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U.S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Request for Enforcement Discretion

Gentlemen:

This letter documents the Arkansas Nuclear One, Unit-1 (ANO-1) position (enclosed) discussed on May 12, 1995 with members of the Nuclear Regulatory Commission staff and formally requests enforcement discretion from the specific test flow requirement of Technical Specification 4.5.2.1.2 (a)(1) to allow determining proper system operation by engineering evaluation as discussed in the Bases of Technical Specification 3.3. This enforcement discretion is requested in accordance with 10CFR Part 2 in order to allow sufficient time for the submittal and NRC review and approval of a proposed Technical Specification Section 4.5.2.1.2(a)(1) change request while ANO remains at power. Marked up copies of the proposed change are enclosed for your information.

The enclosed request was reviewed and approved by ANO's Plant Safety Committee at 1430 on May 12, 1995. Verbal approval of this enforcement discretion was received at 1617 CST, on May 12, 1995.

Very truly yours,

Dwight C. Mims

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DCM\rhs

Enclosure

A001

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REQUEST FOR ENFORCEMENT DISCRETION FOR REACTOR BUILDING COOLING UNIT FLOW REQUIREMENT

Description of Condition/Requirements for which Enforcement Discretion is Requested.

On May 7, 1995, with Arkansas Nuclear One, Unit 1 (ANO-1) at 100 percent power, one of the Reactor Building Emergency Cooling Fans (VSF1D) associated with the green train of the Reactor Building Emergency Cooling system tripped. After an unsuccessful attempt to restart the fan, a Reactor Building entry was made which determined that the fan motor was inoperable and would require extensive repairs or replacement. Efforts to locate a replacement motor have, thus far, been unsuccessful. Repair efforts are being expedited.

The Reactor Building Emergency Cooling System consists of two redundant trains, each containing two cooling units. Each unit contains normal and emergency cooling coils and a single speed fan. During normal plant operation, chilled water is circulated through the normal cooling coils in each of the four units. During emergency operation, a bypass damper allows additional air flow to the cooler and the normal cooling coils are bypassed. The emergency cooling coils are supplied by the Service Water (SW) system, allowing for heat rejection to the SW system to prevent the building pressure from exceeding design limits. The Reactor Building Emergency Cooling system operates in conjunction with the Reactor Building Spray system to maintain Reactor Building pressure below design limits following a design basis Loss of Coolant Accident.

Technical Specification 3.3.4(A) stipulates that the reactor shall not be made critical unless two Reactor Building Spray pumps and their associated spray nozzle headers and two trains of Reactor Building Emergency Cooling are operable.

Technical Specification 3.3.7(C) states, "If the conditions of Specification 3.3.4(A) cannot be met because one train of the required reactor building emergency cooling is inoperable but both reactor building spray systems are operable, restore the inoperable train of cooling to operable status within 7 days or be in at least hot shutdown within the next 6 hours and in cold shutdown within the next 30 hours."

Technical Specification (TS) 4.5.2.1.2 (a) (1) requires verification of a Service Water flow rate of ≥1200 gpm to each train of Reactor Building Emergency Cooling at least once per 14 days to demonstrate proper operation of the system.

With the cooling fan associated with VCC-2D inoperable, the associated cooling unit cannot be credited for cooling purposes and must be considered inoperable. The cooling coils associated with this unit have been blind flanged so that the total green train Reactor Building Cooler SW flow passes through the coils of the operable unit (VCC-2C). In this

configuration, the total cross sectional flow area of the Reactor Building coolers in this train is reduced, resulting in increased resistance and decreased flow.

Testing was conducted which verified that flow in the current configuration was in excess of 1750 gpm. However, when this flow is corrected for the SW configuration under accident conditions, the resulting value is calculated to be less than 1200 gpm. The 1200 gpm flow rate is currently not defined as a limit of operability. The intent of the surveillance is defined by the NRC's Safety Evaluation Report (SER) associated with the amendment that incorporated the subject requirement. The SER stated that the surveillance would assure mortality of non-valved larvae in the SW system by requiring chlorination during the performance of surveillances of the Reactor Building coolers and that it would also detect flow clogging mechanisms before rendering the Reactor Building coolers inoperable.

The Bases of Technical Specification 3.3 contains a paragraph stating, "A train consists of two coolers and their associated fans which have sufficient capacity to meet post accident heat removal requirements. Conservatively each reactor building emergency cooling train consists of two fans powered from the same emergency bus and their associated coils, but other combinations may be justified by an engineering evaluation." This paragraph clearly indicates that alternative Reactor Building Emergency Cooling system configurations are acceptable providing that operability can be justified by engineering evaluation.

ANO performed an engineering evaluation which concluded that the green train of the Reactor Building Emergency Cooling system, in its current configuration, will have sufficient capacity to meet post accident heat removal requirements under all postulated lake water conditions providing discharge flow is directed to the lake. The evaluation also concluded that the green train of the Reactor Building Emergency Cooling system will remain capable of performing its design function with discharge flow directed to the Emergency Cooling Pond if lake temperature is at or below the calculated value. Flow to the Emergency Cooling Pond is an operational consideration, but not a Licensing Basis required consideration. Therefore, ANO has concluded that the green train of Reactor Building Emergency Cooling is capable of performing its design function in its current configuration.

However, it can be concluded that the 1200 gpm stipulated in Specification 4.5.2.1.2(a)(1) represents a limit of operability that must be demonstrated in all possible accident configurations. ANO has determined that, based on the current system configuration, corrected flows under all postulated accident conditions may not meet the literal wording of the specification.

Therefore, in accordance with 10 CFR Part 2, ANO is requesting enforcement discretion from the specific flow requirement of Technical Specification 4.5.2.1.2(a)(1) to allow determining proper system operation by engineering evaluation as discussed in the Bases of Technical Specification 3.3. Approval of this request will allow sufficient time for submittal and NRC review and approval of a proposed Technical Specification Section

4.5.2.1.2.(a)(1) change request while allowing ANO-1 to continue with power operations and eliminate the need to take the unit to a cold shut down condition.

Compensatory Measures

In order to ensure the continued operability of the green Reactor Building Emergency Cooling train while one of the fan units is out of service, critical areas supporting the train operability will be controlled as follows:

Operations Procedure 1104.033 has been revised to change the acceptance criteria flow for VCC-2C such that the minimum flow required to achieve adequate heat removal will be obtained at post-accident conditions. Also, an Operability section addressing the issues associated with the green Reactor Building Emergency Cooling train has been incorporated. This will ensure surveillance testing that demonstrates Reactor Building Emergency Cooling System operability in accordance with Technical Specification 3.3.4.A.

Operations Procedure 1104.029 has been revised as follows:

- An Operability section redundant to that described above has been incorporated.
- SW pump P4B or P4C degradation has been accounted for by lowering the allowable SW strainer ΔP.
- The section for aligning the Service Water return to the Emergency Cooling Pond incorporates the necessary lake temperature limit for VCC-2C operability.

Operations Procedure 1203.0121 incorporates operability actions for VCC-2C if SW pump strainer ΔP should reach 8 PSID.

Operating crews have been briefed on these requirements.

Evaluation of Safety Significance

ANO performed a calculation to predict SW flows through the "C" Reactor Building cooler with the 'D" cooler blind flanged using as-left 1R12 flow data and recent test data. The calculation assumed various losses and determined corrected flows to both the lake and the Emergency Cooling Pond (ECP), even though SW flow to the ECP is not a required Licensing Basis consideration. The corrected flows were then used with the appropriate flow versus temperature curve to determine the limits of operability for the "C" Reactor Building cooler in its current configuration.

The calculation concluded that the corrected flows for the "B" and "C" SW pumps with flow directed to the lake are sufficient to ensure that the "C" Reactor Building cooler

will remain capable of performing its design basis function considering maximum postulated lake temperatures.

The calculation also concluded that the corrected flows for the "B" and "C" SW pumps with flow directed to the ECP were not sufficient to ensure cooler operability considering maximum postulated lake temperatures. If plant conditions dictate that SW flow be directed to the ECP, the "C" Reactor Building cooler will be declared inoperable if lake water temperature exceeds the calculated operability limit.

Since the engineering calculation verified that the "C" Reactor Building cooler is capable of performing its design function in its current configuration, and because continuing surveillance testing will ensure cooler operability, continued plant operation in this condition will have no impact on plant safety or the health and safety of the public.

Engineering Evaluation and Basis For No Significant Hazard Consideration

In accordance with 10CFR50.92(c), this consideration addresses the three criteria addressed therein.

Criterion 1: Involves a significant increase in the probability or consequences of an accident previously evaluated.

The Reactor Building Emergency Cooling system is not an initiator of any accident described in the ANO-1 Safety Analysis Report. The engineering evaluation discussed above verifies that the green train of the Reactor Building Emergency Cooling system remains capable of performing its design function under all postulated accident conditions. Therefore, the probability or consequences of any previously evaluated accident is not increased.

Criterion 2: Create the possibility of a new or different kind of accident from any accident previously evaluated.

The subject request does not create the possibility of a new or different kind of accident from any previously evaluated since the green train of the Reactor Building Emergency Cooling system remains capable of performing its design function and because the reactor building coolers and their associated surveillances are not related to the creation of accidents.

Criterion 3: Involve a significant reduction in a margin of safety.

The subject request does not involve a significant reduction in a margin of safety since each train of the Reactor Building Emergency Cooling system remains capable of performing its design function. The current configuration represents a reduction in available flow; however, this is not considered significant since required heat removal capability is still maintained.

Basis for No Environmental Consequences

This request for enforcement discretion does not have a significant effect, impact, or change to the quality of the human environment at ANO. This request, when implemented, does not impact the ANO-1 Environmental Report-Operating License. Therefore, it does not involve any environmental consequences.

MARKUP OF CURRENT ANO-1 TECHNICAL SPECIFICATIONS

(FOR INFO. ONLY)

4.5.2 Reactor Building Cooling Systems

Applicability

Applies to testing of the reactor building emergency cooling systems.

Objective

To verify that the reactor building emergency cooling systems are operable.

Specification

4.5.2.1 System Tests

4.5.2.1.1 Reactor Building Spray System

(a) Once every 18 months, a system test shall be conducted to demonstrate proper operation of the system. A test signal will be applied to demonstrate actuation of the reactor building spray system (except for reactor building inlet valves to prevent water entering nozzles).

(b) Station compressed air or smoke will be introduced into the spray headers to verify the availability of the headers and spray nozzles at least every five years.

(c) The test will be considered satisfactory if visual observation and control board indication verifies that all components have responded to the actuation signal properly.

4.5.2.1.2 Reactor Building Cooling System

(a) At least once per 14 days, each reactor building emergency cooling train shall be tested to demonstrate proper operation of the system. The test shall be performed in accordance with the procedure summarized below:

(1) Verifying a service water flow rate ~~of ≥ 1200 gpm~~ to each train of the reactor building emergency cooling sufficient to remove the post-accident heat load in the reactor building.

(2) Addition of a biocide to the service water during the surveillance in 4.5.2.1.2.a.1 above, whenever service water temperature is between 60F and 80F.

(b) At least once per 31 days, each reactor building emergency cooling train shall be tested to demonstrate proper operation of the system. The test shall be performed in accordance with the procedure summarized below:

(1) Starting (unless already operating) each operational cooling fan from the control room.

The verification of service water flow rate to each train of reactor building emergency cooling is performed to ensure that sufficient post-accident reactor building heat load can be removed by the coolers. The minimum flow rate necessary to ensure adequate post-accident heat removal capability is affected by the current conditions in the reactor building coolers and in the service water system, e.g. service water system supply and discharge pressure, fouling on either the service water side or the airflow side of the cooling coils, anticipated service water temperature, and the number of cooling coils and fans that are in service. The engineering evaluation which is performed to establish the minimum service water flow rate accounts for the current system conditions.

Addition of a biocide to service water is performed during reactor building emergency cooler surveillance to prevent buildup of Asian clams in the coolers when service water is pumped through the cooling coils. This is performed when service water temperature is between 60F and 80F since in this water temperature range Asian clams can spawn and produce larva which could pass through service water system strainers.

The delivery capability of one reactor building spray pump at a time can be tested by opening the valve in the line from the borated water storage tank, opening the corresponding valve in the test line, and starting the corresponding pump. Pump discharge pressure and flow indication demonstrate performance.

With the pumps shut down and the borated water storage tank outlet closed, the reactor building spray injection valves can each be opened and closed by operator action. With the reactor building spray inlet valves closed, low pressure air or smoke can be blown through the test connections of the reactor building spray nozzles to demonstrate that the flow paths are open.

The equipment, piping, valves, and instrumentation of the reactor building emergency cooling system are arranged so that they can be visually inspected. The cooling fans and coils and associated piping are located outside the secondary concrete shield. Personnel can enter the reactor building during power operations to inspect and maintain this equipment. The service water piping and valves outside the reactor building are inspectable at all times. Operational tests and inspections will be performed prior to initial startup.

Two service water pumps are normally operating. At least once per month operation of one pump is shifted to the third pump, so testing will be unnecessary.

As the reactor building fans are normally operating, starting for testing is unnecessary for those verified to be operating.

Reference

FSAR, Section 6