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 BOUCHEY, G.D. Washington Public Power Supply System  
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 FAULKENBERRY, B. Region 5, Ofc of the Director

89-28

SUBJECT: Responds to questions raised at 891120 enforcement conference re applicability of test rept to configuration.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

November 30, 1989  
Docket No. 50-397  
G02-89-218

Mr. B. H. Faulkenberry  
Deputy Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, CA 94596

Dear Mr. Faulkenberry:

Subject: NUCLEAR PLANT NO. 2  
LICENSE NO. NPF-21  
ENFORCEMENT CONFERENCE - NOVEMBER 20, 1989  
ADDITIONAL INFORMATION

- Reference: 1) Letter, R. P. Zimmerman (NRC) to G. C. Sorensen (Supply System), NRC Inspection at WNP-2 (Report No. 50-397/89-28), dated October 12, 1989.
- 2) Letter R. P. Zimmerman (NRC) to G. C. Sorensen (Supply System), Request for Information on Environmental Qualification of Taped Electrical Splices, dated October 11, 1989.

At the enforcement conference of November 20, 1989, the Supply System committed to provide further information with respect to the timeliness of the Supply System's Limitorque walkdowns compared with other licensees. In addition, NRC staff members questioned the applicability of the Commonwealth test report to the Supply System configuration. Responses to these issues are provided in the attached Appendix A.

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Mr. B. H. Faulkenberry

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NUCLEAR PLANT NO. 2

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ADDITIONAL INFORMATION

Regarding the EQ issues, the Supply System's position continues to be that: 1) the as-found splices were qualifiable, and 2) documentation deficiencies were not safety-significant and, therefore, do not warrant escalated enforcement. In addition, should the staff determine that escalated enforcement is appropriate, the Supply System urges the staff to exercise enforcement discretion and not propose a civil penalty. Because corrective actions were taken almost four years ago and similar deficiencies have not recurred, escalated enforcement and a civil penalty are not necessary to satisfy the regulatory purpose of the Commission's enforcement policy (10CFR Part 2, Appendix C). Precedent for such discretion is provided by staff enforcement actions in 1986 regarding 10CFR Part 50, Appendix R.1/

Very truly yours,



G. D. Bouchey, Director  
Licensing & Assurance

tlr

Attachments

cc: Mr. C. J. Bosted, Resident NRC Inspector (901A)  
Mr. J. B. Martin, Region V NRC  
Mr. N. S. Reynolds, Bishop, Cook, Purcell & Reynolds  
Mr. R. B. Samworth, NRC  
Mr. D. L. Williams, BPA (399)  
Mr. R. C. Wilson, NRC  
NRC Document Control Desk

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1/ See Enforcement Actions (EA): EA 85-112, Susquehanna; EA 84-36, Salem; EA 85-101, Summer; EA 83-124, Davis Besse, EA 85-048, Sequoyah; and EA 84-007, Vermont Yankee.

## APPENDIX A

### Discussion of Equipment Qualification Issues

During the November 20, 1989, enforcement conference, the staff expressed two specific concerns regarding the equipment qualification (EQ) area. The first concern involved the timeliness of the Supply System's Limatorque walkdowns. The second concern involved the lack of a "cement" in the Commonwealth Edison testing of Okonite splices as a basis for questioning the Supply System position on qualifiability. With regard to the "cement" issue, the Supply System notes that Okonite tape splices were also successfully tested in a potentially more exposed "V-type" configuration without the "cement" by Alabama Power Company. The staff is very familiar with these tests which further support the Supply System's position of qualifiability and, therefore, further discussion of this issue is unnecessary.

With regard to the timeliness of the Supply System's response to Limatorque concerns raised by the staff, Information Notice 83-72 (Environmental Qualification Testing Experience, dated October 28, 1983) expressed specific environmental qualification concerns on Limatorque MOVs and/or associated testing. IN 83-72 was based on construction deficiency reports filed by Bechtel concerning the Midland Plant, Units 1 and 2. In response to the IN, Limatorque sent a form-type letter to many licensees. During the November 20 enforcement conference, the staff incorrectly stated that this Limatorque letter requested that licensees take subsequent action to address the issues identified. Instructive on this point is the conclusion of Limatorque voiced in the letter as quoted below:

In summary, the underrated terminal block incident which occurred at Midland was an isolated field problem. The Buchanan 0824 terminal blocks are qualified by analysis but due to the stigma associated with nylon in the nuclear power industry, these terminal blocks are not considered acceptable. These terminal blocks were supplied exclusively for one valve manufacturer who has undertaken a project to replace all the Buchanan 0824 terminal blocks. The balance of the items identified as a concern were a matter of educating the Midland personnel on Limatorque actuator construction as it relates to the qualification reports as there were no incidents of units found that were not suitable for the service for which they were provided. Limatorque does not recommend that any corrective action be taken as a result of this Information Notice. [(emphasis added) Letter of Daniel S. Wersing, Technical Manager, Limatorque Corporation to, among others, Cliff Reynolds of Babcock and Wilcox dated July 19, 1984 at 3-4. See Enclosure 1.]

It is noteworthy that the IN did not reference any concern regarding MOV splices. Accordingly, licensee speculation regarding the scope of the IN would not likely have included a walkdown of Limatorque-related splices, in any event.

Additional specific concerns regarding Limitorque MOVs were not expressed generically by the staff until it issued IN 86-03, "Potential Deficiencies in Environmental Qualification of Limitorque Motor Valve Operator Wiring," dated January 14, 1986. This IN was published several months after a 10CFR Part 21 report was filed concerning Limitorque wiring at Commonwealth Edison's Zion Plant. The staff was aware of this Limitorque issue prior to the November 30, 1985, deadline. However, it did not notify the nuclear industry of its concerns until after the deadline had passed.

In response to increasing staff and industry concerns regarding Limitorque MOVs as discussed above, the Supply System planned and implemented a comprehensive review of all Limitorques during the WNP-2 first refueling outage beginning in March 1986. The staff commented favorably on the review during its 1986 inspection. The Supply System believes that its review was timely given the information available at the time and was conducted ahead of the majority of other licensees who had the same information.

Supporting this belief, the Nuclear Utility Group on Equipment Qualification (composed of 43 nuclear utilities) informs us that based on informal surveys conducted during meetings and informal telephone contacts, the clear majority of the members responding conducted detailed Limitorque reviews (such as conducted by the Supply System) after the Supply System's review began. This is further supported by inferences drawn from a cursory review of EQ inspection reports which reflects that staff inspections with adverse Limitorque findings of over 60 plants were conducted after the Supply System's review. This suggests that either no Limitorque reviews were conducted prior to the staff's inspections or the reviews were inadequate.

Finally, a review of EQ inspection reports reflects that only 17 specifically note the approximate timing of the Limitorque reviews conducted by the licensee. Of those 17 reports, only 6 were conducted prior to the WNP-2 review. (It should be noted that even those with Limitorque deficiencies whose review was conducted after the Supply System's generally did not result in escalated enforcement action.) In short, it is clear that contrary to the staff's impression noted at the enforcement conference, the WNP-2 Limitorque review began before the vast majority of other licensee's reviews.

In view of the above discussion and as discussed during the November 20, 1989, enforcement conference, supported with appropriate bases, the Supply System submits that escalated enforcement action is not warranted. Further, if the staff disagrees, the Supply System maintains that upon consideration of the factors noted in the Enforcement Policy, full mitigation of any civil penalty is appropriate. In addition, the Supply System does not believe that escalated enforcement action at this time will result in any further regulatory purpose being served. As noted in 10CFR Part 2, Appendix C, Paragraph I, the purpose of the NRC enforcement program is to promote and protect the radiological health and safety of the public, including employees' health and safety, the common defense and security, and the environment. This purpose is satisfied by: 1) ensuring compliance with NRC regulations and license conditions; 2) obtaining prompt correction of violations and adverse quality conditions which may affect safety; 3) deterring future violations and occurrences of conditions adverse to



quality; and 4) encouraging improvement of licensee and vendor performance, and by example that of industry, including the prompt identification and reporting of potential safety problems. Moreover, the Enforcement Policy states that:

Each enforcement action is dependent on the circumstances of the case and requires the exercise of discretion after consideration of these policies and procedures. 10CFR Part 2, Appendix C, Paragraph I

In regard to the above, the Supply System has already taken extensive actions to ensure compliance with NRC regulations and license conditions. Second, prompt actions were taken to ensure that a qualified configuration was installed once the deficiency was identified. Third, considering the continuing amount of attention given to the tape splice issue over a three year period, additional NRC actions are not necessary to deter future violations or conditions adverse to quality. Further, considering the history of EQ enforcement, enough examples have already been provided for industry which have resulted in significant improvements in EQ programs at other nuclear facilities.

Finally, the Supply System has had an excellent enforcement history as evidenced by only one escalated violation and never being cited for a civil penalty in six years of operation. This record would not have withstood the test of time if the Supply System was not a proactive licensee that promptly responds to deficiencies and prevents recurrence of similar violations. The subject EQ deficiencies are clearly another example of the Supply System promptly responding to discovered deficiencies. It is noteworthy that subsequent to the April 1986 EQ inspection and walkdowns, no additional examples of similar violations have occurred. Accordingly, the exercise of discretion is appropriate in this case similar to actions taken by the staff in several 10CFR Part 50, Appendix R enforcement actions.

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1/ See e.g., Enforcement Actions (EA): EA 85-112 against the Pennsylvania Power and Light Company's Susquehanna Plant; EA 84-36 against Public Service Electric & Gas Company's Salem Plant; EA 85-101 against South Carolina Electric & Gas Company's Summer Plant; EA 83-124 against Toledo Edison Company's Davis Besse Plant; EA 85-048 against TVA's Sequoyah Plant; and EA 84-007 against Vermont Yankee Company's Vermont Yankee Plant.





## LIMITORQUE CORPORATION

NO. 2



5114 Woodall Road • P. O. Box 11318 • Lynchburg, Virginia 24506

Telephone—804-528-4400 • Telex—82-9448

July 19, 1984

ENCLOSURE 1

Babcock & Wilcox  
P.O. Box 1260  
Lynchburg, VA 24501

Attention: Mr. Cliff Reynolds

Gentlemen:

Subject: NRC Information Notice 83-72

Equipment Environmental Qualification Notice No. 24 contained in the referenced Information Notice identifies several concerns on the qualification of Limitorque actuator components. The information contained in the notice indicates that it was based on an interim report from the Midland Plant which was written in June, 1983, prior to the architect/engineer completing the review of the documentation provided by Limitorque. On the completion of the engineering analysis, these issues were resolved and Midland provided the NRC with their "final" report.

The majority of the concerns raised in Midland's interim report to the NRC were items which the architect/engineering firm was in the process of evaluating. Most of these issues were a matter of educating the engineering personnel on the construction and qualification of Limitorque actuators. This educational process took place over a period of two to three years during which time Limitorque provided approximately 25 letters responding to engineering questions as well as transmitting qualification report information. In addition to the correspondence involved, several meetings were held between Limitorque and Bechtel to discuss the various educational items.

In 1979, Bechtel requested that Limitorque replace the terminal blocks in a group of actuators for the purpose of providing additional terminal points. The only field service representative available was a trainee that had been with Limitorque for less than two weeks. New terminal blocks were provided from the factory, however, before the field work was completed, the field service representative ran out of factory supplied blocks. In his enthusiasm to complete his assignment, he obtained additional terminal blocks locally. These terminal blocks were not rated for 460 volt service. Following identification of the problem, Limitorque inspected all of the actuators listed in our field report and replaced the underrated terminal blocks. As a further confirmation that these terminal blocks had not been installed elsewhere, Limitorque inspected a random sample of all actuators at the Midland facility and found no other instances of underrated terminal blocks. It is our conclusion that this is a unique incident which has not been duplicated elsewhere.



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Sabcock & Wilcox  
Mr. Cliff Reynolds  
July 19, 1984

The Buchanan 0824 terminal blocks identified at the Midland job site were qualified by analysis at the time the actuators were furnished. The terminal block is a passive device and not a structural component, however, the terminal block material is nylon. It is Limatorque's opinion that the terminal block is suitable for its intended purpose and that it would pass a qualification test, however, because of the stigma associated with nylon in the nuclear power industry we have chosen not to pursue any further qualification work on the component. These terminal blocks were used exclusively on actuators provided to Westinghouse Electric Corporation's Electro Mechanical Division. Westinghouse has been notified of the problem and they are currently in the process of replacing all of the Buchanan 0824 terminal blocks utilized in Westinghouse supplied equipment.

Midland site personnel conducted a random inspection of safety related Limatorque actuators resulting in a list of questions concerning the construction of the equipment. The following numbered items correspond to those listed as Additional Qualification Concerns in the Information Notice:

- 1) Class B insulated motors on Limatorque actuators are rated for 400C ambient temperature and are qualified in accordance with IEEE Standard 382-72 for outside containment environments. Limatorque uses Class RH insulated motors for inside containment applications, prior to adoption of the Class RH nomenclature, the early motors of this design were nameplated as Class H. These motors are qualified for inside containment applications in accordance with IEEE-382-72. Limatorque reviewed all of the records on the Midland inside containment operators and confirmed that motors nameplated as Class H were constructed with a Class RH insulation system prior to the adoption of the RH nomenclature.
- 2) The motor leads on qualified Limatorque motors are an integral part of the motor and qualified as such. These motor leads do not have any wire manufacturer identification markings. The wiring used in the limit switch compartment by Limatorque can be identified by the wire manufacturer's name printed on the insulation with the exception of the shorter pieces of cable which may not show the wire manufacturer's name as this information is printed on the insulation in one to two feet intervals.
- 3) Limatorque's Qualification Report B-0058 explicitly states the recommended mounting positions for the actuators. We recommend against mounting the operator in a position where either the motor or the limit switch compartment are directly beneath the gear case. There is a remote possibility that a random seal failure could occur resulting in lubricant leaking into the electrical enclosures and possibly impairing the actuator's operability.

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Babcock & Wilcox  
Mr. Cliff Reynolds  
July 19, 1984

- 4) Qualified Limitorque RH motors require the installation of motor "T" drains in the two lowest drain plug locations. The installation position of the valve/actuator assembly is not known at the time the actuator is shipped from Limitorque. Consequently, the motor "T" drains are placed in the limit switch compartment with installation instructions at the time of actuator shipment. Limitorque's Class B insulated motors do not utilize motor "T" drains in safety related applications.
- 5) Two types of limit switch assemblies are used in Limitorque actuators. Units qualified for outside containment applications use an aluminum gear frame construction and those units for inside containment applications utilize a bronze gear frame.
- 6) The Midland Project personnel found that there was equipment installed inside containment which was not manufactured for this application. We reviewed our records on all units located inside containment for Midland and found that all the actuators provided by Limitorque were manufactured in accordance with the requirements of the purchase order. Limitorque was not advised of Midland's final determination of the cause of unqualified actuators being located inside of containment.
- 7) The Limitorque qualification program included space heaters as a part of the actuator construction. However, these heaters were not energized during the environmental testing. It is our intention that the heaters are to be used to prevent condensation damage during site storage and they do not need to be energized during plant operation.
- 8) Two types of O-ring materials are used in Limitorque actuators, depending upon the unit being located either inside or outside containment. The architect engineer on the Midland Project was aware that we used two different seal materials but was unsure of how they are applied.
- 9) The unidentifiable terminal blocks are low voltage control circuit terminal blocks. During Limitorque's inspection of randomly selected actuators at the Midland site, all control terminal blocks were identified and found to be suitable for their application.

In summary, the underrated terminal block incident which occurred at Midland was an isolated field problem. The Buchanan 0824 terminal blocks are qualified by analysis but due to the stigma associated with nylon in the nuclear power industry, these terminal blocks are not considered acceptable. These terminal blocks were

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Please contact this office should you have any further questions.

Very truly yours,

LIMITORQUE CORPORATION

*Daniel S. Warsing*

Daniel S. Warsing  
Technical Manager

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