-voltage Limitorque valve operators outside containment because internal crimped wire connectors were not shown to be like any crimped connectors that had been qualified.

This is a Severity Level IV violation (Supplement I).

4. Contrary to paragraph (f) of 10CFR50.49, at the time of the inspection the ANPP files did not adequately document qualification of Skinner solenoid valves because design and material differences between the plant equipment and test specimens were not evaluated in detail.

This is a Severity Level V violation (Supplement I).

5. Contrary to paragraph (j) of 10CFR50.49, at the time of the inspection the ANPP files did not adequately document qualification of Masoneilan valve position transducers because the file did not contain a complete qualification test report or evidence that a complete test report had been reviewed; only a summary test report was included.

This is a Severity Level V violation (Supplement I).

Attachment 2
Response to Violation 1

1. REASON FOR THE VIOLATION

This violation concerns discrepancies identified during the inspection of Limitorque operators inside the containment building of PVNGS Unit 1. The specific discrepancies were: i) valve SIA-UV-673 had a grease fitting in a grease relief, and ii) valve SIB-UV-614 had a motor T-drain that was positioned 30 degrees above the bottom of the motor. The NRC auditors stated that both of these conditions were deviations from the qualification test specimen configurations. Based on the results of inspections performed to date, it appears that the reason for the grease fitting discrepancy is an isolated instance of personnel error. ANPP does not believe that the identified T-drain location on the motor for valve SIB-UV-614 constitutes a violation. The guidance available in the Limitorque reports indicates that the T-drains should be positioned at the lowest available point. ANPP contacted Limitorque to determine if there were any additional requirements that ANPP was not aware of. Limitorque confirmed that the motor T-drains should be located at the lowest available point and that they were not aware of any additional requirements on the maximum angle allowed above the bottom of the motor. Therefore, ANPP has concluded that the installation was adequate and that it met vendor requirements. These conclusions are documented in Engineering Evaluation Requests 87-XE-015 and 87-SI-333.

2. THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

To correct the identified grease fitting deficiency, the grease fitting was removed from the grease relief of valve operator SIA-UV-673. This corrective action ensures that the grease relief valve will operate as originally intended.

3. THE CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

For the grease fitting issue, inspections have been conducted in Units 1 and 3 (Unit 2 inspection not yet completed) that verified that there were no other instances where grease fittings were installed in grease reliefs on in-containment Limitorque motor operated valves. These inspections are documented in QC Monitoring Reports MC-88-1014 and MC-87-3348.

4. THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED.

Full compliance has been achieved.

Attachment 3
Response to Violation 2

1. REASON FOR THE VIOLATION

This violation concerns the qualification of Conax Electrical Conduit Seal Assemblies (ECSAs) for submergence. The specific concern raised by the NRC auditors, was that the split jackets on the Anaconda flex conduit could allow moisture ingress into the conduit which could then condense and form a column of water above Conax ECSAs. The function of the ECSAs is to provide a tight seal barrier between the electrical conduit and the instrument. The reason for this violation is that ANPP did not account for this potential failure mechanism of the Conax ECSAs in the qualification program.

2. THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

In response to this identified deficiency, ANPP initiated discussions with the vendor, Conax. Conax informed ANPP that they had conducted submergence testing on the ECSAs. ANPP obtained a copy of the report of the previous ECSA submergence testing. ANPP review of the Conax report (Report No. IPS-1079) indicated that the submergence testing that was conducted did not fully meet ANPP's requirements. Therefore, since the previous testing does not provide complete qualification, ANPP intends to authorize Conax to perform a new testing program to fully qualify the ECSAs for post-accident submergence at PVNGS. This qualification program is expected to take approximately 1.5 years based on estimates provided by the vendor. Note that this estimated duration encompasses a complete qualification test program including aging, irradiation, and a 200 day post-LOCA submergence test.

In the interim, until the qualification testing described above can be completed, ANPP has written a Justification for Continued Operation (JCO) to provide for interim qualification of the ECSAs. This JCO credits the previous Conax testing as providing a strong basis for interim qualification of the ECSAs. The previous qualification testing conducted a submergence test with tap water following the LOCA/MSLB environmental testing. The test specimen was gas leak rate tested following the 100 day submergence test. Results of the testing were acceptable. However, the test conditions did not fully envelope the PVNGS requirements since the submergence test used tap water instead of the chemical environment that would be present post-accident and the submergence test was a 100 day test which does not meet the 200 day PVNGS requirement. Although there are some areas of the testing that did not envelope PVNGS requirements, the Conax ECSA testing did demonstrate that the ECSAs will maintain their sealing capability after being aged, irradiated, exposed to a LOCA/MSLB environment, and submerged for 100 days. Therefore, ANPP has a high degree of confidence that the ECSAs will be fully capable of performing their safety functions in a post-accident environment.

3. THE CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

The long-term corrective actions for this problem involve the qualification of the Conax ECSAs for post-LOCA/MSLB submergence at PVNGS. This will allow ANPP to qualify the ECSAs for any actual plant cable configuration including split jackets on the Anaconda flex conduit and differing cable entry configurations.

4. THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance will be achieved upon successful completion of the ECSA qualification testing by Conax. This is estimated to be completed in approximately 1.5 years. This is the vendor's estimated duration of the new qualification test program.



Attachment 4
Response to Violation 3

1. REASON FOR THE VIOLATION

This violation involves the environmental qualification of nylon insulated wire connectors installed in Limitorque motor operated valves with dual-voltage AC motors. At PVNGS, there are 62 valves with dual voltage motor actuators in each unit. All of these actuators are located in areas outside the containment building. In order to establish the reason for the violation, it is necessary to review the qualification history for these connectors. .

At the time of the NRC's audit of the ANPP equipment qualification program, ANPP believed that the wire connectors had been adequately qualified. The qualification of the connector is provided in program PE-5731. The qualification program qualified three types of connectors for inside containment service. These three types of connectors are Thomas & Betts model RB873, Burndy model YAE14N53, and Hollingsworth model XSS20826. The qualification is documented in CE report V-MPS-86-054 and is based upon Limitorque test report B0119, both of which are contained in the ANPP qualification files. Based upon this information, ANPP believed that the subject dual voltage actuators were qualified. Subsequently, the NRC conducted an inspection at the Limitorque facility and issued an inspection report dated September 4, 1987. The inspection report stated that no documentation could be located to identify the exact type or manufacturer of the nylon insulated wire connectors. The NRC concluded that qualification of the nylon insulated wire connectors was not adequate due to the lack of documentation. However, prior to the equipment qualification audit, ANPP had received no formal notification from either the vendor or the NRC to indicate that a problem existed in this area. In fact, the first communication that ANPP received that indicated a problem with the nylon connectors was during a conference call with the NRC on October 28, 1987 (four days prior to the start of the audit). In conclusion, ANPP believes that the reason for this violation can be attributed to the lack of a formal notification of a problem from either the vendor or the NRC. ANPP also believes that this is a potential industry generic issue that should be communicated to any other affected utilities.

2. THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

In response to the NRC concerns regarding qualification of the nylon connectors, ANPP initiated an evaluation of the nylon connectors to establish qualification. The evaluation is based upon known material properties and previous testing. The evaluation concluded that the nylon connectors are qualified for six years. The evaluation is documented in Equipment Change Evaluation ECE-ZZ-A144 which has been included in qualification file PE-5731. This ECE was completed during the NRC's equipment qualification audit. Although qualification of the nylon connectors has been demonstrated, ANPP intends to replace all of the nylon insulated wire connectors with environmentally qualified AMP butt

splices and Raychem heat shrink sleeves prior to the end of each unit's first refueling outage. However, if ANPP is not able to replace the connectors prior to restart from the first refueling outage for each unit, then the connectors will be replaced by the end of their six year qualified life. Note that the replacement of the nylon connectors in Unit 1 was completed during the Unit 1 first refueling outage by several work orders.

3. THE CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

Based on the fact that ANPP took prompt corrective actions upon notification by the NRC that the vendor could not conclusively establish the traceability of the nylon connectors, no further corrective action is deemed necessary at this time.

4. THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Since the nylon connectors have been qualified for six years by ECE-ZZ-A144, full compliance has already been achieved as stated in Reference (2).

Attachment 5
Response to Violation 4

1. REASON FOR THE VIOLATION

This violation concerns the fact that a detailed similarity evaluation was not contained in the equipment qualification files for the Skinner solenoid valves. The qualification file did contain a similarity evaluation. However, the similarity evaluation did not contain sufficient detail to allow an independent auditor to verify qualification of the valves. The cause of this qualification file deficiency was personnel error.

2. THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

During the NRC's equipment qualification audit, ANPP performed a more detailed similarity evaluation for the Skinner solenoid valves. This similarity evaluation was completed and the results were incorporated into Note 3 of qualification file 13-MM-234A on November 12, 1987. Additional information concerning the revised similarity evaluation can be found in ANPP's letter to the NRC dated November 20, 1987 (161-00667).

3. THE CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

ANPP has conducted a review of the equipment qualification files for other equipment that is required to be qualified by 10CFR50.49. This review did not identify any additional instances where the similarity evaluation lacked sufficient detail. It should also be noted that the NRC auditors looked at many of ANPP's qualification files during the audit and did not identify any further deficiencies of this type. As additional corrective action, this NRC finding has been reviewed with ANPP's Equipment Qualification Group to re-emphasize the importance of ensuring that adequate similarity is shown in the qualification documentation.

4. THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The completion of the detailed similarity evaluation and its inclusion in the qualification files demonstrate full compliance as discussed in Reference (2).

Attachment 6
Response to Violation 5

1. REASON FOR THE VIOLATION

This violation concerns the qualification documentation for the Masoneilan valve position transducers. Specifically, the qualification files did not contain a complete qualification test report or any documentation to indicate that the complete reports had been reviewed by ANPP. One particular concern identified by the NRC during the audit was the fact that the qualification files did not contain the irradiation certifications for the components. The reason for this violation is that ANPP incorrectly believed that the summary qualification reports provided by the vendor were adequate to demonstrate qualification of the Masoneilan valve position transducers. The questions of how much and what type of information to include in the files to adequately demonstrate qualification is, in part, a matter of judgment. The ANPP and Bechtel reviewers thought that the supplied documentation supported qualification. The NRC auditors thought that the complete qualification reports would be required.

2. THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

The complete qualification test reports, including irradiation certifications, were obtained from Masoneilan shortly after the completion of the NRC's equipment qualification audit. These qualification reports have been incorporated into ANPP's qualification file 13-JM-312.

3. THE CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

ANPP has conducted a review of the equipment qualification files for other equipment that is required to be qualified by 10CFR50.49. This review did not identify any other instances where the vendor had supplied inadequate documentation to support qualification of equipment. As an additional corrective action, this NRC finding has been reviewed with ANPP's Equipment Qualification Group to re-emphasize the importance of ensuring that the vendor supplied documentation is complete and is adequate to demonstrate qualification of the item.

4. THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The complete qualification reports have been obtained from the vendor and incorporated into ANPP's qualification files. Full compliance has been achieved and was discussed previously in Reference (2).