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June 3, 1983

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SUBJECT: Arkansas Nuclear One - Units 1 & 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
Appendix R - Source Range Monitoring
Capability for Alternate Shutdown System

Gentlemen:

Per your letter (ØCNAØ58316) dated May 13, 1983, we are herein committing to install Source Range Monitoring (SRM) capability on our alternate shutdown system in accordance with 10CFR50 Appendix R.

In our July 1, 1982, Appendix R compliance submittal (ØCANØ782Ø2), AP&L provided information concerning our alternate shutdown system. We described the method by which operational parameters would be input to the Safety Parameter Display System (SPDS) computer and would thus be available for use in the event the control room(s) were evacuated because of fire damage. Existing instrument loops were to be used, where possible, but relocating, rerouting, etc., were to be used as needed in order to assure independence from the control room. This approach is also being used in establishing SRM capability.

A SRM channel consists of four major components: detector; pre-amplifier; signal processing electronics; and a display device. The designs of the SRM instrumentation at ANO-1 and ANO-2 are different. Hence, separate approaches to the provision of SRM capability are evident. The following discussion present the conceptual design of the SRM input to the alternate shutdown system.

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ANO-1

The present ANO-1 source range monitor is a Bailey 880 system with two redundant channels. The detectors are contained in separate wells, with signals being input to pre-amplifier located inside the Reactor Building. The pre-amplifier output signals are transmitted to signal processing equipment located in the control room. The signal processing equipment consists of several modules which are contained in Class 1E Reactor Protection System (RPS) cabinets. Relocation of these modules is not a simple task, and thus alternative means of assuring SRM electrical independence from the control room are being considered. These alternatives are as follows: (1) installation of a switch downstream from the pre-amplifier; and (2) installation of a new source range monitor channel.

The first alternative would provide electrical independence from the control room, as a duplicate set of signal processing electronics would be installed at an independent location. The normal position of the switch would be such that the existing control room processors would receive SRM input. In the event of control room evacuation, the switch would enable transfer of the signal path to the duplicate processors and hence to the SPDS computer.

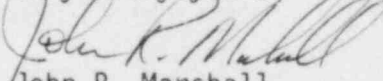
The second alternative would require purchasing all new hardware for a single SRM channel. This channel would be installed to be independent of the control room. Channel output would also be provided directly to the SPDS computer. Spare detector wells presently exist, but their future use is uncertain.

Due to the rigid hardware constraints associated with the ANO-1 installation, we propose to provide you with final design information by August 1, 1983. The SRM system will be installed with the alternate shutdown system during the sixth refueling outage (1R6), which is scheduled for late 1984.

ANO-2

The present ANO-2 source range monitor is a Gammametrics system with two redundant channels. Detectors are again contained in separate wells, with signals being input to pre-amplifiers located in the electrical penetration rooms in the Auxiliary Building. The output signals from the pre-amplifiers are transmitted to signal processing equipment located in the control room. The ANO-2 signal processors were installed with the new SRM system during the last refueling outage (2R2), and consist of a drawer-type chassis mounted in a cabinet. In order to achieve alternate shutdown system SRM capability, the signal processing drawer must be relocated, and some cabling must be re-routed. An isolated output is available from the signal processor. This output will be transmitted to the SPDS Computer. With this modification, continuous SRM capability will be available on the alternate shutdown system. The modifications for ANO-2 will be completed during the third refueling outage (2R3), which is scheduled for late 1983.

Very truly yours,


John R. Marshall
Manager, Licensing

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