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January 19, 1979

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2-019-13

Director of Nuclear Reactor Regulation  
ATTN: Mr. J. F. Stolz, Chief  
Light Water Reactors Branch #1

Mr. Robert W. Reid  
Operating Reactors Branch #4  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Subject: Arkansas Nuclear One-Units 1 & 2  
Docket Nos. 50-313, 50-368  
License No. DPR-51, NPF-6  
GDC-17  
(File: 1510-2-1510)

Gentlemen:

The Staff has requested a letter from us which comprehensively addresses issues that have arisen since September 16, 1978, with regard to conformance to GDC-17 as it applies to both ANO-1 and ANO-2. The following information is provided in response to that request. Also provided is a proposal for final resolution of this issue.

By letter, D. H. Williams to K. V. Seyfrit, dated October 13, 1978, we submitted four reportable occurrences related to the September 16, 1978, ANO-2 containment spray actuation. Attached to that letter was a "sequence of events" detailing this occurrence.

ANO-2

Previous to that submittal, several conversations transpired between AP&L, Region IV, and DPM. On September 29, 1978, (Telecon L. Engle to T. Enos) DPM requested a meeting with AP&L on October 6, 1978, in which we participated. During this meeting, we answered Staff questions in regard to the occurrence.

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By telecopy and telecon (L. Engle, et al., and T. Enos, et al.) on October 23, 1978, we were told that DPM had determined that ANO-2 did not conform to GDC-17. The telecopy presented DPM's bases for their conclusion and proposed three modifications that could be made at ANO-2 to bring the design into conformance to GDC-17 and requested the modifications be completed before ANO-2 initially operated in Mode 2.

AP&L's position at that time (and is now) was that the ANO-2 design was in conformance with GDC-17 and allowed for a safer mode of operation than any of the three Staff proposals.

This was discussed further during a telecon (L. Engle, et al., and T. Enos, et al.) on October 25, 1978, at which time we pointed out that the bases for the Staff's conclusion seemed to be based on an inaccurate statement, i.e. the conclusion that automatic overloading of ST2 would result in disabling ST2. The result of that telecon was an impasse. The Staff informed us this issue was still an ANO-2 Mode 2 restraint.

#### ANO-1

By telecon (G. Vissing and D. Williams) on October 24, 1978, DOR informed us of their determination that ANO-1 might not be operating in conformance to GDC-17 in that a full house transfer to Startup #1 (ST1), following a reactor trip, followed by a postulated LOCA could result in unacceptable voltage levels on the safety buses.

We informed the Staff that this potential situation had been previously identified by AP&L (submitted to NRC August 23, 1978) and modifications had been proposed in that same submittal. We further stated that the cause for this apparent situation was the result of conservative analysis and that operating experience had demonstrated that unacceptable voltages would not occur.

However, as an effort to resolve the Staff's concerns, we agreed to implement part of our Millstone changes (sequencing the Safety loads onto the Startup Transformers). This modification would alleviate the identified apparent undervoltage case. We agreed to make the modification in seven days. This telecon was documented by our letter (D.H. Williams, to R. W. Reid) on October 25, 1978. Our letter of October 27, 1978, (D. H. Williams to R. W. Reid) provided a schedule for the above modification and addressed testing of the modification.

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Subsequent to this commitment, DPM requested, in a telecon (L. Engle, et al., and T. Enos, et al.) on November 21, 1978, that we provide information regarding the maximum loading of ST2 which would not result in unacceptable voltage at the safety buses and would not result in overheating the transformer. We knew at that time the voltage levels for all load cases; however, any load of a transformer above its rated capacity will eventually result in overheating. We knew that ST2 could develop an overheating problem in 30 minutes with a load of 200% rated capacity and were confident that full house loads would not create an overheating problem for significantly longer time thus allowing ample time for manual load shedding. However, lacking specific analyses to address the DPM concern, we committed, in our letter (D. H. Williams, to J. F. Stolz) of November 22, 1978, to limit the load automatically transferred to ST2 from ANO-2 to a load that we knew (by analysis) would not result in undervoltage and/or transformer overheating. We agreed to this limit as an interim commitment, to avoid impacting our Startup Schedule, until completing further analyses and resolving DPM concerns in this area.

#### ANO-1 and ANO-2

On November 30, 1978, we were contacted by DOR (telecon, G. Vissing, et al., and T. Enos, et al.) in regard to the above discussed letter on ANO-2. As we understood, the DOR concern was why we imposed a limit for automatic transfer of ANO-2 to ST2 and did not impose that limit to ANO-1. We chose to make that commitment on ANO-2 to avoid schedule impact only. As discussed previously, we did not consider transformer overheating as a problem which could impact the public health and safety. Since we did not consider this a safety issue we chose not to impose that limit on ANO-1.

However, during this telecon, it became apparent DOR also had concerns with regard to this issue. It also became apparent that considerable confusion was developing with regard to the GDC-17 issue. Based on these two items, we believed the best action was to make an interim commitment to operate ANO in a conservative manner that would immediately resolve all Staff concerns and to continue operation in this manner until time allowed us to discuss this issue with the Staff and reach a final resolution. Therefore, during that telecon we committed to defeat the automatic transfer capability from both ANO-1 and ANO-2 to ST2.



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By telecon (G. Vissing, et al., and T. Enos, et al.) on October 26, 1978, DOR informed us that they thought rather immediate action was necessary to justify continued operation of ANO-1 and suggested a possible order to require the modification committed to in our above October 25, 1978, letter. By telecon (G. Vissing and T. Enos) later that date, we were informed that NRC would issue that order which we received by telecopy on October 27, 1978.

By telecon October 27, 1978, (G. Vissing and T. Enos) we were informed that DOR did not feel they had sufficient bases to allow continued operation of ANO-1 until the sequencing modification was complete on October 31, 1978. By telecon (G. Vissing, et al. and T. Enos) later that date, we proposed interim measures we could take (on ANO-1) until the sequencing modification was complete. This involved locking one half of the plant loads on ST1 and one half on ST2 such that the loads could not automatically transfer to the same Startup transformer and locking out ANO-2 capability to automatically transfer to ST 2. (The commitment with regard to ANO-2 was interim and applied only until the sequencing circuitry modification was completed on October 31, 1978.) This was deemed acceptable by the Staff and documented in our letter (D. H. Williams to R. W. Reid) on October 27, 1978.

#### ANO-2

In an effort to resolve the impasse reached with DPM in the above discussed October 20, 1978, telecon, and to avoid impact of the ANO-2 Startup Schedule, we committed by letter of October 27, 1978, (D. H. Williams to J. F. Stolz) to lockout the capability of ANO-2 to automatically transfer to ST2. As we understood at that time, this commitment resolved DPM concerns with regard to ANO-2.

Following this submittal, several conversations transpired with DPM, the result of which was an agreement which allowed ANO-2 to access ST2 automatically provided the automatic transfer of ANO-1 to ST2 was defeated. To the agreement of DPM, our November 6, 1978, letter (D. H. Williams to J. F. Stolz) changed our commitment in the above October 27, 1978, letter to take advantage of ST2. As we understood at that time, the commitment did not result in new concerns to DPM and the issue was resolved with regard to ANO-2.

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This commitment was documented in our letter of December 28, 1978, (D. H. Williams to R. W. Reid and J. F. Stolz) in response to a request from G. Vissing on December 20, 1978.

We understand that this configuration is acceptable to NRC.

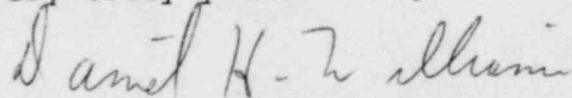
We will continue operation of ANO in the existing configuration, that is, the automatic transfer defeated from both ANO-1 and ANO-2 to ST2, until the Millstone modifications have been completed on ANO-1. At that time, we will install an interlocking mechanism on the feeder breakers from ST2 to both units. This interlock will prevent automatic transfer of both units to ST2 at the same time. Therefore, if one unit has accessed ST2, the other unit could not automatically transfer to ST2. ST2 would still be available to both units in a manual access mode. This meets the requirements of GDC-17.

We have analyzed the above configuration in detail for both units and have determined that in no case will we have unacceptable voltages at the safety buses. The 6900 volt winding of ST2 may be loaded in excess of its rated capacity in some cases (approximately 5 MVA worst case). We have contacted the transformer vendor in regard to this issue. The vendor's analysis has shown that such loadings on the transformer for up to 40 minutes will cause no loss of transformer life. We believe 40 minutes is ample time to manually shed 5 MVA of load under any postulated circumstances.

We believe this proposal is completely in conformance with GDC-17, and in no way reduces the margin of safety as it relates to the public health and safety.

Should you wish to discuss this issue in a telecon and/or meeting situation, we will be happy to comply.

Very truly yours.



Daniel H. Williams  
Manager, Licensing

DRW/JTE/ew