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August 6, 1984

2CAN088402

Director of Nuclear Reactor Regulation
ATTN: Mr. James R. Miller, Chief
Operating Reactors Branch #3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Resolution of Environmental Qualification
Safety Evaluation Report Deficiencies - ANO-2

Gentlemen:

On April 26, 1984, in Bethesda, various NRC personnel met with AP&L to discuss the environmental qualification deficiencies for equipment at ANO-1 and 2. At that time, AP&L described the various steps that have been taken or will be taken to resolve each of the deficiencies. The proposed resolutions are documented in the attached matrix (Enclosure 1). This is essentially the same document submitted to you prior to the meeting (reference 1), but has been modified per NRC comments and suggestions to enhance its readability.

Discussions on a number of issues not directly related to equipment, but of a generic nature also took place. The purpose of this letter is to document the results of all pertinent items discussed during the meeting. The NRC specifically requested that these meeting notes reflect the following:

1. Our proposed resolution of the TER deficiencies.
2. Our method of compliance with 10CFR50.49 sections b(1), b(2), and b(3).
3. The status of any outstanding justifications for continued operation (JCO's).

As mentioned previously, the device specific deficiencies identified by Franklin Research Center are identified in the attached matrix. In addition, section 1 of the matrix covers the "generic" program deficiencies

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that were noted. All items were discussed and no major problems were noted. In response to one specific request, AP&L hereby confirms that the post-accident harsh environments assumed for the purposes of this equipment qualification program envelope the worst-case conditions, and those environmental profiles and assumptions have been approved by the NRC.

Concerning the scope of 10CFR50.49 (item 2 above), category b(1) equipment was addressed as described in previous submittals (see references 2 through 6). To reiterate, the environmental effects (including flooding) from all postulated design basis accidents (both inside and outside containment), analyzed in Chapter 14 of the ANO-2 FSAR were considered in the identification of safety-related electrical equipment to be environmentally qualified. These accidents include LOCA's and the Main Steam Line Break inside containment, and various High Energy Line Breaks (HELB's) outside containment. Those systems required to perform the following functions were first identified:

1. Detect the accident and initiate protective actions.
2. Carry out safeguards system actions to mitigate the consequences of the accident.
3. Shut the reactor down, maintain it in a safe shutdown condition, and dissipate decay heat.
4. Provide essential auxiliary support services such as electric power, cooling water, lubrication, etc.
5. Maintain suitable environmental conditions for equipment operation (e.g., pump room cooling).

All devices within those systems which are essential to achieving the above functions were included on the EQ equipment list.

In order to ensure completeness of the list, AP&L took several steps to ensure that equipment "whose failure under postulated accident conditions could prevent satisfactory accomplishment of safety functions" were not omitted from the EQ list (10CFR50.49 section b(2)).

1. In preparation of the EQ list, P&ID's were reviewed to select those components considered essential without regard to any previous designation such as "Q - non Q".
2. The wiring diagrams (schematics) for each device identified as described above were reviewed to identify any auxiliary devices within the circuitry of the required device whose failure to function due to the postulated accident could prevent the proper functioning of the required device. All such devices found were therefore considered essential and included in the EQ list.
3. As mentioned previously, auxiliary (support) systems were considered in the preparation of the main list (e.g., lube oil, cooling water, etc.).

4. Nonsafety-related electrical circuits indirectly associated with the safety-related electrical equipment were considered by virtue of the electrical design criteria used for ANO including the use of industry standards (e.g., IEEE). The protection systems at ANO-2 conform to IEEE 279 which includes consideration of protective and control systems interaction, separations criteria, etc. Protection is further assured by proper design considerations such as use of protective fuses, relays, and circuit breakers.
5. All devices determined to be in a non-harsh environment were checked to ensure that supporting electrical equipment (handswitches, terminal boxes, motor control centers, etc.), were not located in a harsh environment.

Any devices identified by the above steps were included on the EQ equipment list since they were considered de facto safety-related.

In preparation of the main list, many devices which provided control room indication for post-accident monitoring were included on the list (10CFR50.49 section b(3)). In addition, AP&L is currently addressing the requirements of Reg. Guide 1.97. It is expected that additional instrumentation requiring environmental qualification (i.e., category I and II equipment) will be identified as a result of this effort, consequently, all such instrumentation will be demonstrated to meet the environmental qualification requirements as agreed to by the staff and in accordance with a scheduled approved by the staff.

In conclusion, we believe that AP&L's master list of environmental qualification equipment (Enclosure II), complies with the scope requirements of 10CFR50.49 section b.

As indicated during the meeting, the ANO-2 EQ deadline has already passed, and we believe all equipment is qualified as indicated in the matrix (enclosure I). Those items for which a schedule extension was granted are the only exceptions. For these, we have provided JCO's (enclosure III). Based on these JCO's, we believe that ANO-2 can continue to operate without undue risk to the public health and safety.

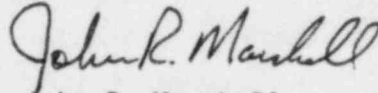
One additional item which drew significant discussion at the meeting involved AP&L's efforts to "maintain" qualification of the equipment throughout plant life. AP&L acknowledges the importance of proper maintenance concerns, and has taken steps to put in place a comprehensive program to address this matter. When fully implemented the program will:

1. Ensure that all items on the EQ list receive special maintenance considerations whenever that device is affected by:
 - a. Corrective maintenance
 - b. Preventive maintenance
 - c. Surveillance
2. Ensure that periodic part replacements, lubrications, etc., that are required to maintain qualification are performed and documented.
3. Ensure that actions required to address aging degradations are taken, and evaluations made and documented.

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We trust that the efforts made and those yet to be made as described in this submittal are sufficient to allow the NRC to issue a supplemental SER for ANO-2 indicating that AP&L's Environmental Qualification Program meets the requirements of 10CFR50.49 and that the deficiencies noted in previous SER's are considered resolved.

Very truly yours,

A handwritten signature in dark ink, appearing to read "John R. Marshall". The signature is fluid and cursive, with the first name "John" being the most prominent.

John R. Marshall
Manager, Licensing

JRM/CHT/ac

Attachments

REFERENCES AND-2

1. April 20, 1984 letter from J. R. Marshall to Messrs. Stolz and Miller (OCAN948407).
2. October 31, 1980 letter from William Cavanaugh, III to Mr. K. V. Seyfrit (1-100-29 and 2-100-22).
3. December 16, 1980 letter from William Cavanaugh, III to Mr. H. R. Denton (1-120-09 and 2-120-20).
4. September 14, 1981 letter from David C. Trimble to Mr. R. A. Clark (2CAN098105).
5. June 20, 1983 letter from Mr. J. R. Marshall to Mr. R. A. Clark (2CAN068310).
6. May 20, 1983 letter from Mr. J. R. Marshall to Messrs. Clark and Stolz (OCAN058311).

ENCLOSURE I

MATRIX OF QUALIFICATION DEFICIENCIES
AND PROPOSED RESOLUTION

ANO-2

INDEX - TER DEFICIENCIES - ANO-2

- I. Generic EQ Deficiencies
- II. Motor Operated Valves
- III. Solenoid Valves
- IV. Motors
- V. Pressure, DP, Flow, and Level Transmitters
- VI. Temperature Sensing Devices
- VII. Valve Position Indicating Devices
- VIII. Electrical Distribution
- IX. Miscellaneous
- X. Items not reviewed by Franklin

I. GENERIC EQ DEFICIENCIES

<u>Deficiency</u>	<u>Reference</u>	<u>Resolution</u>
A. Completeness of safety-related electrical equipment list: "A complete list of display instrumentation mentioned in the HELB and LOCA emergency procedures must be provided... Instrumentation which is not considered to be safety-related but which is mentioned in the emergency procedure should appear on the list."	TER Section 4.3.1	This item will be completely addressed as part of the current program addressing NUREG-0737 supplement 1. Specifically, the Control Room Design Review process, when completed, will demonstrate that the appropriate instrumentation used by operators to mitigate the consequences of a LOCA or HELB is of the proper quality level (i.e. environmentally qualified). This requires significant coordination between the CRDR, Reg. Guide 1.97, and Emergency Operating Procedures review teams.
B. Submergence: "It is not clear... that submergence of safety-related electrical equipment outside of containment was addressed."	TER Section 4.3.5	This item is considered satisfactorily addressed by sections 3.6.4.3 through 3.6.4.5 and section 9.5.1 of the ANO-2 FSAR. Our position was previously documented by letters dated September 14, 1981 (2CANØ981Ø5) and June 20, 1983 (2CANØ6831Ø).

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
1.	2CV-2401-1 (Limitorque) 2CV-3850-2 2CV-4820-2 2CV-4846-1 2CV-5254-2 2CV-4821-1	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, these items are considered fully qualified.
2.	2CV-5017-1 (Limitorque) 2CV-5037-1 2CV-5057-2 2CV-5077-2	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, these items are considered fully qualified.
3.	2CV-5124-1 (Limitorque)	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, these items are considered fully qualified.
4.	2CV-5123-1 (Limitorque)	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, these items are considered fully qualified.
5.	2CV-0716-1 (Limitorque) 2CV-0789-1	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, also these have been determined to be located in a mild environment. Therefore, it is considered outside the scope of 10CFR50.49.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
6.	2CV-0711-2 (Limitorque) 2CV-0795-2	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, also these have been determined to be located in a mild environment. Therefore, it is considered outside the scope of 10CFR50.49.
7.	2CV-1076-2 (Limitorque)	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, it is considered fully qualified.
8.	2CV-1023-2 (Limitorque) 2CV-1073-2	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, also these devices are located in a mild environment; therefore, they are considered outside the scope of 10CFR50.49.
9.	2CV-1024-1 (Limitorque) 2CV-1074-1	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, it is considered fully qualified.
10.	2CV-1050-2 (Limitorque)	IIa	Similarity, Aging Temperature	Documentation establishing similarity is available; aging report is also available and actuator has been thermally protected to ensure peak temperature (qualified level) is not exceeded. Therefore, it is considered fully qualified.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
11.	2CV-1000-1 (Limitorque)	IIa	Similarity, Aging Temperature	Documentation establishing similarity is available; aging report is also available and actuator has been thermally protected to ensure peak temperature (qualified level) is not exceeded. Therefore, it is considered fully qualified.
12.	2CV-0340-1 (Limitorque)	IIa	Similarity, Aging	The DC motor has been replaced with a fully qualified Porter-Peerless motor. Therefore, the entire device is now fully qualified.
13.	2CV-4840-2 (Limitorque)	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, the item is considered fully qualified.
14.	2CV-1026-2 (Limitorque)	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, it is considered fully qualified.
15.	2CV-4824-2 (Limitorque) 2CV-4827-2 2CV-4831-2	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, they are considered fully qualified.
16.	2CV-4690-2 (Limitorque)	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, also the item has since been determined to be located in a mild environment. Therefore, it is considered outside the scope of 10CFR50.49.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
17.	2CV-4740-2 (Limitorque)	IIa	Similarity, Aging Radiation	Documentation establishing similarity is available; aging report is also available, plus materials analyses have been performed demonstrating the capability of the actuator to withstand the postulated accident doses. Therefore, it is considered fully qualified.
18.	2CV-4698-1 (Limitorque)	IIa	Similarity, Aging Radiation	Documentation establishing similarity is available; aging report is also available, plus materials analyses have been performed demonstrating the capability of the actuator to withstand the postulated accident doses. Therefore, it is considered fully qualified.
19.	2CV-1529-2 (Limitorque) 2CV-1532-1	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, also, these valves have since been determined to be in a mild environment, therefore, they are outside the scope of 10CFR50.49.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
20.	2CV-5015-1 (Limitorque) 2CV-5016-2 2CV-5035-1 2CV-5036-2 2CV-5055-1 2CV-5056-2 2CV-5075-1 2CV-5076-2 2CV-5612-1 2CV-5613-2 2CV-5852-2 2CV-5859-2	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, they are considered fully qualified.
21.	2CV-1500-1 (Limitorque) 2CV-1501-5 2CV-1502-2	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, also these items have been determined to be non-essential by a systems review. Therefore, they are considered outside the scope of 10CFR50.49.
22.	2CV-5103-1 (Limitorque) 2CV-5104-2	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, it is considered fully qualified.
23.	2CV-5628-2 (Limitorque)	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, therefore, it is considered fully qualified.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
24.	2CV-1401-2 (Limitorque) 2CV-1402-1 2CV-1404-1 2CV-1405-2 2CV-1407-1 2CV-1408-2 2CV-1409-2 2CV-1446-2 2CV-1448-2 2CV-1451-5 2CV-5127-1 2CV-5128-1 2CV-5672-1	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, it is considered fully qualified.
25.	2CV-1403-1 (Limitorque) 2CV-1445-1 2CV-1447-1 2CV-1450-1 2CV-5126-1 2CV-5673-1	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available. Therefore, it is considered fully qualified.
26.	2CV-5084-1 (Limitorque) 2CV-5086-2	IIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, also these have been determined to be needed for cold shutdown only. Therefore, they are considered outside the scope of 10CFR50.49.
27.	2CV-5003-1 (Limitorque) 2CV-5023-1 2CV-5043-2	IIIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available, Franklin has concurred with our position that these valve operators are outside the scope of 10CFR50.49.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
28.	2CV-5063-2 (Limitorque)	IIIa	Similarity, Aging	Documentation establishing similarity is available; aging report is also available; Franklin has concurred with our position that these valve operators are outside the scope of 10CFR50.49.
29.	2CV-5630-1 (Rotork) 2CV-5631-2	IIb	None	These items are not exposed to harsh conditions from the accidents for which they are required to function; therefore, they are considered outside the scope of 10CFR50.49.
30.	2CV-5657-1 (Rotork) 2CV-5667-2	IIIb	None	These items are not exposed to harsh conditions from the accidents for which they are required to function; therefore, they are considered outside the scope of 10CFR50.49.
31.	2CV-5038-1 (Rotork)	IIb	Temperature	These items are not exposed to harsh conditions from the accidents for which they are required to function; also the valve is needed for cold shutdown only. Therefore, it is considered outside the scope of 10CFR50.49.
32.	2CV-5649-1 (Rotork) 2CV-5650-2	IIb	Temperature	The discrepancy is from the temperature due to an HELB. These devices are not required following an HELB. Therefore, it is considered fully qualified.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
33.	2CV-2060-1 (Rotork) 2CV-2202-1	Ia	None	These devices are fully qualified.
34.	2CV-5647-1 (Rotork) 2CV-5648-2	Ia	None	These devices are fully qualified.
35.	2CV-1400-1 (Electrodyne)	IIa	Similarity, Aging	This item has since been replaced with a qualified Limitorque actuator. Therefore, it is considered fully qualified.
36.	2CV-1453-1 (Electrodyne) 2CV-1456-2	IIa	Similarity, Aging	Documentation establishing similarity is available in AP&L's EQ files; Aging analyses have been performed supporting 40+ year life. Therefore, they are considered fully qualified.
37.	2CV-1406-2 (Electrodyne)	IIa	Similarity, Aging	This item has been replaced with a qualified Limitorque operator. Therefore, it is considered fully qualified.
38.	2CV-1530-1 (Electrodyne) 2CV-1531-2	IIa	Similarity, Aging	These devices have been replaced with qualified Limitorque operators. Therefore, they are considered fully qualified.
39.	2CV-1511-1 (Electrodyne) 2CV-1519-1	IIa	Similarity, Aging	These devices have been replaced with qualified Limitorque operators. Therefore, they are considered fully qualified.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
40.	2CV-1504-2 (Electrodyne)	IIa	Similarity, Aging	Documentation establishing similarity is available in AP&L's EQ files; Aging analyses have been performed supporting 40+ year life. Therefore, it is considered fully qualified.
41.	2CV-1503-1 (Electrodyne)	IIa	Similarity, Aging	Documentation establishing similarity is available in AP&L's EQ files; Aging analyses have been performed supporting 40+ year life. Therefore, is considered fully qualified.
42.	2CV-1480-2 (Electrodyne) 2CV-1481-1	IIa	Similarity, Aging	These devices have been replaced with qualified Limitorque operators. Therefore, they are considered fully qualified.
43.	2CV-1541-1 (Electrodyne) 2CV-1542-2 2CV-1543-1 2CV-1560-2	IIa	Similarity, Aging	These devices have been replaced with qualified Limitorque operators. Therefore, they are considered fully qualified.
44.	2CV-1510-2 (Electrodyne) 2CV-1513-2 2CV-5236-1	IIa	Similarity, Aging	2CV-1510-2 and 2CV-1513-2 have been replaced with qualified Limitorque operators. 2CV-5236-1 is resolved in the following manner: Documentation establishing similarity is available in AP&L's EQ files; Aging analyses have been performed supporting 40+ year life. Therefore, it is considered fully qualified.

II. MOTOR OPERATED VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
67.	2CV-1075-1 (W. Hydraulic)	IIa	Documentation Inadequate	This item has been replaced with a qualified Limitorque operator. Therefore, it is considered fully qualified.
68.	2CV-1025-1 (W. Hydraulic)	IIa	Documentation Inadequate	This item has been replaced with a qualified Limitorque operator. Therefore, it is considered fully qualified.
69.	2CV-1036-1 (EBV)	IIa	Documentation Inadequate	This item has been replaced with a qualified Limitorque operator. Therefore, it is considered fully qualified.
70.	2CV-1037-2 (EBV) 2CV-1038-1 2CV-1039-2	IIa	Documentation Inadequate	These items have been replaced with a qualified Limitorque operator. Therefore, they are considered fully qualified.
135.	2CV-1506-2 (ITT General) 2CV-1509-1	IIa	Aging, Steam Exposure	These items are not exposed to harsh conditions; therefore, they are considered outside the scope of 10CFR50.49.
136.	2E/H-8830-2 (ITT General) 2E/H-8831-1 2E/H-8832-2 2E/H-8829-1	IIa	Aging, Steam Exposure	Special provisions to address aging have been included in the AP&L maintenance/surveillance program. These devices are not exposed to steam for the accidents for which they are required to function (LOCA). They are not required following HELB's outside containment. Therefore, they are considered fully qualified.

III. SOLENOID VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
45.	2SV-2061-2 (Asco)	IIa	Documentation Inadequate	This device has been determined to complete its function in a mild environment; no failures can be identified due to the subsequent harsh environment which could cause the valve to reopen or mislead the operator; therefore, the item is considered fully qualified.
46.	2SV-2201-2 (Asco)	IIa	Documentation Inadequate	This device has been determined to complete its function in a mild environment; no failures can be identified due to the subsequent harsh environment which could cause the valve to reopen or mislead the operator; therefore, the item is considered fully qualified.
47.	2SV-4823-2 (Asco)	IIa	Documentation Inadequate	This device has been determined to complete its function in a mild environment; no failures can be identified due to the subsequent harsh environment which could cause the valve to reopen or mislead the operator; therefore, the item is considered fully qualified.
48.	2SV-3851-1 (Asco) 2SV-3852-1	IIa	Documentation Inadequate	These devices have been determined to perform their function in a mild environment; therefore, the items are considered outside the scope of 10CFR50.49.

III. SOLENOID VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
49.	2SV-1010-1A (Asco) 2SV-1010-2A	IIa	Documentation Inadequate	These devices have been replaced with qualified ASCO solenoid valves. Therefore, they are considered fully qualified.
50.	2SV-1060-1A (Asco) 2SV-1060-2A	IIa	Documentation Inadequate	These devices have been replaced with qualified ASCO solenoid valves. Therefore, they are considered fully qualified.
51.	2SV-1016-1 (Asco)	IIa	Documentation Inadequate	This device has been determined to perform its function in a mild environment; therefore, the item is considered outside the scope of 10CFR50.49.
52.	2SV-1016-2 (Asco) 2SV-1066-1	IIa	Documentation Inadequate	These devices have been determined to perform their function in a mild environment; therefore, the items are considered outside the scope of 10CFR50.49.
53.	2SV-1066-2 (Asco)	IIa	Documentation Inadequate	This device has been determined to perform its function in a mild environment; therefore, the item is considered outside the scope of 10CFR50.49.
54.	2SV-8863-1 (Asco) 2SV-8866-2	IIa	Documentation Inadequate	These devices are qualified ASCO NP8316 solenoid valves; however, they are now located in a mild environment and are considered outside the scope of 10CFR50.49.

III. SOLENOID VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
55.	2SV-5001-1 (Target Rock) 2SV-5021-1 2SV-5041-2 2SV-5061-2	IIc	Qualified Life	The deficiency was due to Franklin's concern that the Aging test may be inadequate if the valves are normally energized. AP&L has confirmed that these valves are normally de-energized and very infrequently opened. Therefore, aging is considered satisfied by the existing test report. Therefore, they are considered fully qualified.
56.	2SV-0317-2 (Target Rock)	IIa	Similarity, Aging	This device has since been determined to be located in a mild environment; therefore, it is considered outside the scope of 10CFR50.49.
57.	2SV-8261-2 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor. Therefore, it is considered fully qualified.

III. SOLENOID VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
58.	2SV-8263-2 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor. Therefore, it is considered fully qualified.
59.	2SV-5871-2 (Target Rock) 2SV-5876-2	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor; therefore, it is considered fully qualified.

III. SOLENOID VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
60.	2SV-5843-2 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor; therefore, it is considered fully qualified.
61.	2SV-8231-2 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor; therefore, it is considered fully qualified.

III. SOLENOID VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
62.	2SV-8271-2 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor. Therefore, it is considered fully qualified.
63.	2SV-5833-1 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor. Therefore, it is considered fully qualified.

III. SOLENOID VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
64.	2SV-5878-1 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor. Therefore, it is considered fully qualified.
65.	2SV-8265-1 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor. Therefore, it is considered fully qualified.

III. SOLENOID VALVES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
66.	2SV-8273-1 (Target Rock)	IIa	Similarity, Aging	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well with periodic replacement of parts susceptible to Aging degradation as identified by the vendor. Therefore, it is considered fully qualified.

IV. MOTORS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
71.	2UCD-8203-1 (Baldor) 2UCD-8209-1 2UCD-8216-2 2UCD-8222-2	IIa	Aging, Operating Time, Radiation	These devices are being replaced with qualified Reliance motors (by March 31, 1985 - extension granted by NRC).
72.	2PM-60A (LPSI pump motor) (Allis Chal.)	IIa	Documentation Inadequate	These motors are not exposed to harsh parameters until recirculation phase begins. The motors are not required for recirculation; they are required for cold shutdown. Therefore, since these motors perform their function in a mild environment, they are considered outside the scope of 10CFR50.49.
73.	2PM-60B (LPSI pump motor) (Allis Chal.)	IIa	Documentation Inadequate	These motors are not exposed to harsh parameters until recirculation phase begins. The motors are not required for recirculation; they are required for cold shutdown. Therefore, since these motors perform their function in a mild environment, they are considered outside the scope of 10CFR50.49.
74.	2PM-7B (EFW pump motor) (Allis Chal.)	IIa	Documentation Inadequate	Qualification by additional analysis; also, this motor has been determined to be located in a mild environment. Therefore, it is considered outside the scope of 10CFR50.49.

IV. MOTORS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
75.	2PM-136A (NaOH pump motors) 2PM-136B (Westinghouse)	IIa	Documentation Inadequate	Radiation is the only harsh parameter for these motors, and the maximum postulated dose is only 2.2 E6 rads. Materials analyses have been performed to qualify the motors to this level. Type test data is also available on similar motors. Therefore, they are considered fully qualified.
76.	2VSFM-1A (Containment cooling) (Reliance) 2VSFM-1B (Containment cooling) 2VSFM-1C (Containment cooling) 2VSFM-1D (Containment cooling) 2VSFM-31A (Containment recirc.) 2VSFM-31B (Containment recirc.) 2VSFM-31C (Containment recirc.) 2VSFM-31D (Containment recirc.)	IV	None specified by Franklin, documentation considered insufficient	Test documentation is available which qualifies these fan motors. Similarity between the tested unit and those installed at ANO has also been established. Therefore, these devices are considered fully qualified.

IV. MOTORS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
77.	2VUCM-1C (Room coolers) 2VUCM-1D (Reliance) 2VUCM-1E 2VUCM-1F	IV	None specified by Franklin	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment, exposed to a maximum postulated radiation dose of 3.2 E7 rads, and not exposed to saturated steam conditions. Therefore, they are considered fully qualified.
78.	2VUCM-1A (Reliance) 2VUCM-1B	IV	None specified by Franklin	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment, exposed to a maximum postulated radiation dose of 3.2 E7 rads, and not exposed to saturated steam conditions. Therefore, they are considered fully qualified.

IV. MOTORS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
79.	2VUCM-6A (Reliance) 2VUCM-6B	IV	None specified by Franklin	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment, exposed to a maximum postulated radiation dose of 3.2 E7 rads, and not exposed to saturated steam conditions. Also, these motors are located in a mild environment, therefore, they are considered outside the scope of 10CFR50.49.
80.	2VUCM-7A (Reliance)	IV	None specified by Franklin	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment, exposed to a maximum postulated radiation dose of 3.2 E7 rads, and not exposed to saturated steam conditions. Also, this item has been determined to perform a non-essential safety function; therefore, they are considered outside the scope of 10CFR50.49.

IV. MOTORS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
81.	2VUCM-7B (Reliance)	IV	None specified by Franklin	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment, exposed to a maximum postulated radiation dose of 3.2 E7 rads, and not exposed to saturated steam conditions. Also, this item has been determined to perform a non-essential safety function; therefore, they are considered outside the scope of 10CFR50.49.
82.	2VUCM-7C (Reliance)	IV	None specified by Franklin	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment, exposed to a maximum postulated radiation dose of 3.2 E7 rads, and not exposed to saturated steam conditions. Also, this item has been determined to perform a non-essential safety function; therefore, they are considered outside the scope of 10CFR50.49.

IV. MOTORS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
83.	2VUCM-11A (Reliance) 2VUCM-11B	IV	None specified by Franklin	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment; exposed to a maximum postulated radiation dose of 2.2 E6 rads, and not exposed to saturated steam conditions, therefore, these devices are considered fully qualified.
84.	2VEFM-38A-1 (Westinghouse) 2VEFM-38B-2	IIa	Documentation Inadequate	This device is exposed to radiation as the only harsh parameter; materials analyses have been performed to qualify these motors. (Maximum dose is 6.5 E5 rads). Therefore, it is considered fully qualified.
85.	2VEM-1A (Westinghouse) 2VEM-1B	IIa	Documentation Inadequate	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses, also these devices have been determined to be located in a mild environment, therefore, they are considered outside the scope of 10CFR50.49.

IV. MOTORS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
86.	2VSFM-9 (Control room ventilation) (Westinghouse)	IIa	Documentation Inadequate	This item is actually located in Unit 1; therefore, it is not exposed to a harsh environment due to ANO-2 accidents. In addition, it performs no emergency functions and is not considered essential; therefore, it is considered outside the scope of 10CFR50.49.
87.	2PM-35A (Containment spray pump motor) (Allis Chal.)	IIa	Documentation Inadequate	This device is exposed to radiation as the only harsh parameter; materials analyses have been performed to qualify these motors. (Maximum dose is 2.8 E7 rads). Therefore, it is considered fully qualified.
88.	2PM-89A (HPSI pump motor) (Allis Chal.)	IIa	Documentation Inadequate	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment, exposed to a maximum postulated radiation dose of 3.2 E7 rads, and not exposed to saturated steam conditions. Therefore, it is considered fully qualified.

IV. MOTORS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
89.	2PM-35B (Cont. spray pump motor) (Allis Chal.)	IIa	Documentation Inadequate	This device is exposed to radiation as the only harsh parameter; materials analyses have been performed to qualify these motors. (Maximum dose is 2.6 E7 rads). Therefore, it is considered fully qualified.
90.	2PM-89B (Allis Chal.) 2PM-89C	IIa	Documentation Inadequate	Analyses have been performed demonstrating qualification of these motors for their intended use based on material analyses and type testing of motorettes considered applicable by similarity analyses. These motors are located outside containment, exposed to a maximum postulated radiation dose of 3.2 E7 rads, and not exposed to saturated steam conditions. Therefore, they are considered fully qualified.

V. PRESSURE, DP, FLOW, AND LEVEL TRANSMITTERS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
91.	2FT-0713-2 (Foxboro) 2FT-0717-1	IIa	Similarity, Aging, Test Failures, Accuracy, Function Time	The test program was established by AP&L through Bechtel and Wyle laboratories with ANO type equipment; therefore, similarity is not an issue. The accuracy evaluation (acceptance criteria) demonstrated acceptable performance (evaluations on file). The test anomalies were fully explained in the report which also addresses the function time discrepancy. Aging is being addressed by AP&L's maintenance/surveillance program. Therefore, these devices are considered fully qualified.
92.	2FT-0710-1 (Foxboro) 2FT-0718-2	IIa	Similarity, Aging Test Failures, Accuracy, Function Time	The test program was established by AP&L through Bechtel and Wyle laboratories with ANO type equipment; therefore, similarity is not an issue. The accuracy evaluation (acceptance criteria) demonstrated acceptable performance (evaluations on file). The test anomalies were fully explained in the report which also addresses the function time discrepancy. Aging is being addressed by AP&L's maintenance/surveillance program. Therefore, these devices are considered fully qualified.

V. PRESSURE, DP, FLOW, AND LEVEL TRANSMITTERS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
93.	2FT-8833-1 (Foxboro) 2FT-8834-2	IIa	Similarity, Aging Test Failures, Accuracy, Function Time	The test program was established by AP&L through Bechtel and Wyle laboratories with ANO type equipment; therefore, similarity is not an issue. The accuracy evaluation (acceptance criteria) demonstrated acceptable performance (evaluations on file). The test anomalies were fully explained in the report which also addresses the function time discrepancy. Aging is being addressed by AP&L's maintenance/surveillance program, also these are exposed only to radiation as a harsh parameter. Therefore, they are considered fully qualified.
94.	2FT-5014-1 (Foxboro) 2FT-5034-1 2FT-5054-2 2FT-5074-2	IIa	Similarity, Aging Test Failures, Accuracy, Function Time	These devices have been replaced with qualified Rosemount 1153D's. Therefore, they are considered fully qualified.

V. PRESSURE, DP, FLOW, AND LEVEL TRANSMITTERS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
95.	2FT-8827-1 (Foxboro) 2FT-8828-2	IIa	Similarity, Aging Test Failures, Accuracy, Function Time	The test program was established by AP&L through Bechtel and Wyle laboratories with ANO type equipment; therefore, similarity is not an issue. The accuracy evaluation (acceptance criteria) demonstrated acceptable performance (evaluations on file). The test anomalies were fully explained in the report which also addresses the function time discrepancy. Aging is being addressed by AP&L's maintenance/surveillance program, also these items have been determined to perform their function in a mild environment; therefore, they are considered outside the scope of 10CFR50.49.
96.	2FT-5101-1 (Foxboro) 2FT-5102-2	IIa	Similarity, Aging Test Failures, Accuracy, Function Time	The test program was established by AP&L through Bechtel and Wyle laboratories with ANO type equipment; therefore, similarity is not an issue. The accuracy evaluation (acceptance criteria) demonstrated acceptable performance (evaluations on file). The test anomalies were fully explained in the report which also addresses the function time discrepancy. Aging is being addressed by AP&L's maintenance/surveillance program. Therefore, these devices are considered fully qualified.

V. PRESSURE, DP, FLOW, AND LEVEL TRANSMITTERS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
97.	2PT-1031-1 (Rosemount) 2PT-1031-2 2PT-1031-3 2PT-1031-4 2PT-1131-1 2PT-1131-2 2PT-1131-3 2PT-1131-4	IIb	Similarity, Aging Test Failures, Accuracy	Resolved in ten day response. Reference AP&L letters dated April 29, 1983 (2CAN048311) and May 26, 1983 (2CAN058308). The NRC submitted an SER dated June 22, 1983 (2CNA068303). Therefore, they are considered fully qualified.
98.	2PT-4627-2 (Rosemount) 2PT-4627-1	IIb	Similarity, Aging Test Failures, Accuracy	Resolved in ten day response. Reference AP&L letters dated April 29, 1983 (2CAN048311) and May 26, 1983 (2CAN058308). The NRC submitted an SER dated June 22, 1983 (2CNA068303). Therefore, they are considered fully qualified.
99.	2PT-4601-1 (Foxboro) 2PT-4601-2 2PT-4601-3 2PT-4601-4	IIa	Similarity, Aging Test Failures, Accuracy, Functional Time	The test program was established by AP&L through Bechtel and Wyle laboratories with ANO type equipment; therefore, similarity is not an issue. The accuracy evaluation (acceptance criteria) demonstrated acceptable performance (evaluation on file). The test anomalies were fully explained in the report which also addresses the function time discrepancy. Aging is being addressed by AP&L's maintenance/surveillance program. Therefore, they are considered fully qualified.

V. PRESSURE, DP, FLOW, AND LEVEL TRANSMITTERS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
100.	2PT-1417-1 (Foxboro) 2PT-1423-2	IIa	Similarity, Aging Test Failures, Accuracy, Functional Time	The test program was established by AP&L through Bechtel and Wyle laboratories with ANO type equipment; therefore, similarity is not an issue. The accuracy evaluation (acceptance criteria) demonstrated acceptable performance (evaluation on file). The test anomalies were fully explained in the report which also addresses the function time discrepancy. Aging is being addressed by AP&L's maintenance/surveillance program. Therefore, they are considered fully qualified.
101.	2PT-1041-1 (Rosemount) 2PT-1041-2 2PT-1041-3 2PT-1041-4 2PT-1141-1 2PT-1141-2 2PT-1141-3 2PT-1141-4	IIb	Similarity, Aging Test Failures, Accuracy	Resolved in ten day response. Reference AP&L letters dated April 29, 1983 (2CAN048311) and May 26, 1983 (2CAN058308). The NRC submitted an SER dated June 22, 1983 (2CNA068303). Therefore, they are considered fully qualified.
102.	2PT-4624-1 (Rosemount) 2PT-4624-2 2PT-4624-3 2PT-4624-4	IIb	Similarity, Aging Test Failures, Accuracy	Resolved in ten day response. Reference AP&L letters dated April 29, 1983 (2CAN048311) and May 26, 1983 (2CAN058308). The NRC submitted an SER dated June 22, 1983 (2CNA068303). Therefore, they are considered fully qualified.

V. PPESSURE, DP, FLOW, AND LEVEL TRANSMITTERS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
103.	2PT-1506-2 (Rosemount) 2PT-1509-1	IV	Documentation not Provided	These items have since been determined to be located in a mild environment; therefore, they are considered outside the scope of 10CFR50.49.
104.	2PT-5601-1 (Rosemount) 2PT-5602-2 2PT-5603-3 2PT-5604-4	IIb	Similarity, Aging Test Failures, Accuracy	Resolved in ten day response. Reference AP&L letters dated April 29, 1983 (2CAN048311) and May 26, 1983 (2CAN058308). The NRC submitted an SER dated June 22, 1983 (2CNA068303). Therefore, they are considered fully qualified.
105.	2PT-5605-1 (Rosemount) 2PT-5606-2	IIb	Similarity, Aging Test Failures, Accuracy	Resolved in ten day response. Reference AP&L letters dated April 29, 1983 (2CAN048311) and May 26, 1983 (2CAN058308). The NRC submitted an SER dated June 22, 1983 (2CNA068303). Therefore, they are considered fully qualified.
122.	2LE-5641-2 (Gems)	Ib	Documentation Inadequate	Testing is complete; the device is considered qualified by the test documentation. Therefore, this device is considered fully qualified.
139.	2LE-5645-1 (Gems) 2LE-5646-2	1b	Documentation Inadequate	Testing is complete; the device is considered qualified by the test documentation. Therefore, this device is considered fully qualified.

VI. TEMPERATURE SENSING DEVICES

FRC Item #	Description	NRC Category	Deficiencies	Resolution
106.	2TE-4610-1 (Hot leg RTD's)	IIa	Aging, Functional Test,	These devices are being replaced with qualified Weed RTD's. One channel has been replaced; extensions have been granted for replacement of the remaining three channels. AP&L considers the current devices qualified by existing test reports; the replacements are being made for reasons other than environmental qualification.
	2TE-4610-2			
	2TE-4610-3 (Rosemount)			
	2TE-4610-4			
	2TE-4611-1			
	2TE-4611-2			
	2TE-4611-3			
	2TE-4611-4			
	2TE-4710-1 (Cold leg RTD's)			
	2TE-4710-2			
	2TE-4710-3			
	2TE-4710-4			
	2TE-4711-1			
	2TE-4711-2			
	2TE-4711-3			
	2TE-4711-4			

VII. VALVE POSITION INDICATING DEVICES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
107.	2ZS-8203-1 (Allen Bradley) 2ZS-8204-1 2ZS-8209-1 2ZS-8210-1 2ZS-8216-2 2ZS-8217-2 2ZS-8222-2 2ZS-8223-2	IIa	Documentation Inadequate	These devices are being replaced with qualified Namco position switches. Extension to the qualification deadline has been granted. Therefore, they are considered fully qualified.
108.	2ZS-2400 (Namco)	IIa	Documentation Inadequate	This device has since been determined to complete its function in a mild environment; no failure can be identified due to the subsequent harsh environment which could affect the valve or seriously mislead the operator; therefore, this device is considered fully qualified.
109.	2ZS-2061-2 (Namco)	IIa	Documentation Inadequate	This device has since been determined to complete its function in a mild environment; no failure can be identified due to the subsequent harsh environment which could affect the valve or seriously mislead the operator; therefore, this device is considered fully qualified.

VII. VALVE POSITION INDICATING DEVICES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
110.	2ZS-4823-2 (Masoneilan)	IIa	Documentation Inadequate	This device has since been determined to complete its function in a mild environment; no failure can be identified due to the subsequent harsh environment which could affect the valve or seriously mislead the operator; therefore, this device is considered fully qualified.
111.	2ZS-3851 (Microswitch)	IIa	Documentation Inadequate	This device is not exposed to harsh environmental conditions from any accident for which it is required to function; therefore, it is considered outside the scope of 10CFR50.49.
112.	2ZS-3852 (Microswitch)	IIa	Documentation Inadequate	This device is not exposed to harsh environmental conditions from any accident for which it is required to function; therefore, it is considered outside the scope of 10CFR50.49.
113.	2ZS-1010-1 (Namco) 2ZS-1060-2	IIa	Aging, Steam Exposure	These items have been included in AP&L's maintenance/surveillance program with parts replacement intervals as recommended by the test report. The devices are located inside a large metal shroud which protects them from steam impingement. Also the switches are directly connected by a threaded piece of conduit to a sealed junction box. Therefore, they are considered fully qualified.

VII. VALVE POSITION INDICATING DEVICES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
114.	2ZS-1076-2 (Microswitch)	IIa	Documentation Inadequate	This item was erroneously identified. The valve position indication in the control room is by internal limit switch in the actuator (Limatorque) and is therefore, considered qualified with 2CV-1076-2.
115.	2ZS-1016-1 (Microswitch) 2ZS-1066-1	IIa	Documentation Inadequate	This device is not exposed to harsh environmental conditions from any accident for which it is required to function; therefore, it is considered outside the scope of 10CFR50.49.
116.	2ZS-8863-1 (Namco) 2ZS-8866-2	IIa	Aging, Steam Exposure	These devices have recently been determined to be located in a mild environment; therefore, these items are considered outside the scope of 10CFR50.49.
117.	2ZS-5859A-2 (Controlmatics)	IIa	Documentation Inadequate	This external limit switch is indicated on a local panel in Elev. 354 in the auxiliary building. The control room indication is provided by 2ZS-5859A-1 which is the internal Limatorque position indication which is qualified. Therefore, this item is considered outside the scope of 10CFR50.49.

VII. VALVE POSITION INDICATING DEVICES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
118.	2ZS-1403-1 (Microswitch)	IIa	Documentation Inadequate	This item was erroneously identified. The valve position indication in the control room is by internal limit switch in the actuator (Limitorque) and is therefore, considered qualified with 2CV-1403-1.
119.	2ZS-5003B-1 (Namco) 2ZS-5023B-1	IIa	Aging, Steam Exposure	These devices are considered non-essential for the same reasons as given for item #27. Position indication is assured because the valves are locked open and verified open once per shift (power removed from valves). Therefore, they are considered outside the scope of 10CFR50.49.
120.	2ZS-5003A-1 (Namco) 2ZS-5023A-1 2ZS-5043B-2 2ZS-5063A-2 2ZS-5063B-2 2ZS-5043A-2	IIa	Aging, Steam Exposure	These devices are considered non-essential for the same reasons as given for item #27. Position indication is assured because the valves are locked open and verified open once per shift (power removed from valves). Therefore, they are considered outside the scope of 10CFR50.49.
138.	2VBE-4633-2 (Endevco) 2VBE-4634-1 2VBE-4634-2	Ib	Documentation Inadequate	Testing is complete; devices are considered qualified as supported by test documentation.
140.	2VBY-4633-1 (Unholtz 2VBY-4633-2 - Dickie) 2VBY-4634-1 2VBY-4634-2	Ib	Documentation Inadequate	These devices were replaced with qualified TEC amplifiers. Therefore, they are considered fully qualified.

VII. ELECTRICAL DISTRIBUTION DEVICES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
124.	2GEN-1002 (Anaconda cable)	Ia	None	This item is fully qualified.
125.	2GEN-1006 (Raychem cable)	IIa	Similarity	AP&L did not originally identify the specific cable types in earlier submittals; however, adequate documentation is available on file to demonstrate similarity between tested and installed cable. Therefore, it is considered fully qualified.
126.	2GEN-1007 (Raychem splices)	IIa	Aging, Submergence	These splice kits are fully qualified by existing documentation. (Reference the applicable justification for Continued Operation from our June 20, 1983 submittal 2CAN068310). Therefore, it is considered fully qualified.
129.	2GEN-1003 (Conax connectors)	Ia	None	This item is fully qualified.
131.	2GEN-1001A (Amphenol penetration)	IIa	Aging, Temperature, Chemical Spray	Aging concerns are considered satisfied by a combination of existing material analysis and plant maintenance/surveillance. Type test data applicable to the ANO penetrations has been previously reviewed and approved by the NRC. We believe the existing test data is sufficient to qualify the penetrations for all applicable harsh parameters. Therefore, it is considered fully qualified.

VIII. ELECTRICAL DISTRIBUTION DEVICES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
132.	2GEN-1001B (AMP-SAMS)	IIa	Aging, Temperature Chemical Spray	Aging concerns are considered satisfied by a combination of existing material analysis and plant maintenance/surveillance. Type test data applicable to the ANO penetrations has been previously reviewed and approved by the NRC. We believe the existing test data is sufficient to qualify the penetrations for all applicable harsh parameters. Therefore, it is considered fully qualified.
133.	2GEN-1001C (AMP-SAMS)	IIa	Aging, Temperature Chemical Spray	Aging concerns are considered satisfied by a combination of existing material analysis and plant maintenance/surveillance. Type test data applicable to the ANO penetrations has been previously reviewed and approved by the NRC. We believe the existing test data is sufficient to qualify the penetrations for all applicable harsh parameters. Therefore, it is considered fully qualified.

VIII. ELECTRICAL DISTRIBUTION DEVICES

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
134.	2GEN-1001D (AMP-SAMS)	IIa	Aging, Temperature Chemical Spray	Aging concerns are considered satisfied by a combination of existing material analysis and plant maintenance/surveillance. Type test data applicable to the ANO penetrations has been previously reviewed and approved by the NRC. We believe the existing test data is sufficient to qualify the penetrations for all applicable harsh parameters.

IX. MISCELLANEOUS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
121.	2PIS-0789-1 (ITT Barton) 2PIS-0795-2	IIa	Documentation Inadequate	These devices have since been determined to be located in a mild environment; therefore, they are considered outside the scope of 10CFR50.49.
123.	2RE-1513-2 (Westinghouse) 2RE-1519-1	IIa	Documentation Inadequate	These devices have since been determined to be located in a mild environment; therefore, they are considered outside the scope of 10CFR50.49.
127.	2C-143 (Terry)	Ib	Documentation Inadequate	These devices have since been determined to be located in a mild environment; therefore, they are considered outside the scope of 10CFR50.49.
128.	2SE-0336B-2 (Terry)	Ib	Documentation Inadequate	These devices have since been determined to be located in a mild environment; therefore, they are considered outside the scope of 10CFR50.49.
130.	2M-55A (Hydrogen recombiner) 2M-55B (Westinghouse)	IV	Documentation Inadequate	The devices are qualified by existing type test reports.
137.	2VE-1A (C.V.I.) 2VE-1B	IIa	Documentation Inadequate	These devices have since been determined to be located in a mild environment; therefore, they are considered outside the scope of 10CFR50.49.

IX. MISCELLANEOUS

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
141.	2RE-8925-1 (Gen. Atomic)	Ib	Documentation Inadequate	Testing is complete; the item is considered fully qualified.
142.	2RE-8925-2 (Gen. Atomic)	Ib	Documentation Inadequate	Testing is complete; the item is considered fully qualified.

X. ITEMS NOT REVIEWED BY FRANKLIN

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
1A.	2CV-5255-1 (Electrodyne)	NA	NA	Documentation establishing similarity is available in AP&L's EQ files; Aging analyses have been performed supporting 40+ year life. Therefore, it is considered fully qualified.
2A.	2GEN-1004 (Endevco) 2GEN-1005	NA	NA	Testing is complete; devices are considered qualified as supported by test documentation.
3A.	2SV-1001C-2 (Target Rock) 2SV-1001D-1 2SV-1051C-2 2SV-1051D-1	NA	NA	AP&L has documentation on file establishing similarity of the tested device to those installed at ANO. Also, limited Aging tests were performed on this device. AP&L has included this device in the maintenance/surveillance program as well as with periodic replacement of parts susceptible to Aging degradation as identified by the vendor. Therefore, they are considered fully qualified.
4A.	2SV-4847-2 (ASCO)	NA	NA	This device has been determined to complete its function in a mild environment; no failures can be identified due to the subsequent harsh environment which could cause the valve to re-open or mislead the operator; therefore, the item is considered fully qualified.

X. ITEMS NOT REVIEWED BY FRANKLIN

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
5A.	2TE-4635 1 (Rosemount) 2TE-4635-2 2TE-4635-3 2TE-4635-4 2TE-4735-1 2TE-4735-2 2TE-4735-3 2TE-4735-4	NA	NA	AP&L actually considers the current devices qualified by existing test reports; the replacements are being made for reasons other than environmental qualification. These devices are being replaced with qualified Weed RTD's. One channel has been replaced.
6A.	2ZS-2201-2 (Namco) 2ZS-4847	NA	NA	This device has since been determined to complete its function in a mild environment; no failure can be identified which could affect the valve or seriously mislead the operator, therefore, these devices are considered fully qualified.
7A.	2B52 (MCC) (ITE motor 2B62 (MCC) control center)	NA	NA	Type test documentation is available on file which demonstrates the capability of these motor control centers to withstand the postulated environment. Therefore, they are considered fully qualified.
8A.	2GEN-XXXX (Terminal blocks)	NA	NA	Test reports and analyses are available which demonstrate qualification for terminal blocks used outside containment. Terminal blocks are not used for EQ equipment inside containment. Therefore, they are considered fully qualified.

X. ITEMS NOT REVIEWED BY FRANKLIN

<u>FRC Item #</u>	<u>Description</u>	<u>NRC Category</u>	<u>Deficiencies</u>	<u>Resolution</u>
9A.	2SV-2400	NA	NA	This device performs its function in a mild environment; no failure can be identified due to the subsequent harsh environment which could cause the valve to reopen or mislead the operator. Therefore, the device is considered fully qualified.

ENCLOSURE II
ENVIRONMENTAL QUALIFICATION
EQUIPMENT LIST

ANO-2

JUNE 1, 1984

ANO-2 EQ LIST

<u>No.</u>	<u>FRC Item</u>	<u>Scew</u>	<u>Tag No.</u>	<u>Manufacturer</u>	<u>Remarks</u>
1.	12	B003	2CV0340-2	Limatorque	Qualified
2.	11	B025	2CV1000-1	Limatorque	Qualified
3.	9	B033	2CV1024-1	Limatorque	Qualified
4.	68	B015	2CV1025-1	Limatorque	Qualified
5.	14	B016	2CV1026-2	Limatorque	Qualified
6.	69	B017	2CV1036-1	Limatorque	Qualified
7.	70	B018	2CV1037-2	Limatorque	Qualified
8.	70	B019	2CV1038-1	Limatorque	Qualified
9.	70	B020	2CV1039-2	Limatorque	Qualified
10.	10	B034	2CV1050-2	Limatorque	Qualified
11.	9	B042	2CV1074-1	Limatorque	Qualified
12.	67	B021	2CV1075-1	Limatorque	Qualified
13.	7	B022	2CV1076-2	Limatorque	Qualified
14.	35	B043	2CV1400-1	Limatorque	Qualified
15.	24	B044	2CV1401-2	Limatorque	Qualified
16.	24	B045	2CV1402-1	Limatorque	Qualified
17.	25	B046	2CV1403-1	Limatorque	Qualified
18.	24	B048	2CV1404-1	Limatorque	Qualified
19.	24	B049	2CV1405-2	Limatorque	Qualified
20.	37	B050	2CV1406-2	Limatorque	Qualified
21.	24	B051	2CV1407-1	Limatorque	Qualified
22.	24	B052	2CV1408-2	Limatorque	Qualified
23.	24	B053	2CV1409-2	Limatorque	Qualified

24.	25	B056	2CV1445-1	Limitorque	Qualified
25.	24	B057	2CV1446-2	Limitorque	Qualified
26.	25	B058	2CV1447-1	Limitorque	Qualified
27.	24	B059	2CV1448-2	Limitorque	Qualified
28.	25	B060	2CV1450-1	Limitorque	Qualified
29.	24	B061	2CV1451-5	Limitorque	Qualified
30.	24	B062	2CV1452-2	Limitorque	Qualified
31.	36	B063	2CV1453-1	Electrodyne	Qualified
32.	36	B064	2CV1456-2	Electrodyne	Qualified
33.	42	B065	2CV1480-2	Limitorque	Qualified
34.	42	B066	2CV1481-1	Limitorque	Qualified
35.	41	B074	2CV1503-1	Electrodyne	Qualified
36.	40	B075	2CV1504-2	Electrodyne	Qualified
37.	44	B080	2CV1510-2	Limitorque	Qualified
38.	39	B081	2CV1511-1	Limitorque	Qualified
39.	44	B082	2CV1513-2	Limitorque	Qualified
40.	39	B084	2CV1519-1	Limitorque	Qualified
41.	38	B087	2CV1530-1	Limitorque	Qualified
42.	38	B088	2CV1531-2	Limitorque	Qualified
43.	43	B090	2CV1541-1	Limitorque	Qualified
44.	43	B091	2CV1542-2	Limitorque	Qualified
45.	43	B092	2CV1543-1	Limitorque	Qualified
46.	43	B093	2CV1560-2	Limitorque	Qualified
47.	33	A017	2CV2060-1	Rotork	Qualified
48.	33	A018	2CV2202-1	Rotork	Qualified
49.	1	A019	2CV2401-1	Limitorque	Qualified

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50.	1	A020	2CV3850-2	Limatorque	Qualified
51.	18	A039	2CV4698-1	Limatorque	Qualified
52.	17	A048	2CV4740-2	Limatorque	Qualified
53.	1	A049	2CV4820-2	Limatorque	Qualified
54.	1	A050	2CV4821-1	Limatorque	Qualified
55.	15	A051	2CV4824-2	Limatorque	Qualified
56.	15	A052	2CV4827-2	Limatorque	Qualified
57.	15	A053	2CV4831-2	Limatorque	Qualified
58.	1	A054	2CV4846-1	Limatorque	Qualified
59.	20	B126	2CV5015-1	Limatorque	Qualified
60.	20	B127	2CV5016-2	Limatorque	Qualified
61.	2	B128	2CV5017-1	Limatorque	Qualified
62.	20	B130	2CV5035-1	Limatorque	Qualified
63.	20	B131	2CV5036-2	Limatorque	Qualified
64.	2	B132	2CV5037-1	Limatorque	Qualified
65.	20	B135	2CV5055-1	Limatorque	Qualified
66.	20	B136	2CV5056-2	Limatorque	Qualified
67.	2	B137	2CV5057-2	Limatorque	Qualified
68.	20	B139	2CV5075-1	Limatorque	Qualified
69.	20	B140	2CV5076-2	Limatorque	Qualified
70.	2	B141	2CV5077-2	Limatorque	Qualified
71.	22	B144	2CV5103-1	Limatorque	Qualified
72.	22	B145	2CV5104-2	Limatorque	Qualified
73.	4	B146	2CV5123-1	Limatorque	Qualified
74.	3	B147	2CV5124-1	Limatorque	Qualified
75.	25	B148	2CV5126-1	Limatorque	Qualified

76.	24	B149	2CV5127-1	Limitorque	Qualified
77.	24	B150	2CV5128-1	Limitorque	Qualified
78.	44	B156	2CV5236-1	Electrodyne	Qualified
79.	4	A073	2CV5254-2	Limitorque	Qualified
80.	Not Stated	B157	2CV5255-1	Electrodyne	Qualified
81.	20	B162	2CV5612-1	Limitorque	Qualified
82.	20	B163	2CV5613-2	Limitorque	Qualified
83.	23	B164	2CV5628-2	Limitorque	Qualified
84.	34	A081	2CV5647-1	Rotork	Qualified
85.	34	A082	2CV5648-2	Rotork	Qualified
86.	32	B167	2CV5649-1	Rotork	Qualified
87.	32	B168	2CV5650-2	Rotork	Qualified
88.	24	B171	2CV5672-1	Limitorque	Qualified
89.	25	B172	2CV5673-1	Limitorque	Qualified
90.	20	B174	2CV5852-2	Limitorque	Qualified
91.	20	B175	2CV5859-2	Limitorque	Qualified
92.	136	B188	2CV8829-1	ITT General	Qualified ⁽²⁾
93.	136	B189	2CV8830-2	ITT General	Qualified ⁽²⁾
94.	136	B190	2CV8831-1	ITT General	Qualified ⁽²⁾
95.	136	B191	2CV8832-2	ITT General	Qualified ⁽²⁾
96.	92	B005	2FT0710-1	Foxboro	Qualified ⁽²⁾
97.	91	B007	2FT0713-2	Foxboro	Qualified ⁽²⁾
98.	91	B009	2FT0717-1	Foxboro	Qualified ⁽²⁾
99.	92	B010	2FT0718-2	Foxboro	Qualified ⁽²⁾
100.	94	B125	2FT5014-1	Rosemount	Qualified ⁽²⁾
101.	94	B129	2FT5034-1	Rosemount	Qualified ⁽²⁾

102.	94	B134	2FT5054-2	Rosemount	Qualified ⁽²⁾
103.	94	B138	2FT5074-2	Rosemount	Qualified ⁽²⁾
104.	96	B142	2FT5101-1	Foxboro	Qualified ⁽²⁾
105.	96	B143	2FT5102-2	Foxboro	Qualified ⁽²⁾
106.	93	B192	2FT8833-1	Foxboro	Qualified ⁽²⁾
107.	93	B193	2FT8834-2	Foxboro	Qualified ⁽²⁾
108.	131	A109	2GEN1001A	Amph. Sams	Qualified ⁽²⁾
109.	132	A110	2GEN1001B	Amph. Sams	Qualified ⁽²⁾
110.	133	A111	2GEN1001C	Amph. Sams	Qualified ⁽²⁾
111.	134	A112	2GEN1001D	Amph. Sams	Qualified ⁽²⁾
112.	124	A113	2GEN1002	Anaconda	Qualified
113.	129	A114	2GEN1003	Conax	Qualified
114.	Not Stated	C001	2GEN1004	Endevco	Qualified
115.	Not Stated	C002	2GEN1005	Endevco	Qualified
116.	125	A115	2GEN1006	Raychem	Qualified
117.	126	A116	2GEN1007	Raychem	Qualified
118.	122	A080	2LE5641-2	Gems	Qualified
119.	139	C011	2LE5645-1	Gems	Qualified
120.	139	C012	2LE5646-2	Gems	Qualified
121.	97	A001	2LT1031-1	Rosemount	Qualified ⁽²⁾
122.	97	A002	2LT1031-2	Rosemount	Qualified ⁽²⁾
123.	97	A003	2LT1031-3	Rosemount	Qualified ⁽²⁾
124.	97	A004	2LT1031-4	Rosemount	Qualified ⁽²⁾
125.	97	A009	2LT1131-1	Rosemount	Qualified ⁽²⁾
125.	97	A010	2LT1131-2	Rosemount	Qualified ⁽²⁾
127.	97	A011	2LT1131-3	Rosemount	Qualified ⁽²⁾

128.	97	A012	2LT1131-4	Rosemount	Qualified ⁽²⁾
129.	98	A037	2LT4627-1	Rosemount	Qualified ⁽²⁾
130.	98	A038	2LT4627-2	Rosemount	Qualified ⁽²⁾
131.	130	A107	2M55A	Westinghouse	Qualified
132.	130	A108	2M55B	Westinghouse	Qualified
133.	75	B160	2PM136A	Westinghouse	Qualified
134.	75	B161	2PM136B	Westinghouse	Qualified
135.	87	B158	2PM35A	Allis Chalmers	Qualified
136.	89	B159	2PM35B	Allis Chalmers	Qualified
137.	88	B153	2PM89A	Allis Chalmers	Qualified
138.	90	B154	2PM89B	Allis Chalmers	Qualified
139.	90	B155	2PM89C	Allis Chalmers	Qualified
140.	101	A005	2PT1041-1	Rosemount	Qualified ⁽²⁾
141.	101	A006	2PT1041-2	Rosemount	Qualified ⁽²⁾
142.	101	A007	2PT1041-3	Rosemount	Qualified ⁽²⁾
143.	101	A008	2PT1041-4	Rosemount	Qualified ⁽²⁾
144.	101	A013	2PT1141-1	Rosemount	Qualified ⁽²⁾
145.	101	A014	2PT1141-2	Rosemount	Qualified ⁽²⁾
146.	101	A015	2PT1141-3	Rosemount	Qualified ⁽²⁾
147.	101	A016	2PT1141-4	Rosemount	Qualified ⁽²⁾
148.	100	B054	2PT1417-1	Foxboro	Qualified ⁽²⁾
149.	100	B055	2PT1423-2	Foxboro	Qualified ⁽²⁾
150.	99	A021	2PT4601-1	Foxboro	Qualified ⁽²⁾
151.	99	A022	2PT4601-2	Foxboro	Qualified ⁽²⁾
152.	99	A023	2PT4601-3	Foxboro	Qualified ⁽²⁾
153.	99	A024	2PT4601-4	Foxboro	Qualified ⁽²⁾

154.	102	A033	2PT4624-1	Rosemount	Qualified ⁽²⁾
155.	102	A034	2PT4624-2	Rosemount	Qualified ⁽²⁾
156.	102	A035	2PT4624-3	Rosemount	Qualified ⁽²⁾
157.	102	A036	2PT4624-4	Rosemount	Qualified ⁽²⁾
158.	104	A074	2PT5601-1	Rosemount	Qualified ⁽²⁾
159.	104	A075	2PT5602-2	Rosemount	Qualified ⁽²⁾
160.	104	A076	2PT5603-3	Rosemount	Qualified ⁽²⁾
161.	104	A077	2PT5604-4	Rosemount	Qualified ⁽²⁾
162.	105	A078	2PT5605-1	Rosemount	Qualified ⁽²⁾
163.	105	A079	2PT5606-2	Rosemount	Qualified ⁽²⁾
164.	141	C013	2RE8925-1	General Atomic	Qualified
165.	142	C014	2RE8925-2	General Atomic	Qualified
166.	Not Stated	D001	2SV1001C-2	Target Rock	Qualified
167.	Not Stated	D002	2SV1001D-1	Target Rock	Qualified
168.	49	B027	2SV1010-1A	Asco	Qualified
169.	49	B028	2SV1010-2A	Asco	Qualified
170.	Not Stated	D003	2SV1051C-2	Target Rock	Qualified
171.	Not Stated	D004	2SV1051D-1	Target Rock	Qualified
172.	50	B036	2SV1060-1A	Asco	Qualified
173.	50	B037	2SV1060-2A	Asco	Qualified
174.	55	A055	2SV5001-1	Target Rock	Qualified
175.	55	A059	2SV5021-1	Target Rock	Qualified
176.	55	A063	2SV5041-2	Target Rock	Qualified
177.	55	A067	2SV5061-2	Target Rock	Qualified
178.	63	A083	2SV5833-1	Target Rock	Qualified
179.	60	B173	2SV5843-2	Target Rock	Qualified

180.	59	B177	2SV5871-2	Target Rock	Qualified
181.	59	B178	2SV5876-2	Target Rock	Qualified
182.	64	A084	2SV5878-1	Target Rock	Qualified
183.	64	B179	2SV8231-2	Target Rock	Qualified
184.	57	B180	2SV8261-2	Target Rock	Qualified
185.	58	B181	2SV8263-2	Target Rock	Qualified
186.	65	A097	2SV8265-1	Target Rock	Qualified
187.	62	B182	2SV8271-2	Target Rock	Qualified
188.	66	A106	2SV8273-1	Target Rock	Qualified
189.	106	A025	2TE4610-1	Rosemount	Qualified by 2R4 ⁽¹⁾
190.	106	A026	2TE4610-2	Rosemount	Qualified by 2R4 ⁽¹⁾
191.	106	A027	2TE4610-3	Rosemount	Qualified by 2R4 ⁽¹⁾
192.	106	A028	2TE4510-4	Weed	Qualified
193.	106	A029	2TE4611-1	Rosemount	Qualified by 2R4 ⁽¹⁾
194.	106	A030	2TE4611-2	Rosemount	Qualified by 2R4 ⁽¹⁾
195.	106	A031	2TE4611-3	Rosemount	Qualified by 2R4 ⁽¹⁾
196.	106	A032	2TE4611-4	Weed	Qualified
197.	NA	NONE	2TE4635-1	Rosemount	Qualified by 2R4 ⁽¹⁾
198.	NA	NONE	2TE4635-2	Rosemount	Qualified by 2R4 ⁽¹⁾
199.	NA	NONE	2TE4635-3	Rosemount	Qualified by 2R4 ⁽¹⁾
200.	NA	NONE	2TE4635-4	Weed	Qualified
201.	106	A040	2TE4710-1	Rosemount	Qualified by 2R4 ⁽¹⁾
202.	106	A041	2TE4710-2	Rosemount	Qualified by 2R4 ⁽¹⁾
203.	106	A042	2TE4710-3	Rosemount	Qualified by 2R4 ⁽¹⁾
204.	106	A043	2TE4710-4	Weed	Qualified
205.	106	A044	2TE4711-1	Rosemount	Qualified by 2R4 ⁽¹⁾

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206.	106	A045	2TE4711-2	Rosemount	Qualified by 2R4 ⁽¹⁾
207.	106	A046	2TE4711-3	Rosemount	Qualified by 2R4 ⁽¹⁾
208.	106	A047	2TE4711-4	Weed	Qualified
209.	NA	NONE	2TE4735-1	Rosemount	Qualified by 2R4 ⁽¹⁾
210.	NA	NONE	2TE4735-2	Rosemount	Qualified by 2R4 ⁽¹⁾
211.	NA	NONE	2TE4735-3	Rosemount	Qualified by 2R4 ⁽¹⁾
212.	NA	NONE	2TE4735-4	Weed	Qualified
213.	71	A093	2UCD8203-1	Baldor	Qualified by 2R4 ⁽¹⁾
214.	71	A094	2UCD8209-1	Baldor	Qualified by 2R4 ⁽¹⁾
215.	71	A095	2UCD8216-2	Baldor	Qualified by 2R4 ⁽¹⁾
216.	71	A096	2UCD8222-2	Baldor	Qualified by 2R4 ⁽¹⁾
217.	Not Stated	C003	2VBE4633-1	Endevco	Qualified
218.	138	C004	2VBE4633-2	Endevco	Qualified
219.	138	C005	2VBE4634-1	Endevco	Qualified
220.	138	C006	2VBE4634-2	Endevco	Qualified
221.	140	C007	2VBY4633-1	TEC	Qualified
222.	140	C008	2VBY4633-2	TEC	Qualified
223.	140	C009	2VBY4634-1	TEC	Qualified
224.	140	C010	2VBY4634-2	TEC	Qualified
225.	84	B184	2VEFM38A-1	Westinghouse	Qualified
226.	84	B185	2VEFM38B-2	Westinghouse	Qualified
207.	76	A085	2VSFM1A	Reliance	Qualified
208.	76	A086	2VSFM1B	Reliance	Qualified
209.	76	A087	2VSFM1C	Reliance	Qualified
210.	76	A088	2VSFM1D	Reliance	Qualified
211.	76	A089	2VSFM31A	Reliance	Qualified

212.	76	A090	2VSFM31B	Reliance	Qualified
213.	76	A091	2VSFM31C	Reliance	Qualified
214.	76	A092	2VSFM31D	Reliance	Qualified
215.	83	B105	2VUCM11A	Reliance	Qualified
216.	83	B106	2VUCM11B	Reliance	Qualified
217.	78	B094	2VUCM1A	Reliance	Qualified
218.	78	B095	2VUCM1B	Reliance	Qualified
219.	77	B096	2VUCM1C	Reliance	Qualified
220.	77	B097	2VUCM1D	Reliance	Qualified
221.	77	B098	2VUCM1E	Reliance	Qualified
222.	77	B099	2VUCM1F	Reliance	Qualified
223.	113	B026	2ZS1010-1	Namco	Qualified ⁽²⁾
224.	113	B035	2ZS1060-2	Namco	Qualified ⁽²⁾
225.	107	A098	2ZS8203-1	Allen Bradley	Qualified by 2R4 ⁽¹⁾
226.	107	A099	2ZS8204-1	Allen Bradley	Qualified by 2R4 ⁽¹⁾
227.	107	A100	2ZS8209-1	Allen Bradley	Qualified by 2R4 ⁽¹⁾
228.	107	A101	2ZS8210-1	Allen Bradley	Qualified by 2R4 ⁽¹⁾
229.	107	A102	2ZS8216-2	Allen Bradley	Qualified by 2R4 ⁽¹⁾
230.	107	A103	2ZS8217-2	Allen Bradley	Qualified by 2R4 ⁽¹⁾
231.	107	A104	2ZS8222-2	Allen Bradley	Qualified by 2R4 ⁽¹⁾
232.	107	A105	2ZS8223-2	Allen Bradley	Qualified by 2R4 ⁽¹⁾
233.	Not Stated	None	2B52 (MCC)	ITE	Qualified
234.	Not Stated	None	2B62 (MCC)	ITE	Qualified

<u>No.</u>	<u>FRC Item</u>	<u>Scew</u>	<u>Tag No.</u>	<u>Manufacturer</u>	<u>Remarks</u>
235.	Not Stated	None	2GENXXXX	G.E.	Qualified
			(Terminal Blks)		
236.	Not Stated	None	2GENXXXX	Buchannon	Qualified
			(Terminal Blks)		
237.	13	B124	2CV-4840-2	Limitorque	Qualified
238.	45	B111	2SV-2061-2	Asco	Qualified (3)
239.	46	B113	2SV-2201-2	Asco	Qualified (3)
240.	None	B115	2SV-2400-2	Asco	Qualified (3)
241.	47	B122	2SV-4823-2	Asco	Qualified (3)
242.	None	B124A	2SV-4847-2	Asco	Qualified (3)
243.	109	B112	2ZS-2061-2	Namco	Qualified (3)
244.	None	B114	2ZS-2201-2	Namco	Qualified (3)
245.	108	B116	2ZS-2400	Namco	Qualified (3)
246.	110	B123	2ZS-4823-2	Masoneilan	Qualified (3)
247.	None	B124B	2ZS-4847	Masoneilan	Qualified (3)

NOTES:

- (1) An extension of the qualification deadline to March 31, 1985 (or the first outage of sufficient duration) has been granted by the NRC for this item. Reference 2CNA118305.
- (2) These items are considered qualified in conjunction with specific actions under AP&L's maintenance and surveillance programs.
- (3) These devices are qualified by a systems review which demonstrates they perform their function prior to exposure to a harsh environment.

ENCLOSURE III

ARKANSAS NUCLEAR ONE
UNIT 2

JUSTIFICATIONS FOR CONTINUED
OPERATION FOR ENVIRONMENTAL
QUALIFICATION DEFICIENCIES

JUNE 1, 1984

ANO-2

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EQUIPMENT ENVIRONMENTAL QUALIFICATION
JUSTIFICATION FOR CONTINUED OPERATION
ANO-2

COMPONENT: Temperature Sensor

TAG NO(S).: 2TE-4610-1, 2TE-4610-2, 2TE-4610-3, 2TE-4610-4

SER RESPONSE PAGE NO(S).: A025, A026, A027, A028

FRC EQUIPMENT ITEM: 106

MANUFACTURER AND MODEL NO.: Rosemount Model Type 104-AFC

SYSTEM - P&ID NO.: Reactor Coolant System - M-2230

LOCATION: Reactor Building

• SAFETY FUNCTION:

The hot leg of the reactor vessel steam generator 2E24A loop contains five narrow range RTD channels to measure coolant temperature leaving the reactor vessel. These four temperature sensors are incorporated in four of these channels to furnish a hot leg temperature signal to the Core Protection Calculators (CPC's).

• QUALIFICATION DISCREPANCY:

According to FRC, the documented evidence of qualification is inadequate.

• JUSTIFICATION FOR CONTINUED OPERATION:

AP&L has on file a copy of Rosemount test report number 1762 Rev. A which qualified a Rosemount 104-1619 RTD to environmental conditions more severe than the ANO-2 postulated accident conditions. According to Rosemount, the test report is applicable to the 104-AFC models at ANO-2 by similarity.

The 104 model RTD was irradiated to 2×10^8 rads and exposed to 340°F steam, 125 psia, and chemical spray solution.

Notwithstanding this qualification documentation, AP&L is pursuing replacement of these RTD's due to other considerations involving response times. AP&L has replaced one of four channels (6 of 24 RTD's) with qualified Weed RTD's during the last refueling outage (2R3). Assuming satisfactory performance of the devices over the current cycle, the remaining RTD's will be replaced during the following refueling outage.

Since the existing devices are considered qualified a justification for continued operation is actually not required.

Based on the above, there is no significant degradation of safety function or misleading information to the operator as a result of equipment failure from the accident environment resulting from a design basis event.

EQUIPMENT ENVIRONMENTAL QUALIFICATION
JUSTIFICATION FOR CONTINUED OPERATION
ANO-2

COMPONENT: Temperature Sensor

TAG NO(S): 2TE-4611-1, 2TE-4611-2, 2TE-4611-3, 2TE-4611-4

SER RESPONSE PAGE NO(S): A029, A030, A031, A032

FRC EQUIPMENT ITEM: 106

MANUFACTURER AND MODEL NO.: Rosemount Model Type 104-AFC

SYSTEM - P&ID NO.: Reactor Coolant System - M-2230

LOCATION: Reactor Building

• SAFETY FUNCTION:

There are two cold legs in the reactor vessel steam generator 2E24A loop. Each cold leg contains three temperature measurement channels which are downstream of the reactor coolant pumps. These four temperature sensors are incorporated in two channels from each cold leg and are used to furnish a cold leg coolant temperature signal to the Core Protection Calculators (CPC's). Indication of these four cold leg temperature measurements is provided in the control room.

• QUALIFICATION DISCREPANCY:

According to FRC, the documented evidence of qualification is inadequate.

• JUSTIFICATION FOR CONTINUED OPERATION:

AP&L has on file a copy of Rosemount test report number 1762 Rev. A which qualified a Rosemount 104-1619 RTD to environmental conditions more severe than the ANO-2 postulated accident conditions. According to Rosemount, the test report is applicable to the 104-AFC models at ANO-2 by similarity.

The 104 model RTD was irradiated to 2×10^8 rads and exposed to 340°F steam, 125 psia, and chemical spray solution.

Notwithstanding this qualification documentation, AP&L is pursuing replacement of these RTD's due to other considerations involving response times. AP&L has replaced one of four channels (6 of 24 RTD's) with qualified Weed RTD's during the last refueling outage (2R3). Assuming satisfactory performance of the devices over the current cycle, the remaining RTD's will be replaced during the following refueling outage.

Since the existing RTD's are considered qualified a justification for continued operation is actually not required.

Based on the above, there is no significant degradation of safety function or misleading information to the operator as a result of equipment failure from the accident environment resulting from a design basis event.

EQUIPMENT ENVIRONMENTAL QUALIFICATION
JUSTIFICATION FOR CONTINUED OPERATION
ANO-2

COMPONENT: Temperature Sensor

TAG NO(S).: 2TE-4635-1, 2TE-4635-2, 2TE-4635-3, 2TE-4635-4, 2TE-4735-1,
2TE-4735-2, 2TE-4735-3, 2TE-4735-4

SER RESPONSE PAGE NO(S).: NA

FRC EQUIPMENT ITEM: NA

MANUFACTURER AND MODEL NO.: Rosemount Model Type 104-AFC

SYSTEM - P&ID NO.: Reactor Coolant System - M-2230

LOCATION: Reactor Building

• SAFETY FUNCTION:

These are hot leg and cold leg RTD's added to ANO-2 to resolve a phenomena observed during startup testing referred to as T^{hot} anomaly. These RTD's inputs are averaged with the main hot and cold leg signals for input to the CPC's.

• QUALIFICATION DISCREPANCY:

Although not evaluated by Franklin, the disposition would be identical to the other hot and cold leg RTD's.

• JUSTIFICATION FOR CONTINUED OPERATION:

AP&L has on file a copy of Rosemount test report number 1762 Rev. A which qualified a Rosemount 104-1619 to environmental conditions more severe than the ANO-2 postulated accident conditions. The test report is considered applicable to the 104-AFC models at ANO-2 by similarity.

The 104 model RTD was irradiated to 2×10^6 rads and exposed to 340°F steam, 125 psia, and chemical spray solution.

Notwithstanding this qualification documentation, AP&L is pursuing replacement of these RTD's due to other considerations involving response times. AP&L has replaced one of four channels (6 of 24 RTD's) with qualified Weed RTD's during the last refueling outage (2R3). Assuming satisfactory performance of the devices over the current cycle, the remaining RTD's will be replaced during the following refueling outage.

Since these devices are considered qualified, a justification for continued operation is actually not required.

Based on the above, there is no significant degradation of safety function of misleading information to the operator as a result of equipment failure from the accident environment resulting from a design basis event.

EQUIPMENT ENVIRONMENTAL QUALIFICATION
JUSTIFICATION FOR CONTINUED OPERATION
ANO-2

COMPONENT: Temperature Sensor

TAG NO(S).: 2TE-4710-1, 2TE-4710-2, 2TE-4710-3, 2TE-4710-4

SER RESPONSE PAGE NO(S).: A040, A041, A042, A043

FRC EQUIPMENT ITEM: 106

MANUFACTURER AND MODEL NO.: Rosemount Model Type 104-AFC

SYSTEM - P&ID NO.: Reactor Coolant System - M-2230

LOCATION: Reactor Building

• SAFETY FUNCTION:

The hot leg of the reactor vessel steam generator 2E24B loop contains five narrow range RTD channels to measure coolant temperature leaving the reactor vessel. These four temperature sensors are incorporated in four of these channels to furnish a hot leg temperature signal to the Core Protection Calculators (CPC's).

• QUALIFICATION DISCREPANCY:

According to FRC, the documented evidence of qualification is inadequate.

• JUSTIFICATION FOR CONTINUED OPERATION:

AP&L has on file a copy of Rosemount test report number 1762 Rev. A which qualified a Rosemount 104-1619 RTD to environmental conditions more severe than the ANO-2 postulated accident conditions. According to Rosemount, the test report is applicable to the 104-AFC models at ANO-2 by similarity.

The 104 model RTD was irradiated to 2×10^8 rads and exposed to 340°F steam, 125 psia, and chemical spray solution.

Notwithstanding this qualification documentation, AP&L is pursuing replacement of these RTD's due to other considerations involving response times. AP&L has replaced one of four channels (6 of 24 RTD's) with qualified Weid RTD's during the last refueling outage (2R3). Assuming satisfactory performance of the devices over the current cycle, the remaining RTD's will be replaced during the following refueling outage.

Since the existing devices are considered qualified, a justification for continued operation is actually not required.

Based on the above, there is no significant degradation of safety function or misleading information to the operator as a result of equipment failure from the accident environment resulting from a design basis event.

EQUIPMENT ENVIRONMENTAL QUALIFICATION
JUSTIFICATION FOR CONTINUED OPERATION
ANO-2

COMPONENT: Temperature Sensor

TAG NO(S): 2TE-4711-1, 2TE-4711-2, 2TE-4711-3, 2TE-4711-4

SER RESPONSE PAGE NO(S): A044, A045, A046, A047

FRC EQUIPMENT ITEM: 106

MANUFACTURER AND MODEL NO.: Rosemount Model Type 104-AFC

SYSTEM - P&ID NO.: Reactor Coolant System - M-2230

LOCATION: Reactor Building

• SAFETY FUNCTION:

There are two cold legs in the reactor vessel steam generator 2E24B loop. Each cold leg contains three temperature measurement channels which are downstream of the reactor coolant pumps. These four temperature sensors are incorporated in two channels from each cold leg and are used to furnish a cold leg temperature signal to the Core Protection Calculators (CPC's).

• QUALIFICATION DISCREPANCY:

According to FRC, the documented evidence of qualification is inadequate.

• JUSTIFICATION FOR CONTINUED OPERATION:

AP&L has on file a copy of Rosemount test report number 1762 Rev. A which qualified a Rosemount 104-1619 RTD to environmental conditions more severe than the ANO-2 postulated accident conditions. According to Rosemount, the test report is applicable to the 104-AFC models at ANO-2 by similarity.

The 104 model RTD was irradiated to 2×10^8 rads and exposed to 340°F steam, 125 psia, and chemical spray solution.

Notwithstanding this qualification documentation, AP&L is pursuing replacement of these RTD's due to other considerations involving response times. AP&L has replaced one of four channels (6 of 24 RTD's) with qualified Weed RTD's during the last refueling outage (2R3). Assuming satisfactory performance of the devices over the current cycle, the remaining RTD's will be replaced during the following refueling outage.

Since the existing devices are considered qualified, a justification for continued operation is actually not required.

Based on the above, there is no significant degradation of safety function or misleading information to the operator as a result of equipment failure from the accident environment resulting from a design basis event.

EQUIPMENT ENVIRONMENTAL QUALIFICATION
JUSTIFICATION FOR CONTINUED OPERATION
ANO-1

COMPONENT: Containment Cooling Fan Filter Bypass Damper Motors

TAG NO(S):: 2UCD-8203-1, 2UCD-8209-1, 2UCD-8216-2, 2UCD-8222-2

SER RESPONSE PAGE NO(S):: A093, A094, A095, A096

FRC EQUIPMENT ITEM: 71

MANUFACTURER AND MODEL NO.: Baldor M-3534 TEFC

SYSTEM - P&ID NO.: HVAC - Reactor Building M-2261

LOCATION: Reactor Building

• SAFETY FUNCTION:

In the unlikely event of a LOCA or HELB within the reactor building, the pressure drop across the service water and chilled water coils in the Containment Cooling Units would result in reduced cooling capacity (chilled water is isolated). Bypass damper doors open upon a Containment Cooling Actuation Signal (CCAS), allowing the flow to bypass the chilled water coils and pass directly to the service water cooling coils.

• QUALIFICATION DISCREPANCY:

Documentation does not exist to show that the motors are qualified for Chemical Spray (15000 ppm of boric acid, pH of 10.5) or for the specified radiation dose of 3.3×10^7 rads.

• JUSTIFICATION FOR INTERIM OPERATION:

Upon receipt of a CCAS, the damper motors turn a few revolutions to trip a cam and open the damper door. The dampers open by gravity, and may be reset only by jacking them shut and resetting the latches. The CCAS occurs at a containment pressure of 18.4 psia, while the Containment Spray (CS) is actuated at 23.3 psia. Before spray is initiated the CS pumps must start, the Spray Header Isolation Valves must open, and the spray header system must fill with water. Thus, it is believed that containment spray would not affect the damper motors.

The specified radiation dose is for 40 years plant operation plus the entire integrated LOCA dose. For the near-term, and considering the fact that the damper motors complete their safety function during the first minute of a postulated LOCA, radiation would not be expected to render the motors incapable of performing their safety function.

The design basis for the containment cooling systems is that in the event of LOCA or MSLB, the required cooling function can be accomplished by both loops of the containment spray system.

Based on the above, there is no significant degradation of safety function or misleading information to the operator as a result of equipment failure from the accident environment resulting from a design basis event.

EQUIPMENT ENVIRONMENTAL QUALIFICATION
JUSTIFICATION FOR CONTINUED OPERATION
ANO-2

COMPONENT: Containment Cooling Fan Bypass Damper Door Position Switches

TAG NO(S).: 2ZS-8203-1, 2ZS-8204-1, 2ZS-8209-1, 2ZS-8210-1, 2ZS-8216-2,
2ZS-8217-2, 2ZS-8222-2, 2ZS-8223-2

SER RESPONSE PAGE NO(S).: A098 thru A105

FRC EQUIPMENT ITEM: 107

MANUFACTURER AND MODEL NO.: Not Specified

SYSTEM - P&ID NO.: HVAC Reactor Building M2261

LOCATION: Reactor Building

• SAFETY FUNCTION:

The safety function of these switches is to provide information regarding the position of the containment cooling fan bypass damper motors, and damper doors. See the justification sheet for 2UCD-8203-1 for additional information.

• QUALIFICATION DISCREPANCY:

According to Franklin, documented evidence of qualification was inadequate.

• JUSTIFICATION FOR INTERIM OPERATION:

As discussed in the justification for 2UCD-8203-1, the damper motors are actuated prior to containment spray and early in the postulated LOCA sequence. The damper motors open the damper door latches. The dampers open by gravity and may be reset only by jacking them shut the resetting the latches. These switches provide stop limits for the damper motors and indicate to the operator the positions of the damper motors and doors. Failure of any or all of the position switches will not cause a reversal of the damper doors. Operation of the Containment Cooling Systems may be verified by observation of the pressure and temperature of the Containment.

The design basis for the Containment Cooling Systems is that in the event of LOCA or MSLB, the required cooling function can be accomplished by both loops of the Containment Spray System. Based on the function of the switches, the redundancy provided, and the alternate methods available to verify containment cooling, there is no significant degradation of safety function or significantly misleading information to the operator as a result of equipment failure from the accident environment resulting from a design basis event.