



ARKANSAS POWER & LIGHT COMPANY

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May 31, 1985

1CAN058507

Director of Nuclear Reactor Regulation  
ATTN: Mr. John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Unit 1  
Docket No. 50-368  
License No. NPF-6  
NUREG-0737 Supplement 1 - Reg. Guide 1.97  
Response to Position Document Open Items

Gentlemen:

Your letter dated March 20, 1985 (1CNA038505) transmitted an interim report by your contractor, EG&G Idaho, Inc., which provided a review of the ANO-1 Regulatory Guide 1.97 Position Document contained in our letter 1CAN068402, dated June 25, 1984. The review identified seven open items for which you requested a response. This letter documents our review of your contractor's report and provides our response to resolve the open items identified. The numbered items below are our responses corresponding to the respective open items in Section 4 (Conclusions) of your contractor's report:

1. RCS Cold Leg Water Temperature

This open item requested justification for deviating from the recommended range of 50°F to 700°F for this instrumentation. ANO-1 currently has instrumentation for this variable with a range of 50°F to 650°F. Based on a maximum saturation temperature for the steam generators of 600°F (maximum pressure of 1200 psig, based on the highest main steam safety valve setting of 1100 psig), an upper range of 650°F for the RCS cold leg water temperature instrumentation should provide adequate margin to account for any reasonable variation in the maximum pressure of the steam generators. Thus, the existing maximum range value of 650°F is sufficient. This justification reflects the position developed by the B&W Owner's Group Reg. Guide 1.97 Task Force.

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2. Containment Effluent Radioactivity
3. Effluent Radioactivity
4. Condensor Air Removal System Exhaust
5. Common Plant Vent

These four open items were listed with a common request that a highly reliable power source should be provided for these variables. These four variables are monitored and displayed by the ANO Gaseous Effluent Radiation Monitoring System (GERMS). AP&L contracted with the GERMS vendor in August of 1980 in good faith to install a radiation monitoring and offsite dose calculation system in compliance with and by the original due dates of NUREG-0578 and NUREG-0654. The GERMS was designed to comply with these NUREGs, which did not specify the power supply requirements for such a system. The power supply portions of the GERMS were already installed and completed by the time NUREG-0737 was issued. Later, with the issuance of NUREG-0737 (specifically Item II.F.1), the power supply requirements were identified as follows: "...vital instrument bus or dependable backup power supply to normal ac." The GERMS auxiliary power is supplied from either ANO-1 or ANO-2 normal ac through an automatic, power-seeking transfer switch. The remote SPING-4 detector combinations are equipped with battery backup for their microcomputer and memory protection, and the central computers also have battery backed power supplies. This arrangement of redundant sources of ac power and battery backup for the system electronics met the interpretation of a reliable power supply at the time of the GERMS design. The system has the capability of automatic restart after a power failure; this feature was successfully demonstrated during the GERMS site acceptance test. ANO-1 has very reliable sources of offsite power. Based on the above, AP&L considers the GERMS power supply to meet the intent of NUREG-0737. The power supply requirements of Category 2 variables as specified by Reg. Guide 1.97 were for a "...high-reliability power source, not necessarily standby power, and should be backed up by batteries where momentary interruption is not tolerable." The GERMS variables were specified as Category 3 by AP&L because they did not comply with our strict definition of Category 2 power requirements; however, based on the above information and operational experience with the system to date, the GERMS power supply may be considered as a high-reliability power source. Therefore, in clarification of Note 17 of Table 2 of the ANO-1 Position Document, the GERMS power supply meets the requirements of Reg. Guide 1.97 as interpreted by AP&L in the Position Document.

## 6. Quench Tank Temperature

This open item requested installation of temperature indication for the Quench Tank. This variable is currently monitored at ANO-1 by Category 3 instrumentation with a range of 0-200°F. Slow leakage into the Quench Tank can be detected by monitoring level and relief valve discharge line temperatures. The lifting of a pressurizer relief valve can also be detected by these two indications as well as the acoustic monitors on the relief valves. The design temperature of the ANO-1 Quench Tank is 230°F and the design pressure is 100 psig, which corresponds to a saturation temperature of 338°F. Therefore, AP&L will upgrade the instrumentation to measure a range of 50-350°F. This will adequately measure the expected maximum temperature as well as the saturation temperature for the expected maximum pressure (based on the rupture disc setting). This justification reflects the position developed by the B&W Owner's Group Reg. Guide 1.97 Task Force.

### 7. Containment Sump Water Temperature

This open item requested providing Category 2 instrumentation with the recommended range for this variable or showing why this could not be done. The purpose of this Type D variable, as defined by Reg. Guide 1.97, is to monitor operation of the containment cooling systems. However, successful operation of the building spray portion of the containment cooling systems will only be indicated by sump temperature trends when the Reactor Building Spray System is in operation taking suction from the sump. These conditions are expected only after a high energy line break inside containment and the subsequent depletion of the borated water supply in the Borated Water Storage Tank. At ANO-1 key variables for monitoring operation of the containment cooling systems are reactor building pressure and reactor building spray flow. Backup variables for monitoring this function are reactor building temperature, reactor building cooling fan breaker status and the flow rate of cooling water to the cooling units. This existing instrumentation is sufficient for monitoring the operation of the containment cooling systems. Reactor building sump water temperature is not currently installed on most B&W plants. It is not recorded or indicated because it is not required to mitigate the consequences of a design basis accident on B&W designed plants. Therefore, this variable need not be monitored. This justification reflects the position developed by the B&W Owner's Group Reg. Guide 1.97 Task Force. AP&L feels there is no benefit relative to plant safety from the installation of this variable and therefore can not justify the expense of this modification.

### ANO-1 Position Document Revision

Based upon AP&L's continuing work in the area of Reg. Guide 1.97, we have found that additional clarification is needed with respect to our previously submitted ANO-1 Position Document. Following are revised versions of Notes 13 and 19 in Table 2 of the ANO-1 Position Document:

NOTE 13: Reactor building isolation valves listed in Table 5-1 of the ANO-1 FSAR were evaluated. This evaluation excluded check valves, locked closed manual valves which are part of a passive boundary and valves which are locked closed and administratively controlled shut. Redundancy is satisfied by GDC 55, 56 or 57. With the exception of five (5), all position switches are Class 1E with "open-closed" indicating lights in the control room. These five (5) switches will be upgraded to comply with Reg. Guide 1.97.

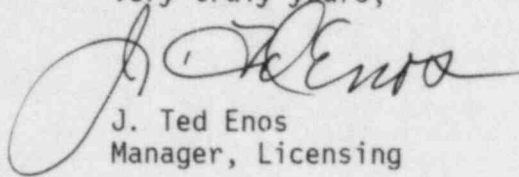
NOTE 19: ANO-1 presently has two level indication loops on each of the two Core Flood Tanks. These instrument loops will be upgraded to meet Category 2 requirements. The NRC recommendation for range is 10% to 90% volume. ANO-1 instrumentation for this variable has a range of 11% to 78% volume, indicated as 0 to 14 feet tank level. The ANO-1 Technical Specification level for the Core Flood Tanks is  $13 \pm .4$  ft. Since the existing range measures the water volume requirements for the tank, it meets the intent of the Reg. Guide for range. This justification reflects the position developed by the B&W Owner's Group Reg. Guide 1.97 Task Force.

The ANO-1 Core Flood Tank Level recommended and actual range values were incorrectly listed in Table 1 of the ANO-1 Position Document and have been revised to the values given in Note 19, above.

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AP&L feels that the above information fully addresses the issues raised by your contractor's review of the ANO-1 Reg. Guide 1.97 Position Document. We will continue to keep you informed of our progress in the implementation of upgrades committed to in that document through the biannual updates of our NUREG-0737 Supplement 1 related activities.

Very truly yours,

A handwritten signature in dark ink, appearing to read "J. Ted Enos", with a large, stylized loop at the beginning.

J. Ted Enos  
Manager, Licensing

JTE:RBT