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To ADM/DMB:
PDR
LPDR
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January 5, 1981

1-011-05
2-011-05

Mr. K. V. Seyfrit, Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

SUBJECT: Arkansas Nuclear One - Units 1 & 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
IE Bulletin 80-24
(File: 1510.1, 2-1510.1)

Gentlemen:

The following information and corrective actions are provided in accordance with your request to each of the questions numbered and outlined in IE Bulletin 80-24.

ARKANSAS NUCLEAR ONE - UNIT 2

Actions To Be Taken By Licensee

1. Provide a summary description of all open cooling water systems present inside containment. Your description of the cooling water systems must include: (a) Mode of operation during routine reactor operation and in response to a LOCA; (b) Source of water and typical chemical content of water; (c) Materials used in piping and coolers; (d) Experience with system leakage; (e) History and type of repairs to coolers and piping systems (i.e., replacement, weld, braze, etc.); (f) Provisions for isolating portions of the system inside containment in the event of leakage including vulnerability of

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those isolation provisions to single failure; (g) Provisions for testing isolation valves in accordance with Appendix J to 10 CFR 50; (h) Instrumentation (pressure, daw point, flow, radiation detection, etc.) and procedures in place to detect leakage; and (i) Provisions to detect radioactive contamination in service water discharge from containment.

Response

a) The only open cooling water system in the Containment is the service water system. A description of the system is contained in the ANO-2 FSAR, Section 9.2.1, and in Section 6.2.2.2.2.

b) The sources of water are described in FSAR Section 9.2.1 and in Section 2.5 of the Environmental Report.

c) Materials used are described in Section 9.2.1 and 6.2.2.2 of the FSAR.

d) Several small pinhole leaks have been identified in the cooling coils inside the containment. However, no other leakage in either the piping or coiling units, within the containment, has been experienced.

e) A leak developed in cooling coils inside the containment in February 1980. Attempts to repair the leaks by brazing were unsuccessful. Replacement coils are on order. Existing leakers are blind flanged and out of service.

f) Each loop of service water to the Containment contains an inlet and outlet, class 1E, motor operated, outside isolation valve. In the event that isolation cannot be effected from the control room, the valve is accessible for manual operation without containment entry.

g) The isolation valves are capable of testing only as a type "A" test since this system is in service following an ES actuation and due to the single isolation valve arrangement.

H) Reactor Building cooler outlet flow is measured and is periodically surveilled as required by Technical Specifications. Significant leakage would be indicated by a reduced cooler returned flow. A low flow alarm is also provided. Reactor building temperature, internal pressure and relative humidity are monitored per technical specifications at least once every 12 hours.

i) Radiation monitors are installed in the service water return lines from the reactor building. These are continuous monitors and are described in FSAR Section 11.4.2.1.3.

2. For plants with open cooling water systems inside containment take the following actions:

a) Verify existence or provide redundant means of detecting and promptly alerting control room operators of a significant accumulation of water in containment (including the reactor vessel pit if present.)

Response

ANO-2 presently has installed redundant class 1E, level indicators capable of indicating up to 8' accumulation of water on the containment floor. However, these level indicators do not overlap the non-class 1E sump level indicator. Several inches of water could accumulate on the containment floor undetected, if the non-Q level indicator in the sump were to fail. However, AP&L is adding a single Q level indicator in the sump and Q redundant flood indication from the Reactor Building floor up to a 12' elevation during the first refueling outage scheduled for April 1981.

In addition the space beneath the reactor vessel in essence forms a pit. The floor drain serving this area has a valve (2BS-38) in it which is locked closed. Chilled water is supplied to the CEDM cooling units. A leak in this closed chill water system could drain into the Reactor Cavity unnoticed as far as Reactor Building Sump level is concerned. This situation is presently being evaluated to determine the feasibility of locking open the valve (2BS-38).

Service water, which is the only open cooling water system in the reactor building, has no drainage path to the reactor vessel cavity.

b) Verify existence or provide positive means for control room operators to determine flow from containment sump(s) used to collect and remove water from containment.

Response

Flow from the containment sump is by gravity drain to the Auxiliary Building Sump. Flow can be determined by the level change in the reactor building sump and/or by level change in

the Auxiliary Building Sump which has a non-class IE level indicator. In event of failure of the Auxiliary Building Sump level indicator, it is accessible for maintenance.

c) Verify or establish at least monthly surveillance procedures, with appropriate operating limitations, to assure plant operators have at least two methods of determining water level in each location where water may accumulate. The surveillance procedures shall assure that at least one method to remove water from each such location is available during power operation. In the event either the detection or removal systems become inoperable it is recommended that continued power operation be limited to seven days and added surveillance measures be instituted.

Response

Item 2a discusses the instrumentation for detecting water level in the containment and the containment sump. Also, as stated in Item 2a, there is currently no instrumentation available to detect water accumulation in the Reactor Vessel cavity.

The method of removing water from the containment sump is by gravity drain to the Auxiliary Building Sump. This draining is effected by opening the Containment Isolation valves in the line between the two sumps. These valves are surveilled quarterly.

The Reactor Building Water Level indications are verified operable every 18 months by a Channel Calibration per Tech. Spec. 4.4.6.1.B.

In conjunction with the Tech. Spec. (4.4.6.2.B) concerning RCS leakage, containment sump inventory and discharge are monitored at least once per 12 hours (when above cold shutdown.) On a monthly basis, the Reactor Building water level instrument readings are checked and logged.

We feel the above described surveillances meet the intent of this bulletin item. Power operation is limited to the requirements of Technical Specification 3.3.3.6 which allows 30 days to return the level indicators back to service if less than the minimum are available. This is consistent with all other post accident monitoring instrumentation. Therefore, we feel it is inappropriate to change from our present power operation specifications.

d) Review leakage detection systems and procedures and provide or verify ability to promptly detect water leakage in containment, and to isolate the leaking components or system. Periodic containment entry to inspect for leakage should be considered.

Response

As discussed above, Tech. Spec. 4.4.6.2.B. requires periodic calculation of RCS leakage using the containment sump inventory, which would also alert operations to either a chilled water leak or a service water leak. This would be evident by increased sump levels without a corresponding RCS inventory loss. As discussed earlier, however, Reactor Cavity accumulations might not be detected.

Periodic containment entry is not consistent with the ALARA philosophy and is not considered necessary.

e) Beginning within 10 days of the date of this bulletin, whenever the reactor is operating and until the measures described in (a) through (d) above are implemented, conduct interim surveillance measures. The measures shall include where practical (considering containment atmosphere and ALARA considerations) a periodic containment inspection or remote visual surveillance to check for water leakage. If containment entry is impractical during operation, perform a containment inspection for water leakage at the first plant shutdown for any reason subsequent to receipt of this bulletin.

We believe that the surveillances relative to Tech. Spec. 4.4.6.2B satisfy this requirement for ANO-2.

During the December 6-7, 1980, outage an inspection for leakage was made and no leakage was found.

f) Establish procedures to notify the NRC of any service water system leaks within containment via a special licensee event report (24 hours with written report in 14 days) as a degradation of a containment boundary.

Response

Procedures have been revised to add this reporting requirement.

3. For plants with closed cooling water systems inside containment provide a summary of experiences with cooling water system leakage into containment.

The two closed cooling water systems inside containment are chilled water and Component Cooling Water. We have a few leaks periodically in mechanical tubing fittings serving process instrumentation. However, it should be noted that these leaks are very small and would not result in significant accumulations even over a period of several months.

ARKANSAS NUCLEAR ONE - UNIT 1

1. Provide a summary description of all open cooling water systems present inside containment. Your description of the cooling water systems must include: (a) Mode of operation during routine reactor operation and in response to a LOCA; (b) Source of water and typical chemical content of water; (c) Materials used in piping and coolers; (d) Experience with system leakage; (e) History and type of repairs to coolers and piping systems (i.e., replacement, weld, braze, etc.); (f) Provisions for isolating portions of the system inside containment in the event of leakage including vulnerability of those isolation provisions to single failure; (g) Provisions for testing isolation valves in accordance with Appendix J to 10 CFR 50 (h) Instrumentation (pressure, dew point, flow, radiation detection, etc.) and procedures in place to detect leakage; and (i) Provisions to detect radioactive contamination in service water discharge from containment.

Response

a) The only open cooling water system in the containment is the service water system. A description of the system is contained in the ANO-1 FSAR, Section 9.3.2.1 and 6.3.

b) The source of water is the same as for Unit 2.

c) Materials used are described in FSAR Section 9.3.2.1 and 6.3. The cooler tube material is the same as ANO-2.

d) No cooling coil or other system leaks have been experienced inside containment.

e) N/A

f) Each loop of service water to the containment contains an inlet and outlet, air operated valve which fails open on loss of air to supply cooling water to the Reactor Building Cooling Coils. These valves are accessible for manual operation without containment entry.

It should be noted that we are evaluating replacing these valves with motor operated gate valves which will be less susceptible to leakage than the present butterfly valves.

g) The isolation valves are capable of testing only as a type "A" test since this system is in service following ES actuation and due to the single isolation valve arrangement.

h) Containment pressure is monitored routinely. In addition, since the asian clam experiences, service water flow to the Reactor Building Coolers is periodically surveilled to detect any system degradation. In addition we are installing (NRC commitment) Reactor Building Cooler flow indication similar to ANO-2.

i) Radiation monitors are installed in the system as described in FSAR Section 9.3.2.1 and 11.1.3.4.

2. For plants with open cooling water systems inside containment take the following actions:

a) Verify existence or provide redundant means of detecting and promptly alerting control room operators of a significant accumulation of water in containment (including the reactor vessel pit if present.)

Response

The reactor building sump contains a single non-Q level indicator. Redundant Q Reactor Building level indicators are being installed during the current refueling outage. These level indicators will be capable of detecting water accumulations in excess of several inches on the Reactor Building floor but do not overlap the building sump. The single sump level indication will also be upgraded to Q during the current refueling outage.

Unlike ANO-2, the reactor cavity drain does not contain a valve and no accumulation of water would occur beneath the reactor vessel.

b) Verify existence or provide positive means for control room operators to determine flow from containment sump(s) used to collect and remove water from containment.

Response

Flow from the containment sump is by gravity drain to the Auxiliary Building Sump. Flow can be determined by the level change in the Reactor Building sump and/or by level change in the Auxiliary Building Sump which has a non-class 1E level indicator. In the event of failure of the Auxiliary Building Sump level indicator it is accessible for maintenance.

c) Verify or establish at least monthly surveillance procedures, with appropriate operating limitations, to assure plant operators have at least two methods of determining water level in each location where water may accumulate. The surveillance procedures shall assure that at least one method to remove water from each such location is available during power operation. In the event either the detection or removal systems become inoperable it is recommended that continued power operation be limited to seven days and added surveillance measures be instituted.

Response

With the addition this outage of the redundant Q Reactor Building level indicators, adequate means of detection of water level in containment will be available to the operator.

The method of removing water from the containment sump is by gravity drain to the Auxiliary Building Sump. This drain is effected by opening the containment isolation valves in the line between the two sumps. These valves are presently surveilled quarterly.

The Reactor Building Water Level indicators will have an as yet undefined calibration frequency when installed (probably 18 months).

We have instituted a control room log to verify the response of the Auxiliary Building Sump Level indication to a response of the Reactor Building Sump Level indicator during draining operations. This accomplishes two things. First, it verifies the operability of the Reactor Building sump indicator. Second, it permits use of the auxiliary building sump indicator to measure leak rates into the Reactor Building sump.

The Reactor Building sump level is checked and logged on a once per shift basis. The sump is drained (and the comparison check conducted) on an as necessary basis.

We feel the above described surveillance procedure meets the intent of this bulletin item.

Technical Specifications will be proposed for the Reactor Building level instrumentation similar to the ANO-2 specification described in the response to Item 2C for ANO-2.

d) Review leakage detection systems and procedures and provide or verify ability to promptly detect water leakage in containment, and to isolate the leaking components or system. Periodic containment entry to inspect for leakage should be considered.

Response

As discussed above, we have revised procedures to verify operation of the containment sump level indicator. As discussed in responses for ANO-2, an increase in sump level change without a corresponding RCS inventory loss would alert operators to a cooling system leak in containment.

Containment entry on a periodic basis is not consistent with the ALARA philosophy and is not considered necessary.

e) Beginning within 10 days of the date of this bulletin, whenever the reactor is operating and until the measures described in (a) through (d) above are implemented, conduct interim surveillance measures. The measures shall include where practical (considering containment atmosphere and ALARA considerations) a periodic containment inspection or remote visual surveillance to check for water leakage. If containment entry is impractical during operation, perform a containment inspection for water leakage at the first plant shutdown for any reason subsequent to receipt of this bulletin.

Response

We believe the operating log prepared to compare Reactor Building Sump level changes to Aux-Building Sump level changes satisfies this requirement for ANO-1.

An inspection was conducted during an unplanned shutdown on 12/9/80.

f) Establish procedures to notify the NRC of any service water system leaks within containment via a special licensee event report (24 hours with written report in 14 days) as a degradation of a containment boundary.

Response

Procedures have been revised to add this reporting requirement.

3. For plants with closed cooling water systems inside containment provide a summary of experiences with cooling water system leakage into containment.

The two closed cooling water systems inside containment are chilled water and Intermediate Cooling Water. In these systems we have periodically experienced small leaks in mechanical tubing fittings serving process instrumentation. However, it should be noted that these leaks are very small and would not result in significant accumulations even over a period of several months.

Approximately twenty (20) manhours of engineering time were expended on this bulletin.

Very truly yours,

David C. Trimble

DCT:ms

cc: Mr. Victor Stello, Jr., Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

STATE OF ARKANSAS)
) SS
COUNTY OF PULASKI)

David C. Trimble, being duly sworn, states that he is Manager, Licensing, for Arkansas Power & Light Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this information; that he has reviewed or caused to have reviewed all of the statements contained in such information, and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

David C. Trimble

David C. Trimble

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for the County and State above named, this 5th day of January, 1981.

Sharon Kaye Hendrix

Notary Public

My Commission Expires:

My Commission Expires 9/1/81