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10CFR50.59(b)(2)

May 10, 2000

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U. S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
ANO-1 10CFR50.59 Summary Report For 2000

Gentlemen:

In accordance with 10CFR50.59(b)(2), enclosed is the Arkansas Nuclear One, Unit 1, 10CFR50.59 report for the time period ending October 10, 1999. This report contains a brief description of changes in procedures and in the facility as described in the Safety Analysis Report (SAR), tests and experiments conducted which were not described in the SAR, and other changes to the SAR for which a safety analysis was conducted. The report also contains the safety evaluation for each change. Included with this summary report are those evaluations that were common to both ANO-1 and ANO-2.

Very truly yours,

Jimmy D. Vandergrift
Director, Nuclear Safety Assurance

JDV/dh
Enclosure

IE47

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ARKANSAS NUCLEAR ONE – UNIT 1 AND COMMON
DOCKET Nos. 50-313 AND 50-368
LICENSE Nos. DPR-51 and NPF-6

10CFR50.59 REPORT FOR 2000

This report contains a brief description of changes in procedures and in the facility as described in the Safety Analysis Report (SAR), tests and experiments conducted which were not described in the SAR, and other changes to the SAR for which a safety analysis was conducted. The report also contains the safety evaluation for each change. Included with this summary report are those evaluations that were common to both ANO-1 and ANO-2. This report is applicable for the period from April 11, 1998 through October 10, 1999.

The safety evaluations included in this report were performed in accordance with 10CFR50.59 and determined that none of the changes involved an unreviewed safety question.

#	Initiating Doc.	Description
1	CALC 91E004701	Containment Building Hydrogen Concentrations Post-LOCA
2	CALC 91E004703	Updated Post-LOCA Hydrogen Calculation Regarding Zirconium
3	CALC 93E005703	Decay Heat Calculation Corrections
4	CALC 98E102005	1R15 Spent Fuel Pool Refueling Decay Heat Projection
5	CALC 98R102003	Cycle 16 Reload Report
6	CALC 98R102005	Cycle 16 Redesign Verification Report
7	CR 1-97-0063	Hydrogen Analyzer Uncertainty Evaluation
8	CR 2-97-0301	Control Room Habitability Considering Containment Leakage and Engineered Safety Features Leakage
9	CR C-96-0278	Addition of Valves to "Components of Interest" List
10	DCP 90-1041	Neutralizing Tank Filtration System
11	DCP 974813D101 DCPR #1	Installation of Pressure Relieving Devices on Containment Penetrations to Comply with NRC Generic Letter 96-06
12	DCP 974813D101	Installation of Pressure Relieving Devices on Containment Penetrations to Comply with NRC Generic Letter 96-06
13	DCP 980039D102	Control Room Normal Air Supply Duct Radiation Monitor Addition
14	ER 951020E103	Reactor Building Purge Damper Temporarily Disabled
15	ER 963140E101	10CFR50 Appendix R Required Emergency Lights
16	ER 973922A301	ANO Switchyard Transmission Line Designation Change
17	ER 980706E101	Replacement of Fire Water System Diaphragm Valve with a Ball Valve

#	Initiating Doc.	Description
18	ER 981284E101	Fish Removal Capability in the Intake Canal
19	ER 98R101702	Volume Conversion on the Sump Level
20	ER 991295E101	Disabling of Interlock between Circulating Water Valves and Radwaste Discharge Valve
21	ER 991308E301	Installation of a Temporary Shad Revetment Outside the Intake Canal
22	ER 991308E302	Seasonal Shad Seine Net Deployment
23	ER 991632E101	Evaluation of Reactor Building Sump Operability During Hot Shutdown
24	ER 991681E101	Removal of Koawool as a Fire Protectant
25	ER 991721E101	Makeup Valve Equivalency Evaluation
26	ER 991909E101	Installation of a Temporary Fire Pump
27	ER 991909E301	Connection of Temporary Pump to Fire Water System Test Header
28	ER 991982E102	Use of Decay Heat System for Alternate Spent Fuel Pool Cooling
29	ER 991984E101	Installation of a Condensate Pump Suction Isolation Device
30	ER 991985E101	Installation of Temporary Restraining Devices on 'D' Reactor Coolant Pump Motor
31	ER 991986E102	'D' Reactor Coolant Pump Motor Anti-Rotational Device Temporary Alternate Clamp
32	ER 992060E101	Decay Heat Valve Temporary Configuration Change
33	LCP 94-5034	Low Flow Alarm Switch Replacements for Hydrogen Analyzer Panels
34	LCP 95-5018	Polar Crane Lifting Device Replacement

#	Initiating Doc.	Description
35	LCP 973805L301	Intake Canal Debris Barrier
36	LDCR	Addition of the High Pressure Safety Injection Pump and Related Components to the Safe Shutdown "Components of Interest" List
37	LDCR	Time Critical Actions for Safe Shutdown
38	LDCR	Offsite Dose Calculation Manual Revision
39	LDCR	Revision of Control of Combustibles
40	LDCR	ANO Engineering Renewal Reorganization
41	LDCR	Clarification of SPDS Subcooling Margin Timer and ATOG Display Minimum SCM Description
42	LDCR	Organizational Title Changes
43	LDCR	Addition of Corporate Procedure
44	LDCR	Incorporation of ODCM Changes Identifying Modifications to the Radiological Effluent Monitoring Program
45	LDCR	Correction of Errors Associated with Emergency Feedwater Flow Rates
46	NCP 963314N101	Main Steam Isolation Valve Upgrade
47	NCP 963314N101 NCPR2	Main Steam Isolation Valve Upgrade
48	NCP 973806N101	Addition of High Capacity Service Water Bay Strainers
49	NCP 974882N101	BWST Vacuum Breaker/Vent Valve Modification
50	NCP 975018N101	Valve Modifications to Improve Makeup Flow Control
51	NCP 981005N101	Treated Waste Monitor Tank Filter Installation
52	NCP 981005N102	Installation of Bypass Around Liquid Radwaste Filter

#	Initiating Doc.	Description
53	NCP 981029N101	Main Steam Vent Valve and Cap Removal
54	NCP 991812N101	Administration Building Chiller Upgrade
55	PC 91-7045	Intermediate Cooling Water Drain Modifications
56	PC 93-7046	Removal of Abandoned Equipment Associated with the Domestic Water System
57	PC 961028P101	Penetration Room Ventilation System Valve Removal
58	PC 963288P101	Abandoned Acid Storage Tank
59	PC 963457P101	Removal of Inactive Reheat Steam Piping and Equipment Associated with Main Condenser
60	PC 973993P101	Downgraded Fire Wrap and Suppression System in Room 79
61	PC 980006P101	Replacement of Level Gage for the Diesel Driven Fire Pump Fuel Oil Day Tank
62	PC 980066P201	Service Water Traveling Screen Upgrades
63	PC 980396P101	Autotransformer Protomatic Release Replacement
64	PEAR 96-0031	Abandoned Service Air Compressor
65	PROC 1000.001	Renewal Organization Changes for Nuclear Safety and Quality
66	PROC 1000.028	Exclusion of Calibration of Protective Relays on Operable Equipment from Requirements of Temporary Alteration Procedure
67	PROC 1000.043	Steam Generator Water Chemistry Specifications for High pH Operation
68	PROC 1015.036	Position Change of Incore Drain Tank Valve
69	PROC 1103.015	Reactivity Balance Calculation

#	Initiating Doc.	Description
70	PROC 1104.024	Provision of Job-Site Filtration Units to Supply Breathable Air
71	PROC 1403.190	Temporary Power Supply to the Administration Building
72	PROC 1617.009	Sample Panel Valve Alignment
73	TAP 99-1-002	Nitrogen Connection to Main Condensers
74	TM 99-1-005	Temporary Cooling Water to Administration Building Chiller Condenser
75	TM 1-99-015	Installation of Temporary Gear Box for Fire Water Pump
76	WP 1409.674	Reactor Building Spray Valve Leak Test
77	WP 1409.702	Freeze Seal for Valve Repair
78	WP 1409.708	Makeup Tank Relief Path Isolation Controls
79	WP 1409.709	Decay Heat Pump Bearing Modification Startup Testing
80	WP 1409.710	Decay Heat Pump Bearing Modification Startup Testing

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. Calc. 91-E-0047-01 Rev./Change No. 4

Title ANO-1 Containment Building Hydrogen Post-LOCA

Brief description of proposed change: Revise the referenced calculation and ANO-1 SAR to clearly state that the licensing basis for the hydrogen recombiners is to maintain the post-LOCA hydrogen concentration to less than 4 volume percent. Currently the SAR describes maintaining the hydrogen concentration below 3.5% in order to ensure the 4% value is not exceeded. However, the 4% value is the licensing basis and it is a conservative value as stated in NRC Regulatory Guide 1.7, Rev. 2, which is the design basis for the hydrogen recombiner system. This change will remove an overly conservative commitment from the SAR and avoid confusion in the future about the licensing basis value to be used. The amount of zirconinum change is covered in the 50.59 for calculation 91-E-0047-03 which is referenced in this calculation. SEY 1/25/99

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. Calc. 91-E-0046-01 Rev./Change No. 4

Basis for Determination (Questions 1, 2 & 3):

1. Review of the Operating License documents indicates that no change is required as a result of this proposed SAR change.
2. Review of the various SAR documents indicates that the only place where the 3.5% hydrogen concentration value is discussed is in SAR Section 6.6 and Figure 6-11. Since a SAR change is required, a 50.59 evaluation will be performed. A licensee letter to the NRC on hydrogen recombiners (1CAN048604) was identified that discussed the 3.5% limit and that this limit would not change. No technical basis was given for this statement, no commitment was established based on this statement, and no requirement to maintain the 3.5% was established by the NRC.
3. This change does not involve a test or experiment.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	All (hydrogen, 3.5, recombiner)
MANUAL SECTIONS:	SAR 6.6
FIGURES:	Section 6 Figures

Certified Reviewer's Signature: [signature] Printed Name: Richard Harris Date: 1-25-99

Reviewer's certification expiration date: 3/11/00

Assistance provided by:

Printed Name	Scope of Assistance	Date
Larry D. Young	General Input	1/25/99

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature: [signature] Printed Name: MORRIS E. BYRAM, JR. Date: 1/25/99

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. Calc. 91-E-0047-01 Rev./Change No. 4

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3

This Document contains 2 Pages.

Document No. Calc. 91-E-0047-01 Rev./Change No. 4 10CFR50.59 Eval. No. FFN-99-019 (Assigned by PSC)

Title ANO-1 Containment Building Hydrogen Post-LOCA

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature: [signature] Printed Name: Richard Harris Date: 12-25-99

Reviewer's certification expiration date: 3-11-00

Assistance provided by:

Printed Name	Scope of Assistance	Date
Larry D. Young	General input.	2/3/98

PSC review by: [signature] Date: 2/4/99

Document No. Calc. 91-E-0047-01 Rev./Change No. 4

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

   No, this clarification of the licensing basis for the hydrogen recombiners will not affect the probability of an accident. The hydrogen recombiner system is used for accident mitigation and cannot contribute to the initiation of an accident. The hydrogen concern is a post-accident issue and this change, by itself, cannot initiate an accident.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

   No, the mitigating capability of the hydrogen recombiners will not be impacted by the change from 3.5% to 4.0% hydrogen concentration. The capacity of the recombiners exceeds the generation rate of hydrogen for the DBA LOCA such that it will begin reducing the overall concentration as soon as it is operating. Any amount of hydrogen at or below 4% in air is below the flammability limit, so the consequences will remain the same for either a 3.5% value or a 4.0% value since neither concentration will burn in air.

3. Will the probability of a malfunction of equipment important to safety be increased?

   No, the hydrogen recombiners are designed and tested to operate at hydrogen concentrations at or below 6.2% (1CAN078602). The potential delay in operation of the hydrogen recombiners from 3.5% to 4.0% remains well within the range of equipment testing such that either value will maintain essentially the same probability of failure.

4. Will the consequences of a malfunction of equipment important to safety be increased?

   No, the malfunction of the hydrogen recombiners will not affect the amount of hydrogen produced from that previously estimated. All other system or equipment malfunctions in combination with a higher hydrogen concentration prior to initiation of the hydrogen recombiners will have the same consequences as before this change is made. This is true because either a 3.5% or a 4.0% hydrogen concentration remains below the lower limit of flammability and no hydrogen burn is possible at either value.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

   No, the accident scenario remains unchanged by this revision and as long as the hydrogen concentration remains below 4.0% there is no possibility of a hydrogen burn. All pertinent equipment and processes remain unchanged by this revision which ensures that the possibility of a different type of accident is not created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

   No, the equipment and processes involved in this analyzed accident remain unchanged from that previously evaluated. This lack of change coupled with the inability of hydrogen to burn below a 4% mixture ensures that the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated is not created.

7. Will the margin of safety as defined in the basis for any technical specification be reduced?

   No, the margin of safety is defined in Regulatory Guide 1.7, Rev. 2, as referenced in the basis for Technical Specification 4.12. This regulatory guide concludes that a lower flammability limit of 4.0% hydrogen in air or steam-air atmospheres is well established and is adequately conservative to ensure an appropriate safety margin. This change preserves that limit and ensures the existing margin of safety.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

This Document contains 3 Pages.

Document No. 91-E-0047-03 Rev./Change No. 1

Title Weight of Zirconium for ANO-1 Post LOCA Hydrogen Calc.

Brief description of proposed change:

Updated the amount of Zirconium available post-LOCA to produce hydrogen. The SAR states that the original hydrogen generation was computed using the assumptions listed in Safety Guide 7. This is conservative and 10CFR50.44 requires that a 5% value be used only if the licensee does not meet 10CFR50.46. ANO-1 does meet 10CFR50.46 so alternative criteria apply which leads to a lower estimate of the amount of Zirconium available for producing hydrogen. This amount is determined by using the larger result from two methods specified both in 10CFR50.44 and R.G. 1.7. For ANO-1 the larger amount is produced by using the minium depth of reaction as 0.00023 inches over the fuel cladding surface area.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

Document No. 91-E-0047-03 Rev./Change No. 1

Basis for Determination (Questions 1, 2, & 3):

1. The Technical Specifications, operating license, and confirmatory orders are not affected by this reduction in the amount of Zirconium available to produce hydrogen.

2. SAR Section 6.6.1 requires revision to properly address the method used to determine the amount of Zirconium available to produce hydrogen. The remaining documents do not discuss this issue in sufficient detail to require revision.

3. This change does not involve a test or experiment

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	All (hydrogen, zirconium, metal-water, Regulatory Guide 1.7, R.G. 1.7)
MANUAL SECTIONS:	ANO-1 SAR Section 6.6
FIGURES:	ANO-1 SAR Section 6.6 Figures

Certified Reviewer's Signature: [signature] Printed Name: Richard Harris Date: 1-26-99

Reviewer's certification expiration date: 3-11-00

Assistance provided by:

Printed Name	Scope of Assistance	Date
Larry D. Young	General input.	7/2/98

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature: [signature] Printed Name: Morris E. Byrom Jr. Date: 1/26/99

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 91-E-0047-03 Rev./Change No. 1

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3

This Document contains 2 Pages.

Document No. CALC-91-E-0047-03 Rev./Change No. 1 10CFR50.59 Eval. No. FFN-99-020 (Assigned by PSC)

Title Weight of Zirconium for ANO-1 Post LOCA Hydrogen Calc.

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature: [signature] Printed Name: Richard Harris Date: 1-26-99

Reviewer's certification expiration date: 3/11/00

Assistance provided by:

Printed Name	Scope of Assistance	Date
Larry D. Young	General input.	

PSC review by: [signature] Date: 2/4/99

Document No. CALC-91-E-0047-03 Rev./Change No. 1

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

No, the decrease in the amount of Zirconium estimated to be available for zirc-water reaction in a design basis post-LOCA environment will not affect the probability of an accident previously evaluated in the SAR. No accident initiation features are impacted by this post-accident condition.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

No, the decrease in the amount of Zirconium estimated to be available for zirc-water reaction in a design basis post-LOCA environment will decrease the amount of hydrogen released. This post-accident decrease in hydrogen will reduce the potential consequences of an accident due to the decreased quantity available to burn or otherwise react with equipment in the reactor building.

3. Will the probability of a malfunction of equipment important to safety be increased?

No, the decrease in the amount of Zirconium estimated to be available for zirc-water reaction in a design basis post-LOCA environment will decrease the amount of hydrogen released. This post-accident decrease in hydrogen will lower the quantity of hydrogen available to burn or otherwise react with equipment in the reactor building. This will reduce the potential for malfunction of equipment important to safety.

4. Will the consequences of a malfunction of equipment important to safety be increased?

No, the decrease in the amount of Zirconium estimated to be available for zirc-water reaction in a design basis post-LOCA environment will decrease the amount of hydrogen released. This post-accident decrease in hydrogen will reduce the potential consequences of any malfunction of equipment important to safety. The reduced consequences result from a reduced threat from a potential hydrogen burn or any other reaction with equipment located in the reactor building.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

No, this change represents a potential post-accident condition and does not affect any accident initiators or create any new or unique accident initiators.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

No, the type of equipment failures are based on the amount of hydrogen present in a design basis post-LOCA environment. The amount of hydrogen is reduced and this environment does not provide any unique changes that may affect the type of malfunction. No new malfunction initiators are created by this decrease of hydrogen in a post-LOCA environment.

7. Will the margin of safety as defined in the bases for any technical specification be reduced?

No, the margin of safety for the hydrogen recombiners is defined as meeting Regulatory Guide 1.7 in Section 4.12 of the Technical Specifications. This will remain the basis for the amount of potential hydrogen produced from a design basis post-LOCA accident.

3

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

This Document contains 4 Pages.

Document No. CALC-93-E-0057-03 Rev./Change No. 3

Title UNIT 1 SAR TABLE 9-28 LDCR DECAY HEAT CALCULATIONS

Brief description of proposed change:

The revision is being performed to ensure that the time to offload the core is more conservative than what Tech Specs assume. Calculations were also performed at the Batch level instead of the individual assembly level to maintain consistency with the original analysis.

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☒

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☒ No☐

   Core Operating Limits Report? Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. CALC-93-E-0057-03 Rev./Change No. 3

Basis for Determination (Questions 1, 2, & 3):

See the attached continuation sheet.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: 50.59 - Unit 1 (pool w/30 decay heat, offload, off-load, core w/10 discharge)

MANUAL SECTIONS: U1 TS (3.8.11), U1 SAR (Section 9.4, Tables, 9-9, 9-10, 9-28), U1 SERs (Ammendment 17, 76)

FIGURES: U1 SAR (Figure 9-11)

Todd Erskine — Certified Reviewer's Signature
Todd A. Erskine — Printed Name
6/22/99 — Date

Reviewer's certification expiration date: 3/19/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Jonathan M. Ralston — Certified Reviewer's Signature
Jonathan M. Ralston — Printed Name
6-28-99 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. CALC-93-E-0057-03 Rev./Change No. 3

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. CALC-93-E-0057-03 Rev./Change No. 3

10CFR50.59 Review Continuation Page

Will the proposed activity:

1) **Require a change to the Operating License? No**

No changes to the Tech Specs, Operating License or Operating License documents are required as a result of this CALC revision. TS 3.8.11 contains time limits on the number of fuel assemblies that can be discharged to the spent fuel pool. The rate of assembly discharge assumed in the calculation is conservative with respect to the TS time limits.

2) **Result in any information in the SAR or SAR documents being violated or no longer true or accurate? Yes**

The revised calculation changes much of the information tabulated in U1 SAR Table 9-28. This table provides the maximum theoretical heat load used in the Spent Fuel Pool Cooling System design basis analysis. The revised calculation analyzed two additional batches of fuel and used historical operating and cooling times as well as actual Batch sizes, instead of predictions. An updated SAR Table is required. The revised calculation also effects the normal and maximum heat loads listed in U1 SAR Table 9-9. This table summarizes the Spent Fuel Pool Cooling System equipment performance.

The SER for Ammendment 76 describes steps taken to limit the decay heat load in the spent fuel pool following a normal discharge of spent fuel from the reactor and also following a full core offload. This SER is associated with the most recent (second) SFP re-rack. The SER states that "the one-third core will be removed from the reactor vessel and stored in the spent fuel pool 150 hours after reactor shutdown. In the event of a full core discharge, the decay heat load will be limited by requiring a seven-day decay time after shutdown before core discharge." The assumptions used in the proposed calculation are consistent with those described in this SER. An earlier SER for Amendment 17 also contains a similar discussion. While this SER is associated with the earliest (first) re-rack, the assumptions made on time to offload are still bounded by those in the proposed calculation.

3) **Involve a test or experiment not described in the SAR? No**

The calculation of decay heat loads does not constitute a test or experiment.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 3 Pages.

Document No. CALC-93-E-0057-03 Rev./Change No. 3 10CFR50.59 Eval. No. FFN-99-044 (Assigned by PSC)

Title Unit 1 SAR Table 9-28 LDCR Decay Heat Calculations

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature	Printed Name	Date
Todd Erskine	Todd A. Erskine	6/23/99

Reviewer's certification expiration date: 3/19/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [illegible] Date: 7/8/99

Document No. CALC-93-E-0057-03 Rev./Change No. 3

10CFR50.59 Review Continuation Page

Basis for Answer to Questions:

1) **Will the probability of an accident previously evaluated in the SAR be increased? No**

The heat load of fuel assemblies stored in the spent fuel pool does not relate to causing an accident described in Chapter 14 of the Unit 1 SAR. SFP heat load is not an accident initiator. The fuel handling accident is postulated to occur because of mechanical damage and is not related to SFP heat loads or cooling. Furthermore, the increased heat load, in and of it self, will not significantly increase the probability of cooling system failure. The increased heat load may require tighter administrative controls on lake temperature to meet the design basis temperatures of the SFP. The evaluation of cooling system performance will be conducted seperately, since it is dependent on the heat loads calculated in CALC-93-E-0057-03.

2) **Will the consequences of an accident previously evaluated in the SAR be increased? No**

The heat load of fuel assemblies in the spent fuel pool is not tied to any of the radiation does consequences for accidents described in Unit 1 SAR Chapter 14. None of the radiation dose consequences for the Chapter 14 accidents occur because of activities or events taking place in the spent fuel pool, with the exception of the fuel handling accident. The fuel handling accident is only postulated to occur due to mechanical damage during fuel transfer operations. Given that the design basis spent fuel pool temperatures will still be maintained during refueling operations, the fuel fuel pellets can still be considered "cold" and the activity released during a fuel handling accident will not be changed.

3) **Will the probability of a malfunction of equipment important to safety be increased? No**

The heat load in the spent fuel pool has no bearing on the integrity of the reactor coolant pressure boundary or systems required to maintain integrity. The heat load in the spent fuel pool has no bearing on the ability to safely shutdown the reactor. The increased heat load will not adversely impact the spent fuel pool racks or the structure of the spent fuel pool itself. The design basis temperatures of the pool will be maintained through tighter administrative controls on lake temperature, if the cooling system performance evaluation determines this is necessary. Even in the event of cooling system failure, the maximum temperature will be unchanged since the pool is already assumed to boil. Considerable time will still be required to reach the point of boiling, in the event of a complete loss of cooling. The SFP cooling system itself does not meet the definition of equipment important to safety since it is 1) not required to maintain the integrity of the RCS pressure boundary, 2) not required for safe shutdown and 3) is not used to mitigate the consequences of Chapter 14 accidents. The fuel building ventilation system mitigates the consequences of a fuel handling accident in the SFP. There can be no impact on this system since the design basis temperatures and amount of water in the pool remains unchanged. There is therefore no increased probability for a malfunction of equipment important to safety.

4) **Will the consequences of a malfunction of equipment important to safety be increased? No**

The heat load of fuel assemblies in the spent fuel pool is not tied to any of the radiation dose consequences for accidents described in Unit 1 SAR Chapter 14. The only accident postulated to occur in the spent fuel pool is a fuel handling accident caused by mechanical damage to the fuel during transfer operations. The only equipment used to mitigate the consequences of this accident is the fuel handling building ventilation. The ventilation system removes the gas released from the fuel assembly to the atmosphere through the pool water. The increased heat load in the pool has no impact on the ability of the ventilation system to remove released gases and limit the dose consequences. The amount of water present and the percentage of Iodine remaining in the water is unchanged since the design basis temperatures of the SFP will continue to be met.

Document No. CALC-93-E-0057-03 Rev./Change No. 3

10CFR50.59 Review Continuation Page

5) **Will the possibility of an accident of a different type than previously evaluated in the SAR be created? No**

The slightly increased heat load in the SFP is not a significant change to circumstances considered in existing SAR analyses. SFP operating temperatures will remain unchanged from the existing design basis. Tighter restrictions on allowable lake temperature will ensure that the circumstances assumed in the SAR analyses are maintained. The increased heat load will not change the configuration or operation of the SFP cooling system, fuel handling equipment or fuel handling building ventilation. The fuel handling accident remains the bounding accident scenario involving the spent fuel pool.

6) **Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? No**

The spent fuel pool cooling system will be re-evaluated with the increased heat loads as input to verify all of the existing acceptance criteria are still satisfied. Tighter administrative controls will be established if necessary to maintain SFP temperatures within acceptable ranges. Continuing to meet the existing acceptance criteria for the system will ensure that no new types of malfunctions are created.

7) **Will the margin of safety as defined in the basis for any technical specification be reduced? No**

The bases for Unit 1 TS 3.8.11 states that the time limits in the TS exist in part to ensure that the maximum design heat load of the spent fuel pool cooling system will not be exceeded during a full core offload. The Safety Evaluation associated with the latest re-rack of the spent fuel pools establishes spent fuel pool temperatures of 120°F and 150°F as acceptable temperatures for normal (1/3 core offload) and maximum normal (full core offload) conditions, respectively. There is a margin of safety implied in this SER (Amendment 76). The SER states that "In the event of the complete failure of the spent fuel pool cooling system, for the maximum normal heat load, there is at least four hours available before boiling occurs. The maximum boiloff rate is 50 to 60 gpm. Each of the two assured seismic Category I borated makeup water sources can be initiated in the required time. Sufficient makeup rates are also available from the seismic Category I service water system, condensate tank or demineralized water supply."

Re-evaluation of the spent fuel pool cooling system with the updated heat loads will tighten the administrative controls on lake temperature if necessary to maintain the 120°F and 150°F temperature limits for the situations in which the cooling system is operable. Separate calculations show that the time to boil remains greater than or equal to four hours and the maximum boil off rate is bounded by the margin required in the SER. Therefore, no margin of safety defined in the basis for any TS is reduced.

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 4 Pages.

Document No. CALC-98-E-1020-05 Rev./Change No. REVISION 0

Title 1R15 SFP REFUELING DECAY HEAT PROJECTION

Brief description of proposed change:

The calculation will provide a projected heat load for use in evaluating the design margins that exist in the SFP cooling system during the 1R15 refueling outage.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. CALC-98-E-1020-05 Rev./Change No. REVISION 0

Basis for Determination (Questions 1, 2, & 3):

Please see the attached continuation page.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: 50.59 - Unit 1 (pool w/30 decay heat, offload, off-load, core w/10 discharge, spent w/30 heat, residual w/30 heat, ECP w/30 inventory, pond w/30 inventory)

MANUAL SECTIONS: Unit 1 TS (3.8.11), Unit 1 SAR (9.3.2.4, 9.4, Tables 9-9, 9-10, 9-28), Unit 1 SERs (Ammendments 17, 76)

FIGURES:

Todd Erskine — Certified Reviewer's Signature
Todd A. Erskine — Printed Name
9/8/99 — Date

Reviewer's certification expiration date: 3/19/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Jonathan M. Ralston — Certified Reviewer's Signature
Jonathan M. Ralston — Printed Name
9-9-99 — Date

FORM TITLE:	FORM NO.	REV.
10CFR50.59 REVIEW CONTINUATION PAGE	1000.131C	3

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. CALC-98-E-1020-05 Rev./Change No. REVISION 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 REVIEW CONTINUATION PAGE	1000.131C	3

Document No. CALC-98-E-1020-05 Rev./Change No. REVISION 0

10CFR50.59 Review Continuation Page

Will the proposed activity:

1) **Require a change to the Operating License? No**

No changes to the Tech Specs, Operating License or Operating License documents are required as a result of this calculation. TS 3.8.11 contains time limits on the number of fuel assemblies that can be discharged to the spent fuel pool. The rate of assembly discharge modeled in the calculation is within the limits of the Technical Specifications. The remainder of information in the OL documents is unrelated or not sufficiently detailed to be impacted by the calculation.

2) **Result in any information in the SAR or SAR documents being violated or no longer true or accurate? Yes**

The heat load projected by this calculation is slightly higher than the heat load that results from calculations based on SAR Table 9-28. Although this conflict does exist, the higher heat load will not result in SFP operation outside of analyzed conditions and does not introduce an un-reviewed safety question, as discussed in the attached 50.59 evaluation.

3) **Involve a test or experiment not described in the SAR? No**

This calculation is theoretical in nature and does not constitute a test or experiment.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 4 Pages.

Document No. CALC-98-E-1020-05 Rev./Change No. 0 10CFR50.59 Eval. No. EFN # 99-075 (Assigned by PSC)

Title 1R15 SFP Refueling Decay Heat Projection

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature	Printed Name	Date
Todd Erskine	Todd A. Erskine	9/8/99

Reviewer's certification expiration date: 3/19/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 9/9/99

Document No. CALC-98-E-1020-05 Rev./Change No. 0

10CFR50.59 Review Continuation Page

Background:

The Spent Fuel Pool Cooling System is designed to maintain the water quality and clarity and to remove the decay heat from the stored fuel in the spent fuel pool. It is designed to maintain the spent fuel pool water at less than or equal to approximately 150 °F while removing the total decay heat load from the combination of stored fuel assemblies listed in SAR Table 9-28. The 1R15 projected decay heat load (30.375 MBTU/hr) exceeds this design heat load (30.00 MBTU/hr, per LDCR 1-9.9-0023) stated in the SAR. The higher heat load however, will not result in SFP operation outside of its design basis, as discussed below.

The higher heat loads calculated in the 1R15 projection have been compared to the heat loads assumed in the calculations supporting the applicable safety analyses. Specifically, the local fuel bundle thermal-hydraulic and ECP inventory analyses were evaluated for impact. The heat loads assumed in the current local fuel bundle T/H and ECP inventory analyses bound the heat load being projected for 1R15. Therefore, the acceptance criteria for these analyses continue to be met.

The slightly higher heat load projection is due to differences in assumptions between the simplified design calculation and the very detailed calculation used to perform refueling projections. No modifications are being proposed to the SFP design basis temperatures. No authorization for exceeding the SFP design basis temperatures is being sought. Administrative controls, already recognized in the SAR, will be used to ensure the SFP design temperatures are maintained. This 50.59 evaluation demonstrates that placement in the pool of the slightly higher than stated design heat load does not result in an unresolved safety question.

1) **Will the probability of an accident previously evaluated in the SAR be increased? NO**

   The heat load of fuel assemblies in the spent fuel pool does not relate to causing an accident described in Chapter 14 of the Unit 1 SAR. SFP heat load is not an accident initiator. The fuel handling accident is initiated by mechanical damage (such as dropping or impacting). Furthermore, the slight increase in heat load above the stated design value does not exceed the actual heat load currently assumed in the SAR analyses of the cooling system or the ECP inventory analyses. The increased heat load will not contribute to failure of the fuel handling equipment which (structurally) consists of steel. Fuel handling is restricted to conditions in which the SFP temperature is maintained below 150 °F (the design maximum temperature under normal conditions). The slightly increased heat load is not expected to result in pool temperatures above 150 °F.

2) **Will the consequences of an accident previously evaluated in the SAR be increased? NO**

   None of the radiation dose consequences for Chapter 14 accidents occur because of activities in the SFP, with the exception of the fuel handling accident. The fuel handling accident is postulated to occur as a result of mechanical damage to a fuel assembly during fuel transfer operations. The dose consequences for this accident are tied to the pool water temperature, since the ability of the water to retain dose contributing elements (Iodine) is temperature dependent. The slight increase in heat load above the stated design value does not exceed the actual heat load currently assumed in the SAR analyses of the cooling system. The current analysis shows that for the range of service water and nuclear ICW temperatures anticipated during the cooler months of the year, the maximum pool temperature will not exceed the design value of 150 °F. Separate analyses for 1R15 expected service water and nuclear ICW temperatures confirm that the design temperature can be maintained.

   In addition, fuel handling operations are administratively limited such that no fuel movement can occur in the SFP if the temperature is above 150 °F. Based on these facts, the design temperature of the spent fuel pool will be maintained when fuel movement is in progress, if not at all times. The consequences of the fuel handling accident will therefore not be increased.

3) **Will the probability of a malfunction of equipment important to safety be increased? NO**

Equipment, structures, systems or components important to safety that could be impacted by an increase in SFP heat load include the Emergency Cooling Pond. The ECP is the ultimate heat sink for the plant and also provides a source for makeup water to the SFP, should it boil. The inventory of the ECP is therefore dependent on the heat load and corresponding boil-off rate. The current ECP inventory analysis is bounding for the proposed 1R15 conditions, since it assumes a higher heat load than what is being projected. The probability for depleting the ECP inventory is therefore not increased beyond what exists currently.

The slightly increased heat load will not adversely impact the spent fuel pool racks or the structure of the spent fuel pool itself. The design basis temperatures are still expected to be maintained. Even in the event of cooling system failure, the maximum temperature will be unchanged since the pool is already assumed to boil. The cooling system itself does not meet the definition of equipment important to safety since it is 1) not required to maintain the integrity of the RCS pressure boundary, 2) not required for safe shutdown and 3) is not used to mitigate the consequences of Chapter 14 accidents.

The fuel handling building ventilation system is assumed to mitigate the consequences of the fuel handling accident in the SFP. There can be no impact on this system since the design basis temperatures and amount of water in the pool remain unchanged. Furthermore, the fuel handling accident is only postulated to occur during fuel handling operations, which are not allowed if the SFP temperature is above the design temperature of 150 °F.

4) **Will the consequences of a malfunction of equipment important to safety be increased? NO**

The only accident postulated to occur in the SFP is a fuel handling accident caused by mechanical damage to a fuel assembly during fuel transfer operations. The only equipment used to mitigate the consequences of this accident is the fuel handling building ventilation. The ventilation system removes or dilutes the gas released from a fuel assembly using charcoal filters, prior to discharge through the unit vent. The consequences of a malfunction in the ventilation equipment will not increase because:

1) The design temperature of the SFP water is postulated to remain within limits. The assumptions made in the fuel handling accident analysis on the retention of fission products should therefore be unchanged. No additional load is placed on the ventilation system to remove released fission products.
2) Fuel handling operations in the SFP are limited to SFP temperatures below 150 °F. Therefore, even if pool temperatures were to exceed design limits, a fuel handling accident could not occur since no fuel handling would be allowed. The ventilation system would not be required to perform its accident mitigating function in this condition.

5) **Will the possibility of an accident of a different type than previously evaluated in the SAR be created? NO**

The slight increase in SFP heat load beyond what it stated as the design value is not a significant change to circumstances considered in existing SAR analyses. In fact, the actual heat loads assumed in the calculations supporting the SAR analyses of interest bound the heat load being projected for 1R15. SFP operating temperatures are expected to remain within the existing design limits, so no new failure modes are to be expected. Fuel handling operations remain restricted to conditions in which the fuel handling accident analysis is bounding. The configuration and operation of the SFP cooling system, fuel handling equipment and fuel handling building ventilation will remain unchanged.

6) **Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? NO**

The slight increase in SFP heat load beyond what is stated as the design value is not a significant change to circumstances considered in existing SAR analyses. The slight increase in heat load beyond the stated design value does not introduce a new accident initiator or physically impact structures, systems or components such that a new failure mechanism is introduced. The acceptance criteria stated for the SFP rack thermal hydraulics analysis, ECP inventory analysis and the fuel handling accident continue to be met with the slight increase in heat load beyond the stated design value. The rack T/H and ECP inventory analyses each assume heat loads that are greater than the stated design value and the 1R15 projected heat load. The fuel handling accident is only postulated to occur as a result of fuel handling. Since fuel handling is only allowed when SFP temperatures are at or below the existing design temperature, the conclusions and acceptance criteria for the fuel handling accident analysis apply equally to the 1R15 projected heat load.

7) **Will the margin of safety as defined in the basis for any technical specification be reduced? NO**

The bases for Unit 1 TS 3.8.11 states that the time limits in the TS exist in part to ensure that the maximum design heat load of the spent fuel pool cooling system will not be exceeded during a full core offload. The SER associated with the latest re-rack of the spent fuel pools establishes spent fuel pool temperatures of 120 °F and 150 °F as acceptable temperatures for normal (1/3 core offload) and maximum normal (full core offload) conditions, respectively. One could argue that this SER also implies a margin of safety, since it is stated that "In the event of the complete failure of the spent fuel pool cooling system, for the maximum normal heat load, there is at least four hours available before boiling occurs. The maximum boiloff rate is 50 to 60 GPM. Each of the two assured Category I borated makeup water sources can be initiated in the required time. Sufficient makeup rates are also available from the seismic Categroy I service water system, condensate tank or demineralized water supply."

As discussed previously, the design temperature limits are postulated to be maintained for situations in which the cooling system is operable. Separate calculations also show that the time to boil remains equal to or greater than four hours and the maximum boil off rate is bounded by the values stated in the SER.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

This Document contains 6 Pages.

Document No. CALC-98-R-1020-03 Rev./Change No. 0

Title ANO UNIT 1 CYCLE 16 RELOAD REPORT

Brief description of proposed change:

The Cycle 16 Reload Report provides the bases for the startup testing and operation of the Cycle 16 fuel cycle design. It is based on the results of safety analyses performed by Framatome Cogema Fuels (FCF). The design length of the fuel cycle is 512 +10/-30 EFPD, which includes an RCS T_{ave} reduction maneuver near the end of the cycle. The core design includes the insertion of sixty FCF Mark B9ZL-NRLEF fresh fuel assemblies (Batch 18). Sixty once-burned assemblies (Batch 17), fifty-two twice-burned assemblies (Batch 16A2), and two thrice-burned assemblies (Batch 15A4) are shuffled to new core locations. Three twice-burned assemblies (Batch 15A3), discharged at the end of Cycle 14 are reinserted in the core. Additional details are discussed in the 50.59 Evaluation.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☒	No☐
Fire Hazards Analysis?	Yes☒	No☐
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

Document No. CALC-98-R-1020-03 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

See attached continuation page(s).

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: See attached continuation page(s).

MANUAL SECTIONS: See attached continuation page(s).

FIGURES: See attached continuation page(s).

Darren G. Talley — Darren G. Talley — 8-6-99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 12/10/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Michael R. McKinney — Michael R. McKinney — 8/9/99

Certified Reviewer's Signature — Printed Name — Date

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. CALC-98-R-1020-03 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. CALC-98-R-1020-03 Rev./Change No. 0

10CFR50.59 Review Continuation Page

Basis for Determination (Questions 1, 2, & 3)

Question 1: The Cycle 16 Reload Report describes and addresses the design, accident analyses, and limiting operating conditions for the ANO-1 Cycle 16 core. All cycle-specific technical specification limits and setpoints for operation of Cycle 16 are placed in the COLR as allowed by the NRC. TS 6.12.3.2 requires the use of the latest NRC approved Framatome Cogema Fuels Topical Report BAW-10179P-A, "Safety Criteria and Methodology for Acceptable Cycle Reload Analyses". All analysis methodologies used for Cycle 16 are approved by the NRC and referenced in BAW-10179P-A. Technical Specification safety limits, limiting safety settings, and limiting conditions of operation governing the operation of the unit are bounding for the Cycle 16 core. Therefore, no technical specification changes are required to support the startup testing and operation of Cycle 16 with regard to the Cycle 16 Reload Report.

The results of the reload analyses and the recommended operating limits and setpoints as stated in the Reload Report fall within the requirements for operating the ANO-1 core as referenced or described in the main body of the ANO-1 operating license. Therefore, no changes to the ANO-1 Operating License are required to support the operation of the Cycle 16 core.

In addition, the specific results of the analyses are beyond the scope of the Confirmatory Orders. Therefore, no changes to the ANO-1 Confirmatory Orders are required to support the operation of the Cycle 16 core.

Question 2: The Reload Report is intended to replace the contents of Chapter 3A of the SAR each cycle. Therefore, a SAR change is required for Chapter 3A and the Master Table of Contents. No other necessary changes to the remainder of the SAR have been identified. Likewise, the COLR must be updated to reflect the Reload Report limits and setpoints. The Reload Report for Cycle 16 concludes that except for the APSR limits, all of the Cycle 15 COLR limits remain bounding for Cycle 16 operation. Thus, only the APSR limits in the COLR must be changed, along with some administrative/format changes. The changes to the SAR and the COLR are described in the respective LDCRs being presented with this Reload Report 50.59 Review and will be addressed in the Evaluation. The change to the SAR Master Table of Contents is administrative in nature and does not change the scope of the SAR discussion. This particular change therefore meets exception F.2 of Attachment 1 of OP-1000.131 and will not be discussed in the Evaluation.

The specific results of the analyses and the recommended operating limits and setpoints as stated in the Reload Report and COLR are beyond the scope of the FHA. With regard to safe-shutdown capability, Cycle 16 calculations demonstrate that there will be sufficient RCS boration due to makeup for RCS shrinkage during cooldown. This fact is noted in the FHA with the Reactivity Balance Update Manual (RBUM) listed as the reference. In Cycle 16, the RBUM will be incorporated into the Physics Manual. Therefore, the FHA will need to be changed to reflect the proper reference. The change to the FHA is described in an LDCR being presented with this Reload Report 50.59 Review. The change to the FHA is administrative in nature and does not change the scope of the FHA discussion. This particular change therefore meets exception F.2 of Attachment 1 of OP-1000.131 and will not be discussed in the Evaluation.

The results of the reload analyses and the recommended operating limits as stated in the Reload Report and COLR fall within the requirements for operating the ANO-1 core as described in the bases to the technical specifications and do not result in invalidating any information presented in the ANO-1 Technical Specifications bases. Technical Specifications 3.1.4 and 3.10 bases describe dose calculations associated with the Steam Generator Tube Rupture, Main Steam Line Break, and Loss of Load events. These calculations were performed by the NRC to provide primary and secondary activity limits that result in exposures determined to be acceptable by the NRC. These calculations used assumptions that are different from those used in the Safety Analysis Report but the calculations were performed for reasons that are different, also. This reload report does not

change any assumptions stated in the bases for LCOs associated with Technical Specifications 3.1.4 and 3.10.

The specific results of the analyses and the recommended operating limits and setpoints as stated in the Reload Report are beyond the level of detail present in the Technical Requirements Manual and do not result in invalidating any information presented in the Technical Requirements Manual.

The results of the reload analyses and the recommended operating limits and setpoints as stated in the Reload Report and COLR fall within the requirements for operating the ANO-1 core as described in the ANO-1 NRC Safety Evaluation Reports and do not result in invalidating any information presented in the ANO-1 NRC SERs.

Question 3: The startup tests and their acceptance criteria for Cycle 15 are described in the current SAR Chapter 3A. The Reload Report for Cycle 16 will replace SAR Chapter 3A, and the Reload Report describes the startup tests and their acceptance criteria for Cycle 16. The startup tests for Cycle 16 are the same as those of Cycle 15. Therefore, the proposed change does not involve any test or experiment which has not been previously described in the SAR.

Search Scope

	Document	Section
LRS	UNIT 1 50.59	ALL (reload*, core* design*, fuel* design*, operat* strategy*, burnup, imbalance*, cycle* w/5 15, mtc*, moder* coef*, moder* temp*, fuel w/3 *press*, temperat* w/10 reduc*, ejec* w/10 rod*, bypass* w/10 flow*, quad* powe* tilt*, qpt*, incor* detect*, long* w/5 emit*, radial* w/2 peak*, pin* w/2 peak*, peak* w/2 fact*, power peak, dropped* w/2 rod*, .65, 0.65, energy deposition, react* w/10 balanc*, physics test manual, (stainles* steel*) w/2 rod*, clad* strain*, LHR*, linear* heat* rate*, enrichment*, shutdown* margin*, rem)
MANUAL SECTIONS	UNIT1 SAR	Sect. 9.6, all sections Ch. 14
	UNIT 1 COLR	ALL
	UNIT 1 TS and BASES	2.1, 2.2, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.7, 3.1.8, 3.2, 3.5.2, 3.8, 3.10, 4.9, 5.3, 5.4
	FHA	5.6.2(A)
FIGURES	UNIT1 SAR	Fig. 9-57, all Ch. 14 figures
	UNIT 1 COLR	ALL
	UNIT 1 TS and BASES	Figs. 3.1.2-1, 3.1.2-2, 3.1.2-3, 3.2-1, 3.8.1, 3.8.2, 5.4-1

Summary of LDCRs Required by this 50.59 Determination

Unit 1 SAR: The Reload Report is intended to replace the contents of Chapter 3A of the SAR each cycle. Therefore, a SAR change is required for Chapter 3A and the Master Table of Contents.

Unit 1 COLR: The COLR must be updated to reflect the Reload Report limits and setpoints. Cycle 15 COLR data which is bounded by Cycle 16 data need not be changed.

FHA: The FHA references the Reactivity Balance Update Manual (RBUM), which will be incorporated into the Physics Manual for Cycle 16. The FHA will be changed to reflect the proper reference.

There are no new Technical Specification changes or other Licensing Basis Document changes required for Cycle 16 startup testing and operation based on the Cycle 16 Reload Report.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 9 Pages.

Document No. CALC-98-R-1020-03 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-99-059 (Assigned by PSC)

Title ANO UNIT 1 CYCLE 16 RELOAD REPORT

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Darren G. Talley — Certified Reviewer's Signature
Darren G. Talley — Printed Name
8-6-99 — Date

Reviewer's certification expiration date: 12/10/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
Larry Hu	Core Design: Mechanical	7/27/99
Keith Megehee	Core Design: Neutronics	7/27/99
Don Helm	Startup Program - Physics Testing	7/22/99
John Cotton	Dose Assessment	7/29/99
Robert Clark	Reactor Vessel Fluence	8/6/66

PSC review by: D Brown Date: 8/19/99

Document No. CALC-98-R-1020-03 Rev./Change No. 0

10CFR50.59 Review Continuation Page

Basis for Answers to the Evaluation Questions

1. *Will the probability of an accident previously evaluated in the SAR be increased?*

For the accidents evaluated in the SAR, the only events which have an initiator which could be affected by the reload core design presented in the Reload Report for Cycle 16 are (a) the Stuck In/Stuck Out/Dropped Rod event, (b) Fuel Loading Errors, and (c) the Fuel Handling Accident.

The Mark-B9ZL-NRLEF fuel assembly design is utilized exclusively in the Cycle 16 core design loading. The fuel assembly design parameters for Cycle 16 are presented in Table 3A-1 of the Reload Report. BAW-10179P-A (Ref. 5 of the Reload Report) fuel assembly design criteria include the requirements (1) that a path for control rod insertion is ensured even for an assembly with the maximum credible damage, including a Safe Shutdown Earthquake; (2) that the holddown springs be capable of maintaining fuel assembly contact with the lower support plate during normal operation; and (3) that guide tube buckling not be allowed during normal operation or any transient condition where control rod insertion is required by the safety analysis. The dimensions and position of the Mark-B9ZL guide tubes are unchanged. Testing and in-reactor surveillance of rod drop times for Mark-B9ZL fuel assemblies with optimized guide tubes have demonstrated drop times comparable to drop times in fuel assemblies with standard guide tubes. Also, any dimensional changes due to irradiation, such as assembly bow, will not be altered since no change in the guide tubes material has occurred and the increased burnup is well within the industry experience base. Adequate control rod cooling will continue to be provided. Fuel rod bow to the point of contact with the guide tube where guide tube deformation could occur will continue to be precluded. The control rod assembly will not to be able to be disengaged from the fuel assembly guide tubes during operations. Therefore, there is no expectation that the probability of a Stuck In/Stuck Out/Dropped Rod event will be increased by the employment of the Cycle 16 core design presented in the Reload Report.

The fuel assembly identification will continue to be prominently displayed on the upper end fitting for core loading verification prior to startup, and operating procedures require verification of the final core loading. Therefore, the probability of gross fuel assembly misplacement in the core due to the Batch 18 Mark-B9ZL assemblies is not increased.

These assemblies have the same structural cage as that previously used at ANO-1 and will be capable of withstanding the expected handling loads. These assemblies are compatible with the fuel handling equipment. The manner of handling these assemblies will be unchanged. The envelope of the new fuel is no different than that of the past. The mass of these assemblies is approximately the same as the Batch 17 fuel. Hence, the probability of a fuel handling accident is not increased.

Therefore, the probability of an accident previously evaluated in the SAR is not increased.

2. *Will the consequences of an accident previously evaluated in the SAR be increased?*

The transient response of the plant to the abnormalities and accident scenarios analyzed in SAR chapter 14 will not be altered by the implementation of the Cycle 16 reload core design. As such, all associated accident initiators and any single-failure equipment malfunction postulations remain valid with respect to their impact upon the accident analyses.

Table 3A-6 of the Cycle 16 Reload Report documents the results of the dose calculations based on the Cycle 16 core design and compares them to Cycle 15 results and the SAR. This table is reproduced in the supplemental information (see below) along with the values specified in the NRC SERs for ANO-1 as being acceptable. The slight changes in the dose consequences of the accident analyses are related to the use of Cycle 16 specific radionuclide sources calculated from the actual Cycle 16 core design and irradiation history. These slight changes are not a result of changes in dose release scenario assumptions dictated by the

accident scenario and the associated plant response. This table demonstrates that although some of the predicted doses for the Cycle 16 core design have increased a small amount relative to Cycle 15, all of the doses remain well below the acceptable SER doses. Therefore, the consequences of accidents previously evaluated in the SAR are not increased.

3. *Will the probability of a malfunction of equipment important to safety be increased?*

Equipment important to safety which could be impacted by the Cycle 16 reload core design includes: (1) control rods and drive mechanisms, (2) axial power shaping rods and drive mechanisms, and (3) RCS safety-related instrumentation (e.g., in-core detectors, pressure transducers, RTDs, level sensors, etc.).

As noted in the response to Question 1, fuel assembly design criteria assure that the reload core design will not impact the proper function of the control rods, axial power shaping rods, or their drive mechanisms. Cycle 16 operational characteristics will be very similar to Cycle 15. Thus operating pressures, temperatures, neutron fluxes, etc., will remain within the design parameters for RCS safety-related instrumentation as in Cycle 15. Likewise, the continued use of past operating characteristics and parameters which are bounded by current safety analyses (see response to Question #4) maintains the plant response to abnormalities or accident within the parameters used as design bases for engineered safety features. Also, there are no changes to plant equipment or plant operations required for the Cycle 16 reload core design. Therefore, the probability of a malfunction of equipment important to safety is not increased.

4. *Will the consequences of a malfunction of equipment important to safety be increased?*

The Reload Report concludes that by the examination of Cycle 16 core thermal, thermal-hydraulic, and kinetics properties, this core reload will not adversely affect the ability to operate the ANO-1 plant safely during Cycle 16. Considering the previously-accepted design basis used in the SAR and subsequent cycles, the transient evaluation of Cycle 16 is considered to be bounded by previously accepted analyses. The key safety analysis parameters for Cycle 16 are bounded by the assumptions in the SAR analyses and/or subsequent cycle analyses.

The transient response of the plant to the abnormalities and accident scenarios analyzed in SAR chapter 14 will not be altered by the implementation of the Cycle 16 reload core design. As such, all associated accident initiators and any single-failure equipment malfunction postulations remain valid with respect to their impact upon the accident analyses. Slight changes in the dose consequences of the accident analyses are related to the use of Cycle 16 specific radionuclide sources calculated from the actual Cycle 16 core design and irradiation history (see Supplemental Information). These slight changes are not a result of changes in dose release scenario assumptions dictated by the accident scenario and the associated plant response. Also, the doses remain well within ANO-1 NRC SER allowable limits. Therefore, the consequences of a malfunction of equipment important to safety will not be increased.

5. *Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?*

As noted in the response to Question #4, the Reload Report concludes that by the examination of Cycle 16 core thermal, thermal-hydraulic, and kinetics properties, this core reload will not adversely affect the ability to operate the ANO-1 plant safely during Cycle 16. Considering the previously-accepted design basis used in the SAR and subsequent cycles, the transient evaluation of Cycle 16 is bounded by previously accepted analyses. The key safety analysis parameters for Cycle 16 are bounded by the assumptions in the SAR analyses and/or subsequent cycle analyses. In addition, there are no changes to plant equipment or plant operations required for the Cycle 16 reload core design, nor is any new equipment required to be installed. Therefore, the possibility of an accident of a different type than any previously evaluated in the SAR is not created.

6. *Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?*

As noted in the response to Question #4, the Reload Report concludes that by the examination of Cycle 16 core thermal, thermal-hydraulic, and kinetics properties, this core reload will not adversely affect the ability to operate the ANO-1 plant safely during Cycle 16. Considering the previously-accepted design basis used in the SAR and subsequent cycles, the transient evaluation of Cycle 16 is considered to be bounded by

previously accepted analyses. The key safety analysis parameters for Cycle 16 are bounded by the assumptions in the SAR analyses and/or subsequent cycle analyses.

In addition, there are no changes to plant equipment or plant operations required for the Cycle 16 reload core design, nor is any new equipment required to be installed. Therefore, the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR is not created.

7. *Will the margin of safety as defined in the bases for any technical specification be reduced?*

The areas in which margin is defined in the bases of the TSs and that margins could be affected by the Cycle 16 reload core design are noted and discussed in the following:

Instrument Error Adjustments in RPS setpoints – TS Bases 2.1 and 2.3: The TS Bases note that calibration and instrumentation errors are accounted for in the power/imbalance/flow, RCS pressure, and RCS outlet temperature RPS setpoints. The power/imbalance/flow setpoints, the Variable Low-Pressure Temperature (VLPT) setpoints, the VLPT protective limits, and the Pressure-Temperature Setpoints are developed and proposed in the Reload Report for the Cycle 16 COLR. The results presented in the Reload Report do account for calibration and instrumentation errors as required by NRC-approved methodology BAW-10179P-A. Therefore, this particular margin of safety is not reduced.

Quadrant Power Tilt Limits – TS Bases 3.5.2: The TS Bases note that the QPT limits, in conjunction with the control rod position setpoints in the COLR, ensure that design peak heat rate criteria are not exceeded during normal operation including the effects of potential fuel densification. The Reload Report follows the methodology of BAW-10179P-A (Ref. 5 of the Reload Report). BAW-10179P-A addresses fuel densification in the determination of power distribution peaking margins. QPT is also considered in the determination of these margins. Rod position limits protect these peaking margins. Therefore, this particular margin of safety is not reduced.

Stuck Rod Condition for Shutdown Margin – TS Bases 3.5.2 and 4.9: TS Bases note that shutdown margin is determined by assuming the highest worth control rod remains in the full out position. The Reload Report states that, "The adequacy of the shutdown margin with Cycle 16 stuck rod worths is demonstrated in Table 3A-4. Rod position setpoints that ensure the minimum shutdown margin is preserved during power operation, including during the EOC T_{avg} reduction maneuver, are specified in section 3A.8." (Reload Report, Sect. 3A.5.1). The shutdown margin calculations presented in Table 3A-4 do include allowance for maximum stuck rod worth. Therefore, this particular margin of safety is not reduced.

ECCS Power Peaking, Shutdown Margin, and Potential Ejected Rod Worth as Ensured by Control Rod and APSR Position Limits – TS Bases 3.5.2: TS Bases note that the rod position limits are based on the most limiting of ECCS power peaking, shutdown margin, and potential ejected rod worth. The minimum available rod worth provides for achieving hot shutdown by reactor trip at any time, assuming the highest worth control rod remains in the full out position. The rod position limits also ensure that inserted rod groups will not contain single rod worths greater than 0.65 %Δk/k at rated power or 1.0 %Δk/k at hot zero power. The Reload Report states that, "Calculated ejected rod worths and their adherence to criteria were considered at all times in life and at all power levels in the development of the rod position setpoints presented in section 3A.8. All safety criteria associated with these worths are met. The adequacy of the shutdown margin with Cycle 16 stuck rod worths is demonstrated in Table 3A-4. Rod position setpoints that ensure the minimum shutdown margin is preserved during power operation, including during the EOC T_{avg} reduction maneuver, are specified in section 3A.8." (Reload Report, Sect. 3A.5.1). The Reload Report also states that, "Based on the analysis and the COLR revisions provided in this report, the Final Acceptance Criteria ECCS limits will not be exceeded, nor will the thermal design criteria be violated." (Reload Report, Sect. 3A.8). Therefore, this particular margin of safety is not reduced.

Conservatisms Applied to Power Distribution Factors – TS Bases 3.5.2: TS Bases note the application of the following specific uncertainty factors for conservatism in the power distribution factors for the operational reactor power-imbalance envelope defined in the COLR: (a) nuclear uncertainty factors, (b) thermal calibration, (c) fuel densification effects, (d) hot rod manufacturing tolerance factors, and (e) fuel rod bowing. The Reload Report follows the methodology of BAW-10179P-A (Ref. 5 of the Reload Report). BAW-10179P-A addresses these factors in the determination of power distribution peaking margins. Therefore, this particular margin of safety is not reduced.

Dose Limits Associated with the MSLB, SGTR, and Loss of Load Events – TS Bases 3.1.4 and 3.10: TS Bases mention three accident dose consequences, and these are tabulated below:

Accident	Dose in TS Bases	Dose in Cycle 16
Steam Generator Tube Rupture	1.5 Rem to thyroid	7.26 Rem to thyroid
	0.5 Rem to Whole Body	0.3 Rem to Whole Body
Main Steam Line Break	<28 Rem to thyroid	1.77 Rem to thyroid
Loss of Load	1.5 Rem to thyroid	Not cited in Reload Report

The Reload Report analysis of the SGTR results in doses greater than those cited in the TS bases, but the Reload Report analysis contains additional conservatism beyond those in the analysis described in the TS bases for TS 3.1.4 and 3.10 (i.e., operation at 1% failed fuel is assumed in the Reload Report and SAR, but this would not be permitted by the TS 3.1.4 limit on RCS activity).

TSs 3.1.4 and 3.10 Bases describe dose calculations which were performed by the NRC to provide primary and secondary activity limits that result in exposures determined acceptable by the NRC. These TS calculations used assumptions that are different from those used in the Reload Report and Safety Analysis Report, but the calculations were performed for reasons that are different, also. This Reload Report does not change any assumptions stated in the Bases for LCOs associated with TSs 3.1.4 and 3.10. Therefore, this particular margin of safety is not reduced.

Therefore, no margin of safety as defined in the bases of the Technical Specifications is reduced.

Conclusion

Based upon the negative responses to the seven evaluation questions, the startup testing and operation of the Cycle 16 fuel cycle design as described in the Cycle 16 Reload Report does not introduce an unreviewed safety question.

Supplemental Information

The information presented in the Reload Report for Cycle 16 startup testing and operation (CALC-98-R-1020-03, Rev. 0) forms the basis for most of the answers to the evaluation questions. The Reload Report was developed, reviewed, and approved by Framatome Cogema Fuels (FCF). The review process included submittal of a draft to EOI/ANO for review comments and the resolution of those comments. In addition to the Reload Report, FCF also issued a Reload Technical Document (CALC-98-R-1020-02, Rev. 0) which provides supporting information and detail with respect to the Reload Report. The review process for the Reload Technical Document also included submittal of a draft to EOI/ANO for review comments and the resolution of those comments.

The supplemental information presented below is intended (1) to emphasize some of the issues within the Reload Report which have particular bearing upon the responses in this 50.59 Evaluation, and (2) to present the conclusions and supporting information developed from the reviews of certain areas/issues by EOI/ANO Reload Team personnel. Information which is a direct quotation from the Reload Report is noted by quotation marks and the associated Reload Report section(s).

Fuel System Design

"All fuel assemblies in Cycle 16 are the Mark-B9ZL NR-LEF (zone loaded, non-removable lower end fitting) design....Batch 17 and 18 fuel utilize an improved spacer grid restraint system which increased the ability of the fuel assembly to maintain grid positions relative to the instrument tube....All fuel rods in Cycle 16 are the B9 design....The batch 16, 17, and 18 fuel rods utilize a lower prepressure than the batch 15A fuel....The batch 17 and 18 fuel rods have incorporated additional refinements in the upper plenum spring design." (Reload Report, Sect. 3A.4.1).

"...[I]t can be concluded that all the Cycle 16 fuel rods are acceptable in terms of creep collapse....The stress parameters for the Cycle 16 fuel rods are enveloped by a conservative B9 fuel rod stress analysis....The batch 16, 17, and 18 reduced prepressure fuel rods generated a less restrictive strain limit.....Results from the oxide analysis show that the Cycle 16 fuel meets the oxide criterion....All fuel assemblies in the Cycle 16 core are thermally similar. The design of the batch 18 Mark-B9 assemblies is such that the thermal performance of this fuel is equivalent to the fuel design used in the remainder of the core....The compatibility of all possible fuel-cladding-coolant-assembly interactions for batch 18 fuel assemblies is identical to those of present fuel assembles because no new materials were introduced." (Reload Report, Sects. 3A.4.2, 3A.4.3, and 3A.4.4).

In addition to the continued use of an improved spacer grid restraint system and the upper plenum spring design refinements, the Batch 18 assemblies also include the following minor design changes: (1) replacement of the hex nuts used in previous assemblies with a simplified round nut with a torquing feature to secure the guide tubes to the lower end fitting, and (2) the addition of a tubular spacer to the burnable poison rod to provide positive spring compression on the absorber stack for shipping and handling purposes. An in-house review ("ANO-1 Cycle 16 Reload Report and Reload Technical Document, Section 4, and Batch 18 Fuel and BPRA Drawings," EDC File QR-026-27, July 1999) concluded that the mechanical design was adequate based on key mechanical considerations.

The Mark-B9ZL NR-LEF fuel assemblies have been used for the last two cycles, and were likewise also reviewed under previous cycle 50.59s).

Nuclear Design

The Cycle 16 core design includes the insertion of sixty FCF Mark B9ZL-NRLEF fresh fuel assemblies (Batch 18). Sixty once-burned assemblies (Batch 17), fifty-two twice-burned assemblies (Batch 16A2), and two thrice-burned assemblies (Batch 15A4) are shuffled to new core locations. Three twice-burned assemblies (Batch 15A3), discharged at the end of Cycle 14 are reinserted in the core. The Batch 18 assembly design fuel enrichment is 4.03 w/o U-235 (192 rods at 4.05 w/o U-235 and 16 rods at 3.75 w/o U-235). The design length of the fuel cycle is 512 +10/-30 EFPD, which includes an RCS T_{ave} reduction maneuver near the end of the cycle.

"...The differences in feed enrichment, BPRA loading, shuffle pattern, and cycle length caused the changes in the physics parameters between Cycles 15 and 16. Calculated ejected rod worths and their adherence to criteria were considered at all times in life and at all power levels in the development of the rod position setpoints presented in

section 3A.8. All safety criteria associated with these worths are met. The adequacy of the shutdown margin with Cycle 16 stuck rod worths is demonstrated in Table 3A-4. Rod position setpoints that ensure the minimum shutdown margin is preserved during power operation, including during the EOC T_{avg} reduction maneuver, are specified in section 3A.8...." (Reload Report, Sect. 3A.5.1)

"The design changes for Cycle 16 consist of an increase in feed batch enrichment and a longer cycle length. There are also asymmetries in the full core loading by batch (enrichment) and burnup which are fully outlined in Table 3A-1a. The asymmetries are not significant to the nuclear calculations because of the excellent balance in eigenvalues achieved in the design. These changes were incorporated in the physics model. The calculational methods used to obtain the important nuclear design parameters for this cycle were the same as those used for Cycle 15, which is the reference cycle. The core design change did not affect the methods for defining the transient neutronic parameters and thus, changes to these calculational methods were not required." (Reload Report, Sect. 3A.5.3)

The impact of Cycle 16 fuel on the fuel storage criticality calculations has been evaluated by Entergy. The acceptability of loading of Batch 17 and previous fuel batches in the region 1 racks was confirmed in a criticality analysis performed for ANO (CEO–98/00032, "ANO-1 SFP Region 1 Criticality Analysis Results," F.H. Smith to J.G. Head and N. Mosher, EDC File QR–104–36, January 28, 1998). In addition, comparative calculations have been performed which confirm that the Batch 18 fuel is bounded by the design basis fuel of 4.10 wt% U–235 for all storage areas (CEO-99/00176, "Criticality Confirmation for ANO-1 Cycle 16 Fresh Fuel," F.H. Smith to J.G. Head, EDC File QR-104-37, July 1999). These comparative results demonstrate that the Cycle 16 fuel does not violate the assumptions of the criticality analysis for the spent fuel storage racks, the fresh fuel storage rack, and the temporary containment rack. The Cycle 16 reload fuel can be safely stored without restriction in the fresh fuel storage rack, the temporary containment rack, and in region 1 of the spent fuel rack. The unirradiated Cycle 16 reload fuel can be stored in region 2 of the spent fuel storage rack in the restricted checkerboard configuration.

Thermal-Hydraulic Design

The Cycle 16 core thermal-hydraulic design is based on the use of Statistical Core Design (SCD) methodology as approved by the NRC (BAW-10187P-A, Ref. 13 of the Reload Report). SCD employs the comparison of DNB analyses results to a Thermal Design Limit (TDL) of 1.40 which reserves margin with respect to the allowable Statistical Design Limit (SDL) of 1.32. This design margin is reserved to accommodate minor design changes or minor deviations from the reference core DNB analysis.

The Cycle 16 core contains 177 Mark-B9 fuel assemblies using bypass flow optimized guide tubes, 60 control rods, 8 APSRs, and 44 BPRAs. The reference DNB analysis considers an all Mark-B9 core, 68 CR/APSR components, and 48 BPRAs. The Cycle 16 design and the improved grid restraint system on batch 17 and 18 fuel assemblies results in a calculated bypass flow of 5.34 % of full flow vs. the 5.31 % calculated in the reference analysis. The Reload Report concludes that the difference in bypass flow is negligible, and that the effect of the improved grid restraint system is offset by a small portion of the margin between the TDL and the SDL.

Accident and Transient Analysis (LOCA and Non-LOCA)

"Each SAR accident analysis has been examined with respect to changes in the Cycle 16 parameters to verify that the SAR analyses are bounding for Cycle 16 operation, and to ensure that thermal performance during anticipated transients and accident events is not degraded." (Reload Report, Sect. 3A.7).

"The key cycle-specific parameters for each of the events in chapter 14 of the ANO-1 SAR were reviewed. It was concluded that the non-LOCA safety analyses remain bounding for Cycle 16 operation." (Reload Report, Sect. 3A.7.2)

"All batches of fuel in the Cycle 16 core were reviewed and shown to be bounded by a generic LOCA analysis." (Reload Report, Sect. 3A.7.3.2).

"It is concluded by the examination of Cycle 16 core thermal, thermal-hydraulic, and kinetics properties that this core reload will not adversely affect the ability to operate the ANO-1 plant safely during Cycle 16. Considering the previously-accepted design basis used in the SAR and subsequent cycles, the transient evaluation of Cycle 16 is considered to be bounded by previously accepted analyses. The key safety analysis parameters for Cycle 16 are bounded by the assumptions in the SAR analyses and/or subsequent cycle analyses." (Reload Report, Sect. 3A.7.4).

Dose Assessment

"All of the Cycle 16 accident doses are based on radionuclide sources calculated from the actual Cycle 16 core design and irradiation history. Table 3A-6 shows a comparison of the SAR, Cycle 15, and Cycle 16 doses for the chapter 14 accidents that result in significant offsite doses." (Reload Report, Sect. 3A.7.1).

The table below presents the information found in Table 3A-6, and the allowable doses based on ANO-1 NRC SERs are also presented below for comparison.

Accident	SAR	Dose (REM) Cycle 15	Dose (REM) Cycle 16	NRC SER (allowable)
Fuel Handling (Outside RB)				
2 hr EAB Thyroid	9.537	9.94	10.4[a]	75
2 hr EAB Whole-body	0.261	0.144	0.151[a]	6
Fuel Handling (Inside RB)				
2 hr EAB Thyroid	63.599	66.3	69.1[a]	75
2 hr EAB Whole-body	0.27	0.193	0.202[a]	6
Steam Line Break				
2 hr EAB Thyroid	1.6	1.78	1.77	30
2 hr EAB Whole-body	0.0	0.009	0.009	2.5
Steam Generator Tube Failure				
2 hr EAB Thyroid	4.64	7.27	7.26	30
2 hr EAB Whole-body	0.125	0.3	0.3	2.5
Control Rod Ejection Accident				
2 hr EAB Thyroid	6.266	7.21	7.16	75
2 hr EAB Whole-body	0.012	0.007	0.007	6
30 day LPZ Thyroid	5.025	5.79	5.75	75
30 day LPZ Whole-body	0.009	0.005	0.005	6
Loss of Coolant Accident				
2 hr EAB Thyroid	7.01	3.81	3.78	300
2 hr EAB Whole-body	0.0165	0.03	0.03	25
30 day LPZ Thyroid	2.66	1.91	1.90	300
30 day LPZ Whole-body	0.0106	0.02	0.02	25
Maximum Hypothetical Accident				
2 hr EAB Thyroid	148.68	153.6	153.3	300
2 hr EAB Whole-body	4.66	5.28	5.29	25
30 day LPZ Thyroid	52.38	70.2	70.1	300
30 day LPZ Whole-body	1.54	1.88	1.89	25

a. Cycle 16 used a χ/Q value of 6.8×10^{-4} sec/m^3 per the Cycle 16 groundrules document. Cycle 15 used a χ/Q value of 6.5×10^{-4} sec/m^3 per the SAR. The Cycle 16 dose is slightly greater than the Cycle 15 dose.

Note that the Cycle 16 doses predicted for the Fuel Handling Accident scenarios increased over those reported in Cycle 15 due to application of the χ/Q value of 6.8×10^{-4} sec/m^3 used by the NRC in the SER, consistent with that used for all the other accident doses determined for the Cycle 16 Reload Report and in accordance with the Cycle 16 Groundrules Document (98-R-1020-01, Rev. 0). The Cycle 15 predicted doses for the Fuel Handling Accident used a χ/Q value of 6.5×10^{-4} sec/m^3 consistent with the value used by ANO in the submittal to the NRC for the TS change request to allow leaving the personnel and equipment hatches open when moving irradiated fuel in the reactor building (0CAN059603) and with the value reported in the ANO-1 SAR. This request was approved by the NRC in Amendments 184 and 195 to the Unit 1 Technical Specifications. The confirmatory analysis by the NRC used a χ/Q value of 6.8×10^{-4} sec/m^3 (SER 184). The ratio of these χ/Qs ($6.8\times10^{-4} / 6.5\times10^{-4} = 1.046$) explains the increase in the Cycle 16 FHA doses over those reported in Cycle 15.

Proposed Modifications to Technical Specifications and Core Operating Limits Report

By inspection of the Cycle 15 COLR, as compared to the information presented in the Cycle 16 Reload Report, one can see that the "Axial Power Imbalance Protective Limits" and the "Protection System Maximum Allowable Setpoints for Axial Power Imbalance" for Cycle 15 lie within the envelopes presented for Cycle 16. Thus, the use of the more restrictive Cycle 15 envelopes is conservative for Cycle 16 operation.

"Normal operating limits for Cycle 16 are defined by the error-adjusted alarm setpoints shown in Figures 3A-9 through 3A-17. APSR insertion limits and setpoints are specified in Table 3A-11. Quadrant power tilt limits and setpoints are listed in Table 3A-12....Except for the APSR insertion limits, the normal operating limits for Cycle 16 are bounded by the Cycle 15 limits such that either set of limits is acceptable for Cycle 16 operation." (Reload Report, Sect. 3A.8).

By inspection of the Cycle 15 COLR, as compared to the information presented in the Cycle 16 Reload Report, one can see that the VLPT Protective Limits, RCS Pressure-Temperature Protective Maximum Allowable Setpoints, kW/ft Limit for Axial Power Imbalance Protective Limits, and Design Nuclear Power Peaking Factors have not changed. Therefore, the use of Cycle 15 limits for Cycle 16 operation is conservative.

Startup Program – Physics Testing

The Startup Program – Physics Testing presented in the Reload Report for Cycle 16 is the same as that currently in the SAR for Cycle 16. Some minor changes to correct inadvertent typographical errors are to be implemented via the LDCR for SAR Chapter 3A. These changes have no impact which would result in the Cycle 16 startup program being substantially different from that of Cycle 15.

Reactor Vessel Fluence

The Cycle 16 core has been designed to obtain a low neutron leakage configuration similar to Cycle 15. The Cycle 15 fuel cycle design was determined not to result in a significant increase in the neutron flux, and therefore the fluence, to any of the welds or plates in the reactor vessel. The fuel cycle design of Cycle 16 is very similar to Cycle 15's; therefore there should not be a problem in the total fluence accumulation at EOL. The EOL fluence value was used as a basis for the current pressure/temperature and LTOP limits in the Technical Specifications

This Document contains 5 Pages.

Document No. CALC-98-R-1020-05 Rev./Change No. 0

Title ANO UNIT 1 CYCLE 16 REDESIGN VERIFICATION REPORT

Brief description of proposed change:

See attached continuation page(s).

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

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10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. CALC-98-R-1020-05 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

See attached continuation page(s).

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: Unit 1 50.59: ALL (nj0*, reconst*, recone*, reconn*, grid damag*, c2f4*, c29j*, contr* rod* assem*)

MANUAL SECTIONS: Unit 1 SAR: ALL of Chapter 3A; Unit 1 COLR: ALL

FIGURES: Unit 1 SAR: ALL of Chapter 3A figures; Unit 1 COLR: ALL figures

Darren G. Talley — Darren G. Talley — 10/4/99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 12/10/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Michael R. McKinney — Michael R. McKinney — 10/4/99

Certified Reviewer's Signature — Printed Name — Date

FORM TITLE:	FORM NO.	REV.
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ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. CALC-98-R-1020-05 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

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***NOTE**: This 50.59 Determination is predicated upon the changes already made to the SAR, COLR, and FHA with the submission of the Cycle 16 Reload Report as CALC-98-R-1020-03, Rev. 0 under FFN-99-059.*

Brief Description of Proposed Change

During the fuel offload for ANO-1 outage 1R15, damage to spacer grid straps was discovered on several fuel assemblies. For those assemblies with grid damage which were to be utilized in the Cycle 16 core, an assessment was made regarding whether to (1) use the assembly "as-is", (2) reconstitute the assembly using stainless steel pins to replace fuel pins adjacent to the damaged region, or (3) substitute an assembly from the spent fuel pool which has similar neutronic parameters. The following table describes the changes that were ultimately made to the original Cycle 16 core design.

Core Location	Fuel Assembly ID		Reason for Change
	Original Cycle 16 Design	Revised Cycle 16 Design	
F1	NJ08LY	NJ08LM	Fuel assembly NJ08LM was substituted for NJ08LY. Fuel assembly NJ08LY was discharged because of grid damage.
E2	NJ08KU	NJ08LP	Fuel assembly NJ08LP was substituted for NJ08KU. Fuel assembly NJ08KU was moved to location E5.
H2	NJ09WN	NJ09WW	Fuel assembly NJ09WW was reconstituted using 2 stainless steel rods. Location was changed to minimize the effect of the stainless steel rods on local power peaking. This is a direct swap of core locations with fuel assembly NJ09WN.
E3	NJ1003	NJ1003	Fuel assembly NJ1003 was reconstituted using 1 stainless steel rod, but location is not changed.
G3	NJ09WW	NJ09WN	Fuel assembly NJ09WN was directly swapped in core location with fuel assembly NJ09WW to minimize the effect of the stainless steel rods on local power peaking.
E5	NJ08MM	NJ08KU	Fuel assembly NJ08KU was substituted for NJ08MM. Fuel assembly NJ08MM was moved to location E11.
C7	NJ09WE	NJ09WG	Fuel assembly NJ09WG was directly swapped in core location with fuel assembly NJ09WE to minimize the effect of the stainless steel rods on local power peaking.
P8	NJ09WG	NJ09WE	Fuel assembly NJ09WE was reconstituted using 1 stainless steel rod. Location was changed to minimize the effect of the stainless steel rods on local power peaking. This was a direct swap of core locations with fuel assembly NJ09WG.
E11	NJ08MK	NJ08MM	Fuel assembly NJ08MM was substituted for NJ08MK. Fuel assembly NJ08MK was discharged because of grid damage.
P11	NJ08MD	NJ08LN	Fuel assembly NJ08LN was substituted for NJ08MD. Fuel assembly NJ08MD was discharged because of grid damage.
P12	NJ08KR	NJ08L7	Fuel assembly NJ08L7 was substituted for NJ08KR. Fuel assembly NJ08KR was discharged because of grid damage.
K9	NJ09X1	NJ09X1	Minor grid damage. Used as-is.
N10	NJ09X5	NJ09X5	Minor grid damage. Used as-is.
O9	NJ09WX	NJ09WX	Slightly more grid damage. Used as-is.

The ANO Unit 1 Cycle 16 Redesign Verification Report (CALC-98-1020-05, Rev. 0) presents the results of analyses by Framatome Cogema Fuels (FCF) and Framatome Technologies, Inc. (FTI) to determine the effect of the changes from the original Cycle 16 design as presented in the Cycle 16 Reload Report (CALC-98-R-1020-03, Rev. 0). The FCF recommendations on the use "as-is" and repair for assemblies with grid damage were given in FCF letter BPD-99-849. Assessment of the impact of steel pins was performed in accordance with NRC-approved methodology (BAW-2149-A).

In addition to the fuel assembly changes, a potentially damaged control rod assembly (serial number C29J – Safety Group 4) was removed from the core. A control rod assembly (serial number C2F4) from the warehouse inventory was used in its place in core location G5 in assembly NJ09WC. This was a like-for-like direct substitution.

Basis for Determination (Questions 1, 2, & 3)

Question 1: The changes in fuel assemblies and core locations from the original Cycle 16 design are beyond the level of detail presented in the Operating License documents, as is the control rod assembly substitution. The evaluation of the changes in CALC-98-R-1020-05, Rev. 0 do not necessitate any changes to the Technical Specifications or the Operating License, nor does it conflict with Confirmatory Orders.

Question 2: The changes in fuel assemblies and core locations from the original Cycle 16 design are beyond the level of detail presented in the Fire Hazards Analysis, Technical Specification Bases, Technical Requirements Manual, and NRC Safety Evaluation Reports. The core loading pattern is however presented in SAR Chapter 3A, along with related information such as assembly-average burnup, full-core asymmetries, and power peaking.

In addition, the results of analyses related to the fuel cycle design are reflected in the COLR. However, CALC-98-R-1020-05, Rev. 0 evaluations do not require that any changes be made to the Cycle 16 COLR (CALC-98-R-1020-04, Rev. 0) beyond those previously incorporated with respect to the Cycle 16 Reload Report (CALC-98-R-1020-03, Rev. 0; see also FFN-99-059).

The substitution of the control rod assembly is beyond the level of detail of the SAR documents.

Question 3: CALC-98-R-1020-05, Rev. 0 presents the results of evaluations of the changes made to the Cycle 16 fuel cycle design as a result of grid damage found in the 1R15 offload. Startup testing for Cycle 16 is addressed in SAR Chapter 3A and does not need to be changed as a result of the Cycle 16 redesign. No additional tests or experiments are presented in the Cycle 16 Redesign Verification Report.

The substitution of the control rod assembly is not a test or experiment.

Since the changes in the Cycle 16 core loading (i.e., change in assembly locations, the reconstitution of certain fuel assemblies, and the as-is use of fuel assemblies) result in changes to SAR Chapter 3A, a 10CFR50.59 Evaluation is required. However, since the control rod assembly substitution does not effect the LBDs or involve a test or experiment, it will not be addressed in the 10CFR50.59 Evaluation.

LDCRs Required by this Activity

SAR Chapter 3A: SAR Chapter 3A documents the conclusions of the Cycle 16 Reload Report. This chapter will be modified via LDCR to reflect the necessity for a core redesign and summarize the effects of the redesign on the conclusions for the original Cycle 16 design as presented in SAR Chapter 3A.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 5 Pages.

Document No. CALC-98-R-1020-05 Rev./Change No. 0 10CFR50.59 Eval. No. FFN # 99-088 (Assigned by PSC)

Title ANO UNIT 1 CYCLE 16 REDESIGN VERIFICATION REPORT

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Darren G. Talley — Certified Reviewer's Signature

Darren G. Talley — Printed Name

10/4/99 — Date

Reviewer's certification expiration date: 12/10/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 10/4/99

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Basis for Answers to the Evaluation Questions

1. *Will the probability of an accident previously evaluated in the SAR be increased?*

For the accidents evaluated in the SAR, the only events which have an initiator which could be affected by the changes to the original Cycle 16 reload core design are (a) the Stuck In/Stuck Out/Dropped Rod event, (b) Fuel Loading Errors, and (c) the Fuel Handling Accident.

The Mark-B9ZL-NRLEF fuel assembly design continues to be utilized exclusively in the revised Cycle 16 core design loading. The reconstitution of fuel assemblies or use as-is with minor grid damage does not invalidate the acceptability of the assemblies with respect to the design criteria discussed in the B&W topical for "Safety Criteria and Methodology for Acceptable Reload Analyses" (BAW-10179P-A). The redesign was accomplished in accordance with the requirements of "Evaluation of Replacement Rods in BWFC Fuel Assemblies," BAW-2149-A. Therefore, the probability of a Stuck In/Stuck Out/Dropped Rod event is not increased by the employment of assemblies with minor grid strap damage or reconstituted assemblies in the Cycle 16 redesign as presented in the Redesign Verification Report.

The fuel assembly identification will continue to be prominently displayed on the upper end fitting for core loading verification prior to startup, and operating procedures require verification of the final core loading. Therefore, the probability of gross fuel assembly misplacement in the core is not increased.

These assemblies have the same structural cage as that previously used at ANO-1 and will be capable of withstanding the expected handling loads. The mass of the assemblies is essentially unchanged by the reconsititution with stainless steel rods. These assemblies are compatible with the fuel handling equipment. The manner of handling these assemblies will be essentially unchanged, although handling precautions (per FCF Letter BPD-99-849, "Disposition of Fuel Assemblies Grid Damage, Arkansas Nuclear One – Unit 1") will be utilized to avoid further grid damage. Hence, the probability of a fuel handling accident is not increased.

Therefore, the probability of an accident previously evaluated in the SAR is not increased.

2. *Will the consequences of an accident previously evaluated in the SAR be increased?*

With regard to the reconstitution of fuel assemblies using stainless steel rods, the conclusions of BAW-2149-A are that the effect of up to 10 stainless steel rods in an assembly on seismic-LOCA loads is acceptable.

With regard to the "as-is" use of assemblies with grid damage, FCF performed some additional grid crush test with intentionally damaged grids for ANO in 1996 (reference FCF Memo D&D-96-213, "ANO Damaged Grid Crush Test," FCF Document 51-1234631-00, "ERD – Mk-BZ Spacer Grids Static Crush Test," and FCF Document 51-1235890-00, "Mk-BZ/(B11-YAG) Grid Crush Test Results"). These tests typically involved the removal of all corner cell welds and the subjection of the grid to the same crush test that nominal grids were subjected to support the SER. The results indicated that the strength of the grid comes from the intersection welds in the interior. There was no noticeable change in the deformation load. This work supports the position that reusing the fuel assemblies which have minor grid damage should not affect the response of the reactor or the fuel under faulted conditions. All assumptions are still valid.

Therefore, the transient response of the plant to the abnormalities and accident scenarios analyzed in SAR chapter 14 will not be altered by the implementation of the Cycle 16 redesign. As such, all associated accident initiators and any single-failure equipment malfunction postulations remain valid with respect to their impact upon the accident analyses.

The Cycle 16 Redesign Verification Report documents that the dose calculations for the Cycle 16 core design presented in the Cycle 16 Reload Report remain valid. Therefore, the consequences of accidents previously evaluated in the SAR are not increased.

3. *Will the probability of a malfunction of equipment important to safety be increased?*

Equipment important to safety which could be impacted by the Cycle 16 redesign includes: (1) control rods and drive mechanisms, (2) axial power shaping rods and drive mechanisms, and (3) RCS safety-related instrumentation (e.g., in-core detectors, pressure transducers, RTDs, level sensors, etc.).

As noted in the response to Question 1, fuel assembly design criteria assure that the reload core design will not impact the proper function of the control rods, axial power shaping rods, or their drive mechanisms. Cycle 16 redesign operational characteristics are essentially unchanged from the original Cycle 16 design. Thus operating pressures, temperatures, neutron fluxes, etc., will remain within the design parameters for RCS safety-related instrumentation. Likewise, the continued use of past operating characteristics and parameters which are bounded by current safety analyses (see response to Question #4) maintains the plant response to abnormalities or accident within the parameters used as design bases for engineered safety features. Also, there are no changes to plant equipment or plant operations required for the Cycle 16 redesign. Therefore, the probability of a malfunction of equipment important to safety is not increased.

4. *Will the consequences of a malfunction of equipment important to safety be increased?*

The Redesign Verification Report concludes that the redesign of Cycle 16 does not significantly affect the core thermal, thermal-hydraulic, and kinetics properties. Therefore, this core reload will not adversely affect the ability to operate the ANO-1 plant safely during Cycle 16. Considering the previously-accepted design basis used in the SAR and subsequent cycles (see Table 3A-8 of the Cycle 16 Reload Report), the transient evaluation of redesigned Cycle 16 is considered to be bounded by previously accepted analyses. The key safety analysis parameters for the redesigned Cycle 16 are bounded by the assumptions in the SAR analyses and/or subsequent cycle analyses.

The transient response of the plant to the abnormalities and accident scenarios analyzed in SAR chapter 14 will not be altered by the implementation of the Cycle 16 redesign. As such, all associated accident initiators and any single-failure equipment malfunction postulations remain valid with respect to their impact upon the accident analyses. The Redesign Verification Report concludes that the dose consequences of the accident analyses presented in the Cycle 16 Reload Report remain valid. Therefore, the consequences of a malfunction of equipment important to safety will not be increased.

5. *Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?*

The changes resulting from the redesign of Cycle 16 do not change any plant equipment or alter plant operations with respect to the original Cycle 16 reload core design, nor is any new equipment required to be installed. Therefore, the possibility of an accident of a different type than any previously evaluated in the SAR is not created.

6. *Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?*

As noted in Question #5, the changes resulting from the redesign of Cycle 16 do not change any plant equipment or alter plant operations with respect to the original Cycle 16 reload core design, nor is any new equipment required to be installed. Therefore, the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR is not created.

7. *Will the margin of safety as defined in the bases for any technical specification be reduced?*

The areas in which margin is defined in the bases of the TSs and that margins could be affected by the Cycle 16 redesign are noted and discussed in the following:

Instrument Error Adjustments in RPS setpoints – TS Bases 2.1 and 2.3: The TS Bases note that calibration and instrumentation errors are accounted for in the power/imbalance/flow, RCS pressure, and RCS outlet temperature RPS setpoints. The power/imbalance/flow setpoints, the Variable Low-Pressure Temperature (VLPT) setpoints, the VLPT protective limits, and the Pressure-Temperature Setpoints are developed and proposed in the Cycle 16 Reload Report for the Cycle 16 COLR. The results presented in the Reload Report do account for calibration and instrumentation errors as required by NRC-approved methodology BAW-

10179P-A. The conclusions of the Redesign Verification Report were derived in accordance with BAW-10179P-A. Therefore, this particular margin of safety is not reduced.

Quadrant Power Tilt Limits – TS Bases 3.5.2: The TS Bases note that the QPT limits, in conjunction with the control rod position setpoints in the COLR, ensure that design peak heat rate criteria are not exceeded during normal operation including the effects of potential fuel densification. The Cycle 16 Reload Report follows the methodology of BAW-10179P-A (Ref. 5 of the Reload Report). BAW-10179P-A addresses fuel densification in the determination of power distribution peaking margins. QPT is also considered in the determination of these margins. Rod position limits protect these peaking margins. The conclusions of the Redesign Verification Report were derived in accordance with BAW-10179P-A. Therefore, this particular margin of safety is not reduced.

Stuck Rod Condition for Shutdown Margin – TS Bases 3.5.2 and 4.9: TS Bases note that shutdown margin is determined by assuming the highest worth control rod remains in the full out position. The Cycle 16 Reload Report states that, "The adequacy of the shutdown margin with Cycle 16 stuck rod worths is demonstrated in Table 3A-4. Rod position setpoints that ensure the minimum shutdown margin is preserved during power operation, including during the EOC T_{avg} reduction maneuver, are specified in section 3A.8." (Cycle 16 Reload Report, Sect. 3A.5.1). The shutdown margin calculations presented in Table 3A-4 of the Cycle 16 Reload Report do include allowance for maximum stuck rod worth. The Redesign Verification Report concludes that the conclusions of the Cycle 16 Reload Report remain valid for the Cycle 16 redesign. Therefore, this particular margin of safety is not reduced.

ECCS Power Peaking, Shutdown Margin, and Potential Ejected Rod Worth as Ensured by Control Rod and APSR Position Limits – TS Bases 3.5.2: TS Bases note that the rod position limits are based on the most limiting of ECCS power peaking, shutdown margin, and potential ejected rod worth. The minimum available rod worth provides for achieving hot shutdown by reactor trip at any time, assuming the highest worth control rod remains in the full out position. The rod position limits also ensure that inserted rod groups will not contain single rod worths greater than 0.65 %Δk/k at rated power or 1.0 %Δk/k at hot zero power. The Cycle 16 Reload Report states that, "Calculated ejected rod worths and their adherence to criteria were considered at all times in life and at all power levels in the development of the rod position setpoints presented in section 3A.8. All safety criteria associated with these worths are met. The adequacy of the shutdown margin with Cycle 16 stuck rod worths is demonstrated in Table 3A-4. Rod position setpoints that ensure the minimum shutdown margin is preserved during power operation, including during the EOC T_{avg} reduction maneuver, are specified in section 3A.8." (Reload Report, Sect. 3A.5.1). The Reload Report also states that, "Based on the analysis and the COLR revisions provided in this report, the Final Acceptance Criteria ECCS limits will not be exceeded, nor will the thermal design criteria be violated." (Reload Report, Sect. 3A.8). The Redesign Verification Report concludes that the conclusions of the Cycle 16 Reload Report remain valid for the Cycle 16 redesign. Therefore, this particular margin of safety is not reduced.

Conservatisms Applied to Power Distribution Factors – TS Bases 3.5.2: TS Bases note the application of the following specific uncertainty factors for conservatism in the power distribution factors for the operational reactor power-imbalance envelope defined in the COLR: (a) nuclear uncertainty factors, (b) thermal calibration, (c) fuel densification effects, (d) hot rod manufacturing tolerance factors, and (e) fuel rod bowing. The Reload Report follows the methodology of BAW-10179P-A (Ref. 5 of the Reload Report). BAW-10179P-A addresses these factors in the determination of power distribution peaking margins. The conclusions of the Redesign Verification Report were derived in accordance with BAW-10179P-A. Therefore, this particular margin of safety is not reduced.

Dose Limits Associated with the MSLB, SGTR, and Loss of Load Events – TS Bases 3.1.4 and 3.10: These TS Bases mention three accident dose consequences. The acceptability of reload doses exceeding these particular values is discussed in the reviewed and approved 10CFR50.59 Review for the Cycle 16 Reload Report (see FFN-99-059). The dose consequences from the Cycle 16 Reload Report remain valid for the redesign of Cycle 16. Therefore, the conclusions of the Cycle 16 Reload Report 10CFR50.59 remain valid.

Therefore, no margin of safety as defined in the bases of the Technical Specifications is reduced.

Conclusion

Based upon the negative responses to the seven evaluation questions, the startup testing and operation of the revised Cycle 16 fuel cycle design as evaluated in the Cycle 16 Redesign Verification Report does not introduce an unreviewed safety question.

This Document contains 7 Pages.

Document No. CR-1-97-0063-02 Rev./Change No. 0

Title UNIT 1 HYDROGEN ANALYZER UNCERTAINTY EVALUATION

Brief description of proposed change:

This LDCR removes the stated uncertainty value of 3.0% of span for Unit 1 Hydrogen Analyzers from the SAR, thereby, allowing the current calibration tolerance for these devices to be relaxed. Instrument uncertainty calculation 93-E-0083-01 Rev. 0 calculates the actual indication error to be +/- 8.75% of span (0.88% H2 concentration). Containment Hydrogen Control procedure 1104.031 uses a setpoint of 3.0% hydrogen concentration to start the Recombiners and this setpoint is adequate to maintain the Hydrogen concentration in the Reactor Building below the required 4.0% considering the +/- 8.75% of span instrument error, as documented in calculations 91-E-0047-01 Rev. 4 (ANO-1 Containment Bldg. Hydrogen Post LOCA) and 91-R-1018-02 Rev. 8 (EOP setpoint basis calculation).

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. CR-1-97-0063-02 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1) The requirements for Hydrogen Analyzers were imposed upon ANO, post-TMI, per Confirmatory Orders. NUREG 0737 Item II.F.1 discusses the specific requirements for a Containment Hydrogen Monitor and the Unit 1 Technical Specifications (ref: 3.14 and 4.12) contain the ANO specific requirements related to Hydrogen Monitoring. None of the Licensing Bases documents discusses a specific limitation for instrument uncertainty.
2) The Unit 1 SAR specifically mentions the accuracy value of the Hydrogen Samplers as +/- 3.0% of span in section 6.6.2.3.1. This accuracy value is being removed from the SAR by this LDCR because it provides more detail than is required in the SAR. The actual value of +/-8.75% of span is calculated in 93-E-0083-01 Rev. 0 and the EOP setpoint basis calculation 91-R-1018-02 Rev. 8 documents the acceptability of this error value in maintaining the Reactor Building Hydrogen Concentration below the required 4.0%. Procedures 1104.031 (Containment Hydrogen Control) and -- continued --

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section

LRS: Unit 1 50.59 (Analyzer, Hydrogen w/5 concentration, "Combustible Gas Control", Hydrogen w/200 span, Hydrogen w/200 uncertainty, Hydrogen w/200 error, "Hydrogen Monitors", "Hydrogen Samplers")

MANUAL SECTIONS:

ANO-1 Tech. Spec.	3.14, 4.12
ANO-1 SAR	Table 7-11

FIGURES: SAR Figure 5.7

Keith D Nichols — Keith D Nichols — 2/9/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 9/18/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Ken W Montgomery — Ken W Montgomery — 2-10-99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. CR-1-97-0063-02 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. CR-1-97-0063-02 Rev./Change No. 0

10CFR50.59 Review Continuation Page

continued - question #2 of Determination

1203.012N (Annuciator K16 Corrective Action Procedure) both require that the Hydrogen Recombiners be started when the Hydrogen Analyzer indication reaches 3.0% hydrogen concentration. As documented in the EOP setpoint basis document, based on Operator response time, instrument uncertainty and the event analysis, the existing setpoint will ensure that the Reactor Building hydrogen concentration is maintained below the required 4.0%.

LDCR 1-6.6-7 was recently submitted under corrective action #5 of CR-1-97-0063-02 to revise the SAR limiting value of 3.5% Hydrogen concentration in the Reactor Building to 4.0%. The 4.0% value was always the requirement and the 3.5% value included various margins that are presently accounted for in the EOP setpoint basis document.

Several other SAR documents discuss the Hydrogen Analyzers but none in the level of detail as to specify the instrument uncertainty.

3) This LDCR will remove the specified instrument uncertainty from the SAR, thereby, allowing the calibration tolerance for Hydrogen Analyzers to be relaxed. The existing setpoints , to start the recombiners will stay at their present values. No test or experiments will be required by this revision to the SAR.

FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 3

Document No. CR-1-97-0063-02 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-99-022 (Assigned by PSC)

Title UNIT 1 HYDROGEN ANALYZER UNCERTAINTY EVALUATION

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Keith D Nichols — Certified Reviewer's Signature
Keith D Nichols — Printed Name
2/10/99 — Date

Reviewer's certification expiration date: _____

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: T Brown Date: 2/18/99

Document No. CR-1-97-0063-02 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

No, this change only removes the reference to the uncertainty value associated with the Hydrogen Analyzers. The actual uncertainty, although larger than the value documented in the SAR, is properly accounted for in the appropriate calculations and Safety Analysis. The Hydrogen Analyzer indication is used by procedures to manually start the Hydrogen Recombiners to mitigate the consequences of an accident by limiting the hydrogen concentration in the Reactor Building. The hydrogen concentration in the Reactor Building is a post accident issue and the hydrogen concentration mitigation equipment cannot, by itself, initiate an accident.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

No, the limit on hydrogen concentration in the Reactor Building, after a design basis LOCA, is 4%. The uncertainty of the Hydrogen Analyzers is being relaxed to accommodate instrument calibration. Although, the actual Hydrogen Analyzer indication uncertainty value will exceed the value presently stated in the SAR, it is adequate to maintain the Reactor Building hydrogen concentration below the required 4%. Existing plant procedures require that the Hydrogen Recombiners be started when the Hydrogen Analyzer indication reaches 3%. Based on approved calculations and accounting for Operator response time, actual instrument uncertainty and event analysis, the hydrogen concentration in the Reactor Building will not exceed 4%. Therefore, the consequences of all of the accidents evaluated in the SAR will be unaffected. The offsite dose during or following an analyzed accident will not be impacted in any way by this activity.

3. Will the probability of a malfunction of equipment important to safety be increased?

No, the Hydrogen Analyzers procedures can be relaxed, to account for the additional margin, without compromising the functionality of the hydrogen mitigation equipment or any other plant equipment. The new uncertainty values will be more than adequate to ensure that the hydrogen concentration level in the Reactor Building is maintained within acceptable limits during post accident conditions. No new failure modes of any type are being introduced nor is the system reliability be degraded in any way that would increase the probability of an equipment malfunction. No new interfaces with safety related equipment are being introduced by this activity.

4. Will the consequences of a malfunction of equipment important to safety be increased?

No, a malfunction of the Hydrogen Analyzers will not result in any different failure scenario than has been previously analyzed. No single or common mode failures are being introduced that could impact both trains of the hydrogen mitigation equipment. The relaxed calibration tolerance could slightly delay the initiation of the Hydrogen Recombiners but the consequences of equipment malfunctions will be unaffected because adequate margin is still maintained to ensure that the Reactor Building hydrogen levels are maintained within acceptable limits. Therefore, this activity will in no way impact the existing accident analysis related to offsite dose and will not increase the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

No, the existing accident analysis will remain unchanged as long as the Reactor Building hydrogen concentration remains below the required 4% and even with the increased uncertainty, adequate margin is maintained to ensure that this is the case. No new accident initiators, failure modes or equipment malfunctions that could result in any new accident type are being introduced by this activity. The design function of the hydrogen mitigation equipment is unaffected.

Document No. CR-1-97-0063-02 Rev./Change No. 0

10CFR50.59 Review Continuation Page

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

No, the failure modes of the equipment affected by this activity are unchanged. The increased uncertainty and the affects of this additional error in no way affect the equipment reliability or failure mechanisms. Additionally, as stated earlier, the additional error does not invalidate the existing Safety Analysis. These changes will not affect the failure modes of any other safety related equipment.

7. Will the margin of safety as defined in the basis for any technical specification be reduced?

The Technical Specification bases do not contain any specific requirements related to the uncertainty of Hydrogen monitoring indication. NUREG 0737 Item II.F.1 discusses the specific requirements for a Containment Hydrogen Monitor and it does specify a range of 0 – 10% but it does not specify instrument uncertainty. The 4% limit on Reactor building hydrogen concentration will not be challenged due to this activity.

Document No. LDCR to Update Unit 1 SAR Control Room Habitability Discussion Rev./Change No. 0

Title Update of Unit 1 SAR Control Room Habitability Discussions

Brief description of proposed change: CR Habitability Considering Containment Leakage and ESF Leakage from a Unit 1 MHA

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. LDCR to Update Unit 1 SAR Control Room Habitability Discussion

Rev./Change No. 0

Basis for Determination (Questions 1, 2 & 3):

See continuation page.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
Common 50.59 Index	**All "control room habitability", "control room dose", "GDC 19", "criterion 19", "criteria 19", "maximum hypothetical accident", "design basis accident", "cloud shine", "containment shine", "building shine", "control room emergency", "reactor building leakage rate", "reactor building leak rate", "containment leakage"**
MANUAL SECTIONS:	
Unit 1 SAR	**Sections 1.4.15, 1.7.2, 6.5, 9.6, 9.7,11.2, 14.2,14.5**
Unit 2 SAR	**Sections 1.2.2.10.B, 3.1, 6.1, 6.4, 9.4, 9.7, 12.1, 12.2, 15.1, 15.3**
Unit 1 TS	**3.9, 4.10**
Unit 2 TS	**3/4.7.6 and associated bases**
FIGURES:	

John W. Cotton — Certified Reviewer's Signature

John W. Cotton — Printed Name

10/29/98 — Date

Reviewer's certification expiration date: 9/3/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Daniel H Williams — Certified Reviewer's Signature

Daniel H Williams — Printed Name

11/2/98 — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. LDCR to Update Unit 1 SAR Control Room Habitability Discussion Rev./Change No. 0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. LDCR to Update Unit 1 SAR Control Room Habitability Discussion

Rev./Change No. 0

10CFR50.59 Review Continuation Page

Background information

An analysis of control room operator dose is described in section 11.2.4.1 of the Unit 1 SAR which includes consideration of the whole body dose from containment shine and cloud shine, as well as thyroid dose from the iodine which enters the control room. The control room ventilation system as described does not include any filtered inleakage (present configuration provides 333 cfm of filtered inleakage), and assumes 10 cfm of unfiltered inleakage is the only path of outside air into the control room. The discussion in the Unit 1 SAR section 11.2.4.1 of the thyroid dose to control room operators is based on an outdated control room design. This discussion dates back to the Unit 1 FSAR (Amendment 22 to the FSAR dated December 14, 1971). At that time the Unit 1 Control Room Emergency Ventilation Systems (CREVS) was designed as a closed recirculation system, and a small inleakage rate of 10 cfm of unfiltered air was assumed, yielding a thyroid dose of 5 Rem. During the licensing of Unit 2, discussions with the NRC about Control Room habitability lead to a change in the Unit 1 and Unit 2 control room emergency ventilation systems to pressurize the control rooms with 333 cfm of filtered outside air to minimize inleakage. The present control room emergency ventilation and isolation configuration is accurately described in Unit 1 SAR section 9.7.2.1 under "CONTROL ROOM ISOLATION SYSTEM AND EMERGENCY VENTILATION SYSTEM". It is also discussed very generally in section 1.7.2 in terms of its relationship with Unit 2 in which the use of filtered outside air for pressurization to minimize in-leakage is cited. Apparently the discussion in section 11.2.4.1 must have been overlooked in the SAR updates which implemented control room emergency ventilation system updates.

The SAR Section 11.2.4.1 cited leak rates associated with the evaluation of cloud shine dose are not consistent with the Unit 1 MHA and TS assumptions of 0.2%/day for the first 24 hours, and .1%/day thereafter or with the calculation which derived the cloud shine doses. This disparity has also existed since the FSAR (Amendment 22 to the FSAR dated December 14, 1971).

The Unit 1 SAR discussion of Control Room Habitability requires updating to address these SAR discrepancies. It is proposed to correct these discrepancies by updating the Unit 1 SAR to describe the Control Room dose consequences of a Unit 1 MHA using the same input assumptions presently used to evaluate the offsite dose consequences of a Unit 1 MHA in section 14.2.2.6 of the Unit 1 SAR along with the Control Room parameters used to evaluate Control Room doses in the Unit 2 SAR, and to correct the Unit 1 SAR discussion of cloud shine dose to be consistent with the calculation which is the source of this discussion.

Rev. 3(1) to 91-E-0117–01 evaluates the Control Room doses from a Unit 1 MHA. This evaluation used the input assumptions from the Unit 1 SAR offsite dose analyses to determine the release to the environment, and the control room parameters from the Unit 2 SAR control room dose analyses were used to model the infiltration into the control room. The input assumptions used to determine the activity released to the environment from the reactor building for a Unit 1 MHA are taken from calculation 89-E-0164-06. This calculation re-assessed offsite doses from an MHA using the same source term used in the original licensing of ANO-1, but assumed throttled RBS flow and revised iodine removal coefficients and maximum decontamination factors. The revised offsite dose results as well as descriptions of the revised input were submitted to the NRC in correspondence 1CAN089002, and the NRC review and approval of these revised inputs and the resultant offsite dose is documented in Unit 1 SER 140. This analysis is the basis of the present Unit 1 SAR evaluation of the offsite dose consequences of the MHA in Section 14.2.2.6. The effect of the revised inputs upon Control Room dose consequences was not evaluated by either ANO or the NRC at that time.

The resulting Control Room Doses for a Unit 1 MHA from reactor building and ESF leakage calculated in Rev. 3(1) of 91-E-0117-01 are given below:

	Thyroid (Rem)	WB (Rem)	Skin (Rem)
RB Leakage	18.57	1.960	69.09
ESF Leakage	0.357		
Totals	18.93	1.960	69.09

Calculation M-4110-12 is the source of the containment and cloud shine whole body doses of 210 mRem and 475 mRem respectively presently given in the Unit 1 SAR, section 11.2.4.1. This is derived on page 27 of 31 of M-4110-12. The calculated cloud shine dose of 950 mRem from M-4110-12 was been reduced by half to 475 in the FSAR, without documentation of why this was done. The leak rate described in the SAR Section 11.2.4.1 is 0.1% for the first 24 hours and 0.05%/day thereafter, while the calculation assumed 0.2%/day for the entire 30 days post MHA (conservatively). The SAR Section 11.2.4.1 discussion of cloud shine is then not consistent with the Unit 1 MHA and TS assumptions of 0.2%/day for the first 24 hours, and .1%/day thereafter, and does not warrant reducing the calculated shine dose by half. To correct this discrepancy, the reactor building leak rates cited in Unit 1 SAR section 11.2.4.1 are being increased to 0.2%/day for the entire 30 days (with an explanation that this is conservative). The cloud shine dose then is 950 mRem, as determined in Bechtel calculation M-4110-12.

Basis for Determination (Questions 1, 2 & 3):

Question 1:

This change is beyond the scope the Operating License and Confirmatory Orders.

Unit 1 TS 4.10.3.a requires that the test and sample analysis of TS 3.9.1.b be performed at intervals not to exceed 18 months. Unit 1 Technical Specification 3.9.1.b (under CONTROL ROOM EMERGENCY AIR CONDITIONING AND ISOLATION SYSTEM) states

> The results of laboratory carbon sample analysis from the charcoal adsorber banks shall show ≥90% radioactive methyl iodide removal at a velocity within ±20% of system design, 0.05 to 0.15 mg/m^3 inlet iodide concentration, ≥95% R. H. and ≥125F.

This change assumes a filter efficiency of 95% for a 2-inch deep bed, similar to the Unit 2 Control Room Habitability evaluation. This discrepancy has been previously identified in CR ANO-C-1993-0015 and CR-ANO-C-1994-0156, and a TSCR (see correspondence 0CAN089801) to make Unit 1 and Unit 2 CREVS charcoal filter testing requirements the same has been submitted and is presently under NRC review. Presently both Units procedurally test the CREVS filters to the same requirements, which ensure that the Unit 2 Control Room dose analytical assumptions are preserved. The assumptions made in this change are identical to the Unit 2 Control Room Habitability analysis. Step 6.1.1 of the 10CFR50.59 Review Program allows an exception under Changes Impacting Operating License:

> Exceptions to the above are (1) where proposed Activity involves a change in position titles, or, (2) a non-conformance is identified where interim administrative control of the plant in a safe manner is required (This action will be controlled under Procedure 1000.104). These changes can be made under 10CFR50.59 Review with the Technical Specification change under initiation.

Procedure 5120.415 "In-Place Testing of the Unit 1 Control Room Filtration System", states under the PURPOSE section that "Satisfactory completion of this procedure satisfies Technical Specifications 4.10.1, 4.10.3a, 4.10.3b and 4.10.3c. Also Technical Specification 4.7.6.1.2.b-f of Unit 2 will be satisfied." Step 7.7 requires filter efficiencies ≥99.95% for the charcoal absorber banks of VSF-9.

No other changes are required to the Technical Specifications.

Question 2:

An LDCR to correct the discussion of Control Room Habitability in the Unit 1 SAR has been prepared. The changes being made to the Unit 1 SAR are:

1. Sections 14.2.2.6.1, 3, 4 & 5 are clarified to apply to offsite dose calculations only. This change is for clarification only, and per Attachment 1 item F of procedure 1000.131 does not require a 50.59 Evaluation.
2. The discussion of General Design Criterion 19 acceptance criteria is being made consistent throughout the SAR as "5 Rem to the whole body or its equivalent to any organ of the body", and per Attachment 1 item E.2 of procedure 1000.131 does not require a 50.59 Evaluation.
3. Corrected a minor typo in 11.2.4.1 where 210 mrem was listed as 2l0 mrem (using the letter L instead of the number 1). Per item A of Attachment 1 of procedure 1000.131 this does not require a 50.59 Evaluation.
4. Changed the reactor building leak rate described for the assessment of cloud shine doses from "0.1 percent for the first 24 hours and .05 percent per day thereafter" to "conservatively assumed to be 0.2 %/day for the duration of the accident". A 50.59 Evaluation will address this change.
5. The control room dose due to cloud shine is being increased from 475 mRem to 950 mRem as a result of the previous item. A 50.59 Evaluation will address this change.
6. The discussion of Control Room thyroid dose after an MHA is being moved from section 11.2.4.1 to 14.2.2.6.7. This is being done to reduce the possibility that it will be overlooked in 50.59 Evaluations. Per item F of Attachment 1 of procedure 1000.131 this rearranging of information does not require a 50.59 Evaluation. Additionally the 11.2.4.1 discussion referred to Section 9.4.1 for a description of the Emergency Air Conditioning and Filtration Systems provided for the control room, when the correct section is 9.7.2.1. This is corrected in the moved discussion in 14.2.2.6.7. This editorial change does not require a 50.59 Evaluation per item A of Attachment 1 of procedure 1000.131.
7. The assumed CREVS filter efficiencies used in evaluating control room dose are being changed from 90% for the recirculation bed to 95% for the 2-inch recirculation bed and 99% for the outside filtered air used for control room pressurization. A 50.59 Evaluation will address this change.
8. The integrated thyroid dose after an MHA is being increased from 5 Rem to 18.93 Rem. A 50.59 Evaluation will address this change.

The bases of Unit 2 TS 3/4.7.6, "CONTROL ROOM EMERGENCY AIR CONDITIONING/AIR FILTRATION SYSTEM" states

> The OPERABILITY of the control room emergency air conditioning/air filtration system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) **the control room will remain habitable for Operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 Rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR 50.**

Since the revised Unit 1 MHA Control Room doses still meet GDC 19 Guidelines, this bases statement is still true and accurate.

The bases of Unit 1 TS 3.9 "CONTROL ROOM EMERGENCY AIR CONDITIONING AND ISOLATION SYSTEM", states

> The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 90 percent for expected accident conditions. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50.

While the Control Room Habitability analysis (Rev. 3(1) of 91-E-0117-01) credits a 95% efficiency for each 2-inch charcoal bed of the Unit 1 CREVS beds, the bases discussion of TS 3.9 is based on 90% efficiency. CRN-97-093 to 91-E-0117-01, Rev. 2 showed that the effect of assuming 90% efficiency vice 95% efficiency for a 2-inch filter bed causes thyroid doses to increase by a factor of 1.045. Since the GDC 19 acceptance criteria is 30 Rem for the thyroid, as long as the thyroid dose is < 28.7 Rem (30 Rem/1.045 = 28.7 Rem) when evaluated assuming 95% efficiency for a 2" bed, it is assured that doses remain below GDC-19 even if the filter beds operate at 90% efficiency. Since the thyroid dose assuming 95% efficiency for a 2 inch filter bed is 18.93 Rem, the GDC 19 criteria are still met, so that the statement in the bases of the Unit 1 TS is true and accurate. A 50.59 evaluation will consider whether this SAR change constitutes a reduction in the margin of safety as defined in the bases of the Technical Specifications.

There is no other impact to SAR documents.

Question 3:

This change does not constitute a test or experiment not described in the SAR.

10CFR50.59 Eval. No. FFN-98-140
(Assigned by PSC)

Document No. LDCR to Update Unit 1 SAR Control Room Habitability Discussion

Rev./Change No. 0

Title CR Habitability Considering Containment Leakage and ESF Leakage

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   See attached continuation

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   See attached continuation

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   See attached continuation

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   See attached continuation

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   See attached continuation

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   See attached continuation

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

   See attached continuation

Document No. LDCR to Update Unit 1 SAR Control Room Habitability Discussion Rev./Change No. 0

ANSWERS TO THE 7 EVALUATION QUESTIONS

1. Will the probability of an accident previously evaluated in the SAR be increased?
NO

The SAR changes effect only the calculated control room dose consequences of a MHA. The input assumptions (described in items 1 & 3 of the background discussion) and resulting dose values (items 2 & 4 of the background discussion) do not affect or create any possible accident initiators.

2. Will the consequences of an accident previously evaluated in the SAR be increased?
NO

In Attachment 2 to procedure 1000.131, "Guidance on Responding to Seven 10CFR50.59 Evaluation Questions", the scope section for question 2 states "An increase in the consequences must involve an increase in dose to the public above the licensed limit." It further states "however, onsite dose consequences that restrict access to vital areas or otherwise impede actions to mitigate the consequences of reactor accidents may need to be further evaluated for the potential effect on offsite doses."

The changed input assumptions described in items 1 & 3 of the background discussion do not affect offsite doses directly. The reactor building leak rate used to assess postulated offsite doses in the Unit 1 SAR is consistent with Unit 1 TS maximum allowable leakrate of 0.2%/day, and is unaffected by this change. The changed control room emergency ventilation efficiencies do not affect offsite doses directly, since this affects the activity introduced into the control room only, and does not affect the amount of activity released to the environment. The only possible effect of these two assumptions upon offsite dose would be through the increased dose to control room operators.

Although the radiation dose for the control room operator has increased (items 2 & 4 of the background discussion), the increase in dose is considered acceptable since the original design criteria that control room operator doses be within the GDC 19 guidelines (5 Rem to the whole body, 30 Rem to the thyroid) is not exceeded, and offsite doses are not impacted by this change. This SAR change increases the thyroid dose to control room operators from 5 Rem to 18.93 Rem, which is still less than the acceptance criteria of 30 Rem. The postulated whole body dose from cloud shine has increased from 475 mRem to 950 mRem. The whole body dose from containment leakage is 1.96 Rem, so the total whole body dose is 2.91 Rem, which is still below the acceptance criteria of 5 Rem Therefore, because the GDC 19 criteria are still met, and there is no change in offsite dose consequences, there has been no increase in the consequences of an accident previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased?
NO

The SAR changes revise input assumptions (described in items 1 & 3 of the background discussion) and the resulting control room dose consequences of a MHA (described in items 2 & 4 of the background discussion). While control room operators may be considered as equipment important to safety, and control room habitability is necessary to have the capability to mitigate the consequences of plant conditions that could lead to potential offsite doses comparable to 10CFR100 guidelines, the original design criteria is that control room doses be within the guidelines of GDC 19. Since these criteria are still met, there is no increase in the probability of a malfunction of equipment important to safety.

Document No. LDCR to Update Unit 1 SAR Control Room Habitability Discussion

Rev./Change No. 0

10CFR50.59 Review Continuation Page

Background Information

The Unit 1 SAR discussion of Control Room dose after a Unit 1 Maximum Hypothetical Accident is being updated. The present SAR discussion in 11.2.4.1 of Control Room thyroid dose is based on an outdated model of the Control Room Emergency Ventilation system which did not use 333 cfm of filtered outside air to pressurize the control room to minimize inleakage. This design change was made during the licensing of Unit 2, but the Unit 1 SAR discussion of Control Room thyroid dose was not updated. SAR discrepencies in the discussion of cloud shine dose in section 11.2.4.1 are also being corrected.

The following changes to the Unit 1 SAR were identified in the 50.59 Determination associated with the LDCR to require a 50.59 Evaluation :

1. Changed the reactor building leak rate described for the assessment of cloud shine doses in the Unit 1 SAR, section 11.2.4.1, from "0.1 percent for the first 24 hours and .05 percent per day thereafter" to "conservatively assumed to be 0.2 %/day for the duration of the accident".
2. The control room dose due to cloud shine is being increased from 475 mRem to 950 mRem as a result of the previous item.
3. The assumed CREVS filter efficiencies used in evaluating control room dose are being changed from 90% for the recirculation bed to 95% for the 2-inch recirculation bed and 99% for the outside filtered air used for control room pressurization. These efficiencies are described in the new SAR section 14.2.2.6.7 and in the Unit 1 Technical Specifications 3.9.1.b.
4. The integrated control room thyroid dose after an MHA is being increased from 5 Rem to 18.93 Rem.

Document No. LDCR to Update Unit 1 SAR Control Room Habitability Discussion Rev./Change No. 0

4. Will the consequences of a malfunction of equipment important to safety be increased?
NO

While control room operators may be considered as equipment important to safety, and control room habitability is necessary to have the capability to mitigate the consequences of plant conditions that could lead to potential offsite doses comparable to 10CFR100 guidelines, the consequences of the control room operators failure to mitigate an accident are unchanged by changes in the input assumptions (described in items 1 and 3 of the background discussion), or in changes to the postulated control room doses (described in items 2 & 4 of the background discussion).

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?
NO

The SAR changes effect only the input assumptions (described in items 1 & 3 of the background discussion) and resulting calculated control room dose consequences of a MHA (described in items 2 & 4 of the background discussion). Input assumptions and resulting dose values do not affect or create any possible accident initiators.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?
NO

This change affects only the calculated the control room dose consequences of a MHA as previously evaluated in the SAR. The input assumptions (described in items 1 & 3 of the background discussion) and resulting doses (described in items 2 & 4 of the background discussion) do not create the possibility of any new malfunctions of equipment important to safety.

7. Will the margin of safety as defined in the bases for any technical specification be reduced?
NO

<u>a. Reactor building leakage rate (Item 1 of the background discussion)</u>

The bases of Unit 1 TS 4.4.1 states

> "The peak calculated reactor building pressure for the design basis loss of coolant accident, P_a, is 54 psig. The maximum allowable reactor building leakage rate, L_a, shall be 0.20% of containment air weight per day at P_a. The reactor building will be periodically leakage tested in accordance with the Reactor Building Leakage Rate Testing Program. These periodic testing requirements verify the reactor building leakage rate does not exceed the assumptions used in the safety analysis. At $\leq 1.0\ L_a$ the offsite dose consequences are bounded by the assumptions of the safety analysis.

The original SAR description of the assumed reactor building leakage rate used in the evaluation of control room cloud shine doses in Section 11.2.4.1 of 0.1% for the first 24 hours and 0.05%/day is not consistent with this bases. The reactor building leakage rate used in analyses of the offsite doses in Chapter 14 of the SAR are consistent this bases. This SAR change, using a conservative assumption of 0.2%/day for the 30 days post MHA in the evaluation of cloud shine dose is consistent with the bases of TS 4.4.1 and does not represent a reduction in the margin of safety as defined in the bases of the Technical Specification.

b. CREVS Filter Efficiencies and Increased Control Room Thyroid Dose (Items 3 & 4 of the background discussion)

The bases of Unit 1 TS 3.9 "CONTROL ROOM EMERGENCY AIR CONDITIONING AND ISOLATION SYSTEM", states

> The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 90 percent for expected accident conditions. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50.

This change assumes a filter efficiency of 95% for a 2-inch deep bed, similar to the Unit 2 Control Room Habitability evaluation. This discrepancy has been previously identified in CR ANO-C-1993-0015 and CR-ANO-C-1994-0156, and a TSCR (see correspondence 0CAN089801) to make Unit 1 and Unit 2 CREVS charcoal filter testing requirements the same has been submitted and is presently under NRC review. Presently both Units procedurally test the CREVS filters to the same requirements, which ensure that the Unit 2 Control Room dose analytical assumptions are preserved. The assumptions made in this change are identical to the Unit 2 Control Room Habitability analysis, which resulted in a thyroid dose of 27.2 Rem after a Unit 2 MHA, which is bounding relative to the 18.93 Rem Control Room thyroid dose postulated here for a Unit 1 MHA. Step 6.1.1 of the 10CFR50.59 Review Program allows an exception under Changes Impacting Operating License:

> Exceptions to the above are (1) where proposed Activity involves a change in position titles, or, (2) a non-conformance is identified where interim administrative control of the plant in a safe manner is required (This action will be controlled under Procedure 1000.104). These changes can be made under 10CFR50.59 Review with the Technical Specification change under initiation.

Procedure 5120.415 "In-Place Testing of the Unit 1 Control Room Filtration System", states under the PURPOSE section that "Satisfactory completion of this procedure satisfies Technical Specifications 4.10.1, 4.10.3a, 4.10.3b and 4.10.3c. Also Technical Specification 4.7.6.1.2.b-f of Unit 2 will be satisfied." Step 7.7 requires filter efficiencies ≥99.95% for the charcoal absorber banks of VSF-9. Unit 1 TS 4.10.2 and 4.10.3 are the surveillances which prescribe when the charcoal filter perfomance tests described in TS 3.9 must be performed.

c. Increased cloud shine dose (Item 2 of the background discussion)

The postulated whole body dose from cloud shine discussed in the Unit 1 SAR section 11.2.4.1 has increased from 475 mRem to 950 mRem. The whole body dose from containment leakage is 1.96 Rem, so the total whole body dose is 2.91 Rem, which is still below the GDC-19 acceptance criteria of 5 Rem The dose from cloud shine is not explicitly discussed in the bases of the Technical Specifications. As discussed in b. above, however, since the GDC-19 Acceptance criteria of 5 Rem to the whole body is still met with the increased whole body dose from cloud shine, there has been no reduction of a margin of safety as defined in the bases for any Technical Specification.

This change does not effect safety limits or protective (fission product) barriers.

This Document contains 3 Pages.

Document No. CR-C-1996-0278 AI # 27 Rev./Change No. 0

Title ADDITION OF VALVES TO UNIT 2 COMPONENTS OF INTEREST LIST

Brief description of proposed change:

Based on CR-C-1996-0278 AI # 26, 2SV-0317-2, 2CV-1040-1, 2CV-1090-2, 2CV-1425-1 and 2CV-1427-2 should be added to the Components of Interest list. The proper operation of these valves was determined to be necessary to ensure that Safe Shutdown could be achieved in the event of a fire.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☒	No☐
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. CR-C-1996-0278 AI # 27 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

The Components of Interest List details the minimum equipment deemed to be necessary to achieve Safe Shutdown in the event of a fire. Proper operation of the listed equipment is necessary to meet the requirements of 10CFR50 Appendix R. The Technical Specifications/Operating Licensce do not contain the details of the Appendix R related equipment. Of the SAR documents, only the Fire Hazards Analsyis contains the details of the Appendix R related equipment and contains the actual Components of Interest List. Therefore, this change will revise the FHA. However, the components that are being added to the list do not invalidate the existing information in the FHA. Instead, this update will provide a more thorough listing of required components. The addition of these valves to the COI does not entail any tests or experiments.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: 50.59 -- Unit 2 ("Components of Interest", "Safe Shutdown", 2CV1040*, 2CV1090*, 2CV142*, 2SV0317*, overcool*, "single pump operation", flow rate /20,20/ service water)

MANUAL SECTIONS: Table 9.2-1

FIGURES: None

Woody Walker — Woody Walker — 5/13/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 5/21/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
Ronald Rispoli	Reviewer	5-13-99

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature — Ronald Rispoli — 5-13-99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. CR-C-1996-0278 AI # 27 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

10CFR50.59 Eval. No. FFN-99-042
(Assigned by PSC)

Document No. CR-C-1996-0278 AI # 27 Rev./Change No. 0

Title Addition of Valves to Unit 2 Components of Interest List

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   The inclusion of these valves in the Fire Hazards Analysis does not increase the probability of a fire occurring.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   By including these valves into the FHA and the corresponding Safe Shutdown Capability Assessment, the consequences of a fire will be reduced since the system response will be enhanced.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   Classifying these valves as components necessary to achieved safe shutdown will not effect the operation of the components and thus will not increase the probability of a malfunction.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   No physical changes are being made to these components (i.e. the valves will function or fail in the same manner as they did before being classified as Components of Interest). Therefore, the consequences of any malfunction will be unaffected by this change.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   This administrative change will take credit for existing components in the event of a fire. Therefore, the change cannot cause a different type of accident.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No physical changes are being made to these components (i.e. the valves will function or fail in the same manner as they did before being classified as Components of Interest). Therefore, a different type malfunction will not be introduced by this change.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Neither the Components of Interest list nor the response of components in a fire scenario is addressed in the technical specifications. Therefore, this change will not affect any margin of safety related to the basis for any technical specification.

Woody Walker — Woody Walker — 6-24-99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 5/14/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [illegible] Date: 6/24/99

Document No. DCP 90-1041 Rev. No. 4 ~~3~~ 4

Title ANO-1 Neutralizing Tank (T-50) Filtration System

Will the proposed modification:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes___	No X
Operating License?	Yes___	No X
Confirmatory Orders?	Yes___	No X

2. Result in information in the following documents (including drawings and descriptions of facilities, systems, components, structures, and procedures) being no longer true or accurate, or violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes X	No___
QAM?*	Yes___	No X
E-Plan?*	Yes___	No X
Bases of the Technical Specifications?*	Yes___	No X
NRC Safety Evaluation Reports?	Yes___	No X

3. Result in a potential impact to the environment? (Complete page 3 of this form.) Yes___ No X

Basis for Determination:

See Attachment, Page 2 of 7

* Changes to these documents require an evaluation in accordance with 10CFR50.54. This evaluation must be attached.

NOTE: If the proposed activity or change involves the processing of radioactive material outside the Controlled Access Area as discussed in Section 6.2.3, ensure that the originator has obtained a Radiological Safety Evaluation prior to completing the 50.59 review.

4 ~~3~~

Page 25 Rev. 4

ENVIRONMENTAL IMPACT CHECKLIST
(UNIT 1 and UNIT 2)

Document No. DCP 90-1041 Rev. No. 4 ~~3~~4

Complete the following checklist. If the answer to any checklist item is "Yes", an Environmental Evaluation may be required.

Will the activity being evaluated:

Yes	No	
	X	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17.
	X	Increase thermal discharges to lake or atmosphere?
	X	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
	X	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
	X	Modify the design or operation of cooling tower which will change drift characteristics?
	X	Install any new transmission lines leading offsite?
	X	Change the design or operation of the intake or discharge structures?
	X	Discharges any chemicals new or different from that previously discharged?
	X	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
	X	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
	X	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	X	Result in a change to nonradiological effluents or licensed reactor power level?

Prepared by: Walter A. Hill Walter A. Hill Date: 2 / 20 / 92 4 ~~3~~

Page 27 Rev. 4

ATTACHMENT TO FORM 1000.131A, REV.4
DCP 90-1041
10 CFR 50.59 SAFETY EVALUATION

References:

Question 1:

Technical Specifications:

3.10	Secondary System Activity

Question 2:

1SAR:

Section 9.1	Makeup & Purification
Section 9.2.2.8	Uncontrolled Releases
Section 10.4.2	Main Condenser Evacation System
Section 10.4.6	Condensate Cleanup System
Section 10.4.7	Condensate & Feedwater System
Section 11.1.2.4	Methods of Disposal
Figure 11-6*	Radiation Zoning & Access Control Plan at Elevation 354'-0"
Table 11-7*	Service & Equipment
Figure 1-5* Figure A-4*	Equipment Location Ground Floor Plan
Figure 9-14, Shts. 2 & 3*	Instrument and Service Air/Breathing Air System
Figure 9-6*	Piping & Instrument Diagram Service Water
Figure 9-18*	Service Water System Normal Operation
Figure 9-20*	Service Water Emergency Operation

1 4

1SER:

Amendment 8

Amendment 88

* LBDS requiring revision

Synopsis of Change:

The Neutralizing Tank (T-50), which has a capacity of 50,000 gallons, collects waste water from the condensate demineralizer regeneration system which makes up most of its inventory. During the process of condensate demineralizer regeneration, the backwash water from the Regeneration Receiving Tank (T-49) and the Resin Storage Tank (T-56) is directed to the Neutralizing Tank (NT). The waste liquid carries with it some resin particles (fines) from the demineralizers and iron oxide (rust) particles which are removed from the secondary system by the demineralizers. The iron oxide particles contribute approximately 90% of the Total Suspended Solids (TSS) and the resin particles the remaining 10%. Since these wastes contain acid and caustic, the contents of the NT require adjustment to a neutral PH prior to discharge. The neutral PH is in the range of 6.0 to 9.0.

A sample of the waste water is obtained prior to each release from the NT for TSS. The allowables specified by National Pollutants Discharge Elimination System (NPDES) for the total suspended solids in the liquid effluent are 30 ppm daily average/100 ppm daily maximum. During plant startup the demineralizer regeneration backwash water contains high TSS which often exceeds the 30 ppm daily average and have on occasion exceeded the 100 ppm daily maximum.

DCP 90-1041 provides a filtration system to filter the contents of the NT prior to discharging to the outfall. The

Neutralizing Tank Filtration System retains approximately 98% by weight of the total suspended solids, leaving approximately 3.5 ppm of TSS in the waste water. The system consists of two (2) 100% backwashable type filter vessels, 1,750 gallon backwash holding tank, two (2) 100% capacity backwash transfer pumps, and associated valves and piping.

The two (2) Neutralizing Tank transfer pumps and the two (2) backwash transfer pumps will utilize the space previously occupied by the Makeup Demineralizer Prefilters F-9A, B, and C. The backwash type filter skid, backwash holding tank, and the radiation monitor skid will utilize the space previously occupied by the Makeup Demineralizers T-45A and B and T-46A and B. The new equipment is located at elevation 354'-0" in the ANO-1 Turbine Auxiliary Building.

The Neutralizing Tank Filtration System is designed as two independent 100% capacity systems capable of filtering the NT contents to with NPDES limits before discharge to the circulating water discharge flume. The new Neutralizing Tank Filtration System has been sized and designed by the Pall Trinity Micro Corporation to process the entire contents of the NT before requiring regeneration. The filters (F-14 A & B) are designed to filter water flowing at 350 gpm at 60 psig. The design particulate loading will be 300 ppm with particulate sizes ranging between 5-10 microns (75%) to 10-15 microns (25%).

Either NT transfer pump (P-161 A & B) will pump the waste

water from the NT through one of the two (2) filter vessels prior to discharging to the circulating water discharge flume. Based upon the new system's piping, fittings, and equipment pressure drops, the NT transfer pumps have been sized to discharge 350 gallons per minute with a total developed head of 55 feet (Ref. Calculation 90-D-1041-13). REV. 0 A flowrate of [redacted] 275 gpm will evacuate the INSERT PAGE 4A 50,000 gallon NT in under [redacted] 3 hours. An ultrasonic level INSERT PAGE 4B 10 DCPR transmitter will be installed on the NT to provide remote indication at the Demineralized Water Makeup Panel C110 and automatically stop the NT transfer pump when the level in the tank is within one (1) foot of the tank's bottom.

Each backwash filter is designed to process the entire contents of the NT before requiring regeneration. The filters are provided with a pressure differential transmitter installed across the filters inlet and outlet connections, which automatically isolates (via a programmable controller) the in-service filter and places the standby filter in-service when the differential pressure reaches 15 psig. The programmable controller will also automatically backwash, refill, vent, and place the filter in standby, ready for service.

Regeneration of a filter is accomplished using a gas assist backwash. The backwashed contents (300 gallons of water and approximately 42 pounds of filtered material) are transferred to a backwash holding tank. The tank has a 1750 gallon (5 filter regenerations) capacity. An ultrasonic level transmitter will be

(Continued from page 4 "SYNOPSIS OF CHANGE")

During start-up testing of the Neutralization Filtration System, the differential pressure across the filters was found to be significantly less than the differential pressure used in sizing the neutralizing tank transfer pumps. As a result, the flow rate thru the filters is approximately 500 gpm, exceeding the filters design flow rate of 350 gpm. In addition, a filter effluent sample can not be drawn from the sample line at the chemistry sample sink and flow cannot be established at the radiation monitor's sample pump P-4291. A flow orifice will be sized and installed in the filter effluent sample line, to reduce the flow rate through the filters to approximately 275 gpm (start-up test results). With the lower flow rate, a filter effluent sample can be drawn from the sample line and flow can be established through the radiation monitor's sample pump P-4291.

Note: This page was added during DCPR #9.

(Continued from page 4 "SYNOPSIS OF CHANGE")

The relocation of the Radiation Monitor to the discharge of the filtration vessel resulted in the inability of the Radiation Monitor pump to draw water from the filtration vessel 4" discharge pipe. The addition of an orifice plate (FO-210) by DCPR #9 has reduced flow through the filtration system to 275 GPM so that flow could be established through the Radiation Monitor.

Note: This page was added during DCPR #10.

installed on the backwash receiving tank and will provide remote indication at panel C110 and automatically stop the backwash transfer pump when the level in the tank is within one (1) foot of the tank's bottom. A tank high level alarm will alert the operator when the tank's volume reaches 1,200 gallons (4 filter regenerations). A tank high-high level alarm will alert the operator when the tank's volume reaches 1,500 gallons (filter regenerations).

Upon initiation of the tank's high level alarm, the tank's contents must be pumped out prior to receiving further filter regeneration backwashes. Based on the new system's pressure drops, Pumps P162 A or B have been sized to discharge 90 gallons per minute with total dynamic head of 52 feet (Ref. Calculation 90-D-1041-14). Mixer M-30, mounted on the backwash receiving tank, provides mixing (maintaining the filtered solids in suspension) of the backwash liquid before transport by either backwash transfer pump to the train bay where it will be processed by a liquid waste handling contractor. INSERT PAGE 5A

~~A radiation monitor assembly will continuously monitor the contents of the neutralizing tank. The radiation monitor is provided with a high radiation alarm, located on panel C110. Upon a high radiation alarm, the alarm will annunciate on panel C110 and is interlocked with the neutralizing tank transfer pumps preventing them from starting and stopping and preventing their continued use until the high radiation alarm clears.~~

DCPR 5

DCP pg. 32A rev. ~~3~~ 4

(continued from page 5 "SYNOPSIS OF CHANGE")

9 DCPR

A flushing line from the ~~condensate demineralizer regeneration~~ DOMESTIC WATER SYSTEM pump will provide a means of flushing the tank after the tank's contents are pumped out to remove any residual solids that remain in the tank.

INSERT PAGE 5B

9 DCPR

WAH 11/12/92

A radiation monitor assembly will monitor the neutralizing tank ~~transfer pumps~~ effluent. The radiation monitor is provided with a high radiation alarm, located on Panel C110. The alarm is interlocked with the neutralizing tank transfer pumps, to stop the transfer pumps preventing the discharge of the neutralizing tank contents until the high radiation alarm is cleared. A flushing line from the ~~condensate demineralizer regeneration pump~~ DOMESTIC WATER SYSTEM will provide a means of flushing the radiation monitor.

9 DCPR

Note: This page was added during DCPR #5.

(Continued from page 5A "SYNOPSIS OF CHANGE")

The Neutralizing Tank Transfer Pumps P-161A & B and the Backwash Tank Transfer Pumps P-162A & B are provided with stuffing boxes which require approximately 40 drops/minute leakage for proper lubrication. The leakage past the pumps stuffing box and onto the Turbine Auxiliary Building floor creates a potential radiological contamination problem. The pumps will be retrofitted with double mechanical seals in lieu of packing presently installed on the pumps. Seal water injection lines will be piped from the Domestic Water System to the mechanical seals to prevent leakage, of the potentially contaminated waste water, past the pump's seals and onto the Turbine Auxiliary Building floor creating a potential contamination problem.

In order to reduce the neutralizing tank transfer pump's priming time from 18 minutes (Start-up test results) to less than 2 minutes (ANO Operations Department requirement), a fill line will be piped from the Domestic Water System to the transfer pumps suction line. The fill line will provide a means of filling the pumps suction piping thus eliminating the time required by the pumps to purge the suction pipe of air and establish flow. Therefore, upon initiation of a pump start, the transfer pumps will be primed and in the process of pumping the waste water from the neutralizing tank within the 2 minute time limit established by Operations.

Note: This page was added during DCPR #9.

Basis For The Response To Question 1:

The ANO-1 Licensing Document Research System (LDRS) was used to review the ANO-1 Technical Specification, Operating License, and Confirmatory Orders for the purpose of determining whether or not a change to the OL was required. The LDRS Search words used were "Neutralization", "NPDES", "Makeup w/in 25 words of Demineralizer", and "Neutralizing w/in 25 words of Tank" as listed in the References section on Form 1000.131A.

The sections identified by the LDRS search did not identify any sections of the Technical Specification, Operating License, or Confirmatory Orders that require revision. In addition, the hard copy of the Unit One Technical Specification sections, including associated tables and bases, was reviewed to determine if any of the sections are affected by DCP 90-1041. It was determined that none require revision.

Basis For Response To Question 2:

The ANO-1 LDRS was used to review the SAR, Bases of the Technical Specifications, and NRC Safety Evaluation Reports for the purpose of determining whether the proposed modification would conflict with the documents. The LDRS common to both units was used to review the ANO QA Manual and the ANO Emergency Plan. The LDRS search words used were "Neutralization", "NPDES", "Makeup w/in 25 words of Demineralizer", and "Neutralizing w/in 25 words of Tank" as listed in the References section on Form 1000.131A. In addition, the hard copy of the Unit One Technical Specifications

and SAR, including associated tables and figures, were reviewed to determine if any of the sections are affected by DCP 90-1041. Based on this search, it has been determined that the following sections in the ANO-1 SAR were identified that require revision.

ANO-1 SAR, TABLE 11-7 (Service and Equipment), Figure 11-6 (Radiation Zoning and Access Control Plan at Elevation 354'-0"), Figure 1-5 (Equipment Location Ground Floor Plan), Figure 9-14 Shts. 2 & 3 (Instrument and Service Air/Breathing Air System), Figure 9-6 (Piping & Instrument Diagram Service Water), Figure 9-18 (Service Water System Normal Operation), and Figure 9-20 (Service Water Emergency Operation) require revision to reconcile the Unit One SAR with the modifications of DCP 90-1041. A "Licensing Document Change Request" (Form 1062.03A) has been generated to effect the change and is included in this DCP. 1 4

Basis For Response to Question 3:

The response to all the questions on the Environmental Impact Checklist, (Form 1000.131A), is "No". The proposed modification in DCP 90-1041 reduces the emissions in the NT effluent and therefore, has no adverse impact on the environment.

Document No. DCP 90-1041 Rev./Change No. 10 50.59 Eval. No. FFN-93-085
Revision No. 01 ~~4~~ 9/30/93

This form is to be used to document Revisions to 50.59 Reviews. Revisions to a 50.59 Review after PSC review may become necessary due to SRC review, changes to the original document, etc. Refer to section 6.2.5 of this procedure.

Reason for revision to 10CFR50.59 Evaluation:

REVISION TO DCP 90-1041 DCPR #10 DELETES 2EA. 7' LONG SECTIONS OF 8" DIA. DRAIN PIPING. THE SECTIONS OF DRAIN PIPING ARE LOCATED BETWEEN START-UP BOILER PIPING (INLET TO E-2A & E-2B) AND CONDENSER E-11A & E-11B. EACH END OF THE REMAINING PIPE WILL BE CAPPED. DCPR #10 ALSO DELETES THE SERVICE WATER SAMPLE TUBING FROM ICW HEAT EXCHANGERS E-28 B&C.

Will the proposed revision result in any additional:

1) Change to the Operating License? Yes ___ No X

2) Change to the SAR? Yes X No ___

3) Impact to the environment? Yes ___ No X

If yes, describe below and take appropriate action as per initial Determination:
ANO-1 SAR FIGURES 9-6 9-18 & 9-20 REQUIRE REVISION TO REFLECT THE DELETION OF SERVICE WATER SAMPLE TUBING FROM ICW HEAT EXCHANGERS E-28 B & C. LDCR IS BEING REVISED TO REFLECT ADDITIONAL SAR FIGURES PER DCPR #10.

Indicate revisions to the 10CFR50.59 Reviews by placing revision number at the top of each page of the form(s). Changes should be lined through, initialed, dated and indicated with the revision number. For extensive changes, new forms may be used with revision bars in the margin denoting changes. Attach this form to front of previous 50.59 Review.

Stanley Shuffield — Certified Reviewer's Signature
STANLEY SHUFFIELD — Printed Name
9/27/93 — Date

Reviewer's certification expiration date: 8/25/95

PSC review: James McWilliams Date: 9-30-93

Document No. DCP 90-1041 Rev. No. 1

This form is to be used to document Revisions to 50.59 Evaluations and obtain approval. Revisions to a 50.59 Review after PSC approval may become necessary due to SRC review, changes to the original document, etc. Refer to section 6.2.5 of this procedure.

Reason for revision to 10CFR50.59 Evaluation:

Revisions to SAR Figures were not listed in the Rev. No. 0, 10CFR50.59 evaluation.

Will the proposed revision result in any additional:

1) Change to the Operating License? Yes ____ No X

2) Change to the Licensing Bases Documents? Yes X No ____

3) Impact to the environment? Yes ____ No X

If yes, describe below and take appropriate action as per initial Determination:
Changes to SAR Figures 1-5 and 9-14, Sheets 2&3 were not listed in the Rev. No. 0, of the 10CFR50.59 included in the issue of the DCP package.

Indicate revisions to the 10CFR50.59 Evaluation by placing revision number at the top of each page of the form(s). Changes should be lined through, initialed, dated and indicated with the revision number. For extensive changes, new forms may be used with revision bars in the margin denoting changes. Attach this form to front of 50.59 Evaluation.

Walt. A Hill — Certified Reviewer's Signature

Walter A. Hill — Printed Name

2/20/92 — Date

Reviewer's certification expiration date: June 7, 1992

PSC review: [signature] Date: 3/3/92

SRC review: _____ Date: _____

FORM TITLE:	FORM NO.	REV.
10CFR50.59 EVALUATION REVISION	1000.131D	0

Document No. DCP 90-1041 Rev. No. 未签名4 Page 1 of 1

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT.

Form 1000.131C may be used to document the basis for the answers. If Form 1000.131C is not used, the attached pages must have the Document Number and Revision Number on each page and the pages numbered.

If the answer to any question on this form is "Yes," then an unreviewed safety question may be involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the LBD be increased? Yes ___ No X
2. Will the consequences of an accident previously evaluated in the LBD be increased? Yes ___ No X
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ___ No X
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ___ No X
5. Will the possibility of an accident of a different type than any previously evaluated in the LBD be created? Yes ___ No X
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the LBD be created? Yes ___ No X
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ___ No X

Walter A. Hill	Walter A. Hill	2/20/92
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: June 7, 1992

Assistance provided by:

Printed Name	Position	Date
John Antle	Mechanical Engineer	12/20/91

PSC review by: [illegible] Date: 3/5/92

SRC review by: _____ Date: _____

1. Will the probability of an accident previously evaluated in the LBD be increased?

   Chapter 14 (Safety Analysis) of the ANO-1 SAR was reviewed for applicability of previously evaluated accidents relative to this DCP's modifications. Additionally, evaluations of accidents in Chapters 6 (Engineered Safeguards) and 3A (Reload Report) were also reviewed for applicability to this DCP. None of the safety analyses and accidents reviewed in Chapters 3A, 6, or 14 were found to be applicable to the subject modifications described in this DCP. Therefore, the probability of an accident previously evaluated in the LBDs will not be increased.

2. Will the consequences of an accident previously evaluated in the LBD be increased?

   The addition of the new Neutralizing Tank Filtration System is not used in the mitigation of any accidents described in the SAR. The new system will have no impact on the consequences of an accident previously evaluated and will not affect the plant's response to any accident scenario previously evaluated. Therefore, the consequences of an accident previously evaluated in the LBDs will not be increased.

3. Will the probability of a malfunction of equipment important to safety be increased?

   The non-safety related Neutralizing Tank Filtration System, located at elevation 354'-0" in the Turbine Auxiliary

Building, filters the contents of the neutralizing tank prior to discharging to the outfall so that the total suspended solids concentration in the liquid effluent is within the allowables specified by the National Pollutants Discharge Elimination System (NPDES). There are no Environmental Qualification and/or system components seismic qualification requirements. Procurement, design, and installation is in accordance with ANSI B31.1 Power Piping Code. Analyses of piping stress and initial service leak testing requirements ensure the quality of the installation. Removal of the Demineralizer Makeup Water System and the addition of the Filtration System does not affect the safe shutdown capability of the unit or affect any safety related component or structure. Therefore, the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased?

As discussed in question 3, the non-safety related Neutralizing Tank Filtration System filters the contents of the neutralizing tank prior to discharging to the outfall. The consequences of malfunction of the filtration equipment will require shutdown of the filtration unit, and discharge of the neutralizing tank will be directly to the discharge canal as it currently does. Therefore, the consequences of a malfunction of equipment important to safety will not be

increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the LBDs be created?

Failure of the Neutralizing Tank Filtration System will not create an unevaluated accident or an unevaluated malfunction of equipment important to safety. The new system is non-safety related in a non-safety related portion of the plant. There are no piping, electrical, physical or system, interactions between any ANO safety related systems and the new filtration system. Therefore, the possibility of an accident of a different type that any previously evaluated in the LBDs will not be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the LBDs be created?

The Filtration System equipment, associated valves, and piping are not important to safety. They are not required to shutdown the reactor, maintain RCS pressure boundary integrity, mitigate the consequences of an accident, nor interact with any system that does. The changes made by this DCP do not affect any equipment important to safety. Therefore, the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the LBDs will not be created.

7. Will the margin of safety as defined in the basis for any Technical Specifications be reduced.

The bases in the ANO-1 Technical Specifications will be maintained. Based on a review of the Technical Specification and the Technical Specification bases via the LDRS system and hard copy as addressed in Form 1000.131A, it is concluded that the modifications in this DCP will not affect any of the bases. Therefore, the DCP will not reduce the margin of safety defined in the bases for the Technical Specifications.

Document No. DCP # 97-4813-D101 Rev./Change No. DCPR #1

Title INSTALL PRESSURE RELIEVING DEVICES on CONT. PENETRATIONS to COMPLY with NRC GENERIC LETTER 96-06

Brief Description of Proposed Change: The modification will add a thermal relief valve at each listed penetration. The relief path is required to protect the penetration in the event LOCA conditions should increase the internal pressure of a water solid, closed penetration. This modification implements changes as a result of NRC Generic Letter 96-06.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Checklist of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO? *	Yes☐	No☒
E-Plan? *	Yes☐	No☒

Document No. DCP # 97-4813-D101 Rev./Change No. DCPR # 1

Basis for Determination (Questions 1, 2, & 3):

The SAR Figures and sections noted require revision as a result of the proposed modification:
FIGURES: 4-1, 6-3, 7-20, 7-22, 9-3, 9-5, 9-7, 9-8; TABLE 5-1

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ___, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). Attach and distribute a completed LDCR per section 6.1.2 if LBD changes are required.

Document	Section
LRS Search Index -	(Penetration*, Overpressure W/10 Penetration, Containment, Relief, Thermal W10 Relief, Relief W10 Fire, Isolat*, Flange* W/20 Penetration, Leakage, Reactor Building, Containment Maintenance, Liner, Flange W/5 Leakage, GDC
SAR (Manual Search)	1.2.4 Containment System
SAR (Manual Search)	1.4.12 Criterion 16 - Containment Design
SAR (Manual Search)	1.4.47 Criterion 54 - Piping Systems Penetrating Containment
SAR (Manual Search)	1.4.49 Criterion 56 - Primary Containment Isolation
SAR (Manual Search)	5.2.2 Design, Construction, and Testing of Penetrations
SAR (Manual Search)	5.2.5 Isolation System
SAR FIGURES (Manual Search)	FIGURE 4-1 P&ID Reactor Coolant System
SAR FIGURES (Manual Search)	FIGURE 6-3 P&ID Reactor Building Spray System
SAR FIGURES (Manual Search)	FIGURE 7-20 P&ID Reactor Coolant System
SAR FIGURES (Manual Search)	FIGURE 7-22 P&ID Steam Generator Secondary System
SAR FIGURES (Manual Search)	FIGURE 9-3 P&ID Makeup & Purification System
SAR FIGURES (Manual Search)	FIGURE 9-5 P&ID Sampling and Post Accident Sampling Systems
SAR FIGURES (Manual Search)	FIGURE 9-7 P&ID Intermediate Cooling System
SAR FIGURES (Manual Search)	FIGURE 9-8 P&ID Intermediate Cooling System
SAR TABLES (Manual Search)	TABLE 5-1 Reactor Building Isolation Valves

William R. Rowlett, Jr. — Certified Reviewer's Signature
William R. Rowlett, Jr. — Printed Name
8-31-99 — Date

Reviewer's certification expiration date: 5-25-01

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Alan Cox	Alan Cox	9/2/99
Certified Reviewer's Signature	Printed Name	Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. DCP # 97-4813-D101 Rev./Change No. DCPR#1

Complete the following determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3-PC-2

This Document contains 6 pages.

Document No. DCP # 97-4813-D101 Rev./Change No. DCP#1 10CFR50.59 Eval. No. PFN# 99-073 (Assigned by PSC)

Title INSTALL PRESSURE RELIEVING DEVICES on CONT. PENETRATIONS to COMPLY w/ NRC GL 96-06

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

William R. Rowlett, Jr. (Certified Reviewer's Signature) William R. Rowlett, Jr. (Printed Name) 8-31-99 (Date)

Reviewer's certification expiration date: 5-25-01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 9/9/99

FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 3

Document No. DCP # 97-4813-D101 Rev./Change No. 0 10CFR50.59 Eval. No. _____ (Assigned by PSC)

Title INSTALL PRESSURE RELIEVING DEVICES on CONT. PENETRATIONS to COMPLY w/ NRC GL 96-06

DESCRIPTION of CHANGE

Design Change Package 97-4813-D101, when installed, will address concerns from NRC Generic Letter 96-06, "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions". This modification will eliminate the possibility that the subject piping penetrations might be inadvertently overpressurized due to the thermal expansion of trapped fluid during certain plant operational conditions.

Thermal relief valves will be installed via this DCP to provide relief paths for the trapped fluids. These relief valves will be installed between the inboard containment isolation valve and the penetration assembly.

BASES for RESPONSE

QUESTION 1: Will the probability of an accident previously evaluated in the SAR be increased ?

The SAR Sections noted in the reference section of this evaluation were reviewed. The SAR does not discuss the overpressurization of isolated containment penetrations. The operability and design requirements of the containment isolation valves as addressed in the SAR are not affected by this change. The addition of the relief valves at the locations identified does not affect the operation of the parent systems or adjacent components. Consequently, the functionality of the affected systems is not changed.

The relief valves and their associated piping are designed in accordance with the specified design requirements and design specifications as the existing equipment and components in the piping systems which will receive these relief valves.

Relief valve setpoints have been selected to prevent the inadvertent opening of these valves during normal system operational transients. There are no operator actions required to activate these valves. The thermal relief valves automatically open in response to an increase in the fluid pressure. Leakage of the relief valves connected to the penetrations can be identified via the containment sump leakage detection system or by walkdown.

Addition of the subject relief valves does not affect the performance of the parent fluid systems or the containment isolation system. The relief valves are added to protect the penetration and piping from thermal overpressure conditions postulated to occur during Infrequent Incidents (Emergency Conditions) or Limiting Faults (Faulted Conditions) when the associated penetrations are isolated and exposed to elevated ambient containment atmospheric temperatures as a result of a postulated accident. The relief valves and associated piping are designed to the same standards and codes as the existing penetrations.

Based on this evaluation, it is concluded that the addition of relief valves to the affected piping systems to limit the over pressurization of the piping between isolated containment isolation valves will not increase the probability of any accident previously analyzed in the SAR.

QUESTION 2: Will the consequences of an accident previously evaluated in the SAR be increased ?

The addition of the thermal relief valves to the containment penetrations does not alter the functional or operational aspects of the piping systems served by these penetrations. The thermal relief valves are located inside the containment building and discharge to the containment atmosphere. Over pressure will only occur in these penetrations if both of the containment isolation valves are closed and trap fluid within the pipe, which is then heated up due to pipe exposure to elevated containment atmospheric temperatures. The pressure inside the penetration piping will be greater than containment accident pressure. In this accident scenario, the relief valves provide no path for escape of radioactive fluids from the primary containment atmosphere.

The connection between the relief valve and the penetration piping will be made with a small orifice in order to limit any potential release from a leaking relief valve to within the 0.6 La for the ANO-1 containment. Consequently, the proposed modification does not increase the offsite dose to the public above analyzed limits and thus, does not increase the consequences of any accident previously evaluated in the SAR.

QUESTION 3: Will the probability of a malfunction of equipment important to safety be increased ?

The relief valves and piping, added by this proposed modification, are specified to be in accordance with the system design parameters of the individual systems. Set pressures for the relief valves are chosen to protect the most limiting component within the pressure boundary of the parent containment penetration including piping, isolation valves, flued head assembly, and appurtenances. Design support loads have been analyzed and determined to be within code allowables.

The relief valves provide overpressurization protection to prevent the penetration lines from exceeding the ASME Code allowable stress limits. They meet the design criteria for automatic containment isolation valves. Their inclusion in the design will not adversely affect the operation and functionality of the containment isolation function for each process system included in this modification.

Addition of the relief valves does not affect the normal function of the parent systems or negatively impact the containment isolation function. These valves do not have a negative impact on the previously installed equipment and do not increase the probability of any equipment or system malfunction. Valve testing will be performed in accordance with previously established methodologies for relief valves.

The addition of the relief valves will enhance the ability of the penetrations to perform their containment isolation design function.

Based on this evaluation, the proposed modifications will not increase the probability of a malfunction of equipment important to safety.

QUESTION 4: Will the consequences of a malfunction of equipment important to safety be increased ?

The operation (actuation) of the thermal relief valves only occur as a result of the penetration piping being completely isolated (with virtually no valve leakage) by the containment isolation valves in response to an Infrequent Incident (Emergency Condition) or Limiting Fault (Faulted Condition). Effluent discharge from the relief valves will be collected in the sump and remain available as inventory.. The effluent volume is limited to a negligible fraction of the system volume between the containment isolation valves. As these valves are provided for thermal overpressure protection, their actuation will be intermittent and limited to the time required to relive the excess pressure trapped between the closed containment isolation valves.

Identification of failure of these valves (stuck open) during normal operation of the plant will be possible through increase leakage to the containment sump. The waste processing system will be used for effluent cleanup. The orifice associated with the valves is small and insures that containment leakage allowables will be met even in the event that the relief valve fails open and allows flow in the reverse direction.

Addition of the relief valves does not affect the normal function of the parent systems or negatively impact the containment isolation function. These valves do not have a negative impact on the previously installed equipment and do not increase the probability of any equipment or system malfunction. These relief valves are designed to actuate in response to Infrequent Incidents (Emergency Conditions) or Limiting Faults (Faulted Conditions). The relief valves do not change the operational or performance characteristics of any equipment important to safety or preclude the necessary operation of any equipment important to safety.

Based on this review, it is concluded that the proposed modification will not increase the offsite dose to the public and, thus, does not increase the consequences of a malfunction of equipment important to safety.

QUESTION 5: Will the possibility of an accident of a different type than any previously evaluated in the SAR be created ?

A review of the Accident Analysis, SAR Chapter 14 has been performed. The containment penetrations are isolated whenever ESAS actuation occurs. High Reactor Building pressure or in some cases low RCS pressure closes the containment isolation valves. The addition of the thermal relief valves to the penetration piping does not change the operation or function of the isolation of the penetration piping or the Reactor Building. The actuation of the penetration thermal relief valves will occur as the result of an Infrequent Incident or Limiting Fault (small or large break LOCA, steam or feedwater line rupture, etc.). Uniform heating of the Reactor Building including the penetration piping is assumed to occur during this long term event. The relief valves meet the criteria for automatic isolation valves. Inboard and outboard containment isolation valves are provided to ensure that the Reactor Building may be isolated in the event that one of the isolation valves fails to close. Failure of a single containment isolation valve to close or the failure of a penetration thermal relief valve to reseat does not preclude the integrity of the containment boundary.

Based on this discussion, it is concluded that this change does not create the possibility of an accident of a different type than previously evaluated in the SAR.

QUESTION 6: Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created ?

The addition of the thermal relief valves to the containment penetration piping system adds an additional potential leakage path from each of the process systems to which the valves are associated. With the exception of the Pressurizer and RCS Sampling System piping penetration, none of the remaining modified penetrations are required post accident and remain isolated for the duration of the event. The post accident failure mode for the thermal relief valves is the valve failure to reseat after actuation. Leakage from these valves would drain to the Reactor Building sump where the effluent is collected. Similarly, during normal operation, failure of these valves (either leaking or catastrophic failure) would be noted as increased sump levels. Operator action to identify the source of these leaks would be required. These failures are equivalent to those failures of existing equipment important to safety, i.e. containment isolation valves. The orifice size of the valves limits the potential offsite release to within analyzed limits.

Addition of the relief valves does not affect the normal function of the parent systems or negatively impact the containment isolation function. These valves do not have a negative impact on the previously installed equipment and does not increase the probability of any equipment or system malfunction. These relief valves are designed to actuate in response to Infrequent Incidents (Emergency Conditions) or Limiting Faults (Faulted Conditions). The relief valves do not change the operational or performance characteristics of any equipment important to safety or preclude the necessary operation of any equipment important to safety.

Consequently, it has been determined that the malfunction of equipment important to safety of a different type than any previously evaluated in the SAR has not been created by this modification.

QUESTION 7: Will the margin of safety as defined in the basis for any technical specification be reduced ?

The Technical Specifications and their associated bases have been reviewed for any impact due to the changes made by this modification.

FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 3

Document No. DCP # 97-4813-D101 Rev./Change No. DCP #1 10CFR50.59 Eval. No. _____ (Assigned by PSC)

Title INSTALL PRESSURE RELIEVING DEVICES on CONT. PENETRATIONS to COMPLY w/ NRC GL 96-06

There are no Technical Specification Bases related to this change. The current Technical Specifications do not address the issues associated with the potential for containment penetration overpressurization. There are no specific Technical Specifications related to pressures in the piping through the subject containment penetrations. Adding the thermal overpressure protection does not affect the operation of the parent systems or containment isolation functions. In addition, no margins of safety are considered by the Technical Specifications for this condition.

Based on this evaluation, no margin of safety is affected by this proposed modification.

Document No. DCP # 97-4813-D101 Rev./Change No. DCP#1 10CFR50.59 Eval. No. _____ (Assigned by PSC)

Title INSTALL PRESSURE RELIEVING DEVICES on CONT. PENETRATIONS to COMPLY w/ NRC GL 96-06

REFERENCES

SAR Sections

1.2.4 Containment System
1.4.12 Criterion 16 - Containment Design
1.4.47 Criterion 54 - Piping Systems Penetrating Containment
1.4.49 Criterion 56 - Primary Containment Isolation
5.2.2 Design, Construction, and Testing of Penetrations
5.2.5 Isolation System
14 Safety Analysis

SAR Figures

4-1 P&ID: Reactor Coolant System
6-3 P&ID: Reactor Building Spray System
7-20 P&ID: Reactor Coolant System
7-22 P&ID: Steam Generator Secondary System
9-3 P&ID: Makeup and Purification System
9-5 P&ID: Sampling System/Post Accident Sampling System
9-7 P&ID: Intermediate Cooling System
9-8 P&ID: Intermediate Cooling System

SAR Tables

5-1 Reactor Building Isolation Valves

Technical Specifications

ANO-1

Calculations

97-4813-D101-01, Rev. 0.
97-4813-D101-02, Rev. 0.
97-4813-D101-03, Rev. 0.
97-4813-D101-04, Rev. 0.
97-4813-D101-05, Rev. 0.
91-E-0016-183, Rev. 1

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3-PC-1,2

Document No. DCP # 97-4813-D101 Rev./Change No. Ø

Title INSTALL PRESSURE RELIEVING DEVICES on CONT. PENETRATIONS to COMPLY with NRC GENERIC LETTER 96-06

Brief Description of Proposed Change: The modification will add a thermal relief valve at each listed penetration. The relief path is required to protect the penetration in the event LOCA conditions should increase the internal pressure of a water solid, closed penetration. This modification implements changes as a result of NRC Generic Letter 96-06.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Checklist of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO? *	Yes☐	No☒
E-Plan? *	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3-PC-1,2

Document No. DCP # 97-4813-D101 Rev./Change No. _____

Basis for Determination (Questions 1, 2, & 3):

The SAR Figures and sections noted require revision as a result of the proposed modification:
FIGURES: 4-1, 6-3, 7-20, 7-22, 9-3, 9-5, 9-7, 9-8, 9-16, 11-1, 11-2; TABLE 5-1

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ___, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). Attach and distribute a completed LDCR per section 6.1.2 if LBD changes are required.

Document	Section
LRS Search Index -	(Penetration*, Overpressure W/10 Penetration, Containment, Relief, Thermal W10 Relief, Relief W10 Fire, Isolat*, Flange* W/20 Penetration, Leakage, Reactor Building, Containment Maintenance, Liner, Flange W/5 Leakage, GDC
SAR (Manual Search)	1.2.4 Containment System
SAR (Manual Search)	1.4.12 Criterion 16 - Containment Design
SAR (Manual Search)	1.4.47 Criterion 54 - Piping Systems Penetrating Containment
SAR (Manual Search)	1.4.49 Criterion 56 - Primary Containment Isolation
SAR (Manual Search)	5.2.2 Design, Construction, and Testing of Penetrations
SAR (Manual Search)	5.2.5 Isolation System
SAR FIGURES (Manual Search)	FIGURE 4-1 P&ID Reactor Coolant System
SAR FIGURES (Manual Search)	FIGURE 6-3 P&ID Reactor Building Spray System
SAR FIGURES (Manual Search)	FIGURE 7-20 P&ID Reactor Coolant System
SAR FIGURES (Manual Search)	FIGURE 7-22 P&ID Steam Generator Secondary System
SAR FIGURES (Manual Search)	FIGURE 9-3 P&ID Makeup & Purification System
SAR FIGURES (Manual Search)	FIGURE 9-5 P&ID Sampling and Post Accident Sampling Systems
SAR FIGURES (Manual Search)	FIGURE 9-7 P&ID Intermediate Cooling System
SAR FIGURES (Manual Search)	FIGURE 9-8 P&ID Intermediate Cooling System
SAR FIGURES (Manual Search)	FIGURE 9-16 Fire Protection System
SAR FIGURES (Manual Search)	FIGURE 11-1 Clean Liquid Radioactive Waste
SAR FIGURES (Manual Search)	FIGURE 11-2 Dirty Radioactive Waste Drainage & Filtration
SAR TABLES (Manual Search)	TABLE 5-1 Reactor Building Isolation Valves

William R. Rowlett, Jr. — Certified Reviewer's Signature
William R. Rowlett, Jr. — Printed Name
5/25/99 — Date

Reviewer's certification expiration date: 5/25/01

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3-PC-1,2

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Stephen J. Lynn — Certified Reviewer's Signature

Stephen J. Lynn — Printed Name

5/25/99 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. DCP # 97-4813-D101 Rev./Change No. Ø

Complete the following determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3-PC-2

This Document contains 6 pages.

Document No. DCP # 97-4813-D101 Rev./Change No. 0 10CFR50.59 Eval. No. FEN # 99-074 (Assigned by PSC)

Title INSTALL PRESSURE RELIEVING DEVICES on CONT. PENETRATIONS to COMPLY w/ NRC GL 96-06

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

William R. Rowlett Jr. — Certified Reviewer's Signature
William R. Rowlett, Jr. — Printed Name
5-25-99 — Date

Reviewer's certification expiration date: 5-25-01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: T Brown Date: 9/9/99

Document No. DCP # 97-4813-D101 Rev./Change No. 0 10CFR50.59 Eval. No. _____ (Assigned by PSC)

Title INSTALL PRESSURE RELIEVING DEVICES on CONT. PENETRATIONS to COMPLY w/ NRC GL 96-06

DESCRIPTION of CHANGE

PAGE 37 REV. 0

Design Change Package 97-4813-D101, when installed, will address concerns from NRC Generic Letter 96-06, "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions". This modification will eliminate the possibility that the subject piping penetrations might be inadvertently overpressurized due to the thermal expansion of trapped fluid during certain plant operational conditions.

Thermal relief valves will be installed via this DCP to provide relief paths for the trapped fluids. With two exceptions, these relief valves will be installed between the inboard containment isolation valve and the penetration assembly. The Fire Protection Water Supply to the Containment Building and the Reactor Building Sump Drain line penetrations will have a thermal relief valve installed outside containment. In these instances, the valves will be installed between the penetration assembly and the outboard containment isolation valve.

BASES for RESPONSE

QUESTION 1: Will the probability of an accident previously evaluated in the SAR be increased ?

The SAR Sections noted in the reference section of this evaluation were reviewed. The SAR does not discuss the overpressurization of isolated containment penetrations. The operability and design requirements of the containment isolation valves as addressed in the SAR are not affected by this change. The addition of the relief valves at the locations identified does not affect the operation of the parent systems or adjacent components. Consequently, the functionality of the affected systems is not changed.

The relief valves and their associated piping are designed in accordance with the specified design requirements and design specifications as the existing equipment and components in the piping systems which will receive these relief valves.

Relief valve setpoints have been selected to prevent the inadvertent opening of these valves during normal system operational transients. There are no operator actions required to activate these valves. The thermal relief valves automatically open in response to an increase in the fluid pressure. Leakage of the relief valves connected to the penetrations inside containment will be identified via the containment sump leakage detection system. Operating staff can visually identify relief valve leakage for the two valves installed outside containment. All leakage paths lead to the waste processing system for subsequent treatment.

Addition of the subject relief valves does not affect the performance of the parent fluid systems or the containment isolation system. The relief valves are added to protect the penetration and piping from thermal overpressure conditions postulated to occur during Infrequent Incidents (Emergency Conditions) or Limiting Faults (Faulted Conditions) when the associated penetrations are isolated and exposed to elevated ambient containment atmospheric temperatures as a result of a postulated accident.

Based on this evaluation, it is concluded that the addition of relief valves to the affected piping systems to limit the over pressurization of the piping between isolated containment isolation valves will not increase the probability of any accident previously analyzed in the SAR.

QUESTION 2: Will the consequences of an accident previously evaluated in the SAR be increased ?

The addition of the thermal relief valves to the containment penetrations does not alter the functional or operational aspects of the piping systems served by these penetrations. The thermal relief valves located inside the containment building discharge to the containment atmosphere. Over pressure will only occur in these penetrations if both of the containment isolation valves are closed and trap fluid within the pipe, which is then

heated up due to pipe exposure to elevated containment atmospheric temperatures. In this accident scenario, the relief valves provide no path for escape of radioactive fluids from the primary containment atmosphere.

The relief valves located outside containment (Fire Protection Water Supply and Reactor Building Sump Drain) are located between the containment penetration and the outboard containment isolation valve. Over pressure will only occur if both of the isolation valves are closed and trap fluid within the pipe which is then heated up due to elevated containment atmospheric temperatures. These valves do not provide any path for escape of the containment atmosphere to the outside of the primary containment. The Fire Protection Supply Water penetration does not contain potentially radioactive fluid. Any release of clean fluid due to relief valve actuation does not increase the consequences of any accident as evaluated in the SAR. The Reactor Building Sump Drain penetration contains potentially radioactive fluid. As stated above, the relief valve does not provide a path from the containment atmosphere to the outside of the primary containment. The relief valve provides for thermal over pressure protection. Any release of fluid from the protected piping and penetration will be of a negligible quantity. The pipe conditions will be stagnant and the required release to mitigate over pressure is very small volumetrically. Any release from this valve will drain to the radioactive floor drains and be processed as liquid radioactive waste in accordance with system operation.

Consequently, the proposed modification does not affect the offsite dose to the public and thus, does not increase the consequences of any accident previously evaluated in the SAR.

QUESTION 3: Will the probability of a malfunction of equipment important to safety be increased ?

The relief valves and piping, added by this proposed modification, are specified to be in accordance with the system design parameters of the individual systems. Set pressures for the relief valves are chosen to protect the most limiting component within the pressure boundary of the parent containment penetration including piping, isolation valves, flued head assembly, and appurtenances. Design support loads have been analyzed and determined to be within code allowables.

The relief valves provide overpressurization protection to prevent the penetration lines from exceeding the ASME Code allowable stress limits. They meet the design criteria for automatic containment isolation valves. Their inclusion in the design will not adversely affect the operation and functionality of the containment isolation function for each process system included in this modification.

Addition of the relief valves does not affect the normal function of the parent systems or negatively impact the containment isolation function. These valves do not have a negative impact on the previously installed equipment and does not increase the probability of any equipment or system malfunction. Valve testing will be performed in accordance with previously established methodologies for relief valves.

Based on this evaluation, the proposed modifications will not increase the probability of a malfunction of equipment important to safety.

QUESTION 4: Will the consequences of a malfunction of equipment important to safety be increased ?

The operation (actuation) of the thermal relief valves only occur as a result of the penetration piping being completely isolated (with virtually no valve leakage) by the containment isolation valves in response to an Infrequent Incident (Emergency Condition) of Limiting Fault (Faulted Condition). Effluent discharge from the relief valves will be collected by the plant drain systems and subsequently processed by the liquid waste processing system. The effluent volume is limited to a negligible fraction of the system volume between the containment isolation valves. As these valves are provided for thermal overpressure protection, their actuation will be intermittent and limited to the time required to relive the excess pressure trapped between the closed containment isolation valves.

Identification of failure of these valves (stuck open) during normal and faulted condition operation of the plant will be possible through either increase leakage to the containment sump or in the case of the two valves located outside containment, through increased Auxiliary Building sump leakage. In both cases the waste processing system will be used for effluent cleanup. The orifice of the valves is small and vendor catalog data indicates that containment leakage allowables will be met even in the event of total loss of the relief valve disc.

Addition of the relief valves does not affect the normal function of the parent systems or negatively impact the containment isolation function. These valves do not have a negative impact on the previously installed equipment and does not increase the probability of any equipment or system malfunction. These relief valves are designed to actuate in response to Infrequent Incidents (Emergency Conditions) or Limiting Faults (Faulted Conditions). The relief valves do not change the operational or performance characteristics of any equipment important to safety or preclude the necessary operation of any equipment important to safety.

Based on this review, it is concluded that the proposed modification will not increase the offsite dose to the public and, thus, does not increase the consequences of a malfunction of equipment important to safety.

QUESTION 5: Will the possibility of an accident of a different type than any previously evaluated in the SAR be created ?

A review of the Accident Analysis, SAR Chapter 14 has been performed. The containment penetrations are isolated.whenever ESAS actuation occurs. High Reactor Building pressure or in some cases low RCS pressure close the containment isolation valves. The addition of the thermal relief valves to the penetration piping does not change the operation or function of the isolation of the penetration piping or the Reactor Building. The actuation of the penetration thermal relief valves will occur as the result of an Infrequent Incident or Limiting Fault (small or large break LOCA, steam or feedwater line rupture, etc.). Uniform heating of the Reactor Building including the penetration piping is assumed to occur during this long term event. The relief valves meet the criteria for automatic isolation valves. Inboard and outboard containment isolation valves are provided to ensure that the Reactor Building may be isolated in the event that one of the isolation valves fails to close. Failure of a containment isolation valve to close or the failure of a penetration thermal relief valve to reseat does not preclude the integrity of the containment boundary.

Based on this discussion, it is concluded that this change does not create the possibility of an accident of a different type than previously evaluated in the SAR.

QUESTION 6: Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created ?

The addition of the thermal relief valves to the containment penetration piping system adds an additional potential leakage path from each of the process systems to which the valves are associated. With the exception of the Pressurizer and RCS Sampling System piping penetration, none of the remaining modified penetrations are required post accident and remain isolated for the duration of the event. The post accident failure mode for the thermal relief valves is the valve failure to reseat after actuation. Leakage from these valves would drain to the Reactor Building or Auxiliary Building sumps where the effluent is collected. Similarly, during normal operation, failure of these valves (either leaking or catastrophic failure) would be noted as increased sump levels. Operator action to identify the source of these leaks would be required. These failures are equivalent to those failures of existing equipment important to safety, i.e. containment isolation valves.

Addition of the relief valves does not affect the normal function of the parent systems or negatively impact the containment isolation function. These valves do not have a negative impact on the previously installed equipment and does not increase the probability of any equipment or system malfunction. These relief valves are

designed to actuate in response to Infrequent Incidents (Emergency Conditions) or Limiting Faults (Faulted Conditions). The relief valves do not change the operational or performance characteristics of any equipment important to safety or preclude the necessary operation of any equipment important to safety.

Consequently, it has been determined that the malfunction of equipment important to safety of a different type than any previously evaluated in the SAR has not been created by this modification.

QUESTION 7: Will the margin of safety as defined in the basis for any technical specification be reduced ?

The Technical Specifications and their associated bases have been reviewed for any impact due to the changes made by this modification.

There are no Technical Specification Bases related to this change. The current Technical Specifications do not address the issues associated with the potential for containment penetration overpressurization. There are no specific Technical Specifications related to pressures in the piping through the subject containment penetrations. Adding the thermal overpressure protection does not affect the operation of the parent systems or containment isolation functions. In addition, no margins of safety are considered by the Technical Specifications for this condition.

Based on this evaluation, no margin of safety is affected by this proposed modification.

REFERENCES

SAR Sections

1.2.4 Containment System
1.4.12 Criterion 16 - Containment Design
1.4.47 Criterion 54 - Piping Systems Penetrating Containment
1.4.49 Criterion 56 - Primary Containment Isolation
5.2.2 Design, Construction, and Testing of Penetrations
5.2.5 Isolation System
14 Safety Analysis

SAR Figures

4-1 P&ID: Reactor Coolant System
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9-3 P&ID: Makeup and Purification System
9-5 P&ID: Sampling System/Post Accident Sampling System
9-7 P&ID: Intermediate Cooling System
9-8 P&ID: Intermediate Cooling System
9-16 P&ID: Fire Protection System
11-1 P&ID: Clean Liquid Radioactive Waste
11-2 P&ID: Dirty Radioactive Waste Drainage & Filtration

SAR Tables

5-1 Reactor Building Isolation Valves

Technical Specifications

ANO-1

Calculations

97-4813-D101-01, Rev. 0.
97-4813-D101-02, Rev. 0.
97-4813-D101-03, Rev. 0.
97-4813-D101-04, Rev. 0.
97-4813-D101-05, Rev. 0.
91-E-0016-183, Rev. 1

ARKANSAS NUCLEAR ONE		Pa
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

PAGE 3 REV. 0

This Document contains 4 Pages.

Document No. ER 980039D102 Rev./Change No. 0

Title ANO-1 Control Room Normal Air Supply Duct Radiation Monitor Addition

Brief description of proposed change:

This modification will add an additional ANO-1 control room normal air supply duct radiation monitor to operate in conjunction with the existing monitor (2RITS-8001A) which was installed under ER 980039D101. The new components associated with this monitor string are 2RE-8001B (detector), 2RY-8001B (preamplifier), and 2RITS-8001B (ratemeter). The new system configuration will now consist of two scintillation type detectors, and associated preamplifiers and ratemeters. Although the two detector strings are not channelized (i.e., not supplied from redundant power supplies) all other components are independent so that in the event a component fails or is taken out of service for any reason the other detector string will still perform the function and maintains all system design basis requirements. A new control panel (2C474) will be added to allow a monitor string to be put into BYPASS mode to facilitate maintenance, calibration, or repair activities.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. ER 980039D102 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

PAGE 4 REV. 0

1. This modification does not require a change to the Operating License, since the scope of the changes to the system is beyond the level of detail of these documents.

2. Due to the changes described above several sections and figures of the Unit 1 and Unit 2 SAR will be revised. An evaluation per 10CFR50.59 is attached. The changes are minor additions to the text to describe the additional radiation monitor and revisions to the figures to reflect the new monitor and its interaction with the existing isolation circuit.

3. This modification does not involve any tests or experiments not described in the SAR. This modification will not require any unusual operating conditions or startup tests.

4. This modification will not result in any adverse impacts to the environment as documented in the attached Environmental Impact Checklist.

5. This modification will not require a Radiological Safety Evaluation (RSE) since it does not involve processing any radioactive material outside of the auxiliary Building, Reactor Building, or Low Level Radwaste Building or create a new pathway for an unmonitored release.

6. This modification does not involve any impact to the Ventilated Storage Cask, including any loading equipment or facilities, monitoring activities, load path/crane changes, associated analysis or spent fuel pool impacts.

7. This modification will not require a change to the E-Plan since the scope of the modification is beyond the level of detail of this document.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS: Search Index: 50.59 Common, (prm* or arm* or ventilation w/10 monitor or control room w/10 radiation or re-8001)	
MANUAL SECTIONS:	
U-1 SAR	9.7.2.1, 11.1.3.4, table 9-20
U-1 TS	3.9, 4.10
U-1 SER	9.5.1
U-2 SAR	1.2.2.10, 6.4, 9.4.1, 11.4
U-2 TS	3/4.3.3, 3/4.7.6, tables 3.3-6, 4.3-3
U-2 SER	6.4.1, 9.5.1
FIGURES:	
U-1 SAR	9-13
U-2 SAR	9.4-1, 9.4-6

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Note that proposed Technical Specification Change (0CAN089801, dated August 6, 1998) impacting several applicable sections in both Unit 1 and Unit 2 Technical Specifications were also reviewed to ensure that this modification did not make any of the changes inaccurate.

Certified Reviewer's Signature	Printed Name	Date
	Mark A. Spinelli	8-10-98

Reviewer's certification expiration date: 1-9-99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
	DAVID A. ROBINSON	9-29-98

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER 980039D102 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 4 Pages.

Document No. 980039D102 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-98-137 (Assigned by PSC)

Title ANO-1 Control Room Normal Air Supply Duct Radiation Monitor Addition

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature	Mark A. Spinelli Printed Name	8-10-98 Date

Reviewer's certification expiration date: 1-9-99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 10/22/98

Document No. ER 980039D102 Rev./Change No. 0

10CFR50.59 Review Continuation Page

Evaluation:

Scope

The purpose of this modification is to install an additional scintillation radiation monitor in the normal air supply duct to the Unit 1 control room. The radiation monitor will be installed near the duct in the Unit 1 computer room. The radiation monitor is identical to the monitor installed on the Unit 1 normal air supply duct to the control room under ER 980039D101. The radiation monitor assembly consists of a ratemeter, pre-amplifier, and a duct mounted detector. A contact from the new duct radiation monitor will be placed in parallel with both the existing control room area radiation monitor RE-8001 and the duct monitor installed under ER 980039D101. The system will be configured so that either or both duct monitors can be placed in the circuit along with the existing area monitor to provide an isolation signal for the control room. The new monitor will be powered from a Class 1E diesel backed power source and will provide indication of radiation levels locally on the ratemeter and in the control room via the plant computer.

1. Will the probability of an accident previously evaluated in the SAR be increased?

The components/systems impacted by this modification have been reviewed against all of the accidents analyzed in the SAR. Chapter 14 of the Unit 1 SAR and Chapter 15 of the Unit 2 SAR were reviewed. This system is not able to initiate any accident listed in the Unit 1 or Unit 2 SAR.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

This modification will not alter the offsite dose consequences of any accident previously analyzed in the SAR. This modification will not create any new pathways for release of radioactive material. This modification will not affect dose to the public from any previously analyzed event. This modification may reduce onsite doses to vital areas (i.e. control room) since the new radiation monitor will provide a redundant control room isolation signal to RE-8001. The new radiation monitor is also more sensitive and placed at a preferable location to improve response time.

3. Will the probability of a malfunction of equipment important to safety be increased?

All of the safety related components installed in the plant for this modification are procured nuclear qualified and seismically mounted (along with associated conduits) with all seismic II/I issues addressed. Power supplies, protective devices and wiring are all selected and sized appropriately for this application. Electrical isolation is provided for all non-safety related circuits that are connected to safety related components. The equipment has been tested to meet applicable EMI/RFI standards (both susceptibility and emissions). All of these design features and specification requirements are included and analyzed to ensure that this equipment and its installation cannot increase the probability of a malfunction of equipment important to safety.

4. Will the consequences of a malfunction of equipment important to safety be increased?

This modification will not affect the offsite dose consequences due to malfunctions of equipment important to safety. This modification does not change or prevent actions assumed to occur in response to a malfunction of equipment important to safety nor does it alter any assumptions used in evaluating the consequences of equipment failures. The system is involved in onsite dose consequences (control room). The addition of the new radiation monitor may reduce onsite doses to vital areas (i.e. control room) since the new radiation monitor will provide a redundant control room isolation signal to RE-8001. The new radiation monitor is also more sensitive and placed at a preferable location to improve response time. This modification cannot increase the consequences of failure of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

This modification will install an additional scintillation radiation monitor in the control room normal air supply duct for Unit 1. The new radiation monitor does not affect the overall system function or failure modes and interfaces with other components in the same way as the existing area radiation monitor. The new radiation monitor will not affect the ability of the current area radiation monitor to isolate the control room. Installation of this change will not affect any failure analysis described in either the Unit 1 or Unit 2 SAR. Therefore, the possibility of an accident of a different type than previously evaluated in either the Unit 1 or Unit 2 SAR will not be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

The new radiation monitor installed per this modification will interface the plant systems in the same way as the existing area radiation monitor (RE-8001). The new radiation monitor will provide an additional more sensitive and responsive signal to isolate the control room on high radiation. Power supplies, protective devices and wiring are all selected and sized appropriately for this application. Electrical isolation is provided for all non-safety related circuits that are connected to safety related components. The equipment has been tested to meet applicable EMI/RFI standards (both susceptibility and emissions). All of these design features and specification requirements are included and analyzed to ensure that this equipment and its installation cannot create the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in either the Unit 1 or Unit 2 SAR.

7. Will the margin of safety as defined in the bases for any technical specification be reduced?

This modification does not impact any protective (fission product) barriers so no Margins of Safety are reduced. The basis for Unit 2 Technical Specification 3/4.7.6 includes a discussion of the radiation exposure to personnel occupying the control room is 5 rem or less whole body, or its equivalent. The sensitivity of the new radiation monitor is at least equal to the existing Unit 2 normal air intake duct radiation monitor. No other Upper Level Design Margins are defined in the bases for any Technical Specification associated with this change. Therefore, this modification will not reduce the margin of safety defined in the technical specification bases.

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 5 Pages.

Document No. MAI 14908 - ER951020E103 Rev./Change No. 0

Title TEMPORARILY DISABLE CV-7438 VEF-15 REACTOR BUILDING PURGE DAMPER

Brief description of proposed change:

Dampers CV-7438 and CV-7422 are non-safety related dampers on either side of VEF-15 Reactor Building Purge Fan. This MAI controlled Temporary Alteration will disable flow control damper CV-7438 in the full open position. The installation of the smaller reactor building isolation dampers by DCP-95-1020 and the associated reduced flow eliminated the need to control flow (the flow is controlled by the valve restrictions and the flow control damper is required to be wide open to maximize flow). This MAI and associated ER will disable damper CV-7438 in the full open position and allow purge to continue. The design air flow determinations and charcoal testing associated with technical specifications will be performed with CV-7438 in the full open position.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. MAI 14908 - ER951020E103 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

The Unit 1 Technical Specifications contain requirements for design flow. The original design utilized CV-7438 to maintain the purge flow within the technical specifications limits. However since the installation of the new purge reactor building isolation valves, this valve is no longer used for flow control. A new design airflow is being established for compliance with technical specifications (reference DCP – 951020D101). Disabling the damper(s) CV-7438 and/or CV-7422 in the open position will not require a change to technical specifications, the operating license, or any confirmatory letters.
Review of the Licensing Basis documents did not reveal any text that would require change. Dampers CV-7438 and CV-7422 are shown on SAR figure 5-7 (M-261 Sheet 2); therefore an evaluation is required. This temporary change will not affect the basis of the technical specifications.
Disabling VEF-15 Damper(s) CV-7438 and CV-7422 in the open position would be the normal position for these valves while the purge is operating. Flow control damper CV-7438 would normally control around a setpoint of 40,000 cfm. This would result in the damper being wide open since the new purge reactor building isolation valves restrict flow to less than 20,000 cfm. CV-7422 receives a full open signal whenever VEF-15 is running. This change does not constitute an IPTE since the normal operating position of these valve will be maintained. This change will not require an RSE or a change to the VSC SAR. The QAMO and the E-Plan are not affected by this change.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item #____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: 50.59 Unit 1 (reactor building w/50 purge, RB w/20 purge, CV-74*, purge air exhaust, purge air, VEF*15, VSF*2, purge exhaust)

MANUAL SECTIONS: Technical Specifications 3.22, 3.23

FIGURES: SAR Figure 5-7

Certified Reviewer's Signature	Printed Name	Date
James J. Souto	James J. Souto	9/13/99

Reviewer's certification expiration date: 2/6/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date
D.N. MCKENNEY	DRAFT PREPARATION	9/13/99

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
T. Grant Ehren	T. GRANT EHREN	9/13/99

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. MAI 14908 - ER951020E103 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

ARKANSAS NUCLEAR ONE		Page 1
FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 1 Page.

FFN# 99-077

Document No. ER 991020 Rev./Change No. 0 10CFR50.59 Eval. No. 99-077 (Assigned by PSC)

Title TEMPORARILY DISABLE CV-7438 VEF-15 REACTOR BUILDING PURGE DAMPER

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Bruce Franklin	Bruce Franklin	9/13/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 8/24/00

Assistance provided by:

Printed Name	Scope of Assistance	Date
James J Souto	SEARCH	9/13/99
David N McKenney	SEARCH	9/13/99

PSC review by: James McWilliams Date: 9-13-99

Document No. MAI 14908 - ER951020E103 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. CV-7438 and/or CV-7422 are non-safety related dampers on either side of the VEF-15 reactor building purge fan. These valves are not relied upon for isolating the reactor building. Accidents involving the purge system require that the V1/V2 valves close. This change will not affect the ability to isolate the reactor building. No previously evaluated accidents will be affected by this change and as such, the probability will not be increased.

2. This change does not impact the ability to isolate the reactor building on an accident. The dampers in question are non-safety related and are not credited for the mitigation of any accident. The consequences of a previously analyzed accident remain unchanged and as such, there will be no expected increase in off site dose.

3. Dampers CV-7438 and CV-7422 are not considered to be important to safety. The probability of malfunction of the V1/V2 valves, which are considered important to safety, will not be changed. The ability of CV-7438 to control flow is no longer required with the installation of the new V1/V2 valves since they are limiting flow. New design airflow rates will be established with CV-7438 and CV-7422 in the full open position (this is the normal position for these valves while system is operating). The probability of a malfunction of equipment important to safety will not be changed as the affected equipment is non-Q and is not associated with RB containment isolation capability.

4. CV-7438 and CV-7422 are not used to mitigate any accidents or support the operation of any equipment important to safety. The reactor building isolation valves will not be impacted. As such, the consequences of a V1/V2 failure would not be changed by this temporary change.

5. No new accidents will be created. The purge reactor building isolation valves are unaffected by this change. Failure of the reactor building purge fan or purge equipment outside of the reactor building would not result in any new type of accident.

6. The equipment affected by this change is not important to safety. If the equipment were to fail, reactor building purge would be terminated and the purge reactor building isolation valve would be shut. The changes being made do not affect the reactor building isolation valves and as such, there will be no possibility of a malfunction of a different type created.

7. The equipment affected by this change is not described in the basis for any of the technical specifications. The margin of safety for the purge filtration and the isolation valves is not reduced by this change. As such, there will be no reduction in any margin of safety. New design airflow rates will be established as a result of the new reactor building purge isolation valves installed under DCP 951020D101.

Conclusion:

Disabling CV-7438 and/or CV-7422 in the open position during reactor building purge will not result in an unreviewed safety question.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. ER963140E101 Rev./Change No. 0

Title Evaluate Emergency Lights to determine which units are required by 10CFR50 Appendix R

Brief description of proposed change: ER determined that certain lights are not required for Appendix R and thus may be deleted from the program.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☒	No☐
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. ER963140E101 Rev./Change No. 0

Basis for Determination (Questions 1, 2 & 3):
The 8-hour emergency lights are not Tech Spec related equipment nor required by the Operating License. The lights are required to provide illumination for the performance of actions by Operations personnel in an Appendix R scenario. The locations are specified on the FP – 300 series drawings, which are included with the FHA. These drawings will be revised to delete the locations of the lights that are not required by Appendix R and to correct the access/egress routes to safe shutdown components. Also, the FHA describes the functions of the lights. These descriptions were revised to reflect the actual function of the lights as determined by ER963140E101. No other SAR related documents that describe Appendix R emergency lighting are of sufficient detail to warrant revision. No testing is required to perform this change, as it is strictly a documentation change.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	**50.59-Unit1 (Emergency Ligh*, EL8, EL9, EL1*, EL2*, EL3*, EL4*, EL5*, EL6*)**
MANUAL SECTIONS:	**FHA 6.4.4**
FIGURES:	**FP-309, FP-310, FP-311, FP-312, FP-313 and FP-314**

Woody Walker — Woody Walker — 10/13/98
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 5/21/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Randall J. Gardner — Ronald D. Henderx — 12/14/98
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. ER963140E101 Rev./Change No. 0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

10CFR50.59 Eval. No. FFN-98-158
(Assigned by PSC)

Document No. ER963140E101 Rev./Change No. 0

Title Evaluate Emergency Lights to determine which units are required by 10CFR50 Appendix R

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   There is no physical work related to this change (documentation only). Reclassification of Appendix R required emergency lights has no impact on any safety related system nor with any accident initiator and therefore does not increase the probability of an accident.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   The drawing changes reflect a reclassification of emergency lights. These lights were determined to be unnecessary for Appendix R (i.e. fire related) scenarios. Downgrading these lights will not influence the off-site dose related to any postulated accident.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   The existing function (i.e. provide illumination) of the emergency lights will maintained. As such, the interface with equipment important to safety (or lack thereof) is unchanged. Downgrading these lights will not affect the probability of a malfunction of equipment important to safety.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   Reclassification of these lights will not effect any equipment important to safety, in any manner. The off-site dose related to any equipment failure will not be altered by this documentation change.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   Since this change does not perform any physical changes to the existing plant, there is no impact on the performance of any system. Therefore, the possibility of a different type accident is not affected by this change.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No physical changes are being made to the plant. Thus, no new failure mechanisms are being introduced.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Emergency lights are not considered essential for any margin of safety.

Woody Walker — Certified Reviewer's Signature

Woody Walker — Printed Name

10/13/98 — Date

Reviewer's certification expiration date: **5/21/99**

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: T Brown Date: 12/17/98

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 3 Pages.

Document No. ER 973922A301 Rev./Change No. 0

Title ANO SWITCHYARD TRANSMISSION LINE DESIGNATION CHANGE.

Brief description of proposed change:

Entergy is constructing a 500/161 KV substation that will be tied into the ANO-Mayflower 500KV transmission line. The substation will be called the Pleasant Hill Station and is located north of Morrilton, Arkansas. The substation will provide additional capacity for the ANO 161 KV offsite power source SU # 2. The transmission line (ANO-Mayflower) will now be called the ANO-Pleasant Hill line and the Pleasant Hill-Mayflower line. Several Unit 1 and Unit 2 SAR Section and Figures will have to be changed to address this change.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. ER 973922A301 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

See attached.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ___ (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS: 50.59 - Common	"Mayflower", "switchyard w/10 relaying"

MANUAL SECTIONS: U 1 SAR 1.4.13, U 2 SAR 3.1.2, All of U 1 SAR 8.1, 8.2,and U 2 SAR 8.1,8.2

FIGURES: U 1 SAR Figure 8-1, U 2 SAR Figures 8.3-1, 8.3-21

Certified Reviewer's Signature	Printed Name	Date
David A. Robinson	David A. Robinson	11/23/99

Reviewer's certification expiration date: 03/01/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
John Hotz	Determination writeup	11/23/99

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
J. Glenn Dabbs	J. Glenn Dabbs	11/23/99

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER 973922A301 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 1 Page.

Document No. ER 973922A301 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-99-108 (Assigned by PSC)

Title ANO Switchyard tranmission line designation.

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

David A. Robinson
Certified Reviewer's Signature

David A. Robinson
Printed Name

11/23/99
Date

Reviewer's certification expiration date: 3/1/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: Michael Harris Date: 12/2/99

Document No. ER 973922A301 Rev./Change No. 0

10CFR50.59 Review Continuation Page

Background Description:

This 50.59 Determination and Evaluation address the portion of ER 973922A301 that changes the existing 500KV transmission line designation, between the ANO switchyard and the Mayflower substation, from the ANO-Mayflower Line to the ANO-Pleasant Hill Line.

This is being done because Entergy Arkansas is presently constructing a 500/161 KV substation at Pleasant Hill, just north of Morrilton, Arkansas. This $22,500,000 substation and transmission project is being constructed as a joint effort between Entergy Transmission and ANO. The project will provide necessary capacity for the ANO 161 KV offsite power source (SU #2) and will also improve the Western Arkansas 161 KV transmission system. The project will have no impact, now or when completed, on the availability of the 500 KV offsite power, but will significantly improve the availability of the 161 KV offsite power especially for the single contingency event of loss of the ANO 500/161 KV Autotransformer. The in-service date for the Pleasant Hill substation is the summer of 2000.

The Pleasant Hill Station will be installed along the existing ANO-Mayflower 500 KV Line (61 miles) approximately 33 miles from ANO. The ANO-Mayflower Line designation will be changed into two segments, the ANO-Pleasant Hill Line and the Pleasant Hill-Mayflower Line. In order to tie into the 500 KV side of the substation an outage will be required on the 500 KV line between ANO and Mayflower. Since an outage of the 500KV line requires ANO to reduce its total generation to approximately 1300MW, it is preferred to make the Pleasant Hill Station connections to the ANO-Mayflower Line during ANO outages (1R15 and 2P99). During these line outages, the line will be cut and then a large transmission dead-end structure and 500 KV buss-work will be constructed under the existing line location. The 500 KV will then be reconnected to the Pleasant Hill Station and necessary relaying shall be installed at ANO, Mayflower, and Pleasant Hill.

The 500 KV portion of the Pleasant Hill Station work is scheduled to be completed during 2P99 or shortly thereafter. Since ANO generation will be limited to 1300 MW until the 500 KV line is restored, every effort will be made to complete this line work to avoid curtailing ANO power post 2P99.

The physical work being performed at ANO will be changing the switchyard mimic bus labels in the Unit 1 and Unit 2 control rooms (C10 and 2C10) and also in both Unit's simulators to show the ANO-Pleasant Hill 500KV Line designation. Relaying will also be upgraded in the ANO switchyard to protect the new 500 KV line design.

The 161 KV portion of the Pleasant Hill Station is scheduled to be completed in the spring of 2000. At this time, no additional ANO 500 KV line work is presently planned for this project. The ANO-Morrilton-East 161 KV Line will require an outage to complete the substation work.

Basis for Determination:

1.) Will the proposed modification require a change to the Operating License, including

Technical Specification (excluding the bases)?	NO
Operating License?	NO
Confirmatory Orders?	NO

Discussion:

The Technical Specifications, Operating Licenses, and the Confirmatory Orders for both Units were reviewed to see if this ER made any changes to these documents. No documents were found that would required any changes.

Document No. ER 973922A301 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1.) Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, of (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	YES
Core Operating Limits Reports?	NO
Fire Hazard Analysis?	NO
Bases of the Technical Specifications?	NO
Technical Requirement Manual?	NO
NRC Safety Evaluation Reports?	NO

Discussion:

The reason for the YES answer is that the ER will require revisions to both Unit 1 and Unit 2 SARs. The Unit 1 SAR Sections being changed are 1.4.13, 8.2.1, 8.2.2 and Figure 8-1. The Unit 2 SAR Sections being changed are 3.1.2, 8.1.2, 8.2.1, 8.2.2 and Figures 8.3-1, 8.3-21. These SAR Sections are being changed to address the 500 KV line name change from ANO-Mayflower to ANO-Pleasant Hill and the description of the line. A LDCR has been issued for these changes. None of the other SAR document required any changes.

3.) Involve a test or experiment not described in the SAR? NO

Discussion:

This ER does not perform any test or experiment.

Evaluation Questions:

1.) Will the probability of an accident previously evaluated in the SAR be increased? NO

The only SAR accident identified that could possibility be affected by this change is the Loss of Offsite Power accident. Reconnecting of the ANO 500 KV line from the Mayflower substation to the Pleasant Hill substation will have no impact on the availability of the 500 KV offsite power, nor will it impact the Loss of Offsite Power accident. It should be noted that when the 161 KV portion of the Pleasant Hill Station is completed the availability of the 161 KV offsite power will be significantly improved, especially for the single contingency event of loss of the ANO 500/161 KV Autotransformer.

2.) Will the consequences of an accident previously evaluated in the SAR be increased? NO

No accident could be identified that would be affected by reconnecting the ANO 500 KV line from the Mayflower substation to the Pleasant Hill substation. Therefore, this change will not affect the offsite dose consequences of any accidents previously evaluated in SAR.

Document No. ER 973922A301 Rev./Change No. 0

10CFR50.59 Review Continuation Page

3.) Will the probability of a malfunction of equipment important to safety be increased? NO

No equipment important to safety could be affected by reconnecting the ANO 500 KV line from the Mayflower substation to the Pleasant Hill substation. As previously noted, this change does not affect the availability of the 500 KV offsite power and will not cause an increase in the probability of degraded voltage on the 500 KV system. As noted in Question 1 above, the reliability of the 161 KV power will be improved after the substation is completed.

4.) Will the consequences of a malfunction of equipment important to safety be increased? NO

The offsite dose consequences are not affected by reconnecting the ANO 500 KV line from the Mayflower substation to the Pleasant Hill substation.

5.) Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? NO

DAR IL-L-49

The Loss of Offsite Power has been previously evaluated in the SAR. As stated in Question 1, this accident will not be~~ing~~ impacted. No new types of accidents could be identified that would be caused by the reconnection of the Mayflower 500 KV transmission line to the Pleasant Hill Station.

6.) Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? NO

No new types of malfunctions of equipment important to safety could be identified.

7.) Will the margin of safety as defined in the Bases of any technical specification be reduced? NO

No margin of safety was identified for the 500 KV offsite power. Also, the reconnection of the Mayflower 500 KV transmission line to the Pleasant Hill Station does not affect the number of offsite sources to Units 1 and 2.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

This Document contains 3 Pages.

Document No. ER #980706E101 Rev./Change No. 0

Title REVISE P&ID M-219 SH. 4 DETAIL I SAR FIGURE 9-16.

Brief description of proposed change:

This change revises Fire Water System P&ID M-219 Sh. 4 SAR figure 9-16 to replace disphgram valve FS-5620H with a ball valve. The valve is located in the Turbine Bldg. at elevation 358' approximately one foot North of the Main Turbine Lube Oil Tank Room T-27. An equivalency evaluation was performed via ER 980706E101 to provide assurance that the replacement valve would perform the design function of the system.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. ER #980706E101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

Querstion #1: The level of detail required for the replacement of a valve of a different type on the Fire Water System is not addressed by the referenced Operating license documents. Therefore, the replacement of the valve with an equivalent will not require a change to the OL's prior to implementation.

Question #2: The valve being replaced is depicted on P&ID M-219 Sh. 4 Detail I SAR Figure 9-16 and requires that the valve symbol on the drawing be revised to reflect this change. All other information in the SAR documents will not be affected by this change.

Question #3: The replacement of a valve on the exisrting sprinkler system will not alter the testing requirements of the system. Therefore, this change will not involve a test or experiment not described in the SAR.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item #____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS: "All" (Sprinkler)	50.59 COMMON
MANUAL SECTIONS: Unit 1 SAR Section 9.8, Appendix 9D and Fire Hazard Analysis	
FIGURES: 9-16	

Jackie L. Johnson — Jackie L. Johnson — 11/3/98
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 3-14-99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Thom Robinson — THOM ROBINSON — NOV. 9 '98
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER #980706E101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 2 Pages.

Document No. ER 980706E101 Rev./Change No. 0 10CFR50.59 Eval. No. EEN-98-147 (Assigned by PSC)

Title Revise P&ID M-219 Sh. 4 SAR Figure 9-16

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

As evaluated in the SAR the Fire Water System is designed such that rupture or inadvertent operation will not jeopardize the capability of safety related equipment. The valve being replaced by this change is located in an area where there is no safety related equipment, which could be damaged by water impingement. Therefore, the probability of an accident previously evaluated in the SAR will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The Fire Water System is evaluated in the SAR for line breaks, misoperation and to mitigate the consequences of fires which may have an effect on safety related equipment. The ability to respond to a failure or inadvertent operation will not be affected by this change. Also, the system will remain functional and capable of performing in accordance with design criteria after replacement of the valve.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The Fire Water System is designed to minimize the affects of fires and such that pipe rupture or inadvertent actuation does not cause loss of function to components important to safety. The original design and operation of the system was installed to meet N.F.P.A. standards as described in thSAR. The replacement of a valve will not degrade this capability and safety system capability will be maintained. Therefore, the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The Fire Water System is designed such that any failure will not affect equipment important to safety. The valve being replaced by this change will not alter this capability of the system. Also, the valve is located in an area that even in the event of a failure it would not affect safety related equipment. Therefore, the consequences of a malfunction of equipment important to safety will not be increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The types of accidents that could be created by the Fire Water System are evaluated in the SAR for pipe rupture and inadvertent operation. There are no other accidents, which could be created by this change that would effect the failure of the system. Therefore, the possibility of an accident of a different type previously evaluated in the SAR will not be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Replacement of a component does not impair the fire water system from performing its design function. Also, the valve being replaced by this change will not create any new failure modes because it is located in an area where there is no equipment important to safety. Therefore, the possibility of a malfunction of equipment to safety of a different type will not be created.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

The basis of the Technical Specifications does not specify a margin with respect to this section of Fire Water System. Therefore, the margin of safety as defined in the basis for any Tech. Spec. will not be reduced by this change.

Certified Reviewer's Signature	Jackie L. Johnson Printed Name	11-3-98 Date

Reviewer's certification expiration date: 3-14-99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 11/19/98

Document No. ER 981284E101 Rev./Change No. 0

Title Evaluation of Providing Fish Removal Capability in Intake Canal (Shad Seine)

Brief description of proposed change:

Background (based on CR-ANO-1-1998-0760):

The referenced CR was written to document that the reactor was manually tripped due to excessive traveling water screen delta-P as a result of a shad intrusion. Excessive traveling water screen delta-P resulted in the need to reduce the number of running Circulating Water pumps to one (1).

Description of ER 981284E101:

ER 981284E101 evaluates the installation of multiple shad seines that will be submerged in the Intake Canal during times of expected or occurring "shad runs". The shad seines will be located approximately 125 yards east of the May Road bridge over the intake canal and west of the existing debris barrier location. These shad seines will be submerged approximately five (5) feet below the normal depth of the intake canal water line. In this configuration, the seines will collect the shad in a large opening (approx. 8 ft x 12 ft) that will neck down to a smaller opening (approx. 2 ft x 2 ft). This will allow some shad to be concentrated so that they may be pumped out of the canal before they approach the traveling water screens, thus reducing the delta-P caused by the blockage of the screens. The seines will collect shad while allowing flow to continue down the normal intake canal to the intake structure without degrading the design basis function of the canal. See Design Basis Discussion below.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? Yes☐ No☒
(See Attachment 2 for guidance)

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

Discussion: The ER installs a shad seine, constructed of steel frame, in the intake canal, downstream of the existing debris barrier. The seine will have large inlet and small outlet. Portable pump suction will be connected to outlet to remove the trapped shad. The shad will then be transported by trucks for disposal. It is predicted that during transportation, some of the shad will be spilled on the embankment and or washed off back to the lake. The items to be considered.

a) Affect of the shad and the running water on the embankment. .

b) Affect of the re-circulated water and shad on the lake and the intake canal.

The amount of the spilled shad on the embankment during the transportation will be minimal. The spilled shad will either be washed back to the intake canal, decomposed naturally, or picked/cleaned up. Protective lining/plastic will be installed as lay down area during the pumping and transportation process. Thus, protecting the embankment from possible washing off. It also provides a path for the spilled shad to flow back into the canal, which is no concern. Similar to any other task, upon completion of the task, the area will be cleaned and any large amounts of shad will be removed off the embankments. Thus, the affect on the environment is determined to be negligible. This was discussed with Chemistry (Charlie Adams).

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO? Yes☐ No☒

E-Plan? Yes☐ No☒

Document No. ER 981284E101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

ZYFIND Search on LRS system was performed as indicated in the **Search Scope** section. A 50.59 evaluation is not required, as no LBD changes were found in the LRS searches performed.

A manual search of applicable LBD documents confirmed the LRS findings.

LBD changes are not required.

Design Basis Discussion:

- The shad seine is designed to withstand the forces of water current and debris normal to its surfaces. Therefore, the seine is not expected to become loose in the intake canal.
- Considering standard flow dynamics, the overall flow velocity of the intake canal will not be changed due to the addition of the shad seines, even if it is assumed that the seines are completely clogged. Therefore, flow velocity will not be significantly affected by the installation of the shad seines.
- The shad seine is expected to be used for temporary conditions during expected or occurring "shad run" events. This object is to be considered as a tool, not a permanent plant structure.
- Based on this determination a 50.59 Evaluation is not required, however due to the dual unit function of the Intake Canal an Evaluation has been performed and is attached.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section	Question	Keyword(s)/Search Strings
Operating License	ALL	1	See keyword search strings below
Technical Specifications	ALL	1	See keyword search strings below
Confirmatory Orders	ALL	1	See keyword search strings below
SAR	ALL	2	See keyword search strings below
Core Operating Limits Report	ALL	2	See keyword search strings below

Document No. ER 981284E101 Rev./Change No. 0

FHA	ALL	2	See keyword search strings below
Tech. Spec. Bases	ALL	2	See keyword search strings below
Tech. Requirements Manual	ALL	2	See keyword search strings below
NRC SERS	ALL	2	See keyword search strings below
Test or Experiment Not Described in the SAR	ALL	3	See keyword search strings below

LRS: Keyword Search Strings: Scope of Search = 50.59 - Common
intake canal, (intake or canal) w/10 seismic, debris, assured source, (canal blockage), (ultimate heat sink), flood and (intake canal), loss w/10 dam

MANUAL SECTIONS/FIGURES: Due to the temporary use of the shad seines there is no need to search the manual sections or figures.

Certified Reviewer's Signature | A. Ahrabli Printed Name | 12/30/98 Date

Reviewer's certification expiration date: 6/9/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
Blake Hogue	Composed 50.59 Determination, performed LRS searches	12/30/98
John Cotton	Performed LRS searches	12/30/98

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature | Herbert R. Rideout Printed Name | 12/30/98 Date

Document No. ER 981284E101 Rev./Change No. 0

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Eval. No. FFN-98-163
(Assigned by PSC)

Document No. ER 981284E101 Rev./Change No. 0

Title Evaluation of Providing Fish Removal Capability in Intake Canal (Shad Seine)

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The installation of the shad seines in the intake canal does not affect the ability of the intake canal to deliver the required water flow to ANO-1 and ANO-2 during normal or accident operations. The shad seines span only 12 ft across the width of the 65 ft wide canal, and are staggered east-to-west within the canal. Therefore, even if debris clogged the shad seines completely, there is still sufficient cross-section within the canal to allow sufficient flow to the intake structure as required by the SAR.

If the shad seines broke away from their stay cables in a seismic event, the flow velocity of the canal is not high enough to move the shad seines from their sitting location toward the intake structure. Therefore, there are no concerns with the seines damaging the intake structure. The addition of the shad seines could in no way cause a "Loss of Lake" accident. Therefore, the probability of an accident previously evaluated in the SAR, is not increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

As discussed above, the shad seines cannot adversely affect the flow of water to the Intake Structure. Therefore, the installation of the Debris Barrier does not increase the consequences of any accidents previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

Protection from shad, other debris and flotsam that may impact the intake structure is improved by the shad collection and removal action provided by the shad seines. The shad seines are designed for deadweight, additional live load from the shad and other debris, and drag loads from water in the intake canal. If the shad seines broke loose in a seismic event, no System, Structure, or Component (SSC) important to safety would be impacted due to their remote location from the station.

Due to the design of the weight and design of the shad seines and the individual items that construct them, the seines would not become buoyant in the event of a complete failure (i.e., the shad seines broke away from their stay cables). Flow velocities in the canal are very low (~3 fps, Reference Calculation 32) and would not have sufficient force to move the failed shad seines. Therefore, there is no concern that the shad seines could "float" down the canal and impact any SSC important to safety.

Based on this discussion, the probability of a malfunction of equipment important to safety is not increased.

Document No. ER 981284E101 Rev./Change No. 0

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

As described above, the shad seines cannot impede flow to the Intake Structure. Therefore, there is no increase to the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Since the shad seines cannot impede flow to the Intake Structure during normal operation or in failed condition nor impact any SSC important to safety in a seismic event, there are no new accident scenarios other than those already described in the SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No, the only affected SSC is the Intake Canal, the Intake Structure and its related equipment already considered in the ANO Design Bases. Based on discussion in question (3), the shad seines introduce no new failure scenarios.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

No, the installation of this LCP adds margin of safety to shad/debris/flotsam removal capabilities to plant lake water supply.

Certified Reviewer's Signature _____ Printed Name A. AHRABIE Date 12/30/98

Reviewer's certification expiration date: 6/9/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
Blake Hogue	Composed 50.59 Evaluation, Ran LRS Searches	12/30/98

PSC review by: _____ Date: 12/31/98

This Document contains 3 Pages.

Document No. LDCR Rev./Change No. _____

Title CHANGE ACTUAL NUMBER VALUE FOR LEVEL TO VOLUME CONVERSION ON ANO-1 SUMP LEVEL

Brief description of proposed change:

Change SAR section 4.2.3.8 section A. Sump Level to say The reactor building sump unit-capacity varies with height but averages about 66 gallons per inch. It currently says "The reactor building sump contains 63.6 gallons per inch of height." The change does not effect the capability of sump level instrumentation to detect a 1 gpm leak in less than 1 hour. The sump is still one of the diverse means of detecting a reactor coolant system leak.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☒	No☐
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. LDCR Rev./Change No. _____

Basis for Determination (Questions 1, 2, & 3):

The exact value to be used to convert a level in the ANO-1 Reactor Building Sump is beyond the level of detail contained in the **ANO-1 Technical Specifications, Operating License, and Confirmatory Orders**. That value is specified in the **SAR** in section 4.2.3.8 and **Bases for Tech Spec** 3.1.6.9. An LDCR has been submitted to change the SAR and Tech Spec bases to be less prescriptive. None of the other SAR documents including the **COLR or the Fire Hazards Analysis** are impacted. They do not address this parameter to any level of detail. This change **will NOT require testing not described in the SAR, it will NOT impact the environment, nor allow processing of radioactive material outside of the RCA. This change will NOT effect the ISFSI system nor will it require a 50.54 review since neither the QAMO or E-Plan are affected.**

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: keywords 63.6, sump w/5 level, sump w/10 leak

MANUAL SECTIONS: chapters 14 + 6 + 4.2 of the Tech Specs and their bases

FIGURES: from ch. 14.

Robert J. Prioire — Robert J. Prioire — 7-7-99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 9-17-99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Renee Millison — Renee Millison — 8/24/99

Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. LDCR Rev./Change No. _____

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☑	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☑	Increase thermal discharges to lake or atmosphere?
☐	☑	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☑	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☑	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☑	Install any new transmission lines leading offsite?
☐	☑	Change the design or operation of the intake or discharge structures?
☐	☑	Discharges any chemicals new or different from that previously discharged?
☐	☑	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☑	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☑	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☑	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☑	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 3

This Document contains 5 Pages.

Document No. LDCR Rev./Change No. 0 10CFR50.59 Eval. No. FFN # 99-072 (Assigned by PSC)

Title CHANGE ACTUAL NUMBER VALUE FOR LEVEL TO VOLUME CONVERSION ON ANO-1 SUMP LEVEL

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Robert J Prior — Robert J Prior — 7-9-99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 9-17-99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 9/9/99

Document No. LDCR Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

No. The instrumentation measurement conversion factor this change will implement comes into use after an accident that results in water accumulating to the Reactor Building Sump level occurs when L-1405B is used to gauge Reactor Building Sump level. That measurement is dependent upon the accident that accumulates the water in the sump and therefore can not increase the probability of that accident occurring. This level instrument is not included in the Chapter 6

single failure evaluation for the ECCS – this also demonstrates that the instrument is not a contributor of any accidents requiring the services of the ECCS.

The leakage ranges that the sump level instrumentation plays an active role in is significantly below the flow rates the ECCS envelopes. There are not any assumptions in the LOCA analysis that can be found that would be effected by changing this parameter – the SAR states that operators will be able to detect a 1 gpm leak in 1 hour and the bases to Tech Spec 3.1.6 indicates that leakage in excess of this rate will require a safety evaluation or compensatory action and indicates that such a leak, even a smaller one, could conceivably leak to a more significant fault, but this change will not effect this decision-making process.

No changes within or between accident classifications will occur due to this change. It does not appear warranted to apply any addition engineering evaluation or consultation to resolve this. This change will not change the reliability of the Reactor Coolant Leak Detection System, the same instrument with the same accuracy and precision will still be used. No system will have to be operated outside of its design limit with the implementation of this change and this change will not effect any system that interfaces the Reactor Coolant Leak Detection System. In a similar manner, this change will not increase the possibility of operator errors.

Each SAR chapter 14 accident was evaluated to determine the role that L-1405B may play in those accidents. The results of this evaluation are as follows:

Chapter 14 accidents include:

14.1.2.2 Startup Accident - this instrument is completely unrelated to the Control Rod Drive Mechanism and its associated control system.

14.1.2.3 Rod Withdrawal Accident at Rated Power Operation – this instrument is completely unrelated to the Control Rod Drive Mechanism and its associated control system.

14.1.2.4 Moderator Dilution Accident – this instrument is completely unrelated to the maintenance of boron concentration in the Make-up and Purification System's Make-up Tank.

14.1.2.5 Cold Water Accident (can not happen at ANO-1 per the ANO-1 SAR due to there being no check valves associated with this accident scenario and an RCP interlock preventing pump start when power is greater than 22% is part of the ANO-1 design).

14.1.2.6 Loss of Flow is caused by failure of a Reactor Coolant Pump including a locked rotor event and failure of a pump motor. This instrument is completely unrelated to the Reactor Coolant Pumps and their associated control system.

14.1.2.7 Stuck-out, Stuck-in, or Dropped Control Rod Accident – this instrument could, in no way, lead to the sticking of a Control Rod Drive Mechanism or the dropping of a Control Rod.

14.1.2.8 Loss of Load or Electric Power – the conversion factor of sump level in inches to gallons in no way effects the output of the instrument or the feedback that might be generated to it's power supply. In addition, the instrument is buffered by LY-1405B and will not effect it's power supply system.

14.1.2.9 Turbine Overspeed - this instrument is completely unrelated to the Turbine Control System and can not contribute to the probability of this accident occurring.

14.1.2.10 Fuel Loading Errors - this instrument is completely unrelated Fuel Loading and can not contribute to the probability of this accident occurring.

14.2.2.1 Steam Line Failure - this instrument is completely unrelated to the ANO-1 Main Steam System and can not contribute to the probability of a Steam Line accident occurring.

14.2.2.2 Steam Generator Tube Failure - this instrument is completely unrelated to the ANO-1 Once Through Steam Generators and can not contribute to the probability of an OTSG tube failure accident occurring.

14.2.2.3 Fuel Handling Accident - this instrument is completely unrelated to Fuel Handling and can not contribute to the probability of this accident occurring.

14.2.2.4 Rod Ejection Accident - this instrument is completely unrelated to the integrity of the Reactor Coolant System Pressure Boundary in the vicinity of the Control Rod nozzles in the Reactor Vessel and can not contribute to the probability of this accident occurring.

14.2.2.5 Loss of Coolant Accident - this instrument is completely unrelated to the integrity of the Reactor Coolant System and can not contribute to the probability of this accident occurring. Identification of small losses of reactor coolant is an "additional consideration" of the Loss of Coolant Accident per the ANO-1 SAR and is relied upon to identify RCS leaks early to trigger operator action if necessary. The sump level measurement occurs after this leak has developed and therefore can not effect the probability of that leak occurring. However, small leaks can lead to larger leaks that fall into the scope of the Small or Large Break Loss of Coolant Accident. In this case, the sump level instrument precision can help detect certain sized leaks earlier. For instance, as per SAR section 4.2.3.8, the Reactor Coolant Leak Detection System can detect a 1 gpm leak in less than 1 hour. This function will not be effected by this slight change in the conversion factor, nor will it effect the accuracy of the measurement used to make this determination. This change in the conversion factor quoted in the SAR will change the speed with which an operator can detect the 1 gpm leak a minute amount (less than a minute) but the operator will STILL be able to detect this leak in less than one hour with this instrument. **To be able to detect a 1 gpm leak in 1 hour or 60 minutes, the operator must observe a valid change in the indicated reading (1/2 tick mark on edge-wise indicators or per buffer limitations for digital indication). An operator will STILL be able to detect a minimum volume change of 4 liquid gallons and he will STILL be able to observe that change on this instrument since L1405B indicates digitally on SPDS.**

14.2.2.6 Maximum Hypothetical Accident - this instrument is completely unrelated to the Maximum Hypothetical Accident and can not contribute to the probability of this accident occurring.

14.2.2.7 Waste Gas Tank Rupture - this instrument is completely unrelated to the Waste Gas Tank and can not contribute to the probability of this tank rupture occurring.

In addition, the measurement of water level in the Reactor Building Sump is not an initiator of any accidents.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

No. The instrumentation measurement conversion factor this change will implement is completely unrelated to each accident evaluated in the SAR as described above, except for the Loss of Coolant Accident. For the Small Break LOCA an "additional consideration" is the use of the Reactor Coolant Leak Detection System where reactor building sump level measurement is utilized to quickly detect a small reactor coolant system break in the thought that this will minimize the possibility of occurrence of a breach of the RCS that falls within the scope of the LOCA. However, this interrelationship is unrelated to the consequential radiation dose of the SBLOCA or any of the other SAR accidents referred to in Chapter 6 or Chapter 14 (above) and so it can reasonably concluded that off-site dose will not increase.

It can reasonably be determined that this conclusion applies to the access to all plant areas, too. Access to no areas, post-accident, will be limited due to this change.

In addition, this change will not prevent actions described and assumed to occur in all of the chapter 6 and 14 accidents, it will not alter any assumptions made in evaluating those accidents, it does not play any mitigating role in controlling the consequences of those accidents, it will effect no barriers which mitigate dose to the public, and it will not introduce any new pathways for release.

3. Will the probability of a malfunction of equipment important to safety be increased?

No. This change will not effect any equipment important to safety, or 'Q' equipment by degrading any aspect of performance below any design basis. The instrument in question is utilized for indication only and provides no output used by operating equipment other than the SPDS computer that displays the sump level and indicating apparatus on control room panels. In addition, there will be no indirect effects on equipment important to safety. Since there are no effects to any equipment important to safety, there will be no increase in the probability of failure of any of this equipment and there will not be any degradation of equipment reliability.

4. Will the consequences of a malfunction of equipment important to safety be increased?

No. In much the same way as in question (3), this change will not increase the exposure of the public due to any accident evaluated in SAR chapter 6 or 14. No access to any areas, post-accident, will be limited due to this change. If we were to assume that equipment important to safety malfunctioned and this change had been implemented, the consequences of that accident would not have been increased due to this SAR change.

5. **Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?**

No. There are no types of accidents created by this change much less one that is different from those currently evaluated in the SAR. Therefore, there are no accidents, let alone unbounded accidents, are created by this change. The circumstances of the accidents evaluated in the SAR (listed above) will not be altered due to having reevaluated and the ratio of gallons per percent in the Reactor Building Sump. There will be NO accident scenarios created by this change so there will be no new initiators created because of this change nor will any other scenarios that were previously enveloped by those evaluated in the SAR now have a probability that is NOT bounded by the accidents evaluated in the SAR. In a similar vein, there are no scenarios whose likelihood is now increased to the point of being credible that have consequences that are not bounded by those currently evaluated in the SAR.

6. **Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?**

No. There are no accidents, let alone one with circumstances different enough from those currently evaluated in the SAR, that will be created with this change. There are no initiators or failures not considered in the SAR that will be introduced by this change. Similar to question 5, this change will NOT increase the possibility of any malfunctions that were previously bounded by the SAR accident. All of the SAR accidents will remain bounding after this change in implemented. Since there are no malfunctions created or exacerbated by this change, there are no malfunctions that will have undesirable consequences that will be created either during normal or abnormal operations. There aren't even incredible happenings that will occur because we change this interrelationship between volume and level of water in the reactor building sump.

7. **Will the margin of safety as defined in the basis for any technical specification be reduced?**

No. The one hour requirement for identifying a 1 gpm RCS leak stated in the bases to Tech Spec 3.1.6 is not effected with this change. This change in no way effects the instrumentation being used to monitor the Reactor Building Sump including the accuracy or sensitivity or readout of those instruments. **To be able to detect a 1 gpm leak in 1 hour or 60 minutes, the operator must observe a valid change in the indicated reading (1/2 tick mark on edge-wise indicators or per buffer limitations for digital indication). An operator will STILL be able to detect a minimum volume change of 4 liquid gallons and he will STILL be able to observe that change on this instrument since L1405B indicates digitally on SPDS.**

FORM TITLE: ARKANSAS NUCLEAR ONE 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 3 Pages.

Document No. TA-99-1-001/ ER991295E101 Rev./Change No. 0 / 0

Title Disabling of interlock between Circ Water valves and SV4642 Radwaste Discharge Valve

Brief description of proposed change:

For the first few months of 1999, ANO-1 will be throttling the water box inlet valves throttled to minimize the impact of shad runs on the traveling screens. Treated Waste Discharge solenoid valve SV4642 is interlocked closed when the waterbox inlet valves are not 100% open. Therefore, to operate with the waterbox inlet valves throttled, this interlock must be disabled. Temporary Alteration 99-1-001 disables this interlock. This TA will also add a computer point circulating water flow that will be used to drive "critical" annunciator window K02-D8. (The computer point is being added by a software change package as a permanent change).

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☒

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☒ No☐

   Core Operating Limits Report? Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. TA-99-1-001 / ER991295E101 Rev./Change No. 0 / 0

Basis for Determination (Questions 1, 2, & 3):

1. **None of the Technical Specification documents contain details on specific computer points, annunciator windows, or the interlock between the waterbox inlet valves and the SV4642 Radwaste discharge valve.**
2. **SAR Figures 9-10 and 11-1 show the interlock in question, and therefore, will be made untrue by this Temporary Alteration. A 10CFR50.59 Evaluation is attached. No other License Based Documents contain any details about the interlock between the waterbox inlet valves and the SV4642 Radwaste discharge valve, and no LBDs address specific computer points or annunciator window assignments.**
3. **The only testing performed by this Temporary Alteration is the normal PMT required to ensure that the control circuitry functions correctly. This PMT will not degrade the margins of safety, or degrade the adequacy of SSCs to prevent or mitigate accidents.**

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # . (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS: ALL	**Keywords: (Dilution and Circul*), (Radio* w/5 release), (Circulating Water), (Offside Dose), (Effluent and Disch*), (Discharge Canal), (annunc* w/10 critical) (circul* w/5 flow), (liquid radwaste)**
MANUAL SECTIONS:	**TS 6.12.2.5, 6.12.2.6, 6.14** **SAR 9.3.2.3, 10.4.5, 11.1.2.4, 11.1.3.1.1, 11.1.3.6.1, Table 11-7**
FIGURES:	**9-10*, 11-1***

Certified Reviewer's Signature — John Ekis (Printed Name) — 1/6/99 (Date)

Reviewer's certification expiration date: 4/22/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
none		

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature — ADRIAN MEYER (Printed Name) — 1/8/99 (Date)

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. TA-99-1-001/ ER991295E101 Rev./Change No. 0 / 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

ER991295E101 TAP 99-1-001 pg 25

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 1 Page.

Document No. TA 99-1-001 \ ER991295E101 Rev./Change No. 0 \ 0 10CFR50.59 Eval. No. FFN-99-005 (Assigned by PSC)

Title Disabling of interlock between Circ Water valves and SV4642 Radwaste Discharge Valve

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

SAFETY EVALUATION

Shad runs during the winter of 1998 led to the operation of the waterbox inlet valves in a throttled position instead of the normal 100% open condition. Treated Waste Discharge solenoid valve SV4642 is interlocked closed when the waterbox inlet valves are not 100% open. Therefore, to perform a liquid radwaste release with the waterbox inlet valves throttled, this interlock must be disabled. Temporary Alteration 99-1-001 disables this interlock. This TA also adds an analog computer point for circulating water flow (CWFLOW) which will be used to drive one of the annunciator window K02-D8 (this is a software change only). The only license based documents that are made untrue by the installation of this Temporary Alteration is SAR Figures 9-10 and 11-1 which graphically show the SV4642 interlock.

The purpose of this interlock was to allow liquid effluent releases only if two or more waterbox inlet valves are 100% open. With the interlock disabled, inadvertent closure of a waterbox valve would not automatically secure an effluent discharge. As a replacement for the interlock, administrative controls will be used to ensure that adequate dilution flow is maintained. Specifically, Operations procedures are being revised to require the isolation of radioactive liquid releases any time circulating water flow is altered. The procedures will require Ops to secure radwaste discharge upon receipt of a low CW flow alarm. The Offsite Dose Calculation Manual (ODCM) is also being revised to reflect the fact that circulating water flow may be throttled, and that the minimum flow expected is 100,000 gpm.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   No. There are no accidents addressed in the License Based Documents which concern releases from the clean liquid radwaste system. Valve SV4642 (Liquid Radwaste to Flume) is not considered to be an accident initiator, therefore, the probability of previously evaluated LBD accidents is not increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   No. There are no accidents addressed in the License Based Documents which concern releases from the clean liquid radwaste system. Valve SV4642 (Liquid Radwaste to Flume) is not considered to be an accident mitigator, therefore, the consequences of previously evaluated LBD accidents is not increased.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

No. There is no "Equipment Important to Safety" involved in the installation or operation of this temporary alteration. The only systems that are involved are the CZ system and the CW system, both of which are non-Q. Also, the power supply for the applicable circuit is non-Q. Note: A couple of the CZ valves are "Q" for containment isolation purposes, but these valves are not impacted in any way by this temporary alteration.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

No. This question refers to the radiation dose associated with the plant's response to an accident. As mentioned in question 2, there are no accidents addressed in the License Based Documents which concern releases from the clean liquid radwaste system. Additionally, there is no "Equipment Important to Safety" that relies upon the SV4642 – Waterbox Valve interlock to function.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No. The worst case condition that could occur as a result of this temporary alteration would be for valve CV4642 (Liquid Radwaste to flume) to fail in the open condition with inadequate Circ Water flow for dilution. This scenario, however, would not be considered to be an "accident of a different type", it would just be an unmonitored liquid release with the potential of exceeding ODCM limits. Administrative controls are being put in place to cover such a scenario.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No. As above in question 3, there is no "equipment important to safety" involved in this temporary alteration. Also, there is no "Equipment Important to Safety" that relies upon the SV4642 – Waterbox Valve interlock to function. Therefore, no malfunctions of a different type will be created.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

No. The only Technical Specification remotely applicable to this Temporary Alteration is 3.25.1.1 (Radioactive Liquid Effluents). The Bases for this TS contains no margins that will be impacted by the installation of this Temporary Alteration.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

Certified Reviewer's Signature	Printed Name	Date
	John Ekis	1/6/99

Reviewer's certification expiration date: 4/22/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
Mike Frala	Additional Review	1/6/99

PSC review by: _____ Date: 1/8/99

Document ER 991308E301 Rev./Change No. 0

Title Temporary Shad Revetment outside ANO Intake Canal

Brief description of proposed change:

Background (based on CR-ANO-1-1998-0760):

The referenced CR was written to document that the reactor was manually tripped due to excessive traveling water screen delta-P as a result of a shad intrusion. Excessive traveling water screen delta-P resulted in the need to reduce the number of running Circulating Water pumps a single unit. ER991308E301 has been prepared to build a Temporary Shad Revetment approximately 150 yards outside the ANO Intake Canal to serve as barrier to prevent "shad runs" from entering the Intake Canal.

Description of ER 991308E301:

ER 991308E301 evaluates the installation of a Temporary Shad Revetment. The shad revetment consists of 1500 feet of ½" mesh seine netting held afloat by buoys staggered across respective shore lines approximately 150 yards outside the mouth of the intake canal. A spud barge is anchored at mid-length of the netting span and serves as a rigid point of attachment for the two- (2) sides of the revetment. The Shad Revetment is a temporary structure to be put in place during the seasonal times when "shad runs" occur.
The Temporary Shad Revetment, as already noted, will be located approximately 150 yards outside the mouth of the ANO Intake Canal in Lake Dardanelle. It will be made up of continuous sections of 20 foot deep by approximately 250 foot long sections of ½ inch mesh seine netting that is secured to flotation buoys. A 145 foot long Spud Barge will be anchored at the mid-span of the netting as a center point of fixity to ensure that the netting maintains a functional configuration. The placement of the seine netting is in a low flow area (less than 1 inch per second) that corresponds to the flow across the ANO-2 Circ Water Bays for this time of year. The Unit 2 Circ Water Bay flow velocity is used as a design reference point to establish an acceptable area of low flow for the Temporary Shad Revetment. The netting will be secured to the north and south shores (mouth of ANO Intake Canal is the reference point). Periodic surveillance and maintenance will be performed to ensure that excessive build-up of debris, shad, etc. does not occur.
See Design Basis Discussion on page 3.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒

Document ER 991308E301 Rev./Change No. 0

	Technical Requirements Manual?	Yes☐	No☒
	NRC Safety Evaluation Reports?	Yes☐	No☒
3.	Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4.	Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☒	No☐
5.	Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6.	Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒
7.	Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?		
	QAMO?	Yes☐	No☒
	E-Plan?	Yes☐	No☒

Document ER 991308E301 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

ZYFIND Search on LRS system was performed as indicated in the **Search Scope** section. A 50.59 evaluation is not required, as no LBD changes were found in the LRS searches performed. However, an Evaluation has been performed, due to the potential for impacting either (or both) ANO Unit(s), to fully address the suitability of installing the Temporary Shad Revetment.

A manual search of applicable LBD documents confirmed the LRS findings.

LBD changes are not required.

Design Basis Discussion:

- Per discussions with the Spud Barge vendor (Souter Construction Co., Inc.), the Spud Barge has withstood the river currents of 15-mph (22-fps). A velocity of 22 fps well encompasses any normal or abnormal currents experienced in Lake Dardanelle. By observation, Barge with the Spuds (photographs attached as part of ER) driven into the lakebed can withstand an ANO Design Basis Seismic event. The netting by observation will not come loose during a seismic event either, as it will not significantly participate in the frequency ranges where SSC's normally experience harmonic acceleration during an earthquake. The netting is designed to tear away at engineered weak points such that the netting will remain attached to its buoy line but release the built up debris or shad. This amount of debris release should not create a situation more critical than previously experienced with the "shad run" on 12/25/98.
- Unit 2 SAR, Section 2.2.2.4 addresses the potential of a loaded barge entering the plant site area during a maximum flood. Based on the discussion above, the Spud Barge will be sufficiently anchored to withstand any Lake Dardanelle flood flows in the area in which it will be anchored. This is documented in the evaluation contained in ER991308E301. Therefore, the statement in ANO-2 SAR Section 2.2.2.4 remains true in that the barge, when anchored, can not enter the plant site area (in this case, the Intake Canal).
- Considering standard flow dynamics, the flow characteristics of the intake canal will not be changed due to the addition of the Temporary Shad Revetment.
- The Temporary Shad Revetment is expected to be used during times when "shad runs" are expected to occur. The Temporary Shad Revetment is a tool versus a permanent plant structure.
- Diesel fuel, hydraulic fluids, etc. may be present on the Spud Barge. Therefore, an Environmental Evaluation is required. Chemistry (C. Adams) has been contacted and will as part of this ER evaluation prepare an Environmental Evaluation.

☒ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item #____, (If checked, note appropriate item #, send LDCR to Licensing). For completeness, an 10CFR50.59 Evaluation is performed.

Document ER 991308E301 Rev./Change No. 0

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section	Question	Keyword(s)/Search Strings
Operating License	ALL	1	See keyword search strings below
Technical Specifications	ALL	1	See keyword search strings below
Confirmatory Orders	ALL	1	See keyword search strings below
SAR	ALL	2	See keyword search strings below
Core Operating Limits Report	ALL	2	See keyword search strings below
FHA	ALL	2	See keyword search strings below
Tech. Spec. Bases	ALL	2	See keyword search strings below
Tech. Requirements Manual	ALL	2	See keyword search strings below
NRC SERS	ALL	2	See keyword search strings below
Test or Experiment Not Described in the SAR	ALL	3	See keyword search strings below

LRS: Keyword Search Strings: Scope of Search = 50.59 - Common
intake canal, (intake or canal) w/10 seismic, debris, assured source, (canal blockage), (ultimate heat sink), flood and (intake canal), loss w/10 dam, barge, barge w/100 (intake or canal)

MANUAL SECTIONS/FIGURES:
Due to the temporary nature of the Shad Revetment, no manual search of LBD Sections/Figures is required. However, Section 2.2.2.4 of the Unit 2 SAR was reviewed for 'barge traffic' information relating to flood stage.

E. Dietrich — Eric Dietrich — 1/12/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 01/~~2002~~ 2000
E. Dietrich 1/12/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

H. Rideout — Herbert Rideout — 1-12-99
Certified Reviewer's Signature — Printed Name — Date

Title Temporary Shad Revetment outside ANO Intake Canal

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☒	☐	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Eval. No. FFN-99-009
(Assigned by PSC)

Document No. ER 991308E301 Rev./Change No. 0

Title Evaluation of Temporary Shad Revetment outside ANO Intake Canal

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The installation of the shad revetment consists of 1500 feet of ½" mesh seine netting held afloat by buoys staggered across the shore lines approximately 150 yds outside the mouth of the intake canal. A spud barge is anchored at mid-length of the netting span and serves as a rigid point of attachment for the two- (2) sides of the revetment. This configuration does not affect the ability of the intake canal to deliver the required water flow to ANO-1 and ANO-2 during normal or accident operations. The revetment spans 1500 ft across the Lake Dardanelle approximately 150 yds outside the mouth of the intake canal as described above. Per discussions with the Spud Barge vendor (Souter Construction Co., Inc.), the Spud Barge has withstood Mississippi River currents of 15-mph (22-fps). A velocity of 22 fps well encompasses any normal or abnormal currents experienced in Lake Dardanelle.
By observation, the Barge with its Spuds (photographs are attached as part of ER) driven into the lakebed, can withstand an ANO Design Basis Seismic event. The significant weight of the spuds (~20,000#) and their embedment depth into the lake bottom (3 – 4ft.) renders the barge practically immovable in its anchored configuration. The netting by observation will not come loose during a seismic event. The netting is designed to tear away at engineered weak points such that the netting will remain attached to its buoy line but release the built up debris or shad. This amount of debris release should not create a situation more critical than previously experienced with the "shad run" on 12/25/98.
Based on the foregoing, the spud barge in this location cannot be moved by Lake Dardanelle flood induced currents or a Design Basis Earthquake. Because the revetment netting is designed to tear away in sections at engineered weak points, only manageable amounts of debris (including shad runs) could enter the Intake Canal - quantities that the plant is designed to handle. The addition of the revetment does not impact any previously evaluated accident addressed in the ANO-1 or ANO-2 SARS nor is any new accident introduced. Therefore, the probability of an accident previously evaluated will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

As discussed above, the Temporary Shad Revetment cannot adversely affect the flow of water to the Intake Structure. Therefore, the installation of the Temporary Shad Revetment does not increase the consequences of any accidents previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

Protection from shad, other debris, and flotsam that may impact the intake structure is improved by the Temporary Shad Revetment. The Temporary Shad Revetment is designed for selfweight, additional live load from the shad and other debris, and drag loads from water in the intake canal. It is not credible for the nets to develop any significant loading in a seismic event. As noted in 1.), the Spud Barge anchorage is able to withstand ANO Design Basis Seismic loads.

Based on this discussion, the probability of a malfunction of equipment important to safety is not increased.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

As described above, the Temporary Shad Revetment cannot impede flow to the Intake Structure. Therefore, there is no increase to the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The Temporary Shad Revetment does not impede flow to the Intake Structure during normal operations, or abnormal conditions based on the fact that even with the potential for the net to tear at the engineered weak points, there would be no impact to any SSC important to safety. The addition of the Temporary Shad Revetment creates no new accident scenarios other than those already described in the SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No, the only affected SSC is the Intake Structure and its related equipment already considered in the ANO Design Bases. Based on discussion in question (3), the Temporary Shad Revetment introduces no new failure scenarios.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

No, the installation of the Temporary Shad Revetment effectively provides a barrier for "shad runs" but does not impact any Technical Specification Bases for either unit. This conclusion is based on a ZYINDEX search of ANO LBD documents, which revealed no impact or related references to any of the Technical Specifications. Therefore, no margin of safety in any of the Technical Specifications is affected or applicable to the installation of the Temporary Shad Revetment.

E. Dietrich	ERIC DIETRICH	01/12/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 01/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 1/13/99

Document ER 991308E302 Rev./Change No. 0

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☒

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☐ No☒

   Core Operating Limits Report? Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

Document ER 991308E302 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

ZYFIND Search on LRS system was performed as indicated in the **Search Scope** section. A 50.59 evaluation is not required, as no LBD changes were noted based on the LRS searches performed. However, an Evaluation has been performed, due to the potential for impacting either (or both) ANO Unit(s), to fully address the suitability of installing the Seasonal Shad Seine Net Deployment system.

A manual search of applicable LBD documents confirmed the LRS findings.

LBD changes are not required.

Design Basis Discussion:

- The Seasonal Shad Seine Net Deployment System is Non-Q and Non-Seismic. However, seismic issues are addressed in the Failure Modes and Effects section to consider the adequacy of the anchorage of the netting.
- Based on standard flow dynamics, the hydraulic characteristics of the intake canal will not be changed or affected due to the addition of the Seasonal Shad Seine Nets during normal or abnormal conditions.
- For Design Basis flood conditions, see the Failure Modes and Effects section.

Failure Modes and Effects:

Under normal modes of operation, debris is to be removed on a routine maintenance schedule per the requirements of Procedure 1608.010. However, in case of unexpected and intense rainfall, or severe and sudden cold snaps, the netting could potentially build up debris and/or shad. In this case, the seine netting will release the built up debris or shad when loaded to its limit by essentially tipping over at the top. That is, the concrete monolith anchor blocks will rigidly support the netting against flow, while the top of the netting will 'lay over' at the point of overload. The amount of debris released in such a case will be well within the normal design parameters of the ANO Intake Canal. If more than one section of seine netting fails, the worst case scenario is that ANO may need to respond to a "shad run" which should not create a condition worse than already experienced on 12/25/98. In addition, large amounts of debris can now be controlled with the Debris Barrier (component no. F125) installed by LCP 973805L301 after severe rainfalls caused significant debris flow into the Intake Canal.

As previously discussed, in the case of Design Basis flooding, the netting would remain secured to the concrete monolith anchor blocks. Because of their location relative to the Intake Canal, it is not expected that high flow rates would be experienced in these conditions – only high water levels

.

Although non seismic, the concrete monolith anchor blocks are of such large mass that by inspection, a SSE event would not significantly accelerate the concrete blocks, or the attached netting, or other components used to deploy the seine netting. Therefore, seismic loading is not a concern.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing). Note: as documented above, a 10CFR50.59 Evaluation is performed for completeness.

Document ER 991308E302 Rev./Change No. 0

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section	Question	Keyword(s)/Search Strings
Operating License	ALL	1	See keyword search strings below
Technical Specifications	ALL	1	See keyword search strings below
Confirmatory Orders	ALL	1	See keyword search strings below
SAR	ALL	2	See keyword search strings below
Core Operating Limits Report	ALL	2	See keyword search strings below
FHA	ALL	2	See keyword search strings below
Tech. Spec. Bases	ALL	2	See keyword search strings below
Tech. Requirements Manual	ALL	2	See keyword search strings below
NRC SERS	ALL	2	See keyword search strings below
Test or Experiment Not Described in the SAR	ALL	3	See keyword search strings below

LRS: Keyword Search Strings: Scope of Search = 50.59 - Common
intake canal, (intake or canal) w/10 seismic, debris, assured source, (canal blockage), (ultimate heat sink), flood and (intake canal), loss w/10 dam
MANUAL SECTIONS/FIGURES:
Due to the temporary nature of the Seasonal Shad Seine Net System, no manual search of LBD Sections/Figures is required.

E. Dietrich — Eric Dietrich — 10/18/1999
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 01/2002

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature — REZA AHRABLI — 10/21/99
Printed Name — Date

Title **Seasonal Shad Seine Net Deployment**
Document ER 991308E302 Rev./Change No. 0

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Eval. No. 99-097
(Assigned by PSC)

Document No. **ER 991308E302** Rev./Change No. **0**

Title **Evaluation of Seasonal Shad Seine Net Deployment in Front of the ANO Intake Canal**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

Considering standard flow dynamics, the flow characteristics of the intake canal will not be changed due to the addition of the seine netting.

Under normal modes of operation, debris is removed on a routine maintenance schedule per Procedure 1608.010. However, the netting could potentially build up debris and/or shad. In this case, the seine netting will release the built up debris or shad when loaded to its limit by essentially tipping over at the top, i.e., the concrete blocks will rigidly support the netting against flow, while the top of the netting will 'lay over' at the point of overload. The amount of debris released in such a case will be well within the normal design parameters of the ANO Intake Canal. If more than one section of seine netting fails, the worst case scenario is that ANO may need to respond to a "shad run"/debris which should not create a condition worse than already experienced on 12/25/98. Large amounts of debris can be controlled with the Debris Barrier (component no. F125) as installed by LCP 973805L301.

In case of Design Basis flooding, the netting would remain secured to respective concrete monolith anchors considering the large mass of the blocks and the 4.2 kip breaking strength of the cables. It is not expected that high flow rates would be experienced in these conditions.

By inspection, a SSE event would not significantly accelerate the massive concrete anchor blocks, the netting, or other components used to deploy the seine netting. Therefore, seismic loading is not a concern.

Therefore, in view of the above, the probability of an accident previously evaluated in the SAR is not increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

As discussed above, the Seasonal Shad Seine Net system does not adversely affect the flow of water to the Intake Structure. Therefore, the seasonal deployment of the Shad Seine Net system does not increase the consequences of any accidents previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

Protection from shad, other debris, and flotsam that may impact the intake structure is improved by the seasonal deployment of the seine netting. It is capable of performing its intended function considering selfweight, additional live load from the shad and other debris, and drag loads from water in the intake canal. It is not credible for the nets to develop any significant loading in a seismic event.

Based on this discussion, the probability of a malfunction of equipment important to safety is not increased.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

As described above, the seasonal deployment of the seine netting does not impede flow to the ANO Intake Structure. Therefore, there is no increase in the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The seine netting does not impede flow to the Intake Structure during normal operations, or abnormal conditions. The addition of the seine netting creates no new accident scenarios other than those already described in the SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No, the only affected SSC is the Intake Structure and its related equipment which are already considered in the ANO Design Bases. Based on discussion in question (3), the seasonal deployment of the seine netting introduces no new failure scenarios.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

No, the seasonal deployment of the seine netting effectively provides a barrier for "shad runs" but does not impact any Technical Specification Bases for either unit. This conclusion is based on a ZYINDEX search of ANO LBD documents, which revealed no impact or related references to any of the Technical Specifications. Therefore, no margin of safety in any of the Technical Specifications is affected or applicable to the seasonal deployment of the seine netting.

E. Dietrich	Eric R. Dietrich	10/18/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 01/2002

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 10/28/99

This Document contains 3 Pages.

Document No. ER 991632 E101 Rev./Change No. 0

Title ANO-1 SUMP OPERABILITY DURING HOT SHUTDOWN (1R15)

Brief description of proposed change:

Under LOCA conditions the NPSHa for the ECCS pumps will be reduced by approximately 0.2' water during hot shutdown due to extra material allowed to be brought into the building. Since this is for a relatively short duration and with a large percentage of the margin left, a revision to the SAR is not deemed required.

The values that are affected are shown on the attached pages from the SAR.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. ER 991632 E101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

During Hot Shutdown the NPSHa will be approximately 0.2' less than is shown in SAR sections 6.1.3.2 and 6.2.2.4.2 for the LPI and RBS systems respectively. The reduction is due to the light material being allowed into the reactor building per ER 991632 E101.

This slight decrease in NPSHa does not require a documentation revision since it is a temporary condition (Hot Shutdown for 1R15).

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: "eccs", "npsh", "eccs and npsh"

MANUAL SECTIONS: chapter 6

FIGURES: chapter 6

Edward R. France	Edward R. France	9/2/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 5/27/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
		9/2/99

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

John Richardson	John Richardson	9/3/99
Certified Reviewer's Signature	Printed Name	Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER 991632 E101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 1 Page.

Document No. ER 991632 E101 Rev./Change No. 0 10CFR50.59 Eval. No. FFN 99-071 (Assigned by PSC)

Title ANO-1 Sump Operability During Hot Shutdown (1R15)

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Edward R. France	Edward R. France	9/2/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 5/27/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
John Richardson	Preparer of NPSH calcs for ECCS pumps	9/2/99

PSC review by: _____ Date: _____

Document No. ER 991632 E101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

No, the extra material allowed in the reactor building is supervised to be brought out with the worker. A limit of 50 ft2 of unsupervised material is allowed based on NPSH margin for the ECCS pumps. No revision is required to the sump screen head loss calculation nor the NPSH calculation due to the temporary nature of the Hot Shutdown condition and because there is adequate margin for NPSH. There are no changes to modes of operation, performance characteristics or requirements, or operating procedures.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

No. This revision will not change the way in which the LPI and RBS systems respond under accident conditions (or any other conditions). The NPSHA was determined to be adequate before, and it is still adequate.

3. Will the probability of a malfunction of equipment important to safety be increased?

No. This evaluation does not represent any design change to the plant. The margin between required and available NPSH could be less during Hot Shutdown, however, there is still a positive margin even under conditions which would exist with the most conservative assumptions for level, flow and sump blockage.

4. Will the consequences of a malfunction of equipment important to safety be increased?

No. The decreased NPSH margin revealed by this evaluation will not change the operating characteristics of the pump or system. The LPI and RBS systems will respond in the same way as before, except that there is less room for modifications or procedural changes during Hot Shutdown which would increase flow resistance or result in lower sump levels.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

No. The LPI and RBS systems will be operated the same as before and the system response is not changed. While the NPSH available has been reduced, there is still adequate margin for NPSH and the difference in pump discharge pressure is not significant enough to make any difference in the characteristics of the system or in its interaction with other systems.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

No. The NPSH calculation (91-E-0116-01) assumes minimum sump water level and pump runout flow. Even under these conditions, there is adequate NPSH available to provide the proper pump suction conditions. Pump performance is not affected by a smaller NPSH margin. Provided that the margin is positive, the pumps can be expected to perform as designed.

7. Will the margin of safety as defined in the bases for any technical specification be reduced?

No. The technical specifications require that the LPI and RBS systems be "operable". No margin of safety is defined which will be impaired by reduced NPSH margin, as long as NPSHA exceeds NPSHR.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 REVISION	FORM NO. 1000.131D	REV. 3

This Document contains 1 Page.

Document No. ER991681E101 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-99-37

Revision No. 1

This form is to be used to document Revisions to 10CFR50.59 Evaluations. Revisions to a 10CFR50.59 Evaluation after PSC review may become necessary due to SRC review, changes to the original document, etc. Refer to section 6.2.4 of this procedure for additional guidance.

Reason for revision to 10CFR50.59 Evaluation:

Kaowool is also located in the Upper North Electrical Penetration Room, Fire Zone 149-E. The 50.59 evaluation is still applicable and accurate.

Will the proposed revision result in any additional:

1) Change to the Operating License? Yes ☐ No ☒

2) Change to other Licensing Basis Document? Yes ☐ No ☒

3) Conduct of test or experiment? Yes ☐ No ☒

4) Impact to the environment? Yes ☐ No ☒

5) Need for a Radiological Safety Evaluation? Yes ☐ No ☒

6) Impact Ventilated Storage Cask Activities Yes ☐ No ☒

7) Impact the QAMO or E-Plan? Yes ☐ No ☒

If yes, describe below and take appropriate action as per initial Determination:

Indicate revisions to the 10CFR50.59 Evaluation by placing revision number at the top right hand corner of each page of the form(s). Changes should be lined through, initialed, dated and indicated with the revision number. For extensive changes, new forms may be used with revision bars in the margin denoting changes. Attach this form to front of previous 10CFR50.59 Evaluation. Return to the PSC for review.

Thomas D. Robinson — Certified Reviewer's Signature

Thomas D. Robinson — Printed Name

5/24/99 — Date

Reviewer's certification expiration date: 3/23/01

PSC review: [signature] Date: 5/26/99

REV. 1

This Document contains 3 Pages.

Document No. ER 991681E101 Rev./Change No. 0

Title Evaluate Removal of Kaowool

Brief description of proposed change:

ANO-1 1978 fire protection SER required that Kaowool be installed in several fire zones to protect redundant cables against both being affected by a fire. The Appendix R fire protection reanalysis in mid-1980's did not credit Kaowool in any unit 1 fire zones. Thus, the Kaowool may be removed. The ANO-1 fire protection Appendix R reanalysis has been reviewed by the NRC.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☒	No☐

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

REV. 1

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. ER 991681E101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

Removal of the Kaowool (fire barrier) will only affect the 1978 SER and will have no affect on the Operating License nor test nor experiments.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # _ (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	All ("Kaowool" and "fire barrier")
MANUAL SECTIONS:	8.2, 8.3 and 9.8
FIGURES:	N/A

Thomas D. Robinson — Certified Reviewer's Signature
Thom Robinson — Printed Name
4/30/99 — Date

Reviewer's certification expiration date: 3/23/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature — Ronald Rispoli — Printed Name — 5-10-99 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER 991681E101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

REV. 1

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 3 Pages.

Document No. ER 991681E101 Rev./Change No. 0 10CFR50.59 Eval. No. EFN-99-037 (Assigned by PSC)

Title Evaluate Removal of Kaowool

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Thomas D. Robinson	Thomas D. Robinson	5/3/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 3/23/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 5/13/99

Document No. ER 991681E101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

BACKGROUND:

On August 22, 1978, ANO-1 received from the NRC a fire protection Safety Evaluation Report (SER) that required certain modifications be made to comply with the fire protection requirements at that time. The concern of Reg Guide 1.75 at that time was to protect safety related cables that were in close proximity. As a result ANO-1 committed to install a fire barrier (Kaowool) in certain area where cables were too close to other cables. When 10CFR50, Appendix R rule became effective on February 17, 1981, the concern was protecting redundant safety relating cables. As a result ANO-1 performed a reanalysis to meet the Appendix R criteria. This analysis did not credit the Kaowool fire barrier in any fire zones. The analysis credited three hour fire barriers, manual operator actions, one hour barriers with suppression and detection or exemption to the Appendix R rule were granted. Thus, the Kaowool, that is still installed in fire zones 98-J, Emergency Diesel Generator Access Corridor, and fire zone 110-L, South DC Equipment Room, AND UNGPR, FIRE ZONE 149-B is no longer needed as required by the 1978 SER for fire protection. This evaluation will document the acceptability of removing the Kaowool. This evaluation will also close CR-1-1993-0026 action item #05. 1 TDI 5/24/99

1. Will the probability of an accident previously evaluated in the SAR be increased?

   A fire is not an accident that has been evaluated in the SAR. The correction to the SER will allow for Kaowool to be removed in the plant since a reanalysis no longer credits it. The probability of an accident to be increased from one category to the next higher category or a significant movement within a category will not be increased. Thus, the probability of an accident previously evaluated in the SAR will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

   This evaluation allows for a fire barrier which is no longer used to be removed from the plant. A reanalysis has been performed that does not credit Kaowool. The removal is not associated with any accidents analyzed in the SAR. The offsite dose consequences of a previously analyzed accident to be increased beyond the licensed limit will not be increased. Thus, the consequences of an accident previously evaluated in the SAR will not be increased.

3. Will the probability of a malfunction of equipment important to safety be increased?

   The purpose of the Kaowool was to ensure that safety related equipment would be available to perform its intended function. The Appendix R reanalysis evaluated the equipment necessary to ensure that the unit could be safely shutdown and maintained in that condition. By removing the Kaowool, there will be no affect on safety related equipment. The probability of the failure of equipment important to safety to perform its specified safety function described in the SAR will not be increased. Thus, the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased?

   Since a new fire protection analysis has been performed which does not credit the Kaowool, its removal will in no way affect safety related equipment that is needed for safe shutdown. The new analysis ensures that the unit may be safely shutdown. The offsite does consequences will not be increased due to malfunctions of equipment important to safety with the removal of the Kaowool. Thus, the consequences of a malfunction of equipment important to safety has not been increased.

5. Will the possibility of an accident of a different type than previously evaluated in the SAR be created?

   A fire is not an accident that has been evaluated in the SAR. The removal of the Kaowool will not introduce any new accident scenarios since a new analysis has been performed that does not credit the Kaowool. Thus, the possibility of an accident of a different type than previously evaluated in the SAR will not be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than that previously evaluated in the SAR be created?

   Equipment that is important to the safe shutdown of the plant in the event of a fire is protected as evaluated using the guidance of Appendix R. There are no other known malfunctions that could be created by the removal of the Kaowool since the plant has been analyzed for a fire without the Kaowool. Thus, the possibility of a malfunction of equipment important to safety of a different type than that previously evaluated in the SAR will not be created.

7. Will the margin to safety as defined in the basis of any technical specifications be reduced?

   Kaowool nor fire barriers are defined in the basis of any technical specification and thus will not affect the margin of safety.

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 3 Pages.

Document No. ER991721E101 Rev./Change No. 0

Title PROVIDE EQUIVALENT VALVES FOR MU-2014A AND MU-2014B

Brief description of proposed change:

This ER in conjunction with PEAR 95-0225 authorizes the use of Kerotest globe valves for the existing Velan Gate valves as an equivalency.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. ER991721E101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

For the search criteria designated below, there were no OL, TS, or confirmatory orders noted that would need to be changed as a result of this activity. This minor change is beyond the level of detail noted in the referenced documents. As such, question 1 is answered NO.
Question 2 searches did find that SAR figure 9-3, sheet 3, would need to be revised to show the installation of globe valves versus gate. No other manual or LRS search hits for the SAR documents apply, once again as the level of detail is beyond the information obtained in the SAR referenced documents. Except for the yes answer on the SAR figure, all other question 2 answers are no. Based on the SAR figure revisions, an evaluation is attached to this Determination.
Question 3 is answered no because there will be no operational changes needed as a result of drain valve replacements. Besides normally required inspections after the changes are made, no special testing is required to verify the installation. As such, Q3 is answered NO.
Questions 4 through 7 are answered No based on the responses to the attachment, work is performed under an MAI with appropriate radiological and welding controls, and in an area far removed from any VSC activities, i.e. lower North piping penetration room.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item #____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: Unit 1, (MU-2014*, Makeup w/100 drain, drain w/10 stack, drain w/10 vent, makeup drain*)

MANUAL SECTIONS: 9.1, 6.1.2.1.1, Table 9-2, Table 6-2, Table 6-4

FIGURES: 9-3, sheet 3 (M-231-3)

James J. Souto — James J. Souto — 9/1/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 2/6/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. ER991721E101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 2 Pages.

Document No. ER991721E101 Rev./Change No. 0 10CFR50.59 Eval. No. FPN 99-065 (Assigned by PSC)

Title Provide Equivalent Valves For MU-2014A and MU-2014B

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   The only reason for the performance of this evaluation is that SAR figure 9-3, sheet 3, will be made incorrect as a result of the use of globe valves versus gate valves at the MU-2014A/B locations. Gate and globe valves are used extensively throughout the plant for drain or vent stack applications without a significant number of failures to date. These valves are normally closed and perform no safety function besides maintaining system pressure boundary, i.e. passive pressure boundary function. As such, they are not accident initiators.

   Based on the passive function, numerous identical drain stacks installed throughout Unit 1 with no excessive leakage, and the use of approved welding methods for installation of these valves, there is NO expected increase in the probability of any LBD evaluated accident as a result of this change.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   In consideration of the installation methods and reliable service of these types of valves, any radiation dose increase will be as a result of minor leakage. While a leak rate cannot be estimated, some HPI system leakage is already credited in SAR Table 6-11 for the HPI system up to 4660 cc/hr from pump seals, flanges, process valves, instrumentation valves, and boundary valves. This minor leakage and resulting dose is easily bounded by the maximum hypothetical accident dose or waste gas tank rupture. As such, there will be no increase in the consequences of an accident previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   Based on the use of ASME code constructed materials and an authorized repair and replacement program, the installation of globe versus gate valves at this location will not degrade the HPI system in any way. As such, the HPI system response to all accidents will not be changed and there will be no increased probability of a malfunction of equipment important to safety.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   In consideration of the numerous Kerotest globe valves installed in the plant and this drain valve application, little or no leakage is expected.

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As such, there is a very small or almost no dose consequences expected from anticipated leakage. Based on this, there is no perceived increase in the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   The only logical accident associated with this activity is leakage or a total failure of the valve(s). If this occurred, the redundant loop of HPI would mitigate this leakage. The small amounts of leakage typically noted on such valves are already accounted for via HPI system leakage from flanges, pump seals, and valves as noted in SAR table 6-11. In consideration of this allowed leakage and approved installation methods, there should be no possibility of a different type of accident being created from this activity.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   Since the new valves are equivalent or better than the existing valves, there is no expected change in the performance of the valves to passively maintain HPI system pressure boundary. With leakage being the only failure scenario, a different type of equipment malfunction is not expected for this activity. As such, this question is answered NO.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

   No TS bases were identified that would be reduced from the leakage associated with this installation. As such, there were no reductions in the margin of safety as a result of this activity.

James J. Souto	James J. Souto	9/1/1999
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 2/6/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 9/2/99

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. ER991909E101 Rev./Change No. 0

Title Temporary Fire Pump Temporary Alteration

Brief description of proposed change:

The referenced ER evaluates installation of the temporary fire pump. A temporary pump will be connected to the fire system test header, located outside the Unit 1 Intake Structure, via hoses/piping. During refueling outages portions of SW and ACW systems are typically secured at various times for maintenance. The fire water system will be used to provide an alternate source of cooling water. Use of the temporary pump is desired to prevent undue wear on the permanent fire pumps. As a result, the necessity to operate P-6A or P-6B for cooling water supply is eliminated. Operation of the fire protection system will not be affected or altered in any way as a result of this temporary alteration.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. ER991909E101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1. The connection of a temporary fire pump to the fire water system is beyond the scope of both Unit 1 and Unit 2 Operating License documents.
2. Because this temporary alteration supplements the fire water system's existing pumps and does not affect the operation of any system component or the qualification of the system itself, the text information in the SAR documents will remain true and accurate. Nor will this temporary alteration violate a requirement of the documents. **However, Unit 1 SAR figure 9-16 (P&ID M-219, Sh.1) will be inaccurate while this temporary alteration is installed and SAR figure 9-10 (P&ID M-209, Sh. 4) may be made inaccurate.** As such, a safety evaluation will be performed. A change to the SAR figures is not required, as this is a temporary change.

This temporary alteration does not involve a test or experiment that could degrade the margins of safety during normal operations or anticipated transients nor will it degrade the adequacy of structures, systems or components required to prevent accidents or mitigate accident consequences. Accordingly this temporary alteration does not constitute a test or experiment not described in the SAR.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	50.59 Common (fire w/3 suppres*, fire w/3 pump, fire w/3 water) (biocide*) (hypochlorite*)
MANUAL SECTIONS:	Unit 1 SAR, sect. 9.8.2, Appendix 9D.2; Unit 2 SAR Sect. 9.2, 9.5.1.2, Table 9.5-1, Appendix 9D
FIGURES:	Unit 1 SAR 9-10 and 9-16 Unit 2 SAR 7.4-2

Renee Millison — Renee Millison — Aug. 17, 1999 (Sept 14, 1999)
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 2/20/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

James J. Souto — James J. Souto — 9/18/99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. ER991909E101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

Document No. ER991909E101 Rev./Change No. 0 10CFR50.59 Eval. No. FFN 99-064 (Assigned by PSC)

Title Temporary Fire Pump Temporary Alteration

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

A temporary pump will be connected to the fire system test header, located outside the Unit 1 Intake Structure, via hoses/piping. During refueling outages, portions of SW and ACW systems may be secured at various times for maintenance. The fire water system will be used to provide an alternate source of cooling water. Use of the temporary pump is desired to prevent undue wear on the permanent fire pumps. As a result, the necessity to operate P-6A or P-6B for cooling water supply is eliminated. The normal fire pumps and all normal fire protection system components will remain functional and be available for fire fighting purposes. The fire system's ability to perform its function will therefore not be degraded. Utilizing the temporary fire pump supplements the delivery capability of the Firewater system and, as a result, increases the reliability of the system. No safety related system piping is altered and no safety function is affected. All temporary piping and hose connections will be outside, such that a pipe/hose rupture or inadvertent operation of the pump would not cause a loss of function of plant structures, systems or components important to safety. A manual isolation valve and a check valve will be installed at the test header to prevent back flow if the temporary system is out of service or should it fail.

This temporary alteration does not affect system performance or reliability, does not cause the system to be operated outside of design limits, and does not effect any system interface in any way. Activities performed by this temporary alteration are not accident initiators nor do they relate to or cause an accident previously evaluated in the SARs. Therefore, the probability of an accident previously evaluated in the SAR will not be increased by implementation of this temporary alteration.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The Unit 1 and Unit 2 SARs evaluate Fire Protection System line breaks, misoperation, and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by this temporary alteration will not affect the Fire Water system's capability to perform in accordance with the design requirements as evaluated in the SARs. No accidents evaluated in the SARs will have their radiation dose consequences altered as a result of the activities proposed in this temporary alteration. Thus, the consequences of an accident previously evaluated in the SARs will not be increased.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The Fire Protection system is designed to minimize the affect of fires and the probability of pipe ruptures or inadvertent operation that has the potential to cause loss of function to components important to safety. The normal fire pumps and all normal fire protection system components will remain functional and be available for fire fighting purposes. The fire system's ability to perform its function is not affected by this temporary alteration. No safety related system piping is altered and no safety function is affected. Connection of the temporary fire pump to the fire protection system will not degrade safety system component capability or reliability as provisions are included in the TAP to account for temporary pump and/or hose failures via the use of a check valve and an isolation valve. As such, implementation of this temporary alteration will not increase the probability of the failure of equipment important to safety to perform its specified safety function in the SARs. Therefore, the probability of a malfunction of equipment important to safety will not be altered.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The Fire Water system is designed such that any failure will not affect equipment important to safety. The test header, the temporary fire pump, and connecting hoses are all located outside of plant structures and in an area such that failure would not affect any safety related equipment. This temporary alteration does not alter the availability or reliability of the Fire Water system, the ability of any associated safety related equipment to perform its safety function, nor the consequences of any equipment malfunction. The activities proposed by this temporary alteration do not affect nor change the failure mode of any equipment important to safety. Consequently, assuming a failure of equipment important to safety, activities proposed by this temporary alteration will not result in increased radiological release consequences for that failure.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The Unit 1 and Unit 2 SARs evaluate Fire Protection system line breaks, misoperation, and mitigation of the consequences of fires which could have an affect on safety related equipment. Supplemental water being supplied by a temporary fire pump will not affect the Fire Protection system's capability of performing in accordance with the design requirements as evaluated by the SARs. All redundant features of the Fire Protection system are maintained with this TAP installation. As such, it will not create any new types of accidents. Therefore, the possibility of an accident of a different type than previously evaluated will not be created by the activities proposed by this temporary alteration.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The equipment and connections associated with this temporary alteration are all located outside of plant structures and in an area such that failure would not affect any safety related equipment. Connection and operation of a temporary fire pump to the firewater test header does not modify or affect the Fire Protection System's interface with other structures, systems, or components. Therefore, activities proposed by this temporary alteration will not create the possibility of a malfunction of equipment important to safety of a different type then previously evaluated in the SAR.

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7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

The Fire Protection system is not covered in the bases of either Unit's Technical Specifications. In addition, no correlation could be drawn form the installation of this temporary alteration as to any affect on a Tech Spec Bases. Therefore, implementation of this temporary alteration will not reduce the margin a safety as defined in the basis for any technical specification.

Certified Reviewer's Signature	Renee Millison Printed Name	Aug. 17, 1999 Date

Reviewer's certification expiration date: 2/20/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 9/2/99

10CFR50.59 Eval. No. FFN 99-112
(Assigned by PSC)

Document No. ER991909E301 Rev./Change No. 0

Title **Connect temporary pump to fire water system test header**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

A temporary pump will be connected to the fire system test header, located outside of the Unit 1 Intake Structure, via hoses/piping. The temporary pump will be used to provide an alternate source of water to the fire system in the event that the primary supply is declared inoperable. The capacity of the pump is capable of supplying sufficient water to all regulatory required systems as designed to protect these areas. Therefore all regulatory required system components will remain functional and be available for fire fighting purposes. All temporary piping and hose connections will be outside, such that a pipe/hose rupture or inadvertent operation of the pump would not cause a loss of function of plant structures, systems or components important to safety.

Activities performed by this temporary alteration are not accident initiators nor do they relate to or cause an accident previously evaluated in the SARs. Therefore, the probability of an accident previously evaluated in the SAR will not be increased by implementation of this temporary alteration.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The Unit 1 and Unit 2 SARs evaluate Fire Protection Systems for line breaks, misoperation, and mitigation of the consequences of fires which could have an effect on safety related equipment. The temporary pump supplying an alternate water supply to fire water system by this temporary alteration will not affect the Fire Water system's capability to perform in accordance with the design requirements as evaluated for the protection of safety related equipment. No accidents evaluated in the SARs will have their radiation dose consequences altered as a result of the activities proposed in this temporary alteration. Thus, the consequences of an accident previously evaluated in the SARs will not be increased.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The Fire Protection system is designed to minimize the affect of fires and the probability of pipe ruptures or inadvertent operation that has the potential to cause loss of function to components important to safety. All fire protection system components protecting safety related equipment will remain functional and be available for fire fighting purposes. The capacity of the temporary pump is less than that of the primary pumps P-6A and P-6B however, it is of sufficient capacity that the design of systems protecting safety equipment are not affected by this temporary alteration. No safety related system piping is altered and no safety function is affected. Connection of the temporary fire pump to the fire protection system will not degrade safety system component capability or reliability as provisions are included in the TAP to account for temporary pump and/or hose failures via the use of a check valve and an isolation valve. As such, implementation of this temporary alteration will not increase the probability of the failure of equipment important to safety to perform its specified safety function. Therefore, the probability of a malfunction of equipment important to safety will not be altered.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The Fire Water system is designed such that any failure will not affect equipment important to safety. The test header, the temporary fire pump, and connecting hoses are all located outside of plant structures and in an area such that failure would not affect any safety related equipment. This temporary alteration does not alter the availability or reliability of the Fire Water system, the ability of any associated safety related equipment to perform its safety function, nor the consequences of any safety related equipment malfunction. The activities proposed by this temporary alteration do not affect nor change the failure mode of any equipment important to safety. Consequently, assuming a failure of equipment important to safety, activities proposed by this temporary alteration will not result in increased radiological release consequences for that failure.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The Unit 1 and Unit 2 SARs evaluate Fire Protection system line breaks, misoperation, and mitigation of the consequences of fires which could have an affect on safety related equipment. An alternate flow path of fire water being supplied by a temporary fire pump will not affect the Fire Protection system's capability of providing protection to those areas having safety related equipment as evaluated by the SARs. As such, it will not create any new types of accidents. Therefore, the possibility of an accident of a different type than previously evaluated will not be created by the activities proposed by this temporary alteration.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The equipment and connections associated with this temporary alteration are all located outside of plant structures and in an area such that failure would not affect any safety related equipment. Connection and operation of a temporary fire pump to the firewater test header does not modify or affect the Fire

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

Protection System's interface with other structures, systems, or components. Therefore, activities proposed by this temporary alteration will not create the possibility of a malfunction of equipment important to safety of a different type then previously evaluated in the SAR.

7. **Will the margin of safety as defined in the basis for any technical specification be reduced?** Yes ☐ No ☒

The Fire Protection system is not covered in the bases of either Unit's Technical Specifications. In addition, no correlation could be drawn form the installation of this temporary alteration as to any affect on a Tech Spec Bases. Therefore, implementation of this temporary alteration will not reduce the margin a safety as defined in the basis for any technical specification.

Certified Reviewer's Signature	Jackie L. Johnsonm Printed Name	12/12/99 Date

Reviewer's certification expiration date: 3-1-2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 12/14/99

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. 1104.004 Rev./Change No. 065-05-0

Title DECAY HEAT REMOVAL OPERATING PROCEDURE

Brief description of proposed change: See Attached

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. 1104.004 Rev./Change No. 065-05-0

Basis for Determination (Questions 1, 2 & 3):
See Attached

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS:
NONE

MANUAL SECTIONS:
NONE

FIGURES:
None

Rich Cuilty — RICH CUILTY — 09/17/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 05/07/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

N/A — _____ — _____
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. 1104.004 Rev./Change No. 065-05-0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. 1104.004 Rev./Change No. 065-05-0

10CFR50.59 Review Continuation Page

Table of Contents, Added new "Cooling the spent Fuel Pool Using the DHR System when Defueled" section.

Step 5.26, clarified the wording of this step.

Step 21.2, Added new step 21.2 "If RCS is drained below 371.2' and it is desired to raise the level in the RCS, perform Draining and N2 Blanketing the RCS (1103.011), "Refilling RCS Cold Legs With or Without OTSG Nozzle Dams Installed" section in conjunction with this procedure."

Steps 21.3.10A and 21.4.10A, changed maximum fill level with no seal injection from "<373" to "<375" to agree with 1103.011 which is performed in conjunction. allowable level for seal replacement is 372.7'-375.5' per 1103.011. 1103.011 controls the filling from 373' to 375'.

Step 23.4, Added new step 23.4 to open F-2 bypass. this step is directed by all procedures which also direct performance of this section. the step is added to this section for human factors.

Step 23.7 and 23.8, Moved steps for verifying the DH vault drains and doors closed to Steps 23.7 and 23.8 for human factors.

Step 26.2.1 and 26.2.2, Corrected valve numbering for CV-1435 and CV-1437 which were reversed.

The changes listed above are administrative in nature and beyond the scope of any LBD. No LBDs effected.

The changes described above do not require any changes to the Facility Operating License. The changes described do not make any LBD information untrue or inaccurate. The changes described do not involve a test or experiment not described in the SAR. The changes described do not impact the environment.

Section 27.0, Added new "Cooling the spent Fuel Pool Using the DHR System when Defueled" section 27.0.

This change allows use of the DHR system to cool the Spent Fuel Pool, while the core is defueled and no fuel movements in the spent fuel Pool. Since this application is not described in the SAR, a 50.59 evaluation was performed and is attached. ER 991982E102 and a LDCR are also attached.

(PSC)

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 4 Pages.

Document No. ER 991982E102 Rev./Change No. 0

Title USE OF DECAY HEAT SYSTEM FOR SPENT FUEL ALTERNATE COOLING.

Brief description of proposed change:

Spent Fuel cooling with a full core offloaded result in a substantial fuel pool heat load. To maintain pool temperature below 150 degrees F, it is anticipated that two full trains of spent fuel cooling, including two pumps P40A and P40B, two spent fuel coolers E27A and E27B, and two ICW coolers providing ICW to the spent fuel coolers will be required when service water is at a temperature of 85 degrees F. These service water temperature conditions will be possible during 1R15.

Loss of adequate spent fuel cooling can be caused by a number of events such as a loss of a pump, loss of an ICW cooler, loss of a spent fuel cooler, or a passive failure or leak in piping or components. In this condition the fuel pool temperature may exceed 150 degrees F. It is desirable under these conditions to have contingent means of cooling the spent fuel pool to limit the temperature rise under these degraded conditions. Use of the decay heat system has been identified as a means of alternative cooling when defueled, and this Evaluation will discuss the design issues associated with use of the DH system. Changes to Procedure 1104.004, "Decay Heat Removal" will be made based upon this ER response.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. ER 991982 E102 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1. Use of alternate cooling of spent fuel is only allowed when all fuel from the core has been offloaded to the spent fuel pool and all fuel movement has ceased. Under these conditions, all requirements of TS 3.8 and 5.4 are met. The modified use of decay heat removal for spent fuel cooling will not violate any TS requirements for decay heat removal. Thus, no changes are required to TS for these alternate cooling procedures. Changes made to operating procedures for this purpose are below the level of detail of the Operating License and Confirmatory Orders.

2. Review of the various SAR documents indicate that changes are required to indicate conditions when Decay Heat may be used as an alternative source of spent fuel cooling. 1SAR Section 9.4.2.5 will be revised to indicate use of the fuel transfer tube for alternative decay heat cooling. ISAR Section 9.5.1 will be revised to indicate use of the DHR system for spent fuel cooling. ISAR Section 9.5.2.1 will be revised to describe operation of the DHR system when used for spent fuel cooling. Failures in this mode of operation are described in 1SAR Section 9.5.2.6. Since a SAR change is required, a 50.59 evaluation will be performed.

3. This change does not involve a test or experiment.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	50.59 ANO-1, "spent fuel", all ANO/NRC Correspondence, fuel w/20 cooling
MANUAL SECTIONS:	1SAR Sections 9.4, 9.5, 9.6
FIGURES:	9-11, 9-12

Certified Reviewer's Signature: David MacPhee (Printed Name) — Date: 9/16/99

Reviewer's certification expiration date: 9/16/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
N/A		9/15/99

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature: Edward Blackard (Printed Name) — Date: 9/16/99

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER 991982E102 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FFN#

ARKANSAS NUCLEAR ONE		Page 1
FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 3 Pages.

Document No. ER 991982E201 Rev./Change No. 0 10CFR50.59 Eval. No. FFN# 99-083 (Assigned by PSC)

Title USE OF DECAY HEAT SYSTEM FOR SPENT FUEL ALTERNATE COOLING

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature	Printed Name	Date
	David MacPhee	9/16/99

Reviewer's certification expiration date: 9/16/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
Steve Bennett	Responses to Evaluation questions 3-7.	9/16/99

PSC review by: James McWilliams Date: 9-19-99

Document No. ER 991982E102 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. The probability of an accident previously evaluated in the SAR will not be increased.

   Use of the decay heat system for spent fuel cooling is only allowed after the reactor is defueled and fuel movement is complete. The fuel handling accident considerations for 1SAR section 14.2.2.3 were reviewed. The accident considerations are not changed while the fuel is remaining in the pool under the proposed conditions. Water level, initially 23 feet above the fuel, could drop until actions are taken to close isolation valves assuming a loss of inventory to the pool. However, there will not be any fuel manipulation that could cause fuel damage. Therefore, the probability of a fuel handling accident is not changed. ANO-1 TS 3.8.17 requires that the boron concentration of the pool be kept above 1600 ppm. Operations procedure 1104.006 requires that 1800 ppm be maintained and will be assured prior to decay heat transfer to the SFP. In addition, the DH system performs no safety function and does not affect any accidents that take credit for decay heat cooling. There is thus no greater probability of a fuel handling accident and use of decay heat for cooling has no adverse impact on initiation of any other analyzed accident.

2. The consequences of an accident previously evaluated in the SAR will not be increased.

   The calculated offsite doses will remain the same as those previously estimated in 1SAR section 14.2.2.3. Since fuel is in a safe storage mode for the duration of use of this alternative cooling, dose consequences of the fuel drop accident are unaffected. No other SAR identified accidents affecting fuel related events are impacted during this offload condition. Any reduction in water level below the 23 feet assumed in the SAR only affects the potential for increased exposure from shine in the area of the pool and does not contribute to offsite dose consequences for an FHA. Adequate compensatory actions will be taken per Procedures 1104.004 and 1203.028 to ensure that any reduction in water level is monitored and controlled.

3. The probability of malfunction of equipment important to safety will not be increased.

   The use of the decay heat system for cooling the spent fuel pool is well within the design capacity of the DHR system. The decay heat system meets all of the design standards that are required of the spent fuel cooling system. There are no new failure modes introduced into the decay heat system that have not been previously analyzed. Effects of flooding due to spent fuel system piping rupture will not adversely affect the ability for mitigation through operation of isolation valves and securing DH pumps. As discussed in 1SAR 14.2.2.3 the SFP racks maintain a safe geometry to avoid criticality concerns. This configuration is unchanged by this means of operation. This is the only safety function that could be affected during this period.

4. The consequences of a malfunction of equipment important to safety will not be increased.

   Considering that fuel movement is restricted at this period, there are no dose consequences from a malfunction of equipment that is considered credible. Reducing water level above the fuel in the pool could result in increased worker doses. Adequate compensatory actions are being taken to prevent reducing the water level substantially above the stored fuel.

5. The possibility of an accident of a different type than any previously evaluated will not be created.

   As discussed above there are no credible accidents that would be created. The controlling accident for the SFP is the fuel handling accident. The design of the SFP racks ensures that an inadvertent criticality cannot occur.

Soluble boron is not credited for normal spent fuel storage with fuel movement ceased (1SAR Section 9.6.2.4.3.1.2). Therefore, dilution by makeup to the spent fuel pool is not a concern.

8/12/9

Document No. ER 991982E102 Rev./Change No. 0

10CFR50.59 Review Continuation Page

6. The possibility of malfunction of a different type than any previously evaluated will not be created.

   The application of the decay heat system for cooling the SFP allows more system components not previously credited to be in the system. However, the existing SFP cooling system is non safety related since the water in the pool is allowed to boil under worst case design conditions. However, the proposed change will ensure that the design of maintaining the SFP below 150° F is assured. The potential loss of pool level below the design of 23 feet does not create a new accident. No fuel is being moved during this period and adequate compensatory actions are being taken to ensure level is maintained well above the required minimum level.

7. The margin of safety as defined in the basis for any technical specification will not be reduced.

   The bases of the TS were reviewed including that for the refueling operation in section 3.8. When fuel is offloaded into the SFP, the only limitation is to ensure that boron concentration in the SFP is maintained. This is not affected by this change. Therefore, there is no margin of safety that is being affected in the bases of the technical specifications. In addition, there are no fission product barriers that are affected by this change.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

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Document No. ER 991984E101 Rev./Change No. 0

Title Condensate Pump Suction Isolation Device

Brief description of proposed change: This ER and associated 50.59 Determination is performed for an MAI/JO controlled temporary alteration to install a sealing device and water seal to support removal of a condensate pump. Leakage from the suction isolation valve may cause excessive condensate dissolved oxygen. To support removing the pump with the condensate system in service, a water seal may be needed to control air in-leakage through the suction isolation valve. The water seal will be made at the suction strainer.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒

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E-Plan? Yes☐ No☒

Basis for Determination (Questions 1, 2 & 3):

The addition of a bladder/sealing device and water seal in the standby condensate pump suction piping is beyond the level of detail in the Operating License Documents. A 50.59 Evaluation is being performed due to SAR Figure 10-2 which depicts the condensate system including the affected suction piping and strainer. No other SAR documents reflect or address the suction strainer or piping. The proposed activity is a temporary alteration to maintain an acceptable tag-out or isolation boundary for air in-leakage and dissolved oxygen concerns. This change is not a test to determine if a condition or operation is acceptable and it is not an experiment to determine an unknown effect. The margins of safety during normal or transient conditions will not be degraded by this activity, nor will the adequacy of systems, structures or components be degraded.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Page ___ of

Document No. ER 991984E101 Rev./Change No. 0

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	**all, keywords: (strainer(s), condensate w/5 pump, condensate w/3 suction, dissolve oxygen)**
MANUAL SECTIONS: **U1 SAR**	**Table 4.11, Section 10.4.6 & 10.4.7, Table 4.11**
FIGURES: **U1 SAR**	**10-2 (P&ID M-204 Sh.1)**

Certified Reviewer's Signature	Printed Name	Date
Iver J. Jacobson	Iver J. Jacobson	9/11/99

Reviewer's certification expiration date: 1/26/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date
n/a		

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

_____ _____ _____

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **ER991984E101** Rev./Change No. **0**

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

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FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3

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FFN # 99-076

10CFR50.59 Eval. No. ____
(Assigned by PSC)

Document No. **ER 991984E101** Rev./Change No. **0**

Title **Condensate Pump Suction Isolation Device**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

Addition of a sealing device and water seal on the standby condensate pump suction to reduce air in-leakage during maintenance will not change the probability of an evaluated accident. None of the evaluated accidents are related to the standby condensate pump or measures to control condensate dissolved oxygen levels.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The standby condensate pump is not relied upon for accident mitigation. The condensate dissolved oxygen level also does not affect accident mitigation or consequences. The steam generator tube rupture event response includes use of the condenser as the steam dump. Either of the normally operating condensate pumps can provide for secondary flow during such an event. The temporary installation of this water seal on the condensate pump suction will not cause the consequences of this or any other evaluated accident to be increased.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The affected equipment is not important to safety and is remote from equipment which is important to safety. The temporary water seal will be used to reduce condenser air in-leakage and thereby maintain condensate pump dissolved oxygen levels below those specified in Table 4.11 (<10 ppb). The purpose of this secondary chemistry limit is to help maintain long-term steam generator tube integrity. The temporary water seal will not change the secondary chemistry limits or affect the integrity of the steam generators. The probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The addition of a water seal during maintenance on the standby condensate pump will not affect off-site dose consequences associated with a malfunction of equipment important to safety. The temporary water seal does not affect equipment important to safety. The SG tube rupture analysis is not affected and will remain bounding with this temporary water seal installed. The plant operating conditions will not be changed such that the consequences of a malfunction of equipment important to safety will be increased.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

This temporary water seal will not create the possibility of an accident type different than those evaluated in the SAR. The consequences of failure of this device are increased levels of CS pump dissolved oxygen. During power operation, this could require a plant power reduction or shutdown if the increase is of sufficient magnitude and duration, during shutdown periods it could impact FW dissolved oxygen transport to the SG's. This condition is not an accident which is different from those evaluated in the SAR and will not result in the creation of such an accident.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

This water seal or isolation device does not affect equipment important to safety and is remote from such equipment. These activities will not create the possibility of a malfunction of equipment important to safety which would be different than any previously evaluated.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

The margins of safety in the technical specification bases do not discuss or address the equipment impacted by this temporary water seal and the margins of safety will not be reduced.

Iver J. Jacobson — Iver J. Jacobson — 9/11/99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 1/26/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date
n/a		

PSC review by: Donald R. Phillips for Walt Parks Per Telecon Date: 9-11-99

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. ER991985E101/MAI 14985 Rev./Change No. 0

Title 'D' RCP P-32D Motor Restraint For 1R15

Brief description of proposed change:

ER991985E101 addresses the installation of restraining devices on the motor of the 'D' RCP P-32D. These devices will accomplish the same task as the installed motor anti-rotational device. The existing device failed to function properly following the securing of the 'D' pump during the plant shutdown for 1R15. The other three RCP's were secured to prevent the 'D' pump from rotating in the reverse direction. In order to restart the other RCP's to complete the plant shutdown, the restraining devices are necessary to prevent potential motor damage to the 'D' motor. The 'D' RCP is inoperable and will remain in that condition during the time that these restraints are attached.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1. 2

Document No. ER991985E101/MAI 14985 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

Questions 1 through 3 were reviewed in terms of the noted period when the RCP restraining device is allowed to be installed, i.e. during the 1R15 plant shutdown. When utilized under the defined conditions, there are no OL documents that need revision or are made untrue (Question 1). SAR document reviews identified many references to the anti-reverse rotation device, the details of the specific design of the device are given in the SAR. Therefore, this temporary restraining device does make information in the SAR no longer accurate and thus a 50.59 evaluation will be completed to address this yes response. (Question 2). Reviews of applicable search hits and hard copy found no statements that were made untrue with regard to the use of a temporary restraining device to accomplish a test or experiment that has been addressed in the SAR. As such, Question 3 is answered NO. Question 4 is answered NO based on the Environmental Evaluation responses. Question 5 is answered NO as this work area is inside controlled access and is controlled by MAI 14985 with appropriate HP oversight as required. No applicable search hits were found for VSC, QAMO, or E-Plan documents. As such, Question 6 and 7 are answered NO.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1. Item # ____. (If checked. note appropriate item #. send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1. 2 and 3. If search was performed on LRS. the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	All Keywords (anti-reverse). (reverse w/10 rotation).
MANUAL SECTIONS:	SAR section 4 & drawings, TS section 3.1. 3.6
FIGURES:	Section 4 drawings

Richard Ellison — Richard Ellison — 9/12/99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 1/13/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA. if performed by Technical Reviewer per 1000.006)

James J. Souto — James J. Souto — 9/13/99

Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. ER991985E101/MAI 14985 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to non-radiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 2 Pages.

Document No. ER991985E101 Rev./Change No. 0 10CFR50.59 Eval. No. FFN # 99-078 (Assigned by PSC)

Title 'D' RCP P-32D Motor Restraint for 1R15

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? The installation of a restraining device will serve to prevent reverse rotation of P-32D while other RCP's are in service. This added device will not cause or change the probability of any of the accidents evaluated in the LBD's. The accidents evaluated in chapter 14 of the U1 SAR do not specifically address actions to prevent reverse rotation of an RCP while in a shutdown mode of operation. Chapter 14 (specifically 14.1.2.6) does, however, discuss the reliance of natural circulation for heat removal subsequent to a loss of all RCP's. This shaft restraining device will not affect natural circulation capability and is therefore bounded by the existing safety analysis. Therefore, the addition of a restraining device on P-32D will not result in an increase in the probability of an accident previously evaluated in the SAR. Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Chapter 14.1.2.6 of the U1 SAR (Loss of Coolant Flow) states that the reactor (assuming full power operations) can sustain a loss of coolant flow accident without damage to the fuel. During power operations, the Reactor Protection System and Integrated Control System protects the reactor from the consequences of RCP failures by either tripping the unit or reducing power level depending on RCP combination. The plant is currently in a shutdown mode of operation with two RCP's in operation (P-32D has a restraining device around the motor shaft to prevent rotation). Given the fact that the RCS is capable of providing natural circulation and that the RCP **motors** are not relied upon for accident mitigation, the installation of a restraining device will not effect the radiation dose consequences of any accident evaluated in the SAR. Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? This motor shaft restraining device has been installed because of a malfunction with the motor anti-rotational device (ARD). This will keep the shaft stationary so that repairs can be facilitated on the non-safety related ARD, which serves to prevent back-rotation thereby reducing RCP starting time and rotor heating. Failure of the shaft restraining device would have no adverse impact on the ability to dissipate decay heat from the reactor nor would it damage the RCP (ability of the RCP to operate in a natural circulation mode of operation would not be hindered by failure of this shaft restraining device). Therefore, the probability of a malfunction of equipment important to safety will not be increased. Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? The installation of a strap restraining device will not effect radiological dose consequences, assuming a malfunction of equipment important to safety. The existing safety analysis specified in Yes ☐ No ☒

chapter 14 of the SAR will remain bounding. Therefore, the consequences of a malfunction important to safety will not be increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? The failure of the strap restraining device would result in reverse rotation of P-32D and thus require operations to enter AOP 1203.031 (Reverse Rotation of an RCP). The mitigating actions for this AOP require operations to trip the remaining RCP's and trip the reactor (plant is already in a shutdown mode of operation). This would require core cooling to be accomplished by natural circulation, which is credited in section 14 (specifically 14.1.2.6 of the U1 SAR) for a Loss of Coolant Flow event. This condition is not an accident which is different from those evaluated in the SAR and will not result in the creation of an accident of a different type than any previously evaluated. Yes ☐ No ☒

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Installing this shaft restraining device will not create an accident scenario which involves circumstances different enough from those considered by previous analyses. This installation will not result in a malfunction that involves an initiator or failure not considered in the SAR. Therefore, this temporary device will not create the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR. Yes ☐ No ☒

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Bases for T.S. 3.1 states that DNBR will be maintained above 1.3, during all normal operations and anticipated transients, provided an operable RCP and associated steam generator are in service. Therefore, the installation of this shaft restraining device for the current plant conditions will not reduce the margin of safety as defined in the T.S. bases. Yes ☐ No ☒

Richard Ellison	RICHARD ELLISON	9/12/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 1/13/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: James McWilliams Date: 9-13-99

Document No. ER992060E101 Rev./Change No. 0

Title Decay Heat Valve CV-1437 Temporary Configuration Change

Brief description of proposed change:

A temporary alteration will be made to DH valve CV-1437, P-34B suction from the BWST, to gag it closed while the operator is removed for corrective maintenance. The isolation is a conservative measure to ensure that the valve will remain shut with the maximum differential pressure across it that will be seen in the cold shutdown/refueling shutdown condition. The gag will be installed on the stem just below the top of the yoke. The packing load is about 4 times greater than the calculated stem ejection force generated by the head and will keep the valve closed. The gag is simply a precaution.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. ER992060E101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

This is a temporary change to perform maintenance on DH valve CV-1437 while the plant is in cold shutdown or refueling shutdown. This valve and its function is not addressed in the Tech Specs, Operating License, or Confirmatory Orders in the modes that are specified, therefore, there are no changes required in these documents per this ER. This valve is shown on SAR figure M-232 sheet 1 as a normally open motor operated valve. The operator will be removed for the period of time that maintenance is being performed and therefore, the SAR figure will be incorrect for that period. This temporary alteration is not a test or experiment and therefore it does not involve a test or experiment not described in the SAR.
Since this is a temporary alteration, no LDCR will be issued to licensing to change the effected SAR figure.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____ (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: CV-1437, DH valve, P-34B suction valve, Decay Heat Removal pump suction

MANUAL SECTIONS: 9.5

FIGURES: 9-12

Certified Reviewer's Signature	Printed Name	Date
Bradley W Short	Bradley W Short	10/01/99

Reviewer's certification expiration date: 09/20/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
	DAVID N. MCKENNEY	10/2/99

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. ER992060E101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

FFN # 99-086

Document No. ER992060E101 Rev./Change No. 0 10CFR50.59 Eval. No. (Assigned by PSC)

Title Decay Heat Valve CV-1437 Temporary Configuration Change

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Bradley W Short	Bradley W Short	10/01/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 09/20/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: T Brown Date: 10/2/99

Document No. ER992060E101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

The loss of the open capability of CV-1437 in a cold or refueling condition which is the limitation associated with this evaluation, does not result in a change to an accident initiator that has previously been evaluated. The capability of having a suction from the BWST or RB Sump to the Decay Heat pump is a Low Pressure Injection (LPI) function and LPI is not required to be functional in these modes. Therefore, there is no increase in the probabililty of an accident previously evaluated.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

The loss of the open capability of CV-1437 in a cold or refueling condition does not affect the performance of any system associated with previously evaluated accidents and therefore, does not affect any dose consequences associated with previously evaluated accidents.

3. Will the probability of a malfunction of equipment important to safety be increased?

The loss of the open capability of CV-1437 in a cold or refueling condition does not affect the performance of any equipment that is important to safety for the mitigation of accidents in these modes. Therefore, there is no increase in the probability of a malfunction of this equipment.

4. Will the consequences of a malfunction of equipment important to safety be increased?

The loss of the open capability of CV-1437 in a cold or refueling condition does not affect the performance of any equipment that is important to safety for the mitigation of accidents in these modes and thus there would be no increase in the dose consequences as a result of a malfuntion of this equipment.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

The loss of the open capability of CV-1437 in a cold or refueling condition does not impose circumstances that would be different from those considered in previous accident analysis therefore, the possibility of an accident of a different type is not created.

6. Will the possibiliy of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

The loss of the open capability of CV-1437 in a cold or refueling condition does not impose circumstances that would be different from those considered in previous accident analysis due to the fact that it does not affect the performance of any equipment that is important to safety for the mitigation of accidents in these modes.

7. Will the margin of safety as defined in the basis for any technical specification be reduced?

For the Technical Specification that is associated with this valve, the bases specifically states that the margin of safety is satisfied by one low pressure injection pump supplying emergency coolant to the reactor in the event of a loss of coolant accident. Although this is addressing conditions above those specified for this particular evalutation, this change will not reduce the level of LPI capability to less than that which is discussed in the bases.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 2

Document No. LCP 94-5034 Rev./Change No. 0

Title ANO-1 Hydrogen Analyzer Modification

PAGE 1b REV. 0

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
QAMO?*	Yes☐	No☒
E-Plan?*	Yes☐	No☒
FHA	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR?	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Checklist of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.2.4.a?	Yes☐	No☒
6. Result in the need for a 10CFR72.48 Review per section 6.2.4.b?	Yes☐	No☒

Basis for Determination:

See Continuation Form 1000.131C

* Changes to these documents require an evaluation in accordance with 10CFR50.54. See Section 6.2.1.B.

Document No. LCP 94-5034 Rev./Change No. 0

References: List sections reviewed in the Licensing Basis Documents, specified in questions 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed as computer-based searches such as LRS are not controlled and search text only, not figures or drawings. Attach a completed LDCR if LBD changes are required.

PAGE 17 REV. 0

Document	Section
ANO-1 Technical Specifications	All (Hydrogen)
ANO-1 Operating License and Confirmatory Orders	
ANO-1 SAR # Figure 9-5	
QAMO	
E-Plan	
FHA	
TS Bases	
NRC SERs	

Lee R. Schwartz — Certified Reviewer's Signature

Lee R. Schwartz — Printed Name

9-8-95 — Date

Reviewer's certification expiration date: 3-31-96

Assistance provided by:

Printed Name	Scope of Assistance	Date
Pat Riedmueller Pat Riedmueller	Design Input	8-25-95

ENVIRONMENTAL IMPACT CHECKLIST
(UNIT 1 and UNIT 2)

Document No. LCP 94-5034 Rev./Change No. 0 PAGE 18 REV. O

Complete the following checklist. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.2.1.E for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131B	REV. 2

PAGE 19 REV. 0

10CFR50.59 Eval. No. FFN-95-225
(Assigned by PSC)

Document No. LCP 94-5034

Rev./Change No. 0

Title ANO-1 Hydrogen Analyzer Modification

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

Lee R. Schwartz — Lee R. Schwartz — 9-8-95
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 3-31-96

Assistance provided by:

Printed Name	Scope of Assistance	Date
Pat Riedmueller Pat Riedmueller	Design Input	8-25-95

PSC review by: James McWilliams Date: 11-30-95

Document No. LCP 94-5034 Rev./Change No. 0

10CFR50.59 Review Continuation Page PAGE 20 REV. 0

BACKGROUND

This LCP replaces the low flow alarm switches for Unit 1 Hydrogen Analyzer panels C178 and C179. The existing indicating flow switches, PDIS-7504 and PDIS-7505, will be replaced with UE Model H105K-456 differential pressure switches. The new UE switches will not have a local indicator. For this reason, these switches will now be tagged PDS-7504 and PDS-7505 respectively. The differential pressure switches do not perform an active safety function. They are classified as "Q" because they serve as a passive pressure boundary to the sample air flow through the hydrogen analyzer. The sensing line configuration for the switches will be modified to move the low pressure connection downstream of the analyzer's measuring cell. This action will increase switch performance by increasing the pressure differential presented to the switch. The analyzer discharge piping will be modified to relocate the sample pump tie-in point to a location downstream of the bypass pump. This action will eliminate an internal recirculation path through the hydrogen analyzer.

The Hydrogen Analyzer low flow alarm switches are part of the ANO-1 Containment Hydrogen Control System. More specifically, they are components of Hydrogen Samplers C178 and C179 respectively. Their function is to provide an alarm in the Control Room in the event of a low flow rate through the hydrogen analyzers.

STEP 1 BASIS FOR DETERMINATION

Question 1. **NO**

ANO-1 Technical Specification 3.14 applies to the operating status of the Hydrogen Recombiner System. Included in this Technical Specification is the operability of the hydrogen concentration instruments. The actions performed by this modification are beyond the level of detail of TS 3.14. As a result no changes are required.

Question 2. **YES**

A review of the ANO-1 SAR shows that the only change required is to figure 9-5 which is based on PID M-237 sheet 4.

Question 3. **NO**

This Modification does not involve a test or experiment not described in the ANO-1 SAR. All testing for this modification will be performed in accordance with approved Plant procedures.

Question 4. **NO**

This modification will not result in a potential impact to the environment. All work to be performed is confined to the ANO-1 Auxiliary Building and does not affect any of the concerns listed on the Environmental Impact Checklist (form 1000.131A page 3 of 3).

Question 5. **NO**

As stated in the response to Question 4 above, all work to be performed by this modification is confined to the ANO-1 Auxiliary Building. Therefore, a Radiological Safety Evaluation is not required.

Question 6. **NO**

This modification has no potential for impact upon a spent fuel Ventilated Storage Cask or any equipment associated with the dry storage of spent fuel. Therefore a 10CFR72.48 Review is not required.

STEP 2 EVALUATION

PAGE 21 REV. 0

Question 1. **NO**

The Containment Hydrogen Analyzers are mentioned in SAR section 14.2.2.5.2.3 as a means for assessing the condition of the containment atmosphere (i.e. reactor building hydrogen concentration) post-LOCA. As such, they are only required to operate following an accident and are not considered to be related to causing an accident. Therefore, the probability of an accident previously evaluated in the SAR will not be increased by modifications to these analyzers.

Question 2. **NO**

The changes performed to the Containment Hydrogen Analyzers by this modification do not alter their operation. As before, the analyzers will still be capable of providing information to be used in assessing the containment atmosphere post-LOCA. Therefore, the consequences of an accident previously evaluated in the SAR will not be increased.

Question 3. **NO**

This modification does not affect the operation or function of the Containment Hydrogen Analyzers. The piping modifications are made to eliminate an internal recirculation path which could render the analyzers ineffective. A revision to Calculation 85-D-1057-04, "ANO-1 Hydrogen Analyzer Sample Line Calculation", was performed as part of this modification to show that the new piping configuration will have a negligible effect on sample transport times. The "Low Flow" alarm switch performs only a passive pressure boundary safety function. The local indication provided by the existing "Low Flow' alarm switch is not required for the switch to perform its system function. Replacement of this switch is made to increase the reliability of this component. Therefore, the probability of a malfunction of equipment important to safety will not be increased.

Question 4. **NO**

This modification does not introduce any new failure modes into the Containment Hydrogen Analyzers. The modification is made to increase the reliability of the analyzers. These modifications in no way can prevent the analyzers from obtaining an adequate and timely post-LOCA containment atmosphere sample. Therefore, the consequences of a malfunction of equipment important to safety will not be increased.

Question 5. **NO**

This modification affects equipment used only for Post Accident monitoring. Therefore, the possibility of an accident of a different type than previously evaluated is not created.

Question 6. **NO**

This modification does not change the function or operation of the Containment Hydrogen Analyzers. Replacement of the "Low Flow" alarm switch is made to improve the reliability of this component. The proposed piping changes are made to eliminate an internal recirculation path and does not affect the ability of the analyzers to obtain a timely sample. Therefore, the possibility of a malfunction of equipment important to safety of a different type than that previously evaluated is not created.

Question 7. **NO**

The Bases for ANO-1 Technical Specification 3.14 was reviewed. No margin to safety relating to this modification was identified. The Bases simply states that the Hydrogen Recombiners are designed to operate as necessary to limit the hydrogen gas concentration in the reactor building post-LOCA.

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6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? FFN-98-115 PAGE 20 REV. 01 Yes ☐ No ☒

The ability of safety related components to perform their safety related functions are not compromised by this change of the Containment Hydrogen Analyzer Flow Instruments. This change has no adverse impact on equipment important to safety. No new equipment failure scenarios are created by this modification. The Unit 1 SAR failure analysis therefore bounds this condition. Therefore, the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR is not created.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

The Containment Hydrogen Analyzer Flow Instruments are not discussed in the basis of any Technical Specifications reviewed. Changing these instruments will not impact any of the Technical Specification bases. Therefore, the margin of safety as defined in the bases for any Technical Specification will not be reduced by this modification.

Certified Reviewer's Signature	Printed Name	Date
	David Matthew Thompson	January 29, 1998

Reviewer's certification expiration date: March 20, 1999

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 2/12/98

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV 2 PC-2,3

Document No. LCP 95-5018 Rev./Change No. 0 PAGE 3 REV. 0

Title ANO-1 1R13 Polar Crane Lifting Device Replacement

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

Core Operating Limits Report	Yes☐	No☒
SAR (multi-volume set for each unit)?	Yes☒	No☐
QAMO?*	Yes☐	No☒
E-Plan?*	Yes☐	No☒
FHA	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR?	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Checklist of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.2.4.A?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.2.4.B?	Yes☐	No☒

Basis for Determination:

SCOPE:

LCP 95-5018 provides the Design Basis and instructions for using the new Reactor Vessel Head lifting assembly. The new lifting device weighs less than the existing assembly (Internal Handling Extension, Head & Internal Handling Fixture Assembly (bars) but structurally meets all applicable CODE limits and Regulatory requirements. The new lift rig will be stored in the Reactor Building on a permanent basis.

BASIS:

Questions 1- 3 : Used LRS/Zyfind - key word search on data base(s) **50.59 Unit 1/ ANO-1 SER/ ANO-1 Confirmatory Orders & LFO/ Commitments**

* Changes to these documents require an evaluation in accordance with 10CFR50.54.

See Section 6.2.1.B.

Document No. LCP 95-5018 Rev./Change No. 0

Title ANO-1 1R13 Polar Crane Lifting Device Replacement

ZYFIND Keyword Search Strings performed:

Data Base Picked:

50.59 Unit 1/ ANO-1 SER/ ANO-1 Confirmatory Order and LFO/NRC Commitments

Key Words: (**heavy load** *and* **Polar Crane**); **rigging**; **Reactor Head** ; (**hydrogen** *and* **generation** *or* **LOCA**); **heavy load** *and* **polar crane** *or* **rigging** *or* **reactor head** *and* **polar crane** *or* **reactor building** *and* **crane**

ZY & Manual Search of Documents Included (but not limited to):

LBD Document Reviewed	SECTIONS	Question
SAR	ALL	Questions 2& 3
FHA (All sections)	Reviewed Index	Questions 2 & 3
EP	Reviewed Index	Questions 2 & 3
QMAO	ALL	Questions 2 & 3
Tech Spec	ALL	Question 1

Section Requiring Changes:

Section 9.6.1.6 Add paragraph to describe the lifting device

Figures 9-48 & 9-49 To show the configuration change with the new device and clarifying note(s).

References: List sections reviewed in the Licensing Basis Documents, specified in questions 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed as computer-based searches such as LRS are not controlled and search text only, not figures or drawings. Attach a completed LDCR if LBD changes are required.

Document Section

Refer to table shown above

Eric R. Dietrich — Certified Reviewer's Signature

Eric Dietrich — Printed Name

09/10/96 — Date

Reviewer's certification expiration date: **01/22/98**

Assistance provided by:

Printed Name	Scope of Assistance	Date
Harold Hughes	Design Basis background information	09/09/96

ENVIRONMENTAL IMPACT CHECKLIST
(UNIT 1 and UNIT 2)

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Document No. LCP 95-5018 Rev./Change No. 0

Complete the following checklist. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.2.1.E for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. LCP 95-5018 Rev./Change No. 0

Title ANO-1 1R13 Polar Crane Lifting Device Replacement

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

Based on the following, the replacement of the existing lift rig with the newer type, does not relate to the probability of initiation of any accident currently described in the SAR.

The new Reactor Vessel Head Lifting Component(s) are designed, fabricated, and tested in accordance with NUREG 0612 and ANSI N14.6. The lifting device replaces the existing Reactor Head Lift combined assembly (Internal Handling Extension, Head & Internal Fixture Assembly and Handling Fixture slings). This is a structural redesign of the existing lift assembly and does not alter the load path used in the movement of the Reactor Vessel Head. The lifting device will be controlled by the existing operating procedures currently used for the Reactor Vessel Head movement, i.e., 1402.131, 1504.007, 1504.009, and 1005.002 The new Reactor Vessel Head Lifting Component(s) will be stored in the Reactor Bldg. on a permanent basis. Considering Nuclear Engineering Design's response to IRF 9550181103, the following conclusions are made relative to the storage of the new lift device in the Reactor Bldg.

a) *"This LCP will not introduce new hydrogen generating materials (aluminum, zinc and copper);...And, the reduced free volume remains bounded by current H_2 generation calculations."*
b) *"LOCA analyses are unaffected as the LOCA assumptions will still bound the surface area additions."*
c) *"RB DBA will be unaffected as increasing surface area will help the results and the reduced free volume will still be bounded by the DBA assumptions."*

Therefore, there is no increase in the probability of an accident previously evaluated in the SAR.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

The consequences of accidents analyzed in the SAR are not impacted by the new Rx Head lifting mechanism (see discussion below):

The new lift rig meets applicable CODE design limits. The Load Path for the Reactor Head is a previously analyzed Heavy Load Path. See response to question (1) for discussion relative to accidents. Based on this response, all applicable accidents in relation to the performance and storage of the new lift rig are bounded by existing analyses.

Therefore, there is no increase in the consequences of a SAR evaluated accident.

3. Will the probability of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

As previously noted, the redesigned lift rig meets applicable CODE design limits for a Heavy Load. The redesigned lift rig reduces the total weight carried by the L2 Crane in moving the Reactor Vessel Head. The L2 Crane is the only equipment directly affected by the new lift rig. L2 is QA CAT = N and SAFE CLASS = 4. The Load Path the Reactor Head follows is a previously defined Heavy Load Path. **The new lifting rig is considered no more likely to fail than the previous equipment.**

Thus, there is no change in the probability for increase in the malfunction of safety related equipment.

10CFR50.59 Eval. No. FEN-96-126
(Assigned by PSC)

Document No. LCP 95-5018 Rev./Change No. 0 PAGE 7 REV. 0

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The design, fabrication, and use of the redesigned rig have no direct bearing on or relationship to equipment other than the Non-Q L2 crane. As noted in the response to question (3), the weight of the redesigned rig plus that of the Reactor Vessel Head is reduced and is within the allowed L2 crane limit.

Therefore, no increase in the consequences due to the malfunctioning of equipment that is important to safety results from this LCP.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The new lifting device replaces the existing Reactor Vessel Lift assembly (Internal Handling Extension, Head & Internal Fixture Assembly and Handling Fixture slings). No new load paths are being created or changed. Storage issues are addressed in the response to question (1). Thus, the new lift rig remains consistent with previous design, construction, and operating assumptions for removing, lifting, and transporting the Reactor Vessel Head with the L2 Crane.

Thus, there is no possibility of a different type of accident than previously evaluated in the SAR from this LCP.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Structural CODE limits are met for the design, fabrication, and testing of the redesigned lift rig. The L2 crane load limit is within specification. Load path(s) have been previously determined and evaluated. The response to question (1) documents that the storage of the new lift rig in the RB will not create a potential for equipment malfunction.

Therefore, there is no possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

Use of the lifting device (existing or new) is not addressed in any T.S. bases sections.

Therefore, the margin of safety as defined in the bases for any Tech Spec is not reduced.

E. Dietrich
Certified Reviewer's Signature

Eric Dietrich
Printed Name

09/09/96
Date

Reviewer's certification expiration date: 01/22/98

Assistance provided by:

Printed Name	Scope of Assistance	Date
Harold Hughes	Design Basis background information	09/10/96

PSC review by: [signature] Date: 9/26/96

Document No. LCP 973805L301 Rev./Change No. 0

Title Intake Canal Debris Barrier PAGE 3 REV. 0

Brief description of proposed change:

Background (based on CR-ANO-1-1998-0006):

The referenced CR was written to document fouling of the intake structure with heavy debris (wet mulch, logs, etc.) due to washout caused by rains that occurred in and around 01/05/98. As a result of the progressive buildup of debris on the intake structure, the bar grate assembly in front of the 'A' Traveling Screen fell to a lower position. On 01/05/98 at approximately 2350 hour subsequent problems with the circulating water pumps P3A/B, caused Operations to take the Unit 1 Turbine off line and place the Unit 1 Reactor in the shutdown mode.

Description of LCP 973805L301

LCP 973805L301 will install a debris barrier in the Intake Canal. The barrier will be located approximately 150 yards east of the bridge over the intake canal on May Road. This barrier is described on drawing C-37 (DRN# 98-00014) and is qualified by calculation 98-E-00001-01. This barrier will extend approximately three (3) feet below the normal depth of the intake canal water line. In this configuration, the barrier will collect debris while allowing flow to continue down the normal intake channel to the intake structure without degrading the design basis function of the canal. See Design Basis Discussion below.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

This limited change installed a debris barrier in the intake canal. The barrier is located approximately 150 yards east of the bridge over the intake canal on May Road and will extend approximately three feet below the normal depth of the intake canal water line. The barrier will collect debris while allowing flow to continue down the normal intake channel to the intake structure without degrading the design basis function of the canal.

(i) increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety evaluated in the Safety Analysis Report since installation of the debris barrier in the intake canal did not affect the ability of the intake canal to deliver the required water flow during normal or accident operations; or,

(ii) increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report since this modification remained bounded by previously evaluated accident scenarios; or,

(iii) reduce the margin of safety as defined in the basis of any Technical Specification since installation of the debris barrier added margin of safety to debris/flotsam removal capabilities.

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

Basis for Determination (Questions 1, 2 & 3):

ZYFIND Search on LRS system was performed as indicated in the ***Search Scope*** section. A 50.59 evaluation is not required, as no LBD changes were found in the LRS searches performed.

A manual search of applicable LBD documents confirmed the LRS findings.

LBD changes are not required

Design Basis Discussion:

- LRS search using the keyword 'skimmer' references ANO-1 SAR Chapter 9.3.2.3 *Condenser Circulating Water System*. This section of the SAR describes protection of the four (4) circulating water pumps located in the intake structure from flotsam and debris through the use of a skimmer, trash rack, and traveling screens. The SAR notes that the three (3) barriers against flotsam and debris work in tandem. There is no skimmer installed at this time. A review of DWG. C-37 prior to the development of the subject LCP showed a Log Boom arrangement in the area where the proposed debris barrier will be installed. Prior to this LCP, DWG. C-37 was not officially in the Drawing Control System. Considering this, it appears that a Log Boom or 'skimmer' was originally to have been installed but was not. Therefore, by installing the debris barrier this statement in the ANO-1 SAR referring to a 'skimmer' is now true.
- The low point elevation of the debris barrier is 336'-0". Were the barrier to completely clog, the flow to the intake structure would not be interrupted, i.e., the predicted low elevation of water level in the intake canal is 336'. Therefore, flow at a minimum, through or underneath the debris barrier is equivalent to the low elevation flow already accounted for in ANO's design basis.
- The SAR also notes in NRC correspondence, that a minimum of 50 ft^3/sec of canal flow is required. Considering standard flow dynamics, the flow velocity will be interrupted in the local area of the debris barrier, but will with in a short 'jump' in canal length regain the normal flow velocity to the intake structure. Therefore, flow velocity will not be significantly affected by the installation of the debris barrier.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section	Question	Keyword(s)/Search Strings
Operating License	ALL	1	See keyword search strings below
Technical Specifications	ALL	1	See keyword search strings below
Confirmatory Orders	ALL	1	See keyword search strings below
SAR	ALL	2	See keyword search strings below
QAMO	ALL	2	See keyword search strings below
E Plan	ALL	2	See keyword search strings below
FHA	ALL	2	See keyword search strings below
Tech Spec Bases	ALL	2	See keyword search strings below
NRC SERS	ALL	2	See keyword search strings below
Test or Experiment Not Described In the SAR	ALL	3	See keyword search strings below

Keyword Search Strings: Scope of Search = **50.59 – Common**

intake canal, (intake or canal) w/10 seismic, debris, assured source, (canal blockage), (ultimate heat sink), flood and (intake canal), skimmer, water supply

MANUAL SECTIONS: ANO-2 SAR
Table of Contents ALL
Chapter 2 Site Characteristics — ALL (including tables and figures)
Section 2.4.8 Cooling Water Canals and Reservoirs
Chapter 9 Auxiliary and Emergency Systems — ALL (including Tables and Figures)
Section 9.2 Water Systems
Section 9.2.5 Ultimate Heat Sink

MANUAL SECTIONS: ANO-1 SAR
Table of Contents ALL
Chapter 2 Site and Environment — ALL (including tables and figures)
Section 2.4 Surface Water Hydrology
Chapter 5 Structures — ALL (including Tables and Figures)
Section 5.3.4 Intake Structure

MANUAL SECTIONS: ANO-2 TS
Table of Contents ALL

MANUAL SECTIONS: ANO-1 TS
Table of Contents ALL

Document No. LCP 973805L301 Rev./Change No. 0

PAGE 6 REV. O

Eric R. Dietrich	Eric Dietrich	01/08/98
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 1/22/98

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Daniel K Gendreau	Daniel K Gendreau	01/08/98
Certified Reviewer's Signature	Printed Name	Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

PAGE 7A REV. 0

10CFR50.59 Eval. No. 98-00166
(Assigned by PSC)

Document No. 973805L301

Rev./Change No. 0

Title Intake Canal Debris Barrier

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   The installation of the Debris Barrier (F-125) in the intake canal does not affect the ability of the intake canal to deliver the required water flow to ANO-1 and ANO-2 during normal or accident operations. The lowest Design Basis Canal level is 336'-0". The Debris Barrier will be installed with the lowest member at or above 336'. Therefore, even if the debris clogged the Barrier completely, there is still sufficient water flowing at 336'-0". If the Debris Barrier were to fall off in a seismic event, the flow area of the canal is not affected any more than with the Barrier as proposed for installation since the canal is 12 feet deep and the Debris Barrier is approximately 3.5 feet tall. The remaining 8.5 feet will provide a sufficient canal cross section to ensure an adequate supply of water to the Intake Structure. Therefore, the probability of an accident previously evaluated in the SAR is not increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   As discussed above, the Debris Barrier cannot adversely affect the flow of water to the Intake Structure. Therefore, the installation of the Debris Barrier does not increase the consequences of any accidents previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   Protection from debris and flotsam that may impact the intake structure is improved by the initial skimming action provided by the Debris Barrier. The Debris Barrier is designed for deadweight, additional live load from the 'clam bucket' used to remove debris (~ 1000 LB), and drag loads from water in the intake canal based on information contained on drawing C-37 for the *Log Boom*. If the Debris Barrier falls in a seismic event, no System, Structure, or Component (SSC) important to safety would be impacted due to the remote location from the station.

   Due to the design of the Debris Barrier, the structure would not buoyant in the event of a complete failure (i.e., the structure falls into the canal). Flow velocities in the canal are very low (~3 fps, Reference Calculation 32) and would not have sufficient force to move the failed Debris Barrier. Therefore, there is no concern that the Debris Barrier could "float" down the canal and impact any SSC important to safety.

   Based on this discussion, the probability of a malfunction of equipment important to safety is not increased.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

As described above, the Debris Barrier cannot impede flow to the Intake Structure. Therefore, there is no increase to the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Since the Debris Barrier cannot impede flow to the Intake Structure during normal operation or in failed condition nor impact any SSC important to safety in a seismic event, there are no new accident scenarios other than those already described in the SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No, the only affected SSC is the Intake Canal, the Intake Structure and its related equipment already considered in the ANO Design Bases. Based on discussion in question (3.), the Debris Barrier introduces no new failure scenarios.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

No, the installation of this LCP adds margin of safety to debris/flotsam removal capabilities to plant lake water supply.

Certified Reviewer's Signature	Wayne R. Wasser Printed Name	1/9/98 Date

Reviewer's certification expiration date: 8/13/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
none		

PSC review by: _____ Date: 1/9/98

DOCUMENT NUMBER
LCP-973805L301

CR-2-97-0474 CA # 16	ARKANSAS NUCLEAR ONE		
FORM TITLE:	10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 3 Pages.

Document No. CR-2-97-0474 CA #16 Rev./Change No. 0

Title ADDITION OF HPSI PUMP AND RELATED COMPONENTS TO SAFE SHUTDOWN "COMPONENTS OF INTEREST" LIST.

Brief description of proposed change:

AI # 02 of the referenced CR specified that 2P89B should be considered as a component necessary to achieve safe shutdown during certain fire scenarios. In addition to the pump, the minimum recirculation path should be isolated (i.e. prevents a flow diversion). Manual valve 2BS-26 is readily accessible for isolating all recirculation paths to the RWT. Manual valves 2SI-11A and 2SI-11B are accessible for establishing a flow path for the B HPSI pump. Local RWT level indication will be utilized to verify the status of the RWT. This equipment will be included in the Components of Interest list (Note : Typically, manual valves are not listed in the COI. Therefore, although a discussion is included in the Basis section, 2BS-26, 2SI-11A and 2SI-11B are not listed in the actual COI list).

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☒	No☐
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. CR-2-97-0474 CA #16 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1. The details of the components necessary to achieve and maintain safe shutdown as a result of a fire are not captured in any Licensing Basis documents related to the Operating License. The use of 2BS-26 to isolate the return paths to the RWT will not be performed until RCS pressure is below HPSI shutoff head, which is well below the pressure for TS 3.5.2 applicability (i.e. 1700 psia).
2. The details of the components necessary to achieve and maintain safe shutdown as a result of a fire are not captured in any of the SAR documents with the exception of the Fire Hazards Analysis. Table 6.3-22 does list the position of 2BS-26, 2SI-11A and 2SI-11B for normal, shutdown cooling and ECCS operation. The portion of time that these valves will be utilized (i.e. in order to provide RCS inventory control) during a fire scenario does not fall into one of these categories.
3. No test/experiment is required to enact the revision to the Components of Interest list.
4. This administrative change does not impact the environment (see attached).
5. This administrative change does not involve the handling of radioactive material or fluids.
6. This administrative change does not involve the handling of spent fuel or the dry fuel storage casks.
7. Neither the QAMO nor the E-plan addresses components necessary to achieve safe shutdown in a fire scenario.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item #____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: 50.59 – Unit 2 (2P89*B, 2BS*26, 2LIS*5643A, 2SI*11*, HPSI pump*, High Pressure Safety Injection, mini w/5 recirc*)

MANUAL SECTIONS: SAR Tables 6.3-3, 6.3-16, 6.3-22; FHA Sections 9.5 (for Area B, AA, DD, HH, JJ, SS and TT) 10.6 and 10.8 (for Zones 2006-LL, 2007-LL, 2040-JJ, 2068-DD, 2073-DD, 2097-X, 2100-Z, 2108-S, 2109-U and 2200-MM).

FIGURES: None

Woody Walker	Woody Walker	9/20/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 5/14/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
~~Thom Robinson~~ TDR 9-28-99		

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Thomas D. Robinson	Thom Robinson	9-28-99
Certified Reviewer's Signature	Printed Name	Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. CR-2-97-0474 CA #16 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Page ___ of

FFN # 99-085

10CFR50.59 Eval. No. ____
(Assigned by PSC)

Document No. **CR-2-1997-0474 AI # 16** Rev./Change No. **0**

Title **Addition of HPSI related component to Unit 2 Components of Interest List**

Background :

CR-2-1997-0474 determined that a fire in the control room/cable spreading room could cause the spurious operation of the outboard Reactor Building Sump isolation valves. Due to the lack of assured Safe Shutdown indication for Refueling Water Tank (RWT) level and the inability to promptly correct a mispositioned valve, the spurious opening of either isolation valve (i.e. 2CV5649-1 or 2CV5650-2) could cause the borated water in the RWT (2T3) to drain to the Reactor Building (RB) sump. The charging pumps are incapable of taking suction from the RB sump. Thus, the previously credited method for maintaining RCS level control would be jeopardized. This scenario could also occur in specific zones outside of the control room/cable spreading room.

The High Pressure Safety Injection pumps can be aligned to take suction from the RB Sump and inject into the RCS. 2P89B was selected as the preferred HPSI pump since the cabling necessary for local operation is independent of the fire areas in which a spurious operation of the sump isolation valves could occur. Currently, the only HPSI injection valves that are credited are those associated with the # 1 HPSI header. Therefore, crossover valves 2SI-11A and 2SI-11B will be manually opened to allow flow from the "B" pump through HPSI header # 1. Aligning the HPSI to take suction from the RB sump is similar to the system response upon receiving a Recirculation Actuation Signal (RAS). When a RAS is generated, the mini-recirculation path to the RWT is automatically isolated. In lieu of depending on the motor operated mini-recirc isolation valve(s), isolation of the path will be accomplished by closing normally-open valve 2BS-26. The need to access this valve will not be necessary until after a sufficient quantity of water has been added from the Boric Acid Makeup tanks. Therefore, while access to the valve may be through the fire area of concern, sufficient time will have elapsed to ensure that the fire has been extinguished. Local indication will be utilized to determine RWT level. Note : Only the B HPSI pump is noted as a Component of Interest. However, any of the HPSI pumps should be available for manual operation in an Alternate Shutdown scenario and is capable of providing the required RCS inventory control. Therefore, the associated procedure 2203.014 is written accordingly.

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

After reviewing the accident initiators listed in Chapter 15 of the SAR, it was determined that the inclusion of these components in the Fire Hazards Analysis (FHA) does not increase the probability of occurrence for any of the analyzed accidents. In addition, it does not increase the probability of the occurrence of a fire*.

*** Although fire is not specified as an accident in the SAR, Generic Letter 86-10 specifies that the determination of an unreviewed safety question would be based on a fire being the "accident ... previously evaluated". However, at ANO, a fire is classified as an event. Regardless of the classification, crediting these components in the strategy for mitigating the effects of a fire does not present an unreviewed safety question.**

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The HPSI pump will be utilized in a similar manner as during receipt of a Recirculation Actuation Signal (RAS) (i.e. the recirculation flow path to the RWT will be isolated). Therefore, the inclusion of these components in the FHA will have no effect on the off-site dose release rates of any of the analyzed accidents listed in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

Classifying this equipment as components necessary to achieve safe shutdown as a result of a fire, does not physically alter any equipment important to safety nor does it change the existing operating characteristics of any associated equipment. While aligning the "B" pump discharge to the HPSI #1 header (during a fire scenario) is not a common practice, it will not affect the performance of any of the associated components. Therefore, it will not increase the probability of a malfunction of equipment important to safety.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

No physical changes are being made to these components (i.e. the equipment will function or fail in the same manner as they did before being classified as Components of Interest). Furthermore, the equipment is being utilized in a manner consistent with the receipt of a RAS. As a result, malfunctions of equipment important to safety are unaffected by this change. Therefore, the off-site dose release rates are not impacted by administratively classifying these components as necessary to achieve safe shutdown (in the event of a fire).

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The administrative change of classifying these components as necessary to achieve safe shutdown in the event of a fire will not create the possibility of any accident. The utilization of these components is consistent with approved operational practices. Therefore, the change cannot cause a different type of accident.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

No physical changes are being made to these components (i.e. the valves will function or fail in the same manner as they did before being classified as Components of Interest). The relationship these components have to equipment important to safety is unchanged. Therefore, a different type malfunction will not be introduced by this change.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Neither the Components of Interest list nor the response of components in a fire scenario is addressed in the technical specifications. The function of the existing components is unchanged. Therefore, this change will not affect any margin of safety related to the basis for any technical specification.

Woody Walker	Woody Walker	09-21-99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 05/14/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 9/30/99

This Document contains 3 Pages.

Document No. FHA Rev./Change No. 5

Title Fire Hazards Analysis

Brief description of proposed change:

This change will incorporate time critical actions needed to safely shutdown the unit in an alternate shutdown scenario where it is hypothesized that the control room must be evacuated and cabling associated with redundant safe shutdown components is subject to fire damage.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☒	No☐
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. FHA Rev./Change No. 5

Basis for Determination (Questions 1, 2, & 3):

1. The time critical actions do not appear in the Tech Spec, OL or confirmatory orders and are only being added to the FHA.
2. The only place that the time critical actions appear will be in the FHA.
3. This change does not affect any test or experiments not described in the SAR.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS: 50.59-Common	All ("time critical actions")
MANUAL SECTIONS:	9.8 and 9.5
FIGURES:	N/A

Thom Robinson — Certified Reviewer's Signature
Thom Robinson — Printed Name
10/26/99 — Date

Reviewer's certification expiration date: 3/23/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Woody Walker — Certified Reviewer's Signature
Woody WALKER — Printed Name
12/3/99 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. FHA Rev./Change No. 5

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 3

This Document contains 3 Pages.

Document No. FHA Rev./Change No. 5 10CFR50.59 Eval. No. FFN-99-113 (Assigned by PSC)

Title Fire Hazards Analysis

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Thom Robinson	Thom Robinson	10/26/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 3/23/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [illegible] Date: 12/16/99

Document No. FHA Rev./Change No. 5

10CFR50.59 Review Continuation Page

BACKGROUND:

CR-2-98-0436 was generated as a result of a revision that was made to the Unit 2 Alternate Shutdown Procedure 2203.014 which did not include an adequate review of the alternate shutdown timeline. The timeline is a list of operator actions that are performed for a fire in the control room when alternate shutdown is entered. The timeline is currently contained in the Alternate Shutdown Technical Guidelines however, since this is not a controlled document, it was not reviewed as part of a safety related procedure revision. If the critical actions were in a LBD, they would be reviewed under the 50.59 process.

It has been determined that the only actions that will be incorporated into the FHA will be the time critical actions as determined by NED under action item #04 of this CR ("Ensure that time critical actions are identified and accurately reflected in the timeline."). Attached are the time critical actions identified in AI #04 and their bases. There will be one additional critical action added at a later for (Emergency Diesel Generator Rooms cooling) which is being tracked under AI #9 of CR-2-98-0436.

This CR action will address the inclusion into the FHA and will cover both units 1 and 2. The Unit 1 alternate shutdown procedure bases and the Unit 2 alternate shutdown technical guidelines will still contain the timeline. Action items # 10 and # 11 have been issued to Ops Standards to ensure that these timelines agree with the time critical actions.

1. Will the probability of an accident previously evaluated in the SAR be increased?

   A fire is not a design bases accident that has been evaluated in the SAR. This revision will merely add time critical actions that operators will perform in the event they enter the alternate shutdown procedure. The probability of an accident to be increased from one category to the next higher category or a significant movement within a category will not be increased. Thus, the probability of an accident previously evaluated in the SAR will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

   As stated, a fire is not a design bases accident. This revision is merely adding time critical actions for alternate shutdown. The offsite dose consequences of a previously evaluated accident will not be increased beyond the licensed limit. Thus, the consequences of an accident previously evaluated in the SAR will not be increased.

3. Will the probability of a malfunction of equipment important to safety be increased?

   There is no equipment important to safety associated with this revision to the FHA. This revision will not affect any equipment important to safety but merely identify time critical actions to be performed. Thus, the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased?

   As stated, this revision will not affect any equipment important to safety since it is only adding information to the FHA. The offsite dose consequences will not be increased beyond the acceptance limit due to this revision. Thus, the consequences of a malfunction of equipment important to safety will not be increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

   As stated, a fire is not an accident that has been evaluated in the SAR. This revision will only add information to the FHA that will not affect any equipment operation nor introduce any new accidents. Thus, the possibility of an accident of a different type than any previously evaluated in the SAR will not be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

   The addition of time critical actions will not affect any equipment important to safety but only identify time critical actions to be performed during an alternate shutdown scenario. Thus, the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR will not be created.

7. Will the margin of safety as defined in the basis for any technical specification be reduced?

   The time critical actions are not mentioned in the basis of any technical specifications. Thus, the margin of safety as defined in the basis for any technical specifications will not be reduced.

Document No. 075 Rev./Change No. 13/PC-1

Title Offsite Dose Calculation Manual

Brief description of proposed change: Incorporate methodology from TSI-313-004-00/TSI-368-004-00, change required aux. sampling equipment response from 1 hour to 4 hours, incorporate general limitations from Tech Spec, define surveillance frequency periods, and replace milk sampling location

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. 075 Rev./Change No. 13/PC-1

Title Offsite Dose Calculation Manual

Basis for Determination (Questions 1, 2 & 3):

Discussion–

During modification of station documents in preparation to implement the new ODCM (which incorporated RETS) and based upon review of the new ODCM by outside parties, the following changes to the ODCM were deemed necessary:

(A) Incorporation of the Technical Specifications Interpretations TSI-313-04-00 & TSI-368-04-00 into the letter-referenced tables to give the previously allowed leeway for required actions to obtain gas grab samples and install auxiliary sampling equipment.

Technical Justification

No additional justification is deemed necessary since both of these interpretations were originally contained in the respective unit's Technical Specifications.

(B) Change the previously allowed leeway for required actions concerning obtaining gas grab samples and installing auxiliary sampling equipment from 1 hour to 4 hours.

Technical Justification

The original justification for the 1-hour allowable continued operation period while installation of auxiliary sampling equipment (ASE) [refer to Form 1062.006B for TSI 313-04-00/ TSI368-04-00 performed by D. Whitson on 1/22/91 (attached)] used as its basis the fact that a 1-hour period represents a very small fraction (0.006 or 0.6%) of a normal one-week sampling/analysis period and that this inconsequential fraction would not affect the ability of the analysis to accurately account for the cumulative dose or achieve the required lower limit of detection.

Based upon past history (e.g., multiple SPING failure incident in September, 1995 [see CR-ANO-C-1995-171]), it is extremely difficult to install auxiliary sampling equipment in four different locations within a one-hour period especially if there is only shift personnel available to perform the task or there are other chemistry sampling requirements ongoing simultaneously (e.g., condenser leakage) which restricts the number of personnel available to perform ASE installation activities. Therefore, it is deemed necessary to allow some additional time to ensure that sufficient resources can be brought to bear on the task and that the equipment will be properly installed.

A four-hour time period still represents a small fraction (.024 or 2.4%) of the normal one-week sampling/analysis period. In a one-week sampling period a normal sample will contain approximately 5E8 cc. A 2.4% smaller week's sample would still provide the necessary volume to achieve the required lower limit of detection and allow for an accurate accounting of the cumulative dose. Based upon past history, the allowable 1-hour period has seldom been challenged. In the times that it has been challenged, the task has been completed within 2 hours. Therefore, it is not expected that the full 4-hour period will be routinely necessary. However, based upon the one incident of catastrophic SPING failure (loss of power to all SPINGs simultaneously), it was deemed appropriate to provide sufficient leeway for ASE installation should an incident of this magnitude occur again.

It should also be noted that a 2.4% error in sample size is well within the approximately 10-20% gamma spectroscopy analysis error inherent to the counting system. It should further be noted that Action 3 of ODCM Appendix 1 & 2 Tables 2.2-1 allow a 12-hour period to elapse before a gas grab sample is taken when inoperable equipment exists. Based upon the historical fact that the station's gaseous effluents are composed almost entirely of radioactive gases, a maximum of a four-hour period for lapse of non-gaseous sampling is reasonable.

Therefore, it is concluded that the lack of sampling for a four-hour period would not violate the "continuous monitoring" concept alluded to in Regulatory Guide 1.21.

(C) Incorporate U1 & U2 Tech Specs 3.0.1, 3.0.2, 4.0.1, and 4.0.2 into the ODCM limitations

Technical Justification

These specifications provided generic guidance for all LCOs and Surveillance Requirements contained in Technical Specifications. The current ODCM Limitations & Surveillance Limitations in Appendix 1 & 2 came from the LCO & Surveillance Requirement sections of Tech Spec, to which these generic guidelines applied. The need for this general guidance was not identified in Generic Letter 89-01 which allowed relocation of RETS to the ODCM. It was deemed after the fact that these statements would be needed to address similar future situations that would arise and need interpretation. In an effort to begin standardizing requirements between the two units, the wording of each associated specification were reviewed and then a decision was made to use the "Unit 2" wording as the basis for the Limitation/Surveillance Limitation design. No additional justification is deemed necessary since both of these interpretations were originally contained in the respective unit's Technical Specifications.

(D) Surveillance frequency length was defined as specific time periods.

Technical Justification

The U1 Technical Specifications did not define specific time periods concerning e.g., week, month, quarter but only used the generic word (e.g., weekly, monthly, etc.) to define the surveillance frequency. Since the term "shift" was not defined in U1 TS (but was in U2 TS), some of the time periods contain a variable number of days (e.g., month, quarter), and the fact that Tech Spec-required Maintenance Action Items/Job Orders are computer-oriented, it was deemed necessary to include the U2 TS defined frequency notations into the ODCM and to make them applicable to U1 also for consistency purposes. The incorporation of the definition does not affect any U1 or U2 Surveillance Limitation. The use of the U2 frequency notation for Unit 1's definition will not affect the actual scheduling & issue of U1 Tech Spec-related job orders as the Unit 1 staff has been using the U2 frequency definitions for computer-programming purposes for some time now. No additional justification is deemed necessary since this interpretation was originally contained in U2 Technical Specifications.

(E) Replace milk sampling location 50 with sample location 54

Technical Justification

Periodic milk sampling is a requirement of the station's Environmental Sampling Program. Action 3 of Limitation L2.6.1.A in both ODCM Appendices and the U1 SAR require that when a milk sample is unavailable from any of the normal sample locations, a new location is to be identified and added to the radiological environmental monitoring program and the ODCM (specifically Table 4-1 and, by implication, Figure 4-1). No additional justification is deemed necessary since this is a requirement of the ODCM.

(F) Replace missing unit header bars from ODCM Appendix 2 pages

Technical Justification

These changes are editorial in nature and do not require any technical justification.

Document No. 075 Rev./Change No. 13/PC-1

Title Offsite Dose Calculation Manual

Determination Bases--

Question 1: Will the proposed activity require a change to the Operating License (TS, OL, & CO)?

Answer: This document modification includes format changes; incorporates additional Definitions, Limitations, and Surveillance Limitations from the appropriate unit's Technical Specifications; changes the allowable "continued operation" period without auxiliary sampling equipment from 1 hour to 4 hours; and replaces a milk sampling location. The requirement to have an ODCM, what it will generically contain, and how to maintain the document is specifically mentioned in the U1 & U2 Technical Specifications. The changes being proposed in this modification are within the bounds of the TS stated requirements. The frequency notation and new Limitations/Surveillance Limitations being proposed are specifically mentioned in the U2 Technical Specifications. The U1 TS contains similarly worded Specifications that correspond to the U2 Specifications. U1 TS does not give specific definitions for surveillance frequencies and does not prohibit use of these definitions. The milk sample location is not specifically mentioned in the U1 & U2 OL documents. None of the document modifications will require changing any of the U1 & U2 OL documents.

Question 2: Will the proposed activity result in the SAR documents (COLR, SAR, QAMO, EP, FHA, TS Bases, & SER) (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document?

Answer: This document modification includes format changes; incorporates additional Definitions, Limitations, and Surveillance Limitations from the appropriate unit's Technical Specifications; changes the allowable "continued operation" period without auxiliary sampling equipment from 1 hour to 4 hours; and replaces a milk sampling location. The ODCM is specifically mentioned in both unit's SAR and two SERs. SER 60/88 defends the original ODCM requirements (without Appendices). SER 193/193 defend the incorporation of RETS into the new ODCM. The proposed changes do not conflict with either of these documents. Both unit's SAR requires that sample locations be "shown in the ODCM" and "are to be specified in Table 4-1. The U1 SAR also requires that sample locations be changed as necessary. The Emergency Plan requires that milk samples be taken. The proposed milk sample location change is in keeping with these requirements. The other changes are not specifically mentioned in the U1 & U2 SAR documents. None of the document modifications will result in the information being no longer true or accurate or violate a requirement stated in any of the U1 & U2 SAR documents.

Document No. Rev./Change No.

Title Offsite Dose Calculation Manual

Question 3: Will the proposed activity involve a test or experiment not described in the SAR?

Answer: This document modification involves routine sampling activities and does not include any testing or experimentation.

Question 4: Will the proposed activity result in a potential impact to the environment?

Answer: This document modification does nothing to add additional materials to or otherwise impact the environment.

Question 5: Will the proposed activity result in a need for a Radiological Safety Evaluation per Section 6.2.4.A?

Answer: This document modification has no additional radiological impact.

Question 6: Will the proposed activity result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.2.4.B?

Answer: This document modification does not affect the ventilated storage cask facilities or activities.

Question 7: Will the proposed activity involve a change under 10CFR50.54 for the QA Manual or Emergency Plan?

Answer: This document modification will not involve changing the QA Manual or the Emergency Plan.

Document No. 075 Rev./Change No. 13/PC-1

Title Offsite Dose Calculation Manual

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
U1 & U2 TS	All (ODCM, "dose calculation" shift w/25 hours, frequency notation, auxiliary sampling equipment, one hour, "1 hour", "8 hours", eight hours, "grab sample" w/25 "gross activity", milk, Ragsdale, Cole)
U1 & U2 OL	"
U1 & U2 CO	"
U1 & U2 COLR	"
U1 & U2 SAR	"
U1 & U2 SER	"
U1 & U2 TS Bases	"
TRM	"
QAMO	"
EP	"
FHA	"
MANUAL SECTIONS:	
U1 TS	Sections 1.10.3, 4.30.1, & 6.14; Tables 3.5.7-1, 4.29-3, & 4.30-1
U1 SAR	Sections 2.8.1, 2.8.4, & 2.8.5; Table 2-10
U1 SER	88 & 193
U2 TS	Sections 1.21, 1.29, & 6.14; Tables 1.2, 3.3-12, 3.12-1, & 4.11-2
U2 SAR	Section 11.6.3; Table 11.6-4
U2 SER	60 & 193
EP	Section K-2.3.2
FIGURES:	
None	N/A

Document No. 075 Rev./Change No. 13/PC-1

Title Offsite Dose Calculation Manual

Certified Reviewer's Signature	Joe Timothy Pugh Printed Name	11/10/98 Date

Reviewer's certification expiration date: 12/1/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
None	None	N/A

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature	Printed Name	Date

Document No. 075 Rev./Change No. 13/PC-1

Title Offsite Dose Calculation Manual

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Eval. No. FEN-98-150
(Assigned by PSC)

Document No. **075** Rev./Change No. **13/PC-1**

Title **Offsite Dose Calculation Manual**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

Note: Of all the modifications being made to the ODCM during PC-1 to Revision 13, the only issue that is deemed by our management as potentially needing further evaluation is the changing of the allowable SPING OOS period during which time the auxiliary sampling equipment is being set up. The allowable period is being increased from one to four hours.

1. Will the probability of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

Answer: Auxiliary sampling equipment (ASE) is designed to monitor the amount of particulate and iodine material released via the gaseous radioactive ventilation system during a plant event. ASE is not a contributing factor to any initiating conditions for any of the accidents previously evaluated in the U1 or U2 SAR. Therefore, the probability of an accident previously evaluated in the SAR will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

Answer: Both unit's SAR includes in several of the accident analyses that radioactive materials (e.g., particulates and iodines) will be released during the course of the event and in some cases state the quantity of released material that is anticipated. Auxiliary sampling equipment (ASE) is only designed to monitor the amount of particulate and iodine material released via the gaseous radioactive ventilation system during a plant event/accident and does not contribute to the amount of radioactive material generated by the accident conditions. U2 SAR Section 15.1.24.1 (concerning small spills or leaks of radioactive material outside containment) does, however, assume that the ventilation is being continuously monitored for gaseous activity. Gaseous activity is considered to be noble gases and does NOT include particulates and radioiodines. The "continuous monitoring" requirement deals with the primary means of monitoring ventilation pathway effluent. The original TS requirements allowed for alternate means to sample ventilation effluent in the event of OOS equipment and the pathway was allowed to go for up to 12 hours at a time without sampling for certain constituents (e.g., gases). The original TSI also justified that there must be some "acceptable period" in which to install auxiliary sampling equipment. The technical justification for the 50.59 Determination documents the rational for allowance of an increase in that allowable time period. Therefore this allowable lapse in "continuous monitoring" of the particulates and radioiodines which the auxiliary sampling equipment is designed to account for does not alter the bounds of this analysis. Since ASE (and SPINGs) only provide a monitoring function and are used at the "exit" of the ventilation system, the consequences for any of the accidents previously evaluated in the U1 or U2 SAR should not be increased.

Document No. 075 Rev./Change No. 13/PC-1

Title Offsite Dose Calculation Manual

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

Answer: Auxiliary sampling equipment (ASE) is designed to monitor the amount of particulate and iodine material released via the gaseous radioactive ventilation system during a plant event during a time period when the SPINGs are out of service. The SPINGs are non-safety related equipment. ASE does not utilize nor is it directly associated with any of the equipment important to shutting down the plant safely or preventing uncontrolled release of radioactive material. Therefore, the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

Answer: Auxiliary sampling equipment (ASE) is designed to monitor the amount of particulate and iodine material released via the gaseous radioactive ventilation system during a plant event during a time period when the SPINGs are out of service. The SPINGs that they are attached to are non-safety related equipment. Therfore, the consequences of a malfunction of equipment important to safety will not be increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Answer: Auxiliary sampling equipment (ASE) is only designed to monitor the amount of particulate and iodine material released via the gaseous radioactive ventilation system during a plant event/accident. It is attached to non-safety related equipment at the "end" of the ventilation pathway after all motive forces and appropriate filtration have been applied. ASE in that role is not a contributing factor to any type of accident-initiating condition. Therefore, the possibility of an accident of a different type than any previously evaluated in the U1 or U2 SAR will not be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Answer: Auxiliary sampling equipment (ASE) does not utilize nor is it directly associated with any of the equipment important to shutting down the plant safely or preventing uncontrolled release of radioactive material (SPINGs are not safety-related equipment). Therefore, a new possibility for malfunction of equipment important to safety will not be created.

Document No. 075 Rev./Change No. 13/PC-1

Title Offsite Dose Calculation Manual

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Answer: Auxiliary sampling equipment will no longer be required by any of the LCOs or surveillance requirements in U1 or U2 Technical Specifications (as of Amendment 193 which goes into effect on 11/19/98). Ventilation monitoring is not specifically addressed in either of the unit's remaining LCOs/Surveillance Requirements or TS bases. No additional Technical Specification limit was found that was based on some assumption regarding ventilation monitoring. Therefore, the margin of safety as defined in the basis for any Technical Specification (and associated SAR requirements) will not be reduced.

Certified Reviewer's Signature	Joe Timothy Pugh Printed Name	11/17/98 Date

Reviewer's certification expiration date: 12/1/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
Steve Bennett (Licensing)	Interpretation of U2 SAR 15.1.24.1 (3rd ¶)	N/A

PSC review by: _____ Date: 11/19/98

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 3 Pages.

Document No. SAR - U - 1 Rev./Change No. 14

Title Safety Analysis Report

Brief description of proposed change:

Section 9.8.3.4.A.3.e , "Control of Combustibles", will be revised to allow Design Engineering/Fire Protection Section evaluation of wood that is not treated with a fire retardant nor pressure treated.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. SAR Rev./Change No. 14

Basis for Determination (Questions 1, 2, & 3):

The only place that fire retardant wood or pressure treated wood is mentioned is in the SAR. It is not mentioned in the OL or tests or experiments.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item #____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	"All" ("Fire retardant", "Pressure treated") (50.59-Common)
MANUAL SECTIONS:	9.8.1
FIGURES:	None

Thom Robinson
Certified Reviewer's Signature

Thom Robinson
Printed Name

10/26/98
Date

Reviewer's certification expiration date: 5/5/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature

Ronald Rispoli
Printed Name

10-27-98
Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. SAR Rev./Change No. 14

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 1 Page.

Document No. SAR Rev./Change No. 14 10CFR50.59 Eval. No. EFN-98-138
(Assigned by PSC)

Title Safety Analysis Report

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Thom Robinson	Thom Robinson	10/26/98
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 5/5/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: T Bro Date: 10/29/98

Document No. SAR Rev./Change No. 14

10CFR50.59 Review Continuation Page

Background:

In order to try and reduce the amount of combustibles introduced into the plant, the SAR states that only wood that is treated with a fire retardant or pressure treated may be used. There are however instances when it is impractical to treat the wood with a fire retardant nor use pressure treated wood, such as the particle board under a desk. This change will allow the Design Engineering/Fire Protection Section the opportunity to evaluate those instances and determine if the untreated wood may be used. The NRC's position is that the treated wood or pressure impregnated wood should still be considered as combustible.

1. Will the probability of an accident previously evaluated in the SAR be increased?

   The use of treated wood or pressure impregnated wood is to reduce the amount of combustibles introduced into the plant. By not using either of these types of wood, the fire risk will not be significantly increased. The suppression and detection systems installed in the plant as well as the manual fire fighting capabilities will not be impaired. A fire is not a design bases accident that has been evaluated in the SAR. The probability of an accident to be increased from one category to the next higher or a significant movement within a category will not be increased. Thus, the probability of an accident previously evaluated in the SAR will not be increased.

2. Will the probability of an accident previously evaluated in the SAR be increased?

   As stated, a fire is not a design bases accident. The introduction of natural wood in a limited amount will not have an affect on the operation of any of the manual or automatic fire suppression systems. The offsite dose consequences of a previously analyzed accident to be increased beyond the licensed limit will not be increased. Thus, the probability of an accident previously evaluated in the SAR will not be increased.

3. Will the probability of a malfunction of equipment important to safety be increased?

   By allowing a limited amount of natural wood in the plant, there will be no affect on equipment important to safety. The introduction of natural wood will be in a very limited amount which will have no impact on the automatic or manual fire suppression systems. Thus, the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased?

   By introducing a limited and evaluated amount of natural wood into the plant, there will be no affect on equipment important to safety. There will be a minimal increase in the combustible loading that is still within the capabilities of the automatic and manual suppression systems. The offsite dose consequences will not be increased since there is no equipment important to safety that will be affected. Thus, the consequences of a malfunction of equipment important to safety will not be increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

   By allowing a limited amount of natural wood into the plant there will not be any type of accident introduced. A fire is not a design bases accident that has been analyzed in the SAR. Thus, the possibility of an accident of a different type than any previously evaluated in the SAR will not be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

   The introduction of natural wood into the plant will have no affect on any equipment important to safety since the automatic and manual fire suppression systems will still be capable of protecting the plant in the

case of a fire. Thus, the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR will not be created.

7. Will the margin of safety as defined in the basis for any technical specification be reduced?

Combustible loading is not defined in the bases of any technical specifications and thus will not affect the margin of safety.

FORM TITLE: ARKANSAS NUCLEAR ONE 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 3 Pages.

Document No. ENGINEERING RENEWAL Rev./Change No. 0

Title ANO ENGINEERING RENEWAL REORGANIZATION - UNIT 1 & 2

Brief description of proposed change:

This change reflects a reorganization of the Arkansas Nuclear One (ANO) Engineering staff organizations. This change includes management title changes, relocation of some reporting requirements and functional responsibilities. This change will affect both Unit 1 & Unit 2.

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☒

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☒ No☐

   Core Operating Limits Report? Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

   QAMO? Yes☒ No☐

   E-Plan? Yes☒ No☐

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. ENGINEERING RENEWAL Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

Question # 1: The changes reflected herein are administrative and do not impact any functions or responsibilities defined in the Operating License documents. The organizational changes affected are below the level of detail described in the Operating License documents. Therefore, these administrative changes will not require a change to the Operating License.
Question # 2: The changes reflected herein are administrative and will change Unit 1 SAR 9.8.3.1, 12.1.1.3, 12.1.1.4, Figure 12-1 and Unit 2 SAR 9.5.1.5, 13.1.1.3, 13.1.1.4 and Figure 13.1-5. Also, the E-Plan Figure B-1 will be changed.
Question # 3: The changes reflected herein are administrative and will not involve a test or experiment in any way. Therefore, this change will not involve a test or experiment not described in the SAR.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ___, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: 50.59 Common (Manager) (Director, Design Engineering) (Manager, System Engineering) (Fire prevention) (Engineering Programs) (EQ)

MANUAL SECTIONS: Unit 1 SAR Sections 9 & 12 - Unit 2 SAR Sections 9 & 13 - FHA (All) - TRM (All) - QAPM - E-Plan Figure B-1

FIGURES: Unit 1 SAR Figure 12-6 - Unit 2 SAR Figure 13.1-5

Michael Stroud — Michael Stroud — 7/23/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 6-3-2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Karen M. Head — Karen Head — 8/2/99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ENGINEERING RENEWAL Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 3 Pages.

Document No. Engineering Renewal Rev./Change No. 0 10CFR50.59 Eval. No. FFN 99-052
(Assigned by PSC)

Title ANO Engineering Renewal Reorganization

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Michael Stroud	Michael Stroud	7/23/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 6/3/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 8/9/99

Document No. Engineering Renewal Rev./Change No. 0

Description of Proposed Change:

The Engineering Renewal Subteam reviewed onsite and offsite engineering staff organizations, and identified changes to increase overall efficiency and standardization with other EOI sites. The changes modify some titles and reporting requirements, and relocate some functional responsibilities for ANO. The changes are administrative in nature and do not impact any functions or responsibilities as defined in regulatory requirements or license commitments.

The specific changes are as follows:

Editorial Changes

1. Changed Director, Design Engineering to Director, Engineering
2. Changed Manager, Nuclear Engineering Design to Manager, Safety Analysis
3. Changed Manager, MCS and Manager, EIC Design to Manager, Design Engineering
4. Changed Manager, Engineering Programs to Manager, Programs & Components

Other Organizational Changes

1. Relocated responsibility for Manager, Unit 1 & Unit 2 System Engineering from Plant Manager Unit 1 & Unit 2 to Director, Engineering.
2. Added Project Manager function to the Manager, Engineering Support
3. Added Engineering Administration function to the Manager, Engineering Support
4. Renamed Supervisor, Engineering Programs to Supervisor, Fire Protection & EQ under the Manager, Programs & Components.
5. Added Supervisor, Plant Programs to the Manager, Programs & Components
6. Added Supervisor, Component Engineering to the Manager, Programs & Components
7. Moved Materials Technical from Manager, MP&C to Manager, Engineering Support

In each of the non-editorial changes, compliance with applicable regulatory requirements and commitments are maintained and no required activities were deleted. For new positions that were added or where single positions replaced multiple positions, no new activities were added.

The Manager, System Engineering Unit 1 & Unit 2 were transferred from the Plant Manager Unit 1 & Unit 2 respectively to the Director, Engineering. This was an administrative relocation of reporting requirements and did not effect the required functions, specific responsibilities, or deviate fron any regulatory requirement or commitment. This change provides for a more integrated engineering organization and continues to support the Plant Managers on day to day system engineering issues.

The proposed organizational changes are either editorial or administrative in nature and have been reviewed for continued compliance with regulatory requirements and commitments.

The changes impacting the ANO SAR include transferring and modifying management reporting requirements, relocating some functional responsibilities, and adding and deleting positions. The revised organization maintains the same level of qualification, competency, and the ability to effectively implement the required programs necessary for continued safe operation of ANO as that previously evaluated in the SAR.

Question # 1: The changes noted herein are administrative in nature, although there will be some moving of functions and responsibilities, no activities or requirements that affect design or license basis will be changed. Therefore, the probability of an accident previously evaluated in the SAR will not be increased.

Question # 2: The changes noted herein are administrative in nature, but no activities or requirements will change that could cause the offsite dose consequences of a previous analyzed accident to be changed in any way. Therefore, the consequences of an accident previously evaluated in the SAR will not be increased.

Question # 3: The changes noted herein are administrative in nature, but no activities or requirements will change that could effect the probability of failure of equipment important to safety to perform its safety function. Therefore, this change will not increase the probability of a malfunction of equipment important to safety.

Question # 4: The changes noted herein are adminstrative in nature, and do not change any activity or requirement that would cause the offsite dose consequences to be increased due to a malfunction of equipment important to safety. Therefore, this change will not change the consequences of a malfunction of equipment important to safety.

Question # 5: The changes noted herein are administrative in nature, and does not include any activity or change any requirement that would create the possibility of an accident that is different than those previously evaluated in the SAR. Therefore, this change will not create the possibility of an accident of a different type than previously evaluated in the SAR.

Question # 6: The changes noted herein are administrative in nature, and does not include a change to activities or requirements that would create a malfunction of equipment important to safety that would be different than those previously evaluated in the SAR. Therefore, this change will not create the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR.

Question # 7: The administrative changes noted herein will not change any activity or requirement that could effect any margins of safety defined in the basis of the Tech. Specs. Therefore, no margin to safety as defined in the basis of any Tech. Spec. will be changed.

Document No. SDID# 1-97-0520 Rev./Change No. N/A

Title SPDS Subcooling Margin Timer and ATOG Display Minimum SCM Description

Brief description of proposed change: Revise section 7.3 to more accurately describe current SCM timer and SPD ATOG screen.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. SDID# 1-97-0520 Rev./Change No. N/A

Basis for Determination (Questions 1, 2 & 3):
See Attached

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59 Unit 1	**All (subcooling)(scm)(subcool*)**
MANUAL SECTIONS:	
Unit 1 SAR	**7.3**
FIGURES:	
NONE	

Certified Reviewer's Signature — **Ed Jacks** Printed Name — 10/26/98 Date

Reviewer's certification expiration date: **7/17/99**

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature — MARK A. GOECKE Printed Name — 10/26/98 Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. SDID# 1-97-0520 Rev./Change No. N/A

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface wate or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site

Document No. SDID# 1-97-0520 Rev./Change No. N/A

10CFR50.59 Review Continuation Page

This change updates the SAR description of the SPDS Loss of Subcooling Margin Timer and SCM ATOG display curve. Originally, the minimum allowable SCM at all pressures was 50 degrees. This was a generic number taken from B&W to bound possible instrument error and provide assurance against saturating the RCS. Subsequently, actual instrument error was calculated for the SCM monitors under accident conditions, and was determined to be <30 degrees with the RCS >1000 psig, <50 degrees between 350 and 1000 psig, and <70 degrees below 300 psig. The timer was reprogrammed to appear if any of these pressure-temperature combinations were violated. The 30 second time delay post trip for the timer was eliminated because SCM during normal operation is now above the alarm setpoint (30 degrees vice 50 degrees). Although the statement in the SAR is still true for pressures between 350 and 1000 psig, it is more accurate to refer to minimum adequate margin to saturation, which covers all P-T conditions. This change does not require any changes to the Facility Operating License. This change corrects some SAR information and makes no other SAR statements untrue or inaccurate. This change does not involve any tests or experiments.

A 50.59 Evaluation is attached in accordance with the License Document Change Request.

10CFR50.59 Eval. No. FFN-98-136
(Assigned by PSC)

Document No. SDID# 1-97-0520 Rev./Change No. N/A

Title SPDS Subcooling Margin Timer and ATOG Display Minimum SCM Description

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

The purpose of the Loss of SCM Timer is to alert the operator of possible saturated conditions in the RCS, and aid in meeting the EOP requirement to trip the RCPs within two minutes of a loss of adequate SCM. Incorporating actual P-T instrument error into the minimum SCM curve and associated timer improves the operators ability to recognize a possible loss of adequate SCM, but does not increase the probability of any accident.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

Using actual instrument error in determining SCM makes possible saturated/superheated conditions less probable, and ensures those condition would be more easily recognized if they did occur. Prompt treatment of these conditions can reduce the amount of off-site release resulting from an accident. Therefore, the consequences of an accident will not be increased.

3. Will the probability of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

The status of the RCS, with regard to saturation, determines when some equipment important to safety is placed in service. However, the condition of the RCS does not affect the probability of equipment important to safety malfunctioning. Equipment important to safety is designed to mitigate the consequences of the accidents which result in saturated conditions in the RCS. The ability to more accurately determine the condition of the RCS has no impact on the possible malfunction of any equipment.

4. Will the consequences of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

By more accurately determining the condition of the RCS, the severity of an accident and off-site releases can be reduced by ensuring backup equipment is placed in service in a timely manner or contingency actions are taken as required. The consequences of a malfunction of equipment important to safety are reduced.

Document No. SDID# 1-97-0520 Rev./Change No. N/A

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Changing the SPDS curve to more accurately show the relationship between the RCS and possible saturation will aid the operator in maintaining the RCS conditions within acceptable parameters. Increasing operator awareness of actual plant parameters does not create to possibility of any new accidents.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The status of the RCS, with regard to saturation, determines when some equipment important to safety is placed in service. Equipment important to safety is designed to mitigate the consequences of the accidents which result in saturated conditions in the RCS. The ability to more accurately determine the condition of the RCS has no impact on the possible malfunction of any equipment.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Margin to saturation is not addressed in any Tech Spec bases. Nor does this change impact any other Tech Spec bases.

Certified Reviewer's Signature	Ed Jacks Printed Name	10/26/98 Date

Reviewer's certification expiration date: 7/17/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 10/29/98

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. 1000.001 Rev./Change No. 030

Title Organization and Responsibilities

Brief description of proposed change: Organizational title changes resulting from Renewal

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☒	No☐

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1,2

Page ___ of

Document No. Rev./Change No.

Basis for Determination (Questions 1, 2 & 3):
These changes are administrative. They are title changes primarily as a result of the renewal process. Some individual responsibilities have been relocated, but none nave been eliminated as a result of this change. There are no proposed changes affecting plant systems, structures or components or the operation of plant equipment so there is no test or experiment. . The are not contained in the operating license. Sections 12 & 13 of the SAR's contain title references requiring changes.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59 Common	**All (director, support; director training; superintendent, plant security; manager, radiation protection/chemistry; manager, standards; manager, outage and work management)**
MANUAL SECTIONS:	
U1 SAR	**Section 9 & 12**
U2 SAR	**Section 9 & 13**
E-Plan	**Sections P & N and Table B-1**
FIGURES:	

Certified Reviewer's Signature | **Walter Perks** Printed Name | **11/9/99** Date

Reviewer's certification expiration date: **11/9/2001**

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature | Printed Name | Date

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

Page ___ of

10CFR50.59 Eval. No. FFN-99-111
(Assigned by PSC)

Document No. 1000.001 Rev./Change No. 030

Title Organization and Responsibilities

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

These changes are administrative. They are title changes primarily as a result of the renewal process. Some individual responsibilities have been relocated, but none nave been eliminated as a result of this change. There are no proposed changes affecting plant systems, structures or components or the operation of plant equipment, therefore the probability of an accident previously evaluated is unchanged.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

These changes are administrative. They are title changes primarily as a result of the renewal process. Some individual responsibilities have been relocated, but none nave been eliminated as a result of this change. There are no proposed changes affecting plant systems, structures or components or the operation of plant equipment, therefore the consequence of an accidents previously evaluated is unchanged.

3. Will the probability of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

These changes are administrative. They are title changes primarily as a result of the renewal process. Some individual responsibilities have been relocated, but none nave been eliminated as a result of this change. There are no proposed changes affecting plant systems, structures or components or the operation of plant equipment, therefore the probability of a malfunction of equipment important to safety is unchanged.

4. Will the consequences of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

These changes are administrative. They are title changes primarily as a result of the renewal process. Some individual responsibilities have been relocated, but none nave been eliminated as a result of this change. There are no proposed changes affecting plant systems, structures or components or the operation of plant equipment, therefore the consequence of a malfunction of equipment important to safety is unchanged.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

Yes ☐ No ☒

These changes are administrative. They are title changes primarily as a result of the renewal process. Some individual responsibilities have been relocated, but none nave been eliminated as a result of this change. There are no proposed changes affecting plant systems, structures or components or the operation of plant equipment, therefore the possibility of an accident of a different type than previously evaluated is unchanged.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

These changes are administrative. They are title changes primarily as a result of the renewal process. Some individual responsibilities have been relocated, but none nave been eliminated as a result of this change. There are no proposed changes affecting plant systems, structures or components or the operation of plant equipment, therefore the possibility of a malfunction of equipment important to safety of a different type than previously evaluated is unchanged.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

These changes are administrative. They are title changes primarily as a result of the renewal process. Some individual responsibilities have been relocated, but none nave been eliminated as a result of this change. There are no proposed changes affecting plant systems, structures or components or the operation of plant equipment. These titles are not discussed in the T/S basis, therefore the margin of safety is unchanged.

Certified Reviewer's Signature	Walter Perks Printed Name	11/9/99 Date

Reviewer's certification expiration date: 11/9/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: James McWilliams Date: 12-9-99

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. ANO-1 UFSAR 12.5.1/ ANO-2 UFSAR 13.5.1 **Rev./Change No.**

Title Addition of Corporate Procedures

Brief description of proposed change: Corporate level procedures have been developed and issued from EOI corporate headquarters. Some selected corporate level procedures will be used as implementing procedures at ANO. The ANO UFSARs do not currently acknowledge these procedures for use at ANO. A change to the ANO-1 and ANO-2 UFSARs is needed to recognize corporate level procedures and to establish a site level review and approval process for implementing procedures issued under the corporate Nuclear Management Manual, corporate Design and Administration Manual, and the Materials, Purchasing, and Contracts Administration Manual. Similar changes have been made at the other EOI sites.

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☑

   Operating License? Yes☐ No☑

   Confirmatory Orders? Yes☐ No☑

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☑ No☐

   Core Operating Limits Report Yes☐ No☑

   Fire Hazards Analysis? Yes☐ No☑

   Bases of the Technical Specifications? Yes☐ No☑

   Technical Requirements Manual? Yes☐ No☑

   NRC Safety Evaluation Reports? Yes☐ No☑

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☑

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☑

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☑

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☑

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

   QAMO? Yes☐ No☑

   E-Plan? Yes☐ No☑

Basis for Determination (Questions 1, 2 & 3):

Currently, the ANO-1 and ANO-2 UFSARs do not recognize or acknowledge corporate level procedures for use at ANO. A change to the UFSARs is considered appropriate to recognize corporate level procedures and to establish a site level review and approval process for implementing these procedures.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59 Common	**"administrative procedure*", "corporate procedure*"**
MANUAL SECTIONS:	
ANO-1 UFSAR Section 12.5	TRM Section 6.0
ANO-2 UFSAR Section 13.5	TS Section 6.0
FIGURES:	
None	

Certified Reviewer's Signature: _____ Printed Name: **Steve Bennett** Date: 6/29/99

Reviewer's certification expiration date: **August 12, 2000**

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature: _____ Printed Name: John Dosa Date: 6/30/99

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **ANO-1 UFSAR 12.5.1/ ANO-2 UFSAR 13.5.1** Rev./Change No.

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☑	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☑	Increase thermal discharges to lake or atmosphere?
☐	☑	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☑	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☑	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☑	Install any new transmission lines leading offsite?
☐	☑	Change the design or operation of the intake or discharge structures?
☐	☑	Discharges any chemicals new or different from that previously discharged?
☐	☑	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☑	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☑	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☑	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☑	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Eval. No. FFN-99-045
(Assigned by PSC)

Document No. ANO-1 UFSAR 12.5.1/ ANO-2 UFSAR 13.5.1 Rev./Change No.

Title **Addition of Corporate Procedures**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☑

   This change only affects the administrative process for including into the UFSAR (and the appropriate procedure control process, if applicable) the use of corporate procedures at the plant. Identifying these procedures in the UFSAR (and the appropriate procedure control procedure) ensures appropriate levels of site review and approval authorities. Adding the requirements for corporate level procedures will not affect the probability of occurrence of an accident considered in the SAR.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☑

   The types of procedures being added to the UFSAR (and the appropriate procedure control procedure) are typically corporate level management and administrative procedures that describe programs and processes. If technical procedures are included, this change will ensure appropriate reviews and approvals are obtained including 50.59 Reviews and independent reviews, such as the PSC, as described in UFSAR Section (12.5.3 for ANO-1; 13.5.3 for ANO-2). Adding the requirements for corporate level procedures will not effect consequences of an accident that are considered in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☑

   The types of procedures being added to the UFSAR (and the appropriate procedure control procedure) are typically corporate level management and administrative procedures that describe programs and processes. If technical procedures are included, this change will ensure appropriate reviews and approvals are obtained including 50.59 Reviews and independent reviews, such as the PSC, as described in UFSAR Section (12.5.3 for ANO-1; 13.5.3 for ANO-2). Adding the requirements to perform 50.59 Reviews for corporate level procedures will not effect the probability of occurrence of a malfunction of equipment important to safety as described in the UFSAR.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☑

This change ensures corporate level procedures used to control site programs and processes receive the appropriate level of review and approval as designated in UFSAR Section (12.5.3 for ANO-1; 13.5.3 for ANO-2). There is no reduction in the level of reviews and this change is considered to provide additional safety margin by ensuring that all site level procedures are reviewed and approved by appropriate authorities. Therefore, there is no impact to the consequences of a malfunction of equipment important to safety as evaluated in the UFSAR.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☑

The types of procedures being added to the UFSAR (and the appropriate procedure control procedure) are typically corporate level management and administrative procedures that describe programs and processes. If technical procedures are included, this change will ensure appropriate reviews and approvals are obtained including 50.59 Reviews and independent reviews, such as the PSC, as described in UFSAR Section (12.5.3 for ANO-1; 13.5.3 for ANO-2). Adding the requirements to perform 50.59 Reviews for corporate level procedures will have no affect on the possibility of an accident of a different type than those described in the UFSAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☑

The administrative change is being made to the UFSAR to ensure appropriate review and approval of corporate level procedures that are being used as program or process implementing documents. There is no reduction in the level of reviews and this change is considered to provide additional safety margin by ensuring that all site level procedures are reviewed and approved by appropriate authorities. Therefore, this change will not create the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the UFSAR.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☑

This change ensures corporate level procedures used to control site programs and processes receive the appropriate level of review and approval as designated in UFSAR Section (12.5.3 for ANO-1; 13.5.3 for ANO-2). There is no reduction in the level of reviews and this change is considered to provide additional safety margin by ensuring that all site level procedures are reviewed and approved by appropriate authorities. Therefore, the margin of safety as defined in the basis for any technical specification is not reduced.

Certified Reviewer's Signature	Steve Bennett Printed Name	7/1/99 Date

Reviewer's certification expiration date: August 12, 2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 7/1/99

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. U1, U2, SAR Rev./Change No.

Title U1, U2 SAR

Brief description of proposed change: This U1 and U2 SAR change incorporates ODCM changes that identify modifications to the REMP. U1 and U2 SAR reference NUREG 0472, "Radiological Effluent Technical Specification (RETS). RETS requirements, for environmental monitoring, have been superceded by the NRC Branch Technical Position, Revision 1, November 1979, for Regulatory Guide 4.8, "Environmental Technical Specifications for Nuclear Power Plants". The requirements and format of the Branch Technical Position have been incorporated into the ODCM (R-13/ PC-3). References to environmental RETS sampling and requirements are replaced with references to the ODCM. Applicable Tables and Figures are deleted with references to the ODCM. Also in U1 SAR section 2.8.1, there is a reference to the Arkansas State Department of Health assisting with the program. With the deletion of milk sampling (AR State Health Dept. collected one of the milk samples) the state will not be responsible for collecting any of ANO's REMP samples. This statement is being deleted.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☑
Operating License?	Yes☐	No☑
Confirmatory Orders?	Yes☐	No☑

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☑
Core Operating Limits Report	Yes☐	No☑
Fire Hazards Analysis?	Yes☐	No☑
Bases of the Technical Specifications?	Yes☐	No☑
Technical Requirements Manual?	Yes☐	No☑
NRC Safety Evaluation Reports?	Yes☐	No☑

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☑

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☑

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☑

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☑

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

   QAMO? Yes☐ No☑

   E-Plan? Yes☐ No☑

Document No. **U1, U2, SAR** Rev./Change No.

Basis for Determination (Questions 1, 2 & 3):

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59 Common	**All (RETS, NUREG 0472, fish, environmental, milk, groundwater, branch technical, vegetation "2-32"," 2-33", "2-34", "sites"**
MANUAL SECTIONS:	
U1 SAR	**11.1.2.1, 2.8.1, 2.8.2, 2.8.3, 2.8.4, 2.8.5, Table 2-10**
U2 SAR	**, 11.6.5, 2.4.13.4, Table 11.6-4**
FIGURES:	
U1 SAR	**2-32, 2-33, 2-34**

James Dennis Calloway — Certified Reviewer's Signature

James Dennis Calloway — Printed Name

09/03/99 — Date

Reviewer's certification expiration date: 8-16-2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature	Printed Name	Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **U1, U2, SAR** Rev./Change No.

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☑	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☑	Increase thermal discharges to lake or atmosphere?
☐	☑	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☑	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☑	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☑	Install any new transmission lines leading offsite?
☐	☑	Change the design or operation of the intake or discharge structures?
☐	☑	Discharges any chemicals new or different from that previously discharged?
☐	☑	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☑	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☑	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☑	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☑	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Review Continuation Page

Basis –

The NRC Branch Technical Position, Revision 1, November 1979, for Regulatory Guide 4.8, "Environmental Technical Specifications for Nuclear Power Plants" under Program Requirements states "The initial radiological environmental monitoring program should be conducted for the first three years of commercial operation (or other period corresponding to a maximum burnup in the initial core cycle). Following this period, program changes may be proposed based on operational experiences". With historical radiological environmental sampling data, ANO is proposing to reduce the number of environmental sample stations and sampling frequency were justified.

To support going from 7 day continuous operation air sample stations to 14 day continuous operation air sample stations, EOI participated in a charcoal efficiency study with F&J Specialty Products, Inc. (see attached). River Bend environmental analysis laboratory is able to count charcoal filters for 23 days and produce a corrected activity to the original activity (see attached). This will allow ANO the option of running our air sample stations for 2 weeks before changing filter media with no lose of data.

See attached summary data.

- ANO REMP Proposed Changes. This table will identify current samples collected vs. changes to the sample types and schedule with a Rational for ANO REMP Proposed Changes attached.
- Summary of Monitoring Results. This attachment will give you an executive summary of the monitoring results and a break down of each sample type.

With the past operating history of ANO and the environmental analytical data accumulated, ANO proposes to modify the REMP. The revised program is outlined in the attached New Sample Locations. These sample locations are consistent with a reduced program and maintain consistency with the NRC Branch Technical Position on environmental programs.

Basis for Determination–

Question 1: Will the proposed activity require a change to the Operating License?

Answer:

Radiological Environmental Technical Specifications were removed from the Technical Specifications U1 & U2 to the ODCM. The ODCM is the regulating document for required environmental sampling. Therefore, the change in the ODCM does not result in any information contained within the Operating License's from being no longer true or accurate.

Question 2: Will the proposed activity result in the SAR documents {COLR, SAR, QAMO, EP, FHA, TS Bases, SER, & TRM} (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document?

Answer:.

The REMP is addressed at some level in the U1 & U2 SAR, U1 & U2 SER, and the Emergency Plan. See attached copies of LDCRs for U1 & U2 SAR and EP changes. With sampling requirements changing, this alters the accuracy of various statements, Tables and Figures in these documents.

U1 SAR section 2.8.1 General. The sixth paragraph identifies the NUREG-0472 "Radiological Effluent Technical Specification" (RETS) as the regulating document for an environmental program. The environmental portion of this document has been superceded by the NRC Branch Technical Position, Revision 1, November 1979, for Regulatory Guide 4.8, "Environmental Technical Specifications for Nuclear Power Plants". Also Table 2-10 of the SAR is referenced for summarizing the sampling program. This Table is deleted with a reference to the ODCM. This level of detail is not needed in the SAR. The tenth paragraph states that "The Arkansas State Department of Health will assist in the Program". The state health department assisted ANO in the collection of milk samples. With the deletion of milk sampling (until a dairy becomes available within 5 miles of ANO) the state health dept. will not be collecting any of the required REMP samples. ANO has the responsibility to meet the requirements of the ODCM. References to Table 2-10 in sections 2.8.2, 2.8.3, 2.8.4, and 2.8.5 are replaced with a reference to the ODCM for sampling information. Section references milk and food product vegetation sampling. The words milk and food products are deleted. Milk is not sampled until available and vegetation is not limited to food products. A reference to Technical Specifications 4.30.2 is deleted. This reference was removed from the Technical Specifications. "Broad leaf vegetation sampling may be performed at the site boundary in the direction sector with the highest D/Q in lieu of the garden census" was added to section 2.8.4. This statement comes from the NRC Branch Technical Position. Figures 2-32, 2-33, and 2-34 represent out dated environmental sample locations. These Figures are not referenced in the text of the SAR. These figures are deleted with a reference to the ODCM.

U2 SAR section 2.4.13.4 Monitoring and Safeguard Requirements references three groundwater stations being sampled and locations are specified in the ODCM. With the deletion of groundwater sampling, these statements are deleted. Section 11.6.4 **Analytical Sensitivity** references RETS. RETS is replaced with a reference to the ODCM. Table 11.6-4 Radiological Environmental Monitoring Program is deleted with a reference to the ODCM for sampling requirements.

Question 3: Will the proposed activity involve a test or experiment not described in the SAR?

Answer: This ODCM change does not involve a test or experiment that is not described in the SAR.

FFN # 99-095

10CFR50.59 Eval. No. _____
(Assigned by PSC)

Document No. **ODCM** Rev./Change No. **13 / 3**

Title **Offsite Dose Calculation Manual**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☑

The NRC Branch Technical Position on environmental sampling allows ANO to modify the REMP after the first three years of operation with justification. ANO has modified the REMP by reducing the number, types and frequency of environmental samples. These changes rendered the SAR inaccurate on these issues. These SAR changes consist of updating text and tables to approved REMP sampling criteria. Environmental surveillance programs are not considered causes of accidents.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☑

These SAR changes are for updating environmental surveillance requirements as specified in the ODCM. There are no accidents in the SAR that would have their radiation dose consequences altered as a result of these changes to the environmental monitoring program.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☑

Offsite environmental monitoring is performed with field equipment only. No plant safety equipment is used for environmental monitoring or will be affected by environmental monitoring.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☑

Offsite environmental monitoring is performed with field equipment only. No plant safety equipment is used for or affected by environmental monitoring. Therefore, there will be no increase in radiation dose consequences.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☑

Environmental monitoring is performed in the field away from plant site. Any malfunctions with field equipment will be isolated to specific field equipment. No accidents of a different type than any previously evaluated in the SAR will be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☑

Environmental monitoring is performed in the field away from plant site. Any malfunctions with field equipment will be isolated to specific field equipment, which is not related to equipment important to safety.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☑

The SAR states that the third objective of the environmental monitoring program is to determine the effect of the operation of the nuclear units on the environment. The changes to the ODCM and to the SAR do not remove this objective but modify the environmental monitoring program to achieve this objective (in accordance with the NRC Branch Technical Position, Revision 1, November 1979, for Regulatory Guide 4.8, "Environmental Technical Specifications for Nuclear Power Plants"). There are no margins of safety that would be reduced as a result of the changes to the environmental monitoring program.

James Dennis Calloway — James Dennis Calloway — 09/07/99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 08/16/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: Michael Harris Date: 10/14/99

ARKANSAS NUCLEAR ONE		Pa
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 5 Pages.

Document No. SD-1-97-0595 Rev./Change No. 0

Title ANO-1 SAR Discrepancy Associated with EFW Flow Rates

Brief description of proposed change:

Deletes sentence in second to last paragraph of section 10.4.8, "Emergency Feedwater System" that equates 705 gpm to 6% full load heat removal capacity and refers to 3.5% as the safety analysis requirement. Adds additional clarifications to same paragraph. See LDCR for exact changes.

Characterization of 705 gpm as 6% full load heat removal capacity was a mistake in the original safety determination form submitted with the change that plugged the Z axis nozzle in the emergency feedwater ring. Also, the minimum flow required by the safety analysis is 500 gpm (as correctly stated in the first paragraph of this section) which is less than 3.5%.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. SD-1-97-0595 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1. The change is limited to the removal of erroneous SAR text and clarification of existing SAR text. The Operating License reflects the correct minimum flow required by the safety analysis (i.e., 500 gpm) in T.S. 4.8, "EFW Pump Testing". The Operating License does not discuss the 705 gpm value.
2. The change was determined to be limited to section 10.4.8 of the ANO-1 SAR based upon the document search described below.
3. This change does not involve a test or experiment.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	Unit 1 – 50.59 ("705" or "6 percent" or "3.5 percent" or "minimum EFW" or "3.5%" or "6%" or "full power heat removal")
MANUAL SECTIONS:	1SAR 10.4.8 and 1TS 3.4 and 4.8
FIGURES:	

Edward Blackard — Certified Reviewer's Signature; Edward Blackard — Printed Name; 3/22/99 — Date

Reviewer's certification expiration date: 3/22/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature; David MacPhee — Printed Name; 3/23/99 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. SD-1-97-0595 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. SD-1-97-0595 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-99-032 (Assigned by PSC)

Title ANO-1 SAR Discrepancy Associated with EFW Flow Rates

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   The activity is limited to a minor correction of SAR text that will make the text more accurately reflect the existing capabilities of the EFW system. It does not impact the frequency of occurrence of an accident initiator.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   This activity is an editorial change to the SAR. It does not hinder or prevent actions assumed in the accident analyses or alter assumptions made in evaluating the consequences of accidents described in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   This activity does not degrade the actual level of performance of the EFW system nor does it alter the capabilities of the equipment assumed in the accident analyses.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   This activity does not introduce new failure modes of essential equipment or in any way create a means of increasing offsite dose to the public.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   This activity does not introduce new accident initiators or vulnerabilities that have not been previously evaluated.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   This change to SAR text does not introduce new equipment failure mechanisms or effects.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

   The minimum flow requirement of 500 gpm for EFW is discussed in the basis section of T.S. 3.4. This is the minimum flow required to the steam generators taking into account a single failure, pump recirculation, seal leakage, and pump wear. Adequate flow from the installed equipment is verified through periodic testing required by T.S. 4.8. The SAR changes that comprise this activity in no way alter the margins assumed in the minimum flow requirement.

Certified Reviewer's Signature	Edward Blackard Printed Name	3/22/99 Date

Reviewer's certification expiration date: 3/22/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 4/27/99

This Document contains 5 Pages.

Document No. ER 963314N101 Rev./Change No. 0

Title ANO-1 MSIV UPGRADE

Brief description of proposed change:

This change upgrades the ANO-1 Main Steam Isolation Valves, CV-2691 and CV-2692, and adds 2" bypass lines around the isolation valves. The MSIV upgrades are performed to improve the seismic qualification of the valves, prevent mechanical failures, and improve maintainability. The bypass lines are being installed to prevent MSIV damage due to steam system perturbations caused by opening the MSIVs under significant DP. The bypass lines will provide better control for reducing DP across the MSIVs prior to their opening. In addition to the changes, temporary Main Steam system alterations will be performed under the NC to provide a means to maintain nitrogen pressure on the system while the MSIVs are out of service for the NC implementation.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. ER 963314N101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3): PAGE 4 REV. 0

The upgrade of the MSIVs and the addition of the bypass lines do not change the design bases of the MSIVs or the Main Steam system. The parts changed in the MSIV upgrade are equivalent replacement parts with minor changes to improve reliability and design margin. The new bypass lines installed by this NC do not add a new failure mode, and their intended use does not introduce a new operating mode, or introduce the potential to violate the Unit 1Technical Specifications or other Licensing Basis Documents. The failures that can be postulated for the new bypass lines are enveloped by existing accident analyses, such as the Main Steam Line Break, and critical cracks postulated to occur at any location on the Main Steam lines. The changes to the ANO-1 SAR will be minor in nature, initiated to document the MSIV bypass lines on various SAR figures, and to discuss their design basis. Other SAR changes are made to correct errors, and indicate the new location of the MSIV/ADV air accumulators, if moved. These changes do not significantly impact the LBDs or create an Unreviewed Safety Question. See the attached evaluation for the positive response regarding SAR changes.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ___. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: 50.59 Common and 50.59-Unit 1 Indexes searched using the following keyword searches: "Main Steam Isolation", "Main Steam Block", "MSIV", "CV-2691", "CV-2692", "High Energy Line", "HELB", "Containment Isolation", "Containment Closure", "EFIC", and "Decay Heat Removal"

MANUAL SECTIONS: 1SAR 1.4.50; 1.7.1.4; 10.3; 10.4; 10.5; 14.2; 14.5; 14.2.2.1.3; Table 5-1
Tech Specs: Section 3.4; Tables 4.1-1 & 4.1-2

FIGURES: A-1, A-6, 1-2, 1-10, & 7-22

Gerald Loftis — Gerald Loftis — 7/17/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 12/14/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Edward Paul Blackard — Edward Paul Blackard — 7/28/99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

PAGE 5 REV. 0

Document No. ER 963314N101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

FFN

Document No. ER-963314N101 Rev./Change No. 0 10CFR50.59 Eval. No. 99-063 (Assigned by PSC)

Title ANO-1 MSIV Upgrade

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Gerald Loftis
Certified Reviewer's Signature

Gerald Loftis
Printed Name

7/17/99
Date

Reviewer's certification expiration date: 12/14/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 9/2/99

Document No. ER 963314N101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

This evaluation was initiated by the positive response to the question regarding whether or not the change will result in information in the SAR being no longer true or accurate. The changes to the SAR are made to correct discrepancies, and to add information regarding the MSIV design bases and the new MSIV bypass lines. The first two items would not require the positive response to the question. The latter item relates to changes in the P&ID to show the new bypass lines, and to text added to section 10.3 of the SAR to discuss the MSIVs and the purpose of the bypass lines. Addition of the bypass lines raises no Unreviewed Safety Questions, as any failures or consequences that could be postulated due to their installation are enveloped by previously analyzed accidents.

Answers to the Safety Evaluation Questions:

1. The only associated accident is that for a break in a secondary coolant system (Main Steam) line. The piping analyses performed for this design change indicates no change in probability for a line break at any of the previously postulated break locations. The probability of a break in the new bypass lines is minimized by the fact that stress levels predicted by the piping qualifications for the bypass line welds are within code requirements for negating concerns with a break in the lines.
2. The consequences of previously analyzed accidents are not increased by this change. The consequences of previously postulated steam line breaks and critical cracks envelop breaks that could be postulated for the new MSIV bypass lines. If a break is postulated to occur in either of the new bypass lines, it would not cause failure of the other bypass line. Additionally, such a break would not result in a trip or safety system initiation, because such a break is within the make-up capability of the feedwater system. A break in the bypass lines would not result in unacceptable damage to other safety-related equipment, as demonstrated in calculation 85-D-1005-29 revision 2, initiated to address this change.
3. This NC does not increase the probability of a malfunction of equipment important to safety. To the contrary, this change will improve the reliability of the MSIVs by improving their seismic design margin. Also, addition of the new bypass lines will reduce the likelihood of MSIV failure due to stem separation and hydraulic system damage that could occur while opening the MSIVs with DP and thermal gradients across the valves. Addition of flexible hose connections to the MSIV air operators will decrease the likelihood of air piping failures which could cause tripping of an MSIV and subsequent challenges to safety-related equipment.
4. The consequences of a malfunction of safety-related equipment will not be increased by the modifications made by this NC. The malfunctions that can be postulated for the upgraded MSIVs and associated safety-related components will be the same as those that could have previously been postulated. This NC does not impact the consequences of those malfunctions, including dose rates on-site or to the public. Consequences of malfunctions that can be postulated for the new equipment are enveloped by malfunctions previously postulated for other existing components.
5. No new accident scenario can be postulated due to modifications made by this NC. Previously postulated high-energy line break scenarios are of the same nature as those that can be postulated for the new bypass and bonnet inspection lines. A break in the new lines would not constitute a new type of accident.
6. The modifications made by this NC do not create the possibility of a new type of malfunction of equipment important to safety. Safety-related items added by this NC are the MSIV bypass lines and inspection ports. These are passive pressure boundary items. Malfunctions of similar components have been previously evaluated and the results envelop malfunctions that could be postulated for these new items.
7. No safety margins related to the MSIVs are defined in the Technical Specifications. The only MSIV design margin implied by the Technical Specifications is related to the maximum allowed closing stroke time for the MSIVs. A limiting stroke time is specified in procedure OP-1102-001, Supplement 3 for testing the MSIVs. This procedure indicates the stroke test satisfies Tech Spec surveillance required per Table 4.1-2, item 13.b to demonstrate operability per Tech Spec 3.1.4.5. The present MSIV stroke time required to meet the Main Steam Line Break accident analyses is less than 9 seconds, as discussed in SAR section 14.5. This NC does not impact the present MSIV stroke time. The upgraded MSIVs have been specified and designed to meet this criterion, and the actual stroke time will be adjusted to be approximately the same as that exhibited by the current design.

This Document contains 6 Pages.

Document No. ER 963314N101 Rev./Change No. 02

Title ANO-1 MSIV UPGRADE

Brief description of proposed change:

This change upgrades the ANO-1 Main Steam Isolation Valves, CV-2691 and CV-2692, and adds 2" bypass lines around the isolation valves. The MSIV upgrades are performed to improve the seismic qualification of the valves, prevent mechanical failures, and improve maintainability. The bypass lines are being installed to prevent MSIV damage due to steam system perturbations caused by opening the MSIVs under significant DP. The bypass lines will provide better control for reducing DP across the MSIVs prior to their opening. To improve access to the MSIV room, Jib Crane L-10 will be removed and accumulator T-93-B will be moved. To improve Operations' control of the MSIV on-line exercise stroke, an exercise timer relay setting will be shortened to the minimum setting, thereby eliminating its effect on exercise stroke length. In addition to the changes, temporary Main Steam system alterations will be performed under the NC to provide a means to maintain nitrogen pressure on the system while the MSIVs are out of service for the NC implementation.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. ER 963314N101 Rev./Change No. ~~1~~2

Basis for Determination (Questions 1, 2, & 3):

The upgrade of the MSIVs and the addition of the bypass lines do not change the design bases of the MSIVs or the Main Steam system. The parts changed in the MSIV upgrade are equivalent replacement parts with minor changes to improve reliability and design margin. The new bypass lines installed by this NC do not add a new failure mode, and their intended use does not introduce a new operating mode, or introduce the potential to violate the Unit 1Technical Specifications or other Licensing Basis Documents. The failures that can be postulated for the new bypass lines are enveloped by existing accident analyses, such as the Main Steam Line Break, and critical cracks postulated to occur at any location on the Main Steam lines. Removal of Jib Crane L-10 from the MSIV room, relocation of the MSIV/ADV accumulator T-93~~A~~ #7 & 8, and changing the exercise relay timer setting likewise do not create any Unreviewed Safety Questions. The changes to the ANO-1 SAR will be minor in nature, initiated to document the MSIV bypass lines on various SAR figures, and to discuss their design basis. Other SAR changes are made to correct errors, and indicate the new location of the MSIV/ADV air accumulator~~s, if moved~~and remove the Jib Crane. These changes do not significantly impact the LBDs or create any Unreviewed Safety Questions. See the attached evaluation for the positive response regarding SAR changes.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ___ (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: 50.59 Common and 50.59-Unit 1 Indexes searched using the following keyword searches: "Main Steam Isolation", "Main Steam Block", "MSIV", "CV-2691", "CV-2692", "High Energy Line", "HELB", "Containment Isolation", "Containment Closure", "EFIC", "Crane", "L-10" and "Decay Heat Removal"

MANUAL SECTIONS: 1SAR 1.4.50; 1.7.1.4; 10.3; 10.4; 10.5; 14.2; 14.5; 14.2.2.1.3; Table 5-1, 7.1.4.12
Tech Specs: Section 3.4; Tables 4.1-1 & 4.1-2

FIGURES: A-1, A-6, 1-2, 1-10, & 7-22

Gerald Loftis — Gerald Loftis — ~~7/17/99~~9/28/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 12/14/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

~~Search~~ Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Edward Paul Blackard — Edward Paul Blackard — 10/1/99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER 963314N101 Rev./Change No. ~~0~~2

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 3

Document No. ER-963314N101 Rev./Change No. 02 10CFR50.59 Eval. No. FFN # 99-087 (Assigned by PSC)

Title ANO-1 MSIV Upgrade

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Gerald Loftis	Gerald Loftis	~~7/17/99~~9/28/99
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 12/14/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 10/2/99

10CFR50.59 Review Continuation Page

This evaluation was initiated by the positive response to the question regarding whether or not the change will result in information in the SAR being no longer true or accurate. The changes to the SAR are made to correct discrepancies, to show removal of the Jib Crane L-10 from the MSIV room as well as the new location of MSIV/ADV accumulator T-93B, to delete text regarding a relay timer that is no longer effective in controlling MSIV exercise stroke length, and to add information regarding the MSIV design bases and the new MSIV bypass lines. The first ~~two~~ items would not require the positive response to the question. The second item simply shows removal of the jib crane and relocation of the accumulator, and these changes do not impact any safety-related systems or equipment, and the SAR figure changes are insignificant. The third item deletes text that is inaccurate based on current testing procedures and the design of the testing circuit. Although the test circuit is modified under this NC by shortening a timing relay's actuation time, the text would be inaccurate without the modification, and the SAR change is essentially a correction. Because removal of the crane and deleting the SAR statement change a Licensing Basis Document, the 7 Safety Evaluation Questions were answered on the following page for these added changes. -The last~~ter~~ item relates to changes in the P&ID to show the new bypass lines, and to text added to section 10.3 of the SAR to discuss the MSIVs and the purpose of the bypass lines. Addition of the bypass lines raises no Unreviewed Safety Questions, as any failures or consequences that could be postulated due to their installation are enveloped by previously analyzed accidents.

Answers to the Safety Evaluation Questions: (For Revision 0 changes only)

1. The only associated accident is that for a break in a secondary coolant system (Main Steam) line. The piping analyses performed for this design change indicates no change in probability for a line break at any of the previously postulated break locations. The probability of a break in the new bypass lines is minimized by the fact that stress levels predicted by the piping qualifications for the bypass line welds are within code requirements for negating concerns with a break in the lines.
2. The consequences of previously analyzed accidents are not increased by this change. The consequences of previously postulated steam line breaks and critical cracks envelop breaks that could be postulated for the new MSIV bypass lines. If a break is postulated to occur in either of the new bypass lines, it would not cause failure of the other bypass line. Additionally, such a break would not result in a trip or safety system initiation, because such a break is within the make-up capability of the feedwater system. A break in the bypass lines would not result in unacceptable damage to other safety-related equipment, as demonstrated in calculation 85-D-1005-29 revision 2, initiated to address this change.
3. This NC does not increase the probability of a malfunction of equipment important to safety. To the contrary, this change will improve the reliability of the MSIVs by improving their seismic design margin. Also, addition of the new bypass lines will reduce the likelihood of MSIV failure due to stem separation and hydraulic system damage that could occur while opening the MSIVs with DP and thermal gradients across the valves. Addition of flexible hose connections to the MSIV air operators will decrease the likelihood of air piping failures which could cause tripping of an MSIV and subsequent challenges to safety-related equipment.
4. The consequences of a malfunction of safety-related equipment will not be increased by the modifications made by this NC. The malfunctions that can be postulated for the upgraded MSIVs and associated safety-related components will be the same as those that could have previously been postulated. This NC does not impact the consequences of those malfunctions, including dose rates on-site or to the public. Consequences of malfunctions that can be postulated for the new equipment are enveloped by malfunctions previously postulated for other existing components.
5. No new accident scenario can be postulated due to modifications made by this NC. Previously postulated high-energy line break scenarios are of the same nature as those that can be postulated for the new bypass and bonnet inspection lines. A break in the new lines would not constitute a new type of accident.
6. The modifications made by this NC do not create the possibility of a new type of malfunction of equipment important to safety. Safety-related items added by this NC are the MSIV bypass lines and inspection ports. These are passive pressure boundary items. Malfunctions of similar components have been previously evaluated and the results envelop malfunctions that could be postulated for these new items.
7. No safety margins related to the MSIVs are defined in the Technical Specifications. The only MSIV design margin implied by the Technical Specifications is related to the maximum allowed closing stroke time for the MSIVs. A limiting stroke time is specified in procedure OP-1102-001, Supplement 3 for testing the MSIVs. This procedure indicates the stroke test satisfies Tech Spec surveillance required per Table 4.1-2, item 13.b to demonstrate operability per Tech Spec 3.1.4.5. The present MSIV stroke time required to meet the Main Steam Line Break accident analyses is less than 9 seconds, as discussed in SAR section 14.5. This NC does not impact the present MSIV stroke time. The upgraded MSIVs have been specified and designed to meet

this criterion, and the actual stroke time will be adjusted to be approximately the same as that exhibited by the current design.

Document No. ER 963314N101 Rev./Change No. 2

Answers to the Safety Evaluation Questions: These answers are for Revision 1 of this Review, which removes Jib Crane L-10 from the MSIV room and converts its power supply to a service outlet. This revision also discusses changes to the MSIV exercise circuit timer and covers deletion of a SAR statement in section 7.1.4.12 that indicates the timer circuit limits MSIV exercise stroke length. This statement is no longer true.

1. There are no accidents discussed in the SAR or other LBDs which specifically discuss the Jib Crane, its power circuit, or the exercise stroke of the MSIVs. Neither the exercise circuit nor Jib Crane is considered safety-related.
2. No accidents related to the Jib Crane or exercising the MSIVs are discussed in the LBDs, and hence there are no impacts on the consequences of such an accident caused by removal of the crane or changing the exercise circuit timer setting.
3. Removal of the crane or changing the exercise circuit timer setting does not increase the probability of a malfunction of equipment important to safety. The timer setting change will improve the control of Operations over the stroke length of the MSIVs and therefore will decrease the potential for over-stroking the valves. As indicated by SER DPR-51 which addressed among other things exercising the MSIVs beyond 10%, the only concern with over-stroking during the exercise test is interference with Main Steam flow at high power. It was originally proposed that the MSIVs be stroked through 20% of the closure stroke during the exercise cycle. The timer's range has never been sufficient to allow it to control the exercise stroke, because this would require that the stroke be completed in 5 seconds, and such a rapid test stroke was undesirable. The test procedure was changed to decrease the vent rate for exercising the valve, thus slowing the overall exercise cycle. The timer was consequently not effective, and the two controlling aspects for the exercise cycle then became the length of time the test pushbutton was held down, and the exercise limit switch setting. This resulted in the SAR statement being somewhat misleading. The timer is introduced into the exercise circuit after the test pushbutton is released, and therefore causes a lag in the response of the exercise solenoid. Reducing this lag by changing the setting from 2 seconds to .5 seconds therefore improves the responsiveness of the MSIV exercise circuit to releasing the test pushbutton. This change therefore reduces the probability of over-stroking the MSIVs during the exercise test.
4. There is no impact on consequences of any previously analyzed malfunction caused by this change.
5. No new accident scenario can be postulated due to removal of the Jib Crane, addition of the non-safety-related power outlet, or changing of the MSIV exercise circuit timer's setting.
6. The modifications made by this NC do not create the possibility of a new type of malfunction of equipment important to safety. The jib crane, power circuit, and exercise timer are all non safety-related. Changing the exercise circuit timer to a minimum setting reduces the possibility of malfunction of the MSIVs during the exercise stroke.
7. No safety margins are impacted by the crane removal, changing its power circuit to a service outlet, or changing the MSIV exercise timer setting. Reducing the exercise timer setting will decrease the possible margin of stem over-travel, assuming the limit switch were to fail when the exercise button was held in until just before the 10% limit switch was reached, however, this is not considered a safety margin.

Document No. ER973806N101 Rev./Change No. 0

Title SERVICE WATER BAY STRAINERS

Brief description of proposed change:

The purpose of this change is to improve the reliability of Service Water System and to reduce maintenance costs in the service water bays. It adds new high capacity passive strainers upstream of the service water pumps, monitors Δp across the strainers, and provides access to the bottom of the SW bays for maintenance (See attached continuation page for further information).

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☒ No☐

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☒ No☐

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.7? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

Document No. ER973806N101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

See attached continuation page.

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☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	ALL U1 LBD's (SERVICE WATER SYSTEM, INTAKE STRUCTURE, LADDER, ACCESS, EGRESS, INGRESS, DARDANELLE, CIRCULAT* WATER, TRAVEL* SCREEN*, STRAINER*)
MANUAL SECTIONS:	1SAR sections 9.2.1, 9.3.1, 5.1.2 & 5.3.4; 1TS Sections 1.3, 3.3, & Bases 3.11 & Bases, 4.5 & Bases, 4.13 & Bases
FIGURES:	Fig. 9-6, -7, -8, -9, -10, 9-18, 9-19 & 9-20; Tab. 1-1, 1-2, 9-8, 9-11 & 14-43

James P. Hale — Certified Reviewer's Signature; James P. Hale — Printed Name; 11/17/97 — Date

Reviewer's certification expiration date: ~~6/28/98~~ 7/1/ØØ (JP 7/29/98)

Assistance provided by:

Printed Name	Scope of Assistance	Date
Gerald Storbakken	Operations and Testing requirements	11/17/97
David MacPhee	Mechanical/Hydraulic Design	11/17/97

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature; DAVID MACPHEE — Printed Name; 12/9/97 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

PAGE 6 REV. 0

Document No. ER973806N101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☒	☐	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. ER973806N101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

PAGE 7 REV. O

Basis for Determination:

Background/Scope:

Service Water Bay Strainers

In the ANO-1 intake structure, circulation water pump bays are located upstream of the service water (SW) bays. While bar grates and traveling water screens upstream of the circulating water canals are effective in keeping out excessive quantities of fish, twigs, leaves and adult clams and mussels; mussel veligers can pass through the traveling water screens and thus into the circulating water canals and service water bays. While SW bay biocide addition is effective in controlling these biota, biocide addition in the circulating water canals can only be done on an infrequent basis and has been demonstrated to be ineffective in controlling mussel growth. Coating of the bays has proved partly effective, but since the floor is not coated for safety reasons the mussels still proliferate in these areas.

During circulating water pump transients or other events, these collected mussels can break loose and be drawn into the service water bays, with subsequent intake by the service water strainers. Strainers can clog quickly with a surprisingly small amount of this debris. At present, the circulating water canals are cleaned on a six week cycle during the growing season to ensure the mussels do not reach a size which can cause strainer problems.

To address this problem of "prompt loading" a design has been created to serve as a large passive collection structure for such events, which will also serve as a backup to the traveling water screens if carryover events or traveling screen failure occur.

This modification installs enclosed screened structures (bay strainers) in the "A" and "C" service water bays which serve as secondary straining elements to the traveling water screens. These enclosures are provided with biocide injection and are accessible for cleaning and maintenance. Structures are constructed as Seismic Category I structures for II/I reasons and are designed for the differential pressures imposed during operation and transient conditions. Loading due to postulated debris buildup in the base area has also been considered.

Monitoring of delta P across the bay strainer is provided by a combination of new level instrumentation in the "B" and "C" circulating water canals and the existing SW bay level instrumentation. Differential level between these instruments will be monitored on the plant computer and trended. New circulating water canal level indication will also be provided and will serve as an inferred indication of Lake level and that also will indicate bar grate or traveling water screen trouble.

This safety analysis assumes that the current 6 week bay cleaning schedule during the growing season remains the same after installation of these modifications. Relaxation of this cleaning schedule should be predicated on operating experience gained after strainer installation.

Other changes include addition of ladders in the A and C bays from the intermediate platform to the floor and changes in biocide addition piping in the SW bays proper for ECP operation.

Access Ladders

PAGE 8 REV. Ø /

This change provides personnel with a permanent means ingress to and egress from the bottom Unit 1 Service water bays @ El. 322'6". It is being made to address a personnel safety concern.

Ingress and egress will be provided by the addition of S.S. rung ladders in each bay. The ladders will run from the bottom of the bays @ El 322'-6" to platforms @ El. 339'-6". They will be constructed from stainless steel materials per generic details shown on C-353. The ladders will be mounted on the concrete walls of the bays per standard anchor details.

Biocide Piping

A three way valve is added to both "A" and "C" bay distribution loops. It is capable of directing biocide to either 3 pipe header installed at the inlet to the new strainers for bay alignment to the circulating canal or to a diffuser in the service water bay when the bay is aligned with the ECP. The new biocide diffusers are capable of delivering the same quantity of biocide solution but with improved distribution characteristics. Hydraulic calculations were performed to size and locate the biocide piping in the flow path such that it will have minimal effect on Δp for the service water and fire pumps.

QUESTION 1

Design/Operational Requirements:

The Technical Specifications, Operating License, ~~nor~~ AND the Confirmatory Orders are silent regarding the new strainers and the ladders nor do they go into detail about them. 1TS section 4.5.2.1.2 states that biocide is added to the service water during the surveillance of the Reactor Building Cooling system, when the temperature is between 60°F and 80 °F. BA 12-10-97

Section 3.3.1 of 1TS requires two out of three service water pumps to be operable whenever containment integrity is established. Maintenance is allowed during power operation on any components in the service water system which will not remove more than one train of each system from service, provided components are demonstrated to be operable 24 hours before maintenance per Section 3.3.5 of 1TS. Section 3.3.6 requires the reactor shutdown be initiated and the reactor be in hot shutdown condition within 36 hours if the above criteria cannot be met.

Construction/Post Modification Testing/Operation:

The modification associated with this package will not alter the frequency or the requirements for biocide injection. The new injection system will improve the distribution capabilities which is an improvement as compared to the existing method. This is true because only one strainer/biocide modification will be installed and tested at a time and the "A" & "C" bays are physically separated.

During construction the service water bay in which the strainer and biocide piping modification is being performed will be isolated from Dardanelle Reservoir and the ECP and cannot have an effect on the remaining pumps. Two service water pumps will be available as required per Section 3.3.1 of 1TS. ~~During testing the swing pump P-4B will be used to fill the test bay and to produce adequate flow for testing the new strainer. If the pump is declared inoperable testing/maintenance can be completed within 24 hours as required by Section 3.3.5 or Section 3.3.6 of 1TS will be invoked.~~ JP 7/29/98

The addition of the new strainers and associated equipment does not change safety equipment function, operation or availability as described in the referenced sections of the Operating License documents. The modification will not invalidate, change or make untrue any requirements stated in these documents. Therefore, the proposed activity does not require a change to the Operating License documents.

QUESTION 2

No new or unanalyzed conditions are created by this modification. 1SAR, QAMO, E-Plan FHA, Bases of the 1TS and 1SER are silent regarding the new strainers and the ladders nor do they go into detail about them. The function of the new strainers are considered an extension of the traveling screen system, in that they provide additional straining capacity and effectiveness. They trap debris that bypass the traveling screen. The traveling screens are Non-Q and do not perform a safety related function. The new strainers have been sized for relatively low Δp even when debris accumulates, so that the operation of the service water pumps will not be affected. The strainer structure is designed to be highly redundant and have a much higher than required degree of structural integrity. The testing of the strainers is to demonstrate the preceding is true. The new strainers and improved biocide injection system functions to protect the existing safety related in-line strainers (F-6A, -B & -C) from clogging.

Note: The existing F-6A, -B & -C strainers are currently "Q" strainers. The safety related function of these strainers is not changed or altered by this modification.

Sections 5.1.2.1.1 & 5.3.4 of 1SAR states that portions of the intake structure housing the service water pumps are classified and designed as Seismic Class 1 structures. The strainers and ladders do not have a safety related function. However, they were designed and will be fabricated and mounted to Seismic Class I requirements, although they are passive structures and physically isolated from both the service water and fire water pumps.

In the Bases for 1TS Specification 3.3 it states that, one service water pump is required for normal operation. It further goes on to state that, the normal operating requirements are greater than the emergency requirements. The change associated with this package does not diminish this requirement. The physical separation of the service water pumps by independent bays and the ability to isolate bays with sluice gates precludes single failure (see single failure analysis in Table 9-11 1SAR) even in the unlikely event of catastrophic failure or complete blockage of the new Non-Q strainers.

1SAR Fig. 9-10 (P&ID M-209 sh. 1) has to be revised to maintain configuration control related to the addition of new strainers F-118A & C, new level instrumentation LITS-3601 & LITS-3602 and instrumentation modifications. The revision of the SAR figure will correct drawing figure inaccuracies caused by addition of equipment and correctly reflect plant configuration in the installed condition.

Based on the above discussion the SAR will be changed and an Evaluation is required.

QUESTION 3:

It does not invalidate any previously identified test nor does it postulate a condition that would invalidate a previously performed test. The strainers are designed for hydraulic transients encountered in normal operation such as sluice gate surveillance testing. However, as a good operating practice the test procedure restricts the sluice gates to manual operation to avoid hydraulic transients during the test phase. Existing operating procedure 1104.029 is used for pump alignment and for instructions for pump performance testing. The performance testing of the pumps before and after strainer, ladder and biocide piping installation does not introduce unanalyzed conditions.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3

This Document contains 4 Pages.

PAGE 10 REV. Ø/

Document No. 973806N101 Rev./Change No. 0 10CFR50.59 Eval. No. EFN-98-152 (Assigned by PSC)

Title Service Water Bay Strainers

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

James P. Hale	James P. Hale	11/17/97
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: ~~6/28/98~~ 7/1/99 (JP 7/29/98)

Assistance provided by:

Printed Name	Scope of Assistance	Date
Gerald Storbakken	Operation and Testing requirements	11/17/97
David MacPhee	Mechanical/Hydraulic Design	11/17/97

PSC review by: [signature] Date: 9/17/98

10CFR50.59 Review Continuation Page - Evaluation

Answers to Evaluation Questions:

1. The probability of an accident previously evaluated in the SAR will not be increased.

Service water serves a mitigating function for accidents. The changes described in the service bays do not affect the probability of initiation of any accidents described in the SAR.

2. The consequences of an accident previously evaluated in the SAR will not be increased.

Addition of bay strainers does not adversely affect the mitigating function of the Service Water System in the event of accident. The design adds minimal pressure drop and does not materially effect SW pump submergence and NPSH requirements. Potential failure modes during lake operation are no different than the effects of existing potential failures. This modification improves the probability that SW pipe strainers will not clog due to failure of non-seismic lake side structures and components. Thus no increase in offsite dose beyond that analyzed after an accident will occur and consequences will not be increased.

3. The probability of a malfunction of equipment important to safety will not be increased.

Loss of one of the bay strainer screens due to fouling or leakage is considered to be similar to the effects of a traveling water screen failure or bar grate blockage. If loss is due to blockage, transfer to the ECP source will restore pump operability. If a bay strainer leak develops, the service water strainer may clog. Strainer clogging can also occur under present conditions due to traveling screen failure or intake of circulating water bay debris. In this case, the other train would be available for service.

Total loss due to blockage is considered to be a very low probability event during normal operations. The strainer enclosure is very large and the design encourages settling of debris. Velocity across the screened surface is much less than 1 foot per second, thus any debris that would coat the screen would be very light and buoyant. The large screened area has a large capacity for debris and would thus take some time to clog completely. Monthly surveillance testing of the ECP sluice gates will provide a monthly back-flush of the bay strainer screens when the lake gate is opened after completion of the test.

The open area of the screens is ~ 15 times the area of the existing service water strainers. Moreover, velocity across the "Q" service water strainer element (F-6A, -B or -C) is very high while the bay strainer screen velocity is low. "Prompt loading" debris events which would clog the strainers are easily handled by the bay strainers. Moreover, while SW pipe strainer clogging could cause a loss of both Lake and ECP sources of water to a pump, clogging of a bay strainer would only take out the lake source for the affected pump. At present, loss of traveling water screen integrity could result in SW pipe strainer clogging and loss of service water to that train. This new design would capture that debris from traveling screen failure and allow continued pump operation on the lake or ECP.

Structural failure of a section of the bay strainer is possible. This can be compared to loss of a section of the traveling water screens and subsequent transport to the pumps. The traveling water screens are sized for 3/8" particles and are supported over a wider span than that used in the bay strainers. In the bay strainer, the sizing is 3/16" for the screens, and the screens are supported on both sides by bar grating, thus the metal density is higher and supporting spans are shorter. Due to the higher metal density and shorter spans, the bay strainer screening is inherently stronger than the traveling water screening. Moreover, the postulated loading and loading rate on the bay screens is lower than the traveling screens. Loss of screening from the bay strainers is thus considered very unlikely. Potential pump intake of the debris from such structural failure of traveling screens or bay screens is thus considered equally unlikely.

10CFR50.59 Review Continuation Page - Evaluation

Due to the conservative design for all postulated loadings, seismic qualification, selection of materials compatible with service water and passive nature; gross structural failure of the bay strainers is not considered credible.

The traveling water screens are subject to greater rates of loading due to the need to screen for both the service water pumps and the circulating water pumps. They are also required to be rotated and cleaned with a separate spray wash system to remain operable. With the requirements for rotation, total sealing of the moving surfaces against bypassing of debris is not possible. Excessive loading on the screens due to high debris loads in the lake can cause shearing of the screen belt rotator shaft and thus loss of cleaning. Failure of spray wash can cause debris carryover. Subsequent loading of the traveling screen buckets can create a differential water level and buckling of the screen. In contrast, the bay strainers are passive and designed for tight sealing. Active failure modes of the traveling water screens thus create a greater probability of failure or carryover than the passive design of the bay strainers.

Fouling of the bay strainer screens due to postulated events such as earthquake induced dislodging of mussels from the circulating water bays is no different in principle than loss of service water due to failure of the non-seismic traveling water screens or bar grate clogging from storm induced debris. The response would be the same; i.e. transfer to the alternate SW source and subsequent plant shutdown as required. The difference in the new design is the probability that SW pipe strainers would not clog during the transients is lessened, and this is considered a significant enhancement against the possibility of service water pump malfunction. Monitoring of circulating water bay and service water bay differential level provided in this modification allow for detection of fouling on a real time basis which can be trended and appropriate action taken as required. This data can be used to access cleaning frequency and provide a basis for possible extension of time between cleanings.

In conclusion, installation of bay strainers creates no new failure modes which could result in a loss of service water and does not increase the probability of those failures. The combination of the traveling water screens and the passive bay screen provide a higher level of protection overall against postulated service water pump malfunction due to strainer clogging or foreign debris uptake than the traveling water screens alone. Therefore, from an overall perspective, the probability of malfunction of equipment important to safety should be reduced by these modifications.

4. The consequences of malfunction of equipment important to safety will not be increased.

The safety functions of the service water systems are maintained or enhanced with this design change. There is no change in existing failure modes and no new credible failure modes are introduced. The consequences of malfunction remain unchanged. Previous accident analyses envelop this item - the dose consequences relating to the failure of the strainers would be no different than the previously evaluated dose consequences for the failure of the traveling screens.

The strainers and access ladders are passive in nature. None of the items added or modified by this change are classified as equipment important to safety. They are not interconnected with equipment important to safety and are physically separated from equipment important to safety. Therefore, this modification does not change any previous evaluations or increase the off-site dose consequences to the public, that could be caused by the malfunction function of equipment important to safety.

5. The possibility of an accident of a different type than any previously described in the SAR will not be created.

The service water system serves to mitigate accidents. This change will not adversely affect components and does not change function or failure mode of any component, system or structure in the Service Water System nor does it affect other systems. As previously noted, failures of the new screens are enveloped by consideration of the failure of the traveling water screens or existing strainers. Thus the possibility of a different type of accident will not be created.

6. The possibility of a malfunction of equipment important to safety of a different type than any previously evaluated will not be created.

PAGE 13 REV. O

Malfunctions that are currently possible include loss of service water due to pipe strainer clogging, loss of bay level due to blockage of intake water, damage to pumps due to foreign debris entry, or blockage of pump inlet bells by large debris. Bay strainers are passive and contain no moving parts. Gross failure of bay strainers is not considered credible. Debris large enough to block the bells can pass through the inlet tunnel. Thus, no new failure modes other than those already postulated are introduced by this change. Failure of the bay strainers will not cause a different type of malfunction than that already possible.

7. The margins of safety as defined in the bases for any technical specification will not be reduced.

Changes made to the service water bays are below the level of detail in Tech Spec bases, and margins are not based upon these changes. Thus, there is no clear reduction in the margin of safety defined in Tech Specs.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 3 Pages.

Document No. 974882N101 Rev./Change No. 0

Title ANO-1 VACUUM BREAKER/VENT VALVE MODIFICATION

Brief description of proposed change:

The vacuum breaker/relief valve (PSV-1412) is installed on the BWST to provide protection against over-pressurization of the tank or to provide protection against a vacuum during the tank drain-down operations. This valve was removed for maintenance and a modified FME cover was installed. This cover presently remains installed and the tank is operable with this cover.

This Nuclear Change calls for the replacement of the BWST Vacuum Breaker/Vent Valve (PSV-1412) with an FME cover (passive component). Implementation of this modification will provide additional assurance of adequate design features and design margins.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☒	No☐
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

Document No. 974882N101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

None of the documents listed under item 1, above contain any details discussing the scope of activities in this Nuclear Change. This change does not involve a test or experiment. An Environment Impact Checklist has been completed with no impact to the environment noted. This NC involves the processing of radioactive material outside the radiologically controlled facilities; ~~an RSE 92-021 is attached.~~ 7/22/99 This NC does not involve or impact the spent fuel Ventilated Storage Cask. None of the documents listed under item 7, above contain any details discussing the scope of activities in this NC.

Under item 2 above, only the SAR will be affected by this modification. Section 9.5.2 and Figure ~~6.2-17~~ 9-12 of the SAR will be impacted by this NC. Changes have been forwarded to Licensing as attachments to an LDCR. 8/7/98

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ___ (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	All (BWST relief line, BWST vacuum breaker, BWST drain, off site w/20 dose, tank leakage, tank drain, relief valve)
MANUAL SECTIONS:	SAR Section 9.5
FIGURES:	SAR Figure 9-12

Certified Reviewer's Signature	Printed Name	Date
Saif Khan	Saif U. Khan	7/28/98

Reviewer's certification expiration date: 6/5/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
Jerry W. Howell	Jerry W. Howell	10/1/98

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 974882N101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3

Document No. 974882N101 Rev./Change No. 0 10CFR50.59 Eval. No. FN 99-048 (Assigned by PSC)

Title ANO-1 BWST VACUUM BREAKER/VENT VALVE MODIFICATION

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The proposed change involves the replacement of PSV-1412 with a passive component (FME cover) to primarily remove the potential single failure prone component from the system. This component is not credited with initiating any of the accidents evaluated in the SAR. Replacing PSV-1412 with an FME cover will not create any new conditions that would increase the likelihood of the events which are credited with initiating an accident previously evaluated in the SAR.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

As mentioned above, the replacement of PSV-1412 with a passive FME cover will improve the reliability of the system. There are no accidents in the SAR associated with the BWST. Also, no accident consequence take credit for holdup or filtering of any releases to the BWST. The FME cover is, however, administratively controlled to ensure that the FME cover is replaced with a blind flange to divert any off gases to the charcoal filter on the overflow line. Therefore, there is no increase in the offsite dose consequences of any previously analyzed accident as a result of replacing PSV-1412 with an FME cover.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

Replacing PSV-1412 with an FME cover does not degrade the performance of the ECCS system. Use of a passive component instead of a single failure prone vacuum breaker/relief valve will improve the probability of BWST operation. Therefore, an FME cover does not increase the probability of a malfunction of equipment important to safety as a result of this Nuclear Change.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

There will be no change in the offsite radiation dose; i.e., consequences of a failure, associated with a plant's response to an accident as a result of replacing PSV-1412 with a passive FME cover. Also, no credit is taken in the malfunction analyses for holdup or filtering of any releases to the BWST. Therefore, the consequences of a malfunction of equipment important to safety will not be increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

There are no accidents in the SAR that address a loss of the BWST. Additionally, replacing PSV-1412 with a passive FME cover will not create an accident of a different type since no new failures are introduced due to this modification.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Replacing the vacuum breaker/relief valve with a passive FME cover does not introduce a malfunction that has not been previously evaluated. Since there are no credible BWST failures associated with modification, the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR will not be created.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

As a result of this change, the intended design function of the BWST as described in the bases of Technical Specification 3.3 will not be affected. Additionally, since the BWST parameters defined in the Technical Specifications will not be changed, the margin of safety as defined in the bases of the Technical Specifications will not be reduced.

Certified Reviewer's Signature	Saif U. Khan Printed Name	7/28/98 Date

Reviewer's certification expiration date: 6/5/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [illegible] Date: 7/22/99

This Document contains 5 Pages.

Document No. ER975018N101 Rev./Change No. 0

Title CV-1235 AND FI-1235 MODIFICATIONS

Brief description of proposed change:

As a result of Nuclear Industry problems with thermal fatigue cracking of HPI/Makeup nozzle, attached piping, and thermal sleeves, ANO-1 has initiated efforts to minimize flow variations through the "D" HPI nozzle. ER975018N101 will implement various changes to improve makeup flow control and to establish a controllable continuous bypass flow. The changes are summarized below.

This Nuclear Change package removes FI-1235 (continuous Makeup bypass flow), MU-33 (isolation for continuous MU bypass), and support MU-244H2. MU-32 will be removed and replaced with an improved control valve for continuous MU bypass flow. The internals of CV-1235 will also be replaced to improve flow control during all plant conditions. This is accomplished by changing the characterization of the valve internals and increasing the stroke from 1.5" to 2".

To obtain sufficient closure thrust for the new internals, a new piston actuator will also be installed in place of the existing diaphragm type. This component will be procured as L4, non-safety related. The new actuator will fail as-is upon a loss of IA and will have manual adjustment capability. In addition, the existing obsolete positioner will be replaced.

To further improve CV-1235 response, the Pressurizer level/makeup flow control loop in NNI-X will be modified to add a function generator module. This module will minimize flow variations when PZR level is near setpoint and apply the same controller response when setpoint varies more than 1%. NNI-X adjustments to fine tune the new valve response are also included.

Installation instructions, reference documentation, and other design/evaluation information are also included in the package.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. ER975018N101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

Question 1: The activities noted in this ER do not functionally alter any MU&P system feature or requirement. Pressurizer level controls makeup flow, continuous bypass flow remains, and there is still a method to identify the continuous bypass flow rate. As such, there are no TS, OL, or CO affected and Question 1 is answered NO.

Question 2: As a result of MU-33 and FI-1235 removal, SAR figure 9-3 will be required to be changed. As such, an Evaluation and LDCR is required for this Nuclear Change package. Otherwise, no SAR information is made untrue or inaccurate as this change affects equipment to a level of detail beyond that included in the SAR.

Question 3: The activities noted in this change are all well within the skill level of the craft as valve, actuator, and positioner maintenance is frequently performed at ANO via existing information. Some equipment was chosen based on craft input to minimize any learning curve associated with calibration or adjustments. The noted NNI tuning is nothing more than potentiomenter or switch adjustments and followup monitoring of plant parameters to determine valve response. The NNI-X function generator module addition is intended to improve flow control during stable power operation. Other similar devices are installed in NNI-X. Since there is every expectation that equipment will function properly as a result of these changes and that all work is well within the skill level of the craft and considered typical, these changes and adjustments do not involve a test or experiment not described in the SAR.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item #____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: Version 3 (CV-123*, LTOP, 10 w/10 minute*, Makeup flow, MU-3*, continuous bypass, manual bypass, FI-12*, low temperature over*, piston actuator, fail w/10 as*is, fail closed, loss w/5 instrument air, pneumatical*, level control w/5 pressur*, NNI, NNI w/10 calibrat*, NNI w/10 adjust*, safe shutdown w/50 makeup, makeup w/2 purification, Non-Nuclear Instrumentation, NNI w/10 pressur*, reactivity control)

MANUAL SECTIONS: SAR 9.1, 9.1.1, 9.1.2, 9.9, 6.1, 6.1.2.1.1, 6.1.3.1, 4.2.3.5, 7.3.2.2.3, Tables 6-4, 9-25, 9-26

FIGURES: 6-1, 6-2, 9-3

James J. Souto — James J. Souto — 5/27/99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 2/6/01

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Stephen J. Lynn	Stephen J. Lynn	6-16-99
Certified Reviewer's Signature	Printed Name	Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER975018N101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 1 Page.

Document No. ER975018N101 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-99-057 (Assigned by PSC)

Title CV-1235 and FI-1235 Modifications

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

With the noted equipment changes and adjustments, there are no HPI or MU&P system safety related features being adversely affected. While one can argue that the fail as-is actuator position represents a "change", there are now two (2) independently powered downstream isolation valves to limit or isolate flow through this path when required. The original ANO design had only one motor operated valve for isolation in this path and a downstream check valve inside containment. Document reviews indicate that the ANO-1 fail closed position was selected to prevent high inflow to the RCS and high outflow from the MUT due to a loss of IA. Conversely, Davis Besse-1 fails open on a loss of IA to maintain a flow path. Isolation is achieved by closing an in-series motor operated valve, exactly like the original ANO-1 design.

In the event of a loss of power to the original ANO-1 MOV, the only isolation valve besides the downstream check was from closure of CV-1235. The existing CV-1235 downstream isolation valves automatically close during an ES actuation or by the operator as required. When coupled with the new manual control capability of CV-1235, OPS now has exceptionally improved flexibility in mitigating transient conditions such as a loss of IA or other potential control signal or possible actuator tubing/equalizing valve/casing equipment problems.

LTOP issues were investigated in that a fail open position of CV-1235 is the basis for this condition. In combination with the maximum continuous bypass flow, the LTOP analysis still bounds these new conditions. In addition, over pressure protection is provided via the ERV.

The only accident possibly affected by these changes is the nominal or maximum moderator dilution event. With the available redundant design provisions to isolate MU flow and the new internals and bypass valve will not exceed the analysis results of 500 gpm at high differential pressure, there is NO increase in the probability of a moderator dilution accident as a result of these changes and adjustments.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

As noted in question 1, the only logical accident associated with these changes is the nominal or maximum moderator dilution event. Since the flows will be below the assumed maximum of 500 gpm, these changes are enveloped by the dilution event, which is subsequently enveloped within the maximum hypothetical accident doses. As such, there is no increase in the expected offsite radiation dose as a result of these change and adjustment activities.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The important to safety equipment associated with this package are CV-1235, MU-32, and associated piping in terms of their maintaining pressure boundary. None of this equipment is needed for safe shutdown conditions as HPI flows are credited for this purpose. Use of an L4 (commercial grade) actuator on CV-1235 does not reduce its pressure retaining capability as this equipment is mounted and connected to the valve stem outside the pressure boundary area. To minimize fit up issues, the new actuator is manufactured and designed for the existing valve body by the original manufacturer. With the use of appropriate materials & equipment for the pressure boundary parts in this specific application (i.e. ASME code material certifications), functional checks of equipment prior to turnover, and approved installation techniques/procedures, there is no perceived increase in the probability of a malfunction of equipment important to safety.

It should be pointed out that an assumed complete loss of the actuator function would not prevent reactivity control as a manual bypass line is available to obtain makeup flow. Any partial loss of CV-1235 control could be mitigated by manual control, a feature not presently available to the operators. ES response of the MU&P system is not affected by this change as this flow path is isolated post LOCA via CV-1233 or CV-1234.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

With the improved continuous bypass flow adjustment capability, added operator flexibility for manual control of CV-1235, and decreased valve stem motion due to normal Pressurizer level variations, there is an expected improvement in the reliability of CV-1235. More importantly, the life of the "D" cold HPI nozzle/thermal sleeve is expected to be increased due to the higher bypass flow and improved MU flow response.

The fail as-is actuator position actually improves conditions during a loss of IA as it maintains this path open (assuming a slow loss of IA pressure). With dual and redundant downstream isolation valves or manual control of CV-1235, the operator can still control MU flow or isolate this path and utilize HPI as required.

Based on these improvements, we can conclude there will be no reduction in the plant response to any accident and, as such, no increase in expected off site dose or the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

By virtue of the materials specified, code/seismic qualification analysis, and approved installation techniques, there are no expected mechanical pressure boundary failures of this new MU&P system equipment. Other mechanical equipment failures such as positioner or actuator failures are no more likely to happen than with the existing equipment. The new actuator is being supplied with a hand wheel to overcome some failures by allowing an operator to manually control MU flow. The operator has never had this option before except by using the manual bypass line globe valves and these are not suited for the full range of operating conditions expected.

Besides a pressure boundary failure, there are no specific SAR evaluated accidents or failures associated with this equipment. Based on system knowledge, LTOP is affected by CV-1235 flows but the SAR does not go into this level of detail. It does note that LTOP is mitigated by virtue of ERV operation. In the event an NNI-X failure occurs due to burn in or other electrical component failure, CV-1235 can be manually controlled faster and finer than before.

Based on the above, there are no accidents of a different type than any previously evaluated in the SAR that will be created as a result of this package.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

In consideration of the independent and redundant downstream isolation valves, manual control of CV-1235 when needed, and throttled flow capability through an HPI path, there is no reasonable malfunction of equipment important to safety that cannot be mitigated through those mechanisms previously noted. Other failures that result in valve lock up would have to be mitigated by using the manual bypass line, i.e. MU-1235-3, which is the identical response for the existing equipment to any type of failure including a loss of IA. Based on this, there is no reasonable malfunction of equipment important to safety created as a result of these changes.

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7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

There were no TS bases found that reference margins for makeup flow or continuous bypass flow for the keyword and hardcopy searches performed. While HPI flows are referenced, the values noted are unchanged as the flow path is different for injection. As such, there will be no reductions in any TS bases for the changes and adjustments noted in this package.

Certified Reviewer's Signature	Printed Name	Date
James J. Souto	James J. Souto	5/27/99

Reviewer's certification expiration date: 2/6/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 8/12/99

This Document contains 1 Page.

Document No. ER 981005N101 Rev./Change No. 0

Title ANO-1 T-16 FILTER INSTALLATION

Brief description of proposed change:

This modification will install a filter assembly in line HSD-6-2" that discharges clean liquid radwaste to the circulating water system flume. This filter assembly will be provided by Diversified Technologies Services (DTS), which is the vendor that now processes liquid radwaste for Unit 1 and Unit 2 via the "Duratek Filter Skids". A similar filter is used on these skids and has performed satisfactorily. The filter will consist of a flanged assembly with inlet and outlet pressure gages, inlet and outlet backwash valves, clear polycarbonate body for visual inspection, and a backwashable stainless steel 0.007-inch size mesh filter screen. The filter will be able to trap resin and resin fines from the flow stream allowing the release of treated clean liquid radwaste water to the environment as designed. The design of the filter assembly is such that eventual blockage of the filter screen can be backwashed with hoses using demineralized water. The clear filter body and the inlet and outlet pressure gages will allow easy inspection of the filter. Additionally, a sample valve with a collection sink will be added downstream of the filter to allow Chemistry personnel to assess the performance of the filter.

The manner in which liquid wastes from the station are disposed of will not be affected by this change. The installation of a strainer spool piece in piping from the clean liquid radwaste system to the Circ. Water flume discharge line will not increase the amounts, nor will it change the types, of effluents that may be released offsite.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. ER 981005N101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1. Installation of an inline strainer spool piece in the Circ. Water discharge line is beyond the level of detail contained in the Operating License documents. As a result, this modification **will not** require a change to the Operating License documents.
2. This change **will** result in information in the Unit 1 SAR being no longer true or accurate. This modification affects Figure 11-1 and Table 11.18. As a result, a safety evaluation will be performed.
3. This modification does not involve a test or experiment. Consequently, this change **does not involve** a test or experiment not described in the SAR.
4. **No impact** to the environment. See page 3 of this determination.
5. The proposed modification does not involve the processing of radioactive material outside the Aux. Building, Reactor Building, or Low Level Radwaste Storage Building nor does it create a new pathway outside of the monitored drainage pathways. As such, this modification **does not require** a Radiological Safety Evaluation.
6. This modification **does not impact** any equipment or facilities utilized for VSC activities.
7. This modification is **beyond the scope** of the QAMO and the site E-Plan.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section	
LRS: 50.59 - Unit 1	ALL	(liquid w/10 waste, liquid w/15 discharge, circula* w/10 dischar*, treat* w/8 waste, radiolog* w/8 effluen*, discharge w/8 stru*)

MANUAL SECTIONS: SAR - 11.1.2.4; 11.1.3.1.1; 9.3.2.3; Table 11.18, Tech. Specs - 3.25.1, 3.25.2, 6.14 - ODCM

FIGURES: SAR - 11-1 and 9-10

Renee Millison — Renee Millison — 11/24/98
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 2/20/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Stephen J. Lynn — Stephen J. Lynn — 12/7/98
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER 981005N101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 2 Pages.

Document No. ER 981005 N101 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-98-156 (Assigned by PSC)

Title ANO-1 T-16 Filter Installation

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature | Renee Millison (Printed Name) | 11/27/98 (Date)

Reviewer's certification expiration date: 2/20/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 12/8/98

Document No. ER 981005 N101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. Installation of an inline strainer spool piece into the Circ. Water discharge line, upstream of radiation monitor RE-4642, will not cause nor affect any of the accidents evaluated in the SAR. Consequently, installation of this modification **will not increase the probability** of an accident previously evaluated in the SAR.

2. Installation of an inline strainer spool piece into the Circ. Water discharge line, upstream of radiation monitor RE-4642, will not alter the radiation dose consequences of any accident evaluated in the SAR. As such, this change **will not increase the consequences** of an accident previously evaluated in the SAR.

3. The inline strainer spool piece will be installed in piping class HSD piping, upstream of radiation monitor RE-4642. Installation of this modification will not impact any important-to-safety equipment nor will it result in a Seismic II over I situation. Consequently, implementation of this change **will not increase the probability** of a malfunction of equipment important-to-safety.

4. Assuming a malfunction of equipment important to safety, this modification will have no affect on the radiological release consequences of that malfunction. Installing an inline strainer spool piece in the clean liquid radwaste to Circ. Water discharge line will not impact the failure mode of any important-to-safety equipment. The strainer is being installed upstream of radiation monitor, RE-4642. Operation of this radiation monitor will not be altered or affected by this modification. Radiation monitoring interlocks will still automatically terminate a liquid waste discharge if radiation levels are above predetermined levels in the discharge line. Accordingly, this modification **will not increase the consequences** of a malfunction of equipment important to safety.

5. Accident conditions and circumstances different from those considered by previous SAR analyses will not be created by the installation of this modification. The strainer spool piece will be installed in the Unit 1 Auxiliary Building. Should the spool piece fail, resulting in the escape of clean liquid radwaste, the release could be terminated via several different actions including closing an isolation valve upstream of the spool piece or stopping the treated waste monitor pump providing the motive force for the release. Any accidental releases would be contained within the Auxiliary Building and returned to the liquid radwaste system via the Aux. Building drain system. As such, installation of this modification **will not create** the possibility of an accident of a different type than any previously evaluated in the SAR.

6. Installation of this modification will not impact any important-to-safety equipment. Installation also will not result in a Seismic II over I situation. Therefore, installation of this modification will not create a malfunction of important to safety equipment. Thus, installation of this modification **will not create the possibility** of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR.

7. There are no margins of safety defined in the Technical Specification bases concerning or impacted by the installation of this modification. This change does not involve a margin of safety as defined in the Technical Specification bases. Consequently, this change **will not reduce** a margin of safety as defined in the basis for any technical specification.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

This Document contains 3 Pages.

Document No. 981005N102 Rev./Change No. 0

Title ANO-1 F-560 Bypass Modification

Brief description of proposed change:

This modification will install a section of bypass piping around filter F-560 in line HSD-6-2" that discharges clean liquid radwaste to the circulating water system flume. This bypass piping will include new isolation valve CZ-83. One standard type pipe support will be added. Filter F-560, which was added per nuclear change 981005N101, is designed to collect resin and resin fines from the flow stream allowing the release of treated clean liquid radwaste water to the environment. However, the fine mesh needed for resin filtering tends to clog with other wastes such as laundry wastes, which requires frequent backwashing and maintenance. The bypass will allow processing of non-resin containing flow as originally designed prior to the F-560 installation.

The manner in which liquid wastes from the station are disposed of will not be affected by this change. The installation of the bypass piping around F-560 will not increase the amounts, nor will it change the types, of effluents that may be released offsite. The entire section of bypass piping is located upstream of radiation monitor RE-4642, so no monitoring requirements are affected.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. 981005N102 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1. Installation of the bypass piping around filter F-560 in the Circ. Water discharge line is beyond the level of detail contained in the Operating License documents. As a result, this modification **will not** require a change to the Operating License documents.
2. This change **will** result in information in the Unit 1 SAR being no longer true or accurate. This modification affects Figure 11-1 which is the system P&ID. The bypass piping and new valve CZ-83 will need to be shown in this drawing. As a result, a safety evaluation will be performed.
3. This modification does not involve a test or experiment. Consequently, this change **does not involve** a test or experiment not described in the SAR.
4. **No impact** to the environment. See page 3 of this determination.
5. The proposed modification does not involve the processing of radioactive material outside the Aux. Building, Reactor Building, or Low Level Radwaste Storage Building nor does it create a new pathway outside of the monitored drainage pathways. As such, this modification **does not require** a Radiological Safety Evaluation.
6. This modification **does not impact** any equipment or facilities utilized for VSC activities.
7. This modification is **beyond the scope** of the QAMO and the site E-Plan.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section	
LRS: 50.59 - Unit 1	ALL	(liquid w/10 waste, liquid w/15 discharge, circula* w/10 dischar*, treat* w/8 waste, radiolog* w/8 effluen*, discharge w/8 stru*)
MANUAL SECTIONS:	SAR - 11.1.2.4; 11.1.3.1.1; 9.3.2.3; Table 11.18, Tech. Specs - 3.25.1, 3.25.2, 6.14 - ODCM	
FIGURES:	SAR - 11-1	

Stephen J. Lynn — Certified Reviewer's Signature; Stephen J. Lynn — Printed Name; 5/4/1999 — Date

Reviewer's certification expiration date: 6/03/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Renee Millison — Certified Reviewer's Signature; Renee Millison — Printed Name; 5/12/99 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 981005N102 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 2 Pages.

Document No. 981005N102 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-99-060 (Assigned by PSC)

Title ANO-1 F-560 Bypass Modification

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Stephen J. Lynn
Certified Reviewer's Signature

Stephen J. Lynn
Printed Name

5/4/1999
Date

Reviewer's certification expiration date: 6/3/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: James McWilliams Date: 5-27-99

Document No. 981005 N102 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. Since F-560 is not needed for all clean liquid waste releases, the new bypass essentially returns a unfiltered flow path that existed prior to the F-560 installation. Installation of bypass piping around filter F-560 in the Circ. Water discharge line, upstream of radiation monitor RE-4642, will not cause nor affect any of the accidents evaluated in the SAR. Consequently, installation of this modification **will not increase the probability** of an accident previously evaluated in the SAR.

2. Installation of F-560 bypass piping in the Circ. Water discharge line will not alter the radiation dose consequences of any accident evaluated in the SAR. The entire section of bypass piping will be installed upstream of radiation monitor RE-4642, so monitoring requirements and automatic isolation capabilities are maintained. No new pathways are created for the release of radioactive waste since the release point for the waste discharges is unchanged. As such, this change **will not increase the consequences** of an accident previously evaluated in the SAR.

3. The new bypass piping around F-560 including new isolation valve CZ-83 is non-safety related and Seismic Class II. The piping will be installed in class HSD piping, upstream of radiation monitor RE-4642. Installation of this modification will not impact any important-to-safety equipment nor will it result in a Seismic II over I situation. Consequently, implementation of this change **will not increase the probability** of a malfunction of equipment important-to-safety.

4. Assuming a malfunction of equipment important to safety, this modification will have no affect on the radiological release consequences of that malfunction. Installing the F-560 bypass piping in the clean liquid radwaste to Circ. Water discharge line will not impact the failure mode of any important-to-safety equipment. The piping is being installed upstream of radiation monitor, RE-4642. Operation of this radiation monitor will not be altered or affected by this modification. Radiation monitoring interlocks will still automatically terminate a liquid waste discharge if radiation levels are above predetermined levels in the discharge line. Accordingly, this modification **will not increase the consequences** of a malfunction of equipment important to safety.

5. Accident conditions and circumstances different from those considered by previous SAR analyses will not be created by the installation of this modification. The bypass piping will be installed in the Unit 1 Auxiliary Building and will provide a flow path similar to the path that existed prior to the F-560 installation. Should the bypass piping fail, resulting in the escape of clean liquid radwaste, the release could be terminated via several different actions including closing an isolation valve(s) upstream of the bypass or stopping the treated waste monitor pump providing the motive force for the release. Any accidental releases would be contained within the Auxiliary Building and returned to the liquid radwaste system via the Aux. Building drain system. As such, installation of this modification **will not create** the possibility of an accident of a different type than any previously evaluated in the SAR.

6. Installation of this modification will not impact any important-to-safety equipment. Installation also will not result in a Seismic II over I situation. Therefore, installation of this modification will not create a malfunction of important to safety equipment. Thus, installation of this modification **will not create the possibility** of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR.

7. There are no margins of safety defined in the Technical Specification bases concerning or impacted by the installation of this modification. This change does not involve a margin of safety as defined in the Technical Specification bases. Consequently, this change **will not reduce** a margin of safety as defined in the basis for any technical specification.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

This Document contains 3 Pages.

Document No. 981029N101 Rev./Change No. 0

Title ANO-1R15 Remove MS-1051A E-24B Vent Valve and Cap

Brief description of proposed change:

Main Steam vent valve MS-1051A developed seat leakage at the end of 1R14. The steam leak could only be isolated by closing the root isolation valve, MS-1051, to level transmitter LT-2601 which rendered a portion of the steam generator level instrumentation out of service. Valve MS-1051A is normally isolated and is not used for any venting operation or other evolution. Valve MS-1051A will be removed and a welded cap installed in its place to eliminate the steam leakage for this inaccessible and unused valve located in the reactor building.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. 981029N101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

This nuclear change will remove vent valve MS-1051A and install a welded pipe cap in its place. This valve developed a steam leak at the end of 1R14 making it necessary to isolate the leak with valve MS-1051. By closing MS-1051, steam generator full range level instrumentation is not available for E-24B. Valve MS-1051A has no apparent function for venting, calibration of instruments, nor main steam safety valve testing. It is believed that this valve was used in the original hydrostatic test of the Main Steam System.

Question 1
This change will not require a change to any Operating License documents. The level of detail in these documents is not sufficient to address the existence or function of vent valve MS-1051A.
Question 2
This change will not result in information in the SAR documents being no longer true or accurate nor will it violate a requirement stated in the documents with the exception of SAR Figure 7-22. This figure which is the system P&ID for the secondary system will be revised to show the new configuration.
Question 3
This modification does not involve any tests or experiments not described in the SAR. The only test associated with this modification is a welding examinations which is performed in accordance with approved procedures or instructions.

4-16-99

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS: ZyFind	Unit 1 NSE, SER, SAR, TS & Bases, Tech Req Manual, COLR, Confirm. Orders and LFOs, QAM, Eplan, (MS-105*, steam w/10 vent, gener* w/10 vent, LT-2601, steam w/10 hydro*)
MANUAL SECTIONS:	Unit 1 SAR 4.2.2.2, 14.2.2.1, 14.2.2
FIGURES:	Unit 1 SAR Figure 7-22 + 4-5

Stephen J. Lynn — Stephen J. Lynn — 4-14-99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 06/03/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Kenneth R Hayes — Kenneth R Hayes — 4/16/99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. 981029N101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 2 Pages.

Document No. 981029N101 Rev./Change No. 0 10CFR50.59 Eval. No. 99-6 (Assigned by PSC)

Title ANO-1R15 Remove MS-1051A E-24B Vent Valve and Cap

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Stephen J. Lynn — Certified Reviewer's Signature
Stephen J. Lynn — Printed Name
4-14-99 — Date

Reviewer's certification expiration date: 6/3/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [illegible] Date: 5/3/99

Document No. 981029N101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. The replacement of vent valve MS-1051A with a welded cap will not increase the probability of an accident previously evaluated in the SAR. This modification will remove an unused valve which is a known steam leak path. The welded cap will provide improved main steam pressure boundary integrity. The main steam line failure analyzed in Chapter 14 of the Unit 1 SAR involves large diameter piping 24 to 36 inches. The piping associated with this modification is only ½ inch, so the analyzed accident is bounding. The steam generator tube failure accident analyzed in Chapter 14 whereby reactor coolant is released to the main steam system and eventually to the environment can not be initiated by this modification.

2. This modification will not increase the consequences associated with the main steam line failure evaluated in the SAR. The main steam break described in Chapter 14 of the SAR involves far greater diameter piping than this change, and the results of that analysis showed that the offsite dose is several orders of magnitudes below the guideline value of 10CFR100.

3. The replacement of normally closed manual globe valve MS-1051A with a welded cap will not increase the probability of a malfunction of equipment important to safety. The safety related function of this valve is secondary heat removal since it forms part of the pressure boundary of the main steam header system inside the reactor building. The valve is not used for any other purpose such as venting or as a test connection, and its removal will not affect any other safety-related components. By installing the welded cap in accordance with piping class requirements, pressure boundary integrity is assured and a known leak path is removed.

4. The removal of valve MS-1051A and its replacement with a welded cap will not cause the offsite dose consequences to be increased due to malfunctions of equipment important to safety. Since valve MS-1051A is a known leak path, its removal and subsequent replacement with a welded cap will improve main steam system pressure boundary integrity.

5. This modification will not create the possibility of an accident of a different type than previously evaluated in the SAR. Since valve MS-1051A is not used for any function, does not interact with any other components, and is maintained in the normally closed position, the only concern is maintaining the pressure boundary of the system. Pressure boundary is assured by providing the welded cap in accordance with piping class requirements.

6. This modification will not create the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR. The only malfunction that could be associated with this modification is loss of pressure boundary integrity, which is satisfied by designing to the piping class requirements. No other equipment will be affected by this change.

7. There are no margins of safety related to valve MS-1051A discussed in the basis of any technical specification. Margins of safety related to main steam safety valves, main steam isolation valves, and steam generator tube leakage are not impacted in any way by this modification.

Document No. 991812N101 Rev./Change No. 0 Page 7

Title **Upgrade the admin bldg chiller, VCH-3 and associated controls.**

Brief description of proposed change:

See attached continuation page.

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☒

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☒ No☐

   Core Operating Limits Report? Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

Document No. 991812N101 Rev./Change No. 0 Page 8

Basis for Determination (Questions 1, 2, & 3):

See attached continuation page.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section	
LRS	50.59 Unit 1	Search criteria was xyz?123 or xzy-123 or xyz123 or xzy*123 or "xyz-123" for the following components (VCH-3, VCH-9, VHC-9, VSF-13, E-164, E-165 VP-3, HVAC, B1, B11, B16, and CV-5820) Additionally searched ACW, admin* w/2 build*, plant heat*, non-vital w/10 power, and MCC)

MANUAL SECTIONS: Table of Contents, Chapters 1, 5, 7, 9, and 11 and Table 1-5 of the Unit 1 SAR

FIGURES: All figures in Chapters 1, 5, 7, 9 & 11 of the Unit 1 SAR

W G Donovan — W. G. Donovan — 8-30-99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 10/05/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
Dale H. Smith DHS	Performed EIC search of LRS	8/19/99

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Bruce Franklin — BRUCE FRANKLIN — 8/31/99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 991812N101 Rev./Change No. 0 Page 9

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Review Continuation Page

Brief description of proposed change: Continued

NC 991812N101 replaces the Old Administration Building chiller unit with an air cooled condensing unit. Deletion of the chilled water system eliminates the need for the cooling water supplied from the Unit 1 Auxiliary Cooling Water (ACW) system. Additionally, a compressed air system, solely installed for the operation and control of the Old Administration Building HVAC system both cooling water and hot water heating sides, will be removed entirely since the new Direct Digital Controllers (DDC) on the new equipment and ventilation dampers and connecting I&C will not require this system. A single pneumatic control valve, CV-5820, on the hot water heating side of this HVAC system will also be replaced by a DDC. Along with replacement of the chiller unit, the electrical power supply for the Old Administration Building Unit 1 B-16 Motor Control Center (MCC) will be removed from bus B1 and MCC B11 and placed on the 480 VAC Power Center, to be labeled B8, located about 30 feet east of the southeast corner of the Unit 1 Turbine Building. The MCC B16 will then be re-labeled MCC B80.

This 10CFR50.59 Determination is for the mechanical and electrical portion of this modification package. The electrical and I&C department has provided input for their portion of this package.

Due to the above changes some Unit 1 SAR figures are affected, thus, a 10CFR50.59 Safety Evaluation and LDCR will be required. Specifically, for the mechanical portion of this modification package, ANO P&ID M-211 sheet 1, revision 77, the Auxiliary Cooling Water system P&ID, Unit 1 SAR Figure 9.9, will be revised to show both the supply and return piping, going to the removed VCH-3 unit, capped off and abandoned in place. For the electrical portion, SAR Figure 8-1 will be revised to reflect removal of MCC B16 from MCC B11 and the B1 bus.

10CFR50.59 Review Continuation Page

Question 1 :

A review of the Technical Specifications, Operating License and Confirmatory Orders, using LRS and a HARD copy of these documents, did not uncover anything that would be affected by removal of the Old Administration Building chiller, the subsequent installation of a new air cooled condensing unit, or relocating the power feed to MCC B16 (MCC B80). The removal of the chiller unit will include all associated piping and mechanical systems. This modification package will completely isolate the Old Administration Building HVAC system from all Unit 1 or Unit 2 systems, except for the heating side of the HVAC unit which is not being affected by this change package other than changing out a pneumatically controlled valve for a direct digital control valve controlled from the new control system added by the new AC equipment. The heating side of the HVAC system is connected to the Unit 1 Plant Heating system.

Question 2 :

A review of all the documents listed in question number 2 was performed using LRS and a HARD copy of the Unit 1 SAR. This review did not uncover any sections in these documents that would be affected by the removal of the Old Administration Building chiller, the subsequent installation of a new air cooled condensing unit, and relocation of the power feed to MCC B16, except for SAR Figure 9-9 which is a copy of the Unit 1 Auxiliary Cooling Water system P&ID, M-211 sheet 1, revision 77 and SAR Figure 8-1 which is a copy of the Unit 1 Station Single Line Diagram, E-1 sheet 1, revision 41. On P&ID M-211 the supply and return lines going to the chiller unit are now shown with the valves in the normally closed position and the ends of the pipes capped off. On drawing E-1, the MCC B16 is removed from the MCC B11. A 10CFR50.59 Safety Evaluation and LDCR is required to be performed based on the above and is contained in NC 991812N101.

Document No. 991812N101 Rev./Change No. 0 Page 12

10CFR50.59 Review Continuation Page

The removal of the chiller unit will include modification of all associated piping and mechanical systems associated with this chiller, such as the Old Administration Building compressed air system specifically installed to supply air for the HVAC system controls. The basic function of the Old Administration Building HVAC system and its associated components remains unchanged by this modification package. Additionally, the removal of this load from the Unit 1 ACW system will slightly increase the capacity of this system as will the removal of the MCC B16 load from the MCC B11. No detectors, radiation, smoke, etc., are being removed, modified or installed based on this modification package.

Question 3 :

The removal of the Old Administration Building chiller, the subsequent installation of a new air cooled condensing unit, or the relocation of the power feed to MCC B16 (MCC B80) will not involve a test or experiment not already discussed in the SAR. This system is non-nuclear and non Safety-Related, and will now be completely isolated from any Unit 1 or Unit 2 piping or mechanical systems, except for the Plant Heating system. Relocation of the power feed removes load from the B1 bus and MCC B11.

Question 4 :

All answers to the Environmental Impact Determination were NO. See form.

Question 5 :

All work associated with modification package NC 991812N101 is outside of all Radiologically Controlled areas. No radiological system is being worked on by this package. Therefore, a Radiological Safety Evaluation is not required.

Document No. 991812N101 Rev./Change No. 0 Page 13

10CFR50.59 Review Continuation Page

Question 6 :

The removal of the Old Administration Building chiller, the subsequent installation of a new air cooled condensing unit, or the relocation of the power feed to MCC B16 (MCC B80) will not have any impact on any Ventilated Storage Cask activities.

Question 7 :

Modification package NC 991812N101 will not have any impact on the QAMO or E-Plan.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

FFN 99-066

Document No. 991812N101 Rev./Change No. 0 10CFR50.59 Eval. No. 14 (Assigned by PSC)

Title Upgrade the admin bldg chiller, VCH-3 and associated controls.

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature	Printed Name	Date
[signature]	W. G. Donovan	8-30-99

Reviewer's certification expiration date: 10 / 5 / 2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
Dale H. Smith DHS	Provided electrical input	8/19/99

PSC review by: [signature] Date: 9/2/99

10CFR50.59 Review Continuation Page

Background:

NC 991812N101 replaces the Old Administration Building chiller unit with an air cooled condensing unit. Elimination of the chilled water system also eliminates the need for the cooling water supplied from the Unit 1 Auxiliary Cooling Water (ACW) system, which is out of service whenever Unit 1 Service Water System Loop 1 is out of service or whenever an ES actuation occurs, reference Unit 1 SAR 9.3.1.B. Additionally, a compressed air system, solely installed for the operation and control of the Old Administration Building HVAC system both cooling water and steam heating sides, will be removed entirely since the new direct digital controllers (DDC) on the new equipment, existing ventilation dampers and connecting I&C will not require this system. The single pneumatic control valve on the steam heating side of this HVAC system will also be replaced by a DDC. ANO P&ID M-211 sheet 1, revision 77, shows the Auxiliary Cooling Water system connecting to chiller VCH-3. The ACW P&ID M-211 Sheet 1 will be revised to show both the supply and return piping going to the removed chiller as now being capped off and abandoned in place. However, a LDCR will also be required since this P&ID is a SAR figure, fig. 9.9. Thus, a LDCR is initiated via this package.

Additionally, electrical and I&C changes are required since this package is removing the electrical power needs for the Old Administration Building off the Unit 1 Turbine Building power supply and placing it on an independent power supply. This package changes the power feed to the MCC B16 from the B1 bus, via MCC B11, to an off site source (B8) fed from the London Substation. This existing 480 VAC power center will become permanent and labeled B8. This change is made to non-Q power sources and will eliminate the need to perform temporary modifications when the B1 bus is taken out of service for maintenance. The London Substation is used to provide power to many of the buildings on site and is a reliable power source. Loads on MCC B16 are within the 1st and 2nd floors of the Old Administration Building (AB) and consist of the HVAC system, lighting and receptacle power. Since the power feed for MCC B16 is being relocated to B8, MCC B16 will be re-tagged B80. Failure of MCC B80 (B16) has no impact on the operation of the plant. The I&C controls for the HVAC system will be changed from pneumatic to digital. This will ensure more efficient operation of the system. The Technical Support Center (TSC) located in the new administration building and all of the security controls for the new administration building are not affected by this modification package.

10CFR50.59 Review Continuation Page

The following is the response to each of the seven questions identified on the first page of this 10CFR50.59 Safety Evaluation.

1) The removal of the Old Administration Building chiller unit, associated piping and controls, and replacement with a new air-cooled condensing unit with a new off-site power feed to MCC B80 (B16), will not increase or decrease the probability of an accident previously evaluated in the SAR. This modification will essentially completely isolate the Old Administration Building HVAC system from all Unit 1 or Unit 2 systems, except for the Plant Heating system. The ACW system connection will be isolated and abandoned in place. Removal of this load on the ACW system will slightly increase the amount of available cooling water for other system needs. The replacement of a single pneumatic control valve on the Plant Heating system which supplies hot water to the heating side of the HVAC unit with a new Direct Digital Control (DDC) valve will also not affect the function of this system. Both the Plant Heating system and the ACW system are non-nuclear and non Safety-Related.

2) The consequences of an accident previously evaluated in the SAR will not be affected by implementation of this change package. As noted above, this modification will essentially completely isolate the Old Administration Building HVAC system from all Unit 1 or Unit 2 systems, except for the Plant Heating system which is a non-nuclear and non Safety-Related system.

3) This modification does not involve any Safety-Related or "Q" portions of any system. The Old Administration Building HVAC system is not used to prevent or mitigate any analyzed accident described in the SAR. Therefore, the probability of a malfunction of equipment important to safety will not be increase or decreased due to this modification package.

4) The consequences of a malfunction of equipment important to safety will not be increased. As noted above, this modification will essentially completely isolate the Old Administration Building HVAC system from all Unit 1 or Unit 2 systems, except for the Plant Heating system which is a non-nuclear and non Safety-Related system.

10CFR50.59 Review Continuation Page

5) The elimination of the Old Administration Building chiller unit, associated piping and controls, and replacement with a new air cooled condensing unit with a new off-site power feed labeled B8 to MCC B80 (old MCC B16), will not create the possibility of an accident of a different type than any previously evaluated in the SAR. This modification does not involve any Safety-Related or "Q" portions of any system, all systems affected are non-nuclear and non Safety-Related. The Old Administration Building HVAC system is not used to prevent or mitigate any analyzed accident described in the SAR and the entire system is located outside of the Power Block, except for the Plant Heating system which is not affected by this modification except for the replacement of a pneumatic valve CV-5820 with a Direct Digital Control valve inside the VCH-3 chiller room inside the Old Administration Building.

6) The possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR will not be created by replacing the Old Administration Building chiller unit with a new air cooled condensing unit. As noted above, this modification will essentially completely isolate the Old Administration Building HVAC system from all Unit 1 or Unit 2 systems, except for the Plant Heating system which is a non-nuclear and non Safety-Related system.

7) No margins of safety as defined in the basis for any technical specification will be reduced since this modification completely isolates the Old Administration Building HVAC system from all Unit 1 or Unit 2 systems, except for the Plant Heating system which is a non-nuclear and non Safety-Related system.

Document No. PC 91-7045 Rev. No. 0

Title ICW DRAIN MODIFICATION

Will the proposed modification:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes___ No ✓

   Operating License? Yes___ No ✓

   Confirmatory Orders? Yes___ No ✓

2. Result in information in the following documents (including drawings and descriptions of facilities, systems, components, structures, and procedures) being no longer true or accurate, or violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes ✓ No___

   QAM?* Yes___ No ✓

   E-Plan?* Yes___ No ✓

   Bases of the Technical Specifications? Yes___ No ✓

   NRC Safety Evaluation Reports? Yes___ No ✓

3. Result in a potential impact to the environment? (Complete page 3 of this form.) Yes___ No ✓

Basis for Determination:

SEE ATTACHED CONTINUATION PAGE.

NOTE: RSE INCLUDED WITH THIS EVALUATION (RSE-91-0066)

* Changes to these documents require an evaluation in accordance with 10CFR50.54. This evaluation must be attached.

NOTE: If the proposed activity or change involves the processing of radioactive material outside the Controlled Access Area as discussed in Section 6.2.3, ensure that the originator has obtained a Radiological Safety Evaluation prior to completing the 50.59 review.

Document No. PC 91-7045 Rev. No. 0

References: List sections reviewed in the Licensing Basis Documents, including Technical Specifications, for questions 1 and 2. If a keyword search was done on LDRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed as LDRS is not controlled and searches text only, not figures or drawings. Identify all LBD sections needing revision by use of an asterisk (*).

Document	Section	Applicable to Question
LDRS OLBD	ALL	1, 2, 3
SEARCHED UNDER THE FOLLOWING: "INTERMEDIATE COOLING WATER", "ICW", "RADIOACTIVE EFFLUENT" "EFFLUENT" "INTERMEDIATE COOLING"		
LDRS 1 LBD	ALL (SEE ATTACHED LDRS PRINT)	1, 2, 3
REVIEWED ALL LDRS SECTIONS		
SAR	9.3	2
SAR	6.4	2
SAR	14.0	2
TECH. SPEC.	2.0	1

Certified Reviewer's Signature: [signature]

Printed Name: BRACY E. MEANS, JR

Date: 9/4/91

Reviewer's certification expiration date: 7/31/93

Assistance provided by:

Printed Name	Position	Date

ENVIRONMENTAL IMPACT CHECKLIST
(UNIT 1 and UNIT 2)

Document No. PC 91-7045 Rev. No. 0

Complete the following checklist. If the answer to any checklist item is "Yes", an Environmental Evaluation may be required.

Will the activity being evaluated:

Yes	No	
	✓	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17.
	✓	Increase thermal discharges to lake or atmosphere?
	✓	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
	✓	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
	✓	Modify the design or operation of cooling tower which will change drift characteristics?
	✓	Install any new transmission lines leading offsite?
	✓	Change the design or operation of the intake or discharge structures?
	✓	Discharges any chemicals new or different from that previously discharged?
	✓	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
	✓	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
	✓	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	✓	Result in a change to nonradiological effluents or licensed reactor power level?

Prepared by: BRACY MEANS Date: 9/4/91

Document No. PC 91-7045 Rev. No. 0

50.59 Review Continuation Page (DETERMINATION)

Current Index List is: c:\11bd
Use arrow keys to move cursor F4:Next file F9:Help F10:Exit

Display a file: move cursor to filename and press <enter>.

1NSE0900.00	1LF00000.09	1TA00301.00	1SER017.00
1SER088.00	1SAR0104.00	1SAR0110.00	1SAR0402.00
1SAR0502.00	1SAR0704.00	1SAR0901.00	1SAR0903.00
1SAR0913.00	1SAR1101.00	1SARTC.00	

intermediate cooling

15 Files Retrieved

Current Index List is: c:\11bd
Use arrow keys to move cursor F4:Next file F9:Help F10:Exit

Display a file: move cursor to filename and press <enter>.

1TA00100.00	1TA00427.00	1TA00609.00	1TA0TC00.00
1SER003.00	1SER088.00	1SER093.00	1SER111.00
1SER122.00	1SER126.00	1SER148.00	1SAR0208.00

radiological effluent

12 Files Retrieved

Document No. PC 91-7045 Rev. No. 0

Basis for Determination:

1. This change package directs the potentially radioactive ICW system fluid to equipment drains for selected ICW vents and drains. Normal system operation for specific equipment (Air Compressors and CRDM Filters) requires regular checks by Operations to prevent air binding. This change is done to prevent the spread of radiological contamination. This change does not affect the Unit 1 Operating License.

2. The modification contained in the change package revises SAR figure 9-7. Additionally, SAR section 9.3.2.1 states:

   " EXCEPT FOR THE NORMALLY CLOSED CONDENSATE MAKEUP LINES TO THE SURGE TANKS THERE ARE NO DIRECT CONNECTIONS BETWEEN THE INTERMEDIATE COOLING WATER AND ANY OTHER SYSTEM. ALL EQUIPMENT VENT AND DRAIN LINES ARE EQUIPPED WITH NORMALLY CLOSED, MANUALLY OPERATED VALVES."

   This change package directly connects the ICW system to portions of the Instrument Air system drain piping and the plant drainage systems. However, the drain connections are the designed paths for the ICW fluid which is bled off normally. The instrument air piping drain connections are all vented to the atmosphere such that the systems cannot back feed one another. This change does not affect the following documents; QAM, E-Plan, TS Bases, NRC SER's.

Document No. PC 91-7045 Rev. No. 0 Page 1 of 3

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT.

Form 1000.131C may be used to document the basis for the answers. If Form 1000.131C is not used, the attached pages must have the Document Number and Revision Number on each page and the pages numbered.

If the answer to any question on this form is "Yes," then an unreviewed safety question may be involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the LBD be increased? Yes ___ No ✓
2. Will the consequences of an accident previously evaluated in the LBD be increased? Yes ___ No ✓
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ___ No ✓
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ___ No ✓
5. Will the possibility of an accident of a different type than any previously evaluated in the LBD be created? Yes ___ No ✓
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the LBD be created? Yes ___ No ✓
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ___ No ✓

Certified Reviewer's Signature: [signature] Printed Name: BRACY E. MEANS, JR Date: 9/4/91

Reviewer's certification expiration date: 7/31/93

Assistance provided by:

Printed Name	Position	Date

PSC review by: [signature] Date: 10/7/91

SRC review by: _____ Date: _____

Document No. PC 91-7045 Rev. No. C

10CFR50.59 Safety Evaluation Continuation

1. The probability of an accident previously evaluated in the LBD will not be increased. The ICW system is not a safety system and the performance of the ICW system is not affected by the change provided in this modification package. The design of the piping and supports is consistent with the established piping codes and standards (ANSI B31.1 Power Piping Code) for this plant. The addition of permanent drain/vent piping for selected ICW components included in this modification package cannot enhance or otherwise create any of the postulated accidents analyzed in the LBD.

2. The consequences of an accident previously evaluated in the LBD will not be increased. The change provided in this modification package directs the discharge from vents and drains of regularly cycled components to the plant drainage system. This is the designed path for such drainage. This plant change reduces the spread of radioactive contamination. The ICW system, with the exception of Reactor Building Isolation components, performs no safety function for any accident previously analyzed in the LBD. The failure of equipment, piping, valves, instrumentation and supports associated with this plant change do not affect the failure considerations and consequences previously evaluated in the LBD.

3. The probability of a malfunction of equipment important to safety will not be increased. The change included herewith does not affect nor is it associated with equipment important to safety. All new piping, components and supports are connected solely to non-essential equipment. The normal function of safety equipment cannot be affected.

4. The consequences of a malfunction of equipment important to safety will not be increased. The failure or normal operation of equipment, piping, valves, instrumentation and supports associated with this plant change cannot affect equipment important to safety. There are no connections between the ICW system included in this change package and any safety system or components.

5. The possibility of an accident of a different type than any previously evaluated in the LBD has not been created. This change package provides additional piping downstream of selected vents and drains routing them to designed equipment/floor drains. The design of the piping and supports is consistent with the established piping codes and standards (ANSI B31.1 Power Piping Code) for this plant.

Document No. PC 91-7045 Rev. No. 0

10CFR50.59 Safety Evaluation Continuation

6. The possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the LBD has not been created. The routing of piping and the location of supports is consistent with procedure 1032.008 for seismic category II/I criteria such that there is no potential affect on any safety system or component.

7. The margin of safety as defined in the basis for any technical specification has not been reduced. The ICW system is not credited for the mitigation of consequences for any accident evaluated in the LBD and is not a safety system. There are no technical specification safety limits or bases defined for the ICW system. During an emergency, the ICW system is shut down and isolated. The changes included in this modification package are also removed from all consideration during an emergency. The margin of safety as defined in the basis for any technical specification has not been affected.

ARKANSAS NUCLEAR ONE		Pag
FORM TITLE: 10CFR50.59 REVISION	FORM NO. 1000.131D	REV. 3

This Document contains 1 Page.

Document No. PC-93-7046 Rev./Change No. 0 10CFR50.59 Eval. No. FEN1-99-033

Revision No. 1

This form is to be used to document Revisions to 10CFR50.59 Evaluations. Revisions to a 10CFR50.59 Evaluation after PSC review may become necessary due to SRC review, changes to the original document, etc. Refer to section 6.2.4 of this procedure for additional guidance.

Reason for revision to 10CFR50.59 Evaluation:

PC-93-7046 removed abandoned equipment associated with the Domestic Water System. Specifically, P-70, P-71A and P-71B were removed. This equipment is shown on Design Drawing, M-6, Equipment Location Plan Below Grade. This drawing is Figure 1-6 in the Unit 1 SAR and was inadvertently left out of the original 10CFR50.59 Safety Evaluation Determination for the plant change. All of the other information contained in the Basis Determination for the original 10CRF50.59 remains unchanged.

Will the proposed revision result in any additional:

1) Change to the Operating License? Yes ☐ No ☒

2) Change to other Licensing Basis Document? Yes ☒ No ☐

3) Conduct of test or experiment? Yes ☐ No ☒

4) Impact to the environment? Yes ☐ No ☒

5) Need for a Radiological Safety Evaluation? Yes ☐ No ☒

6) Impact Ventilated Storage Cask Activities Yes ☐ No ☒

7) Impact the QAMO or E-Plan? Yes ☐ No ☒

If yes, describe below and take appropriate action as per initial Determination:

The drawing has been as-built during the close-out process for the plant change and will be forwarded to Licensing via an LDCR. DRN 97-00529 transmitted to Drafting 5/3/99.

Indicate revisions to the 10CFR50.59 Evaluation by placing revision number at the top right hand corner of each page of the form(s). Changes should be lined through, initialed, dated and indicated with the revision number. For extensive changes, new forms may be used with revision bars in the margin denoting changes. Attach this form to front of previous 10CFR50.59 Evaluation. Return to the PSC for review.

Sandra Wages-Sprafke — Sandra Wages-Sprafke — 5/3/99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 3/1/01

PSC review: Michael Hom Date: 5/13/99

PC 961028P101

PAGE 11 REV

Document No. PC 96-7015 / ER961028P101 Rev./Change No. 0

Title ANO-1 Remove Idle Filter Crossover Valves CV-2126 & CV-2136

Brief description of proposed change: See page 4 for brief description of proposed change.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Basis for Determination (Questions 1, 2 & 3):

See page 4 for Basis for Determination (Questions 1, 2 & 3).

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Document No. **96-7015/961028P101** Rev./Change No. **0**

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	**"All" (CV-2126, CV-2136, HS-2126, HS-2136, Penetration Room Ventilation System, Crossover, Idle Filter Cooling, CR-1-91-338, CR-1-95-0621, 88-E-0102-04, Charcoal Filter, PVR, CPRV, PRVS, Air Operated Valves, VFC-5A, VFC-5B, M-264)**
MANUAL SECTIONS:	
ANO-1 SAR	**Sections 6.5, 7.1.3.2.4, 9.7, 14.2.2.5**
ANO-1 Technical Specifications	**Section 3.13 and 4.11**
FIGURES:	
Figure 6-10	

Kenneth W. Baird KWB **Kenneth W. Baird** **1/9/98**

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: **11/25/99**

Assistance provided by:

Printed Name	Scope of Assistance	Date
Andy Jacobs 2/12/98	**General**	**1/9/98**

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Roger Wilson ROGER WILSON 2-16-98

Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. 96-7015/961028P101 Rev./Change No. 0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Determination Con't.:

Brief description of proposed change:

The proposed modification will remove Penetration Room Ventilation System (PRVS) valves CV-2126 and CV-2136, and in-line blind blanks will be installed in the location were the CV-2126 and CV-2136 valves were removed. Control room panel hand switches HS-2126 and HS-2136 (w/ associated indicator lights) for the two valves will be removed from control room panel cabinet C-26. The valves will be removed and the blind blanks installed during a time period when containment integrity is not required.

CV-2126 and CV-2136 were permanently locked closed per CR-1-91-338 due to single failures criteria. Maintenance requested removal of CV-2126 and CV-2136 to eliminate Environmental Qualified (EQ) inspections as a fallout of CR-1-95-0621 related to missed and late EQ inspections. The in-line blind blanks will provide the same design functions as the permanently locked closed valves.

Basis for Determination (Questions 1, 2, & 3):

SAR figure 6-10 (which is the same as P&ID drawing M-264 sheet 1 'Ventilation System Air Flow Containment Penetration Room') will be revised per this modification to remove references to or indication of CV-2126 & CV-2136. The SAR figure will be revised to show in-line blind blanks in place of the removed valves.

The Penetration Room Ventilation System design bases are found in section 6.5 of the unit 1 SAR. Section 7.1.3.2.4 of the unit 1 SAR describes the reactor building penetration room ventilation system I&C ESF actuation protection system. Section 9.7 of the unit 1 SAR addresses the 'Plant Ventilation Systems'. The Technical Specification for the penetration room ventilation system is addressed in section 3.13 of the unit 1 Tech Specs. Section 4.11 of the unit 1 Tech Specs provides the penetration room ventilation system surveillance requirements. CV-2126 and CV-2136 are not specifically addressed or described in the Operating License or SAR documents. Besides the unit 1 SAR figure 6-10 to be revised as noted above, no other Operating License or SAR documents are changed, rendered untrue or inaccurate, or violate any requirements of these documents are made as a result of the installation of this proposed modification.

This proposed modification does not require any tests or experiments that could degrade the margins of safety during normal operations or anticipated transients or degrade the adequacy of structures, systems, or components to prevent accidents or mitigate an action which determines if a condition or operation can be proved or is acceptable. Per procedure 1000.143 Attachment 1 'IPTE Determination Chart' there is no IPTE.

No other SAR changes (other than revision of SAR figure 6-10) or the Technical Specification will be required as a result of this proposed modification.

10CFR50.59 Eval. No. EFN-95-029
(Assigned by PSC)

Document No. 96-7015 / ER 961028P101 Rev./Change No. 0

Title ANO-1 Remove Idle Filter Crossover Valves CV-2126 & CV-2136

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The Penetration Room Ventilation System (PRVS) as defined in the SAR is designed to collect and process postulated Reactor Building penetration leakage to minimize activity levels released to the environment resulting from post-accident Reactor Building leaks. The PRVS is strictly an accident mitigating system and cannot cause SAR chapter 14 accidents. Installation of in-line blind blanks installed in place of lock closed CV-2126 and CV-2136 valves does not change the design function or reliability of the PRVS system or increase the probability of an accident. The valves will be removed and the blind blanks installed during a time period when containment integrity is not required.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The in-line blind blanks to be installed in place of the lock closed CV-2126 and CV-2136 valves will provide the same piping isolation and separation function that the locked closed valves currently provide. The installation of the in-line blind blanks will not increase leak paths any more than posed by the current installation of the locked closed valves. Therefore, there is no increase in the potential for radiation dose associated with this proposed modification. There will not be any changes related to dose consequences from the existing design configuration of the locked closed valves design configuration currently installed compared to the proposed modification to install the in-line blind blanks in-place of the locked closed valves design configuration. The removal of the two valves and installation of in-line blind blanks will not change or alter any existing conditions from any previously evaluated SAR accident. All other design considerations are met by this proposed modification to ensure there is no credible increase in the consequences of a previously evaluated accident.

PC 961028P101

PAGE 15 REV 0

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

PRVS idle filter crossover valves CV-2126 and CV-2136 are permanently locked closed per CR-1-91-338. SAR change and administrative and operational procedure changes have already been made to reflect the permanent closure of the two valves per CR-1-91-338. The permanent locking closure of the two valves made use of the crossover piping non-usable or inactive. Removing the two valves and installing in-line blind blanks will not alter the existing design bases function requirements or system operational parameters

of the PRVS system. The inability to unlock and open the valves does not make the probability of the system malfunctioning any higher since there is no existing reliance on capability to unlock valves.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The PRVS as defined in the SAR is designed to collect and process postulated Reactor Building penetration leakage to minimize activity levels released to the environment resulting form post-accident Reactor Building leaks. PRVS idle filter crossover valves CV-2126 and CV-2136 are permanently locked closed per CR-1-91-338. The proposed modification will remove the two valves and install in-line blind blanks. This proposed modification will not change any existing operational condition of the PRVS system or function of any equipment important to safety. This proposed activity would not result in increased radiological release consequences because it will not change the isolation of the PRVS crossover piping from the currently locked closed valve design configuration by the installation of in-line blind blanks. The inability to unlock and open the valves does not make the consequences of the PRVS system or component failures any higher since there is no existing reliance on capability to unlock valves.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The Penetration Room Ventilation System (PRVS) as defined in the SAR is designed to collect and process postulated Reactor Building penetration leakage to minimize activity levels released to the environment resulting form post-accident Reactor Building leaks. PRVS system valves CV-2126 and CV-2136 are permanently locked per CR-1-91-338. The proposed modification will remove the valves and install in-line blind blanks. Installation of in-line blind blanks installed in place of lock closed CV-2126 and CV-2136 valves does not increase probability of accidents or change the existing physical operational conditions of the PRVS system, and does not create any accident situation different from that currently existing for the PRVS crossover piping to be isolated by the locked closed valves. The inability to unlock and open the valves does not create any possibility of the PRVS system or components failure since there is no existing reliance on capability to unlock valves. The PRVS is strictly an accident mitigating system and cannot cause accidents.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The existing physical operational condition of the PRVS system are not changed by removal of permanently locked CV-2126 and CV-2136 and replaced with in-line blind blanks. The in-line blind blanks will be installed meeting all design requirements to ensure there is no possibility of a malfunction of equipment of a different type than any previously evaluated in the SAR is created. The blind blanks will be bolted in the piping identical to the locked closed valves. The installation of the in-line blind blanks in the PRVS piping in place of the removed locked closed CV-2126 and CV-2136 valves still provides the same isolation and separation function as does the closed valves and poses no changes in the piping configuration that would lead to increased leak paths.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

There are no margins of safety defined in the bases of the Technical Specifications that involve whether the pressure boundary at the point where CV-2126 and CV-2136 are located in the PRVS is provided by a locked closed valve or by with an in-line blind blank. No physical operational PRVS system changes are being made by the proposed modification which would reduce any margins of safety as defined in the Technical Specification bases. There are no Technical Specification bases related to this proposed modification.

Kenneth W. Baird — Kenneth W. Baird — 1/9/98

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 11/25/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
Andy Jacobs	General	1/9/98

PSC review by: _____ Date: 3/9/98

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 2 PC-2,3

Document No. PC 963288P101 Rev./Change No. 0

Title Abandon Acid Storage Tank, T-47

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

Core Operating Limits Report	Yes☐	No☒
SAR (multi-volume set for each unit)?	Yes☒	No☐
QAMO?*	Yes☐	No☒
E-Plan?*	Yes☐	No☒
FHA	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR?	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Checklist of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.2.4.A?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.2.4.B?	Yes☐	No☒

Basis for Determination:
See attached Continuation Sheet

* Changes to these documents require an evaluation in accordance with 10CFR50.54. See Section 6.2.1.B.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 2 PC-2,3

Document No. **PC 963288P101** Rev./Change No. **0**

References: List sections reviewed in the Licensing Basis Documents, specified in questions 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed as computer-based searches such as LRS are not controlled and search text only, not figures or drawings. Attach a completed LDCR if LBD changes are required.

Document	Section
OL - U1	**All - LRS keyword search (sulfuric, acid w/5 tank, T-47, regeneration)**
SAR Docs. - U1	**U1 SAR M-series dwgs and A-series dwgs.**

Iver J. Jacobson — Iver J. Jacobson — 7/31/97 8/26/96

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: **1/10/97** (1-5-99) 2-14-97

Assistance provided by:

Printed Name	Scope of Assistance	Date
Charlie Adams	Reviewed Environmental Impact checklist & concurred that Environmental Evaluation is not required	9-18-97

ENVIRONMENTAL IMPACT CHECKLIST
(UNIT 1 and UNIT 2)

Document No. PC 963288P101 Rev./Change No. 0

Complete the following checklist. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.2.1.E for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 2

Document No. PC 963288P101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

Basis for Determination:

This PC will be abandoning the inactive acid storage tank, T-47. The acid pumps, P-68B, and P-72A&B, located in the tank will be removed. The piping connections to and from the tank will be removed and the current acid system piping reconfigured such that there is no interface with T-47. T-47 has not been used in many years, and is only isolated from the existing concentrated sulfuric acid system piping by manual isolation valves. Leakage in this area has occurred in the past, and will be avoided by the changes being made per this PC.

Removing acid pumps P-68B, and P-72A&B as well as abandoning T-47 in place will not require an Operating License change. The acid supply to the polisher regeneration system is beyond the level of detail presented in these documents.

This PC will require changes to equipment layout drawing M-6, which is SAR Dwgs. 1-6 & A-5. A 50.59 Evaluation and LDCR follow. There are no other impacts to information or requirements in the SAR documents.

This change will not constitute a test or experiment not described in the SAR per the definition of this term in 1000.131. Specifically the margins of safety during normal operation or anticipated transients will not be degraded, nor will the adequacy of SSC's which prevent or mitigate accidents be degraded.

This change will not result in a potential impact to the environment per the attached checklist.
This change will not result in handling or processing radioactive materials and will not create new release paths for such materials. Thus, an RSE is not required.

This change will not result in any potential impact to the equipment or facilities used for VSC activities.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 2

10CFR50.59 Eval. No. FEN-97-142
(Assigned by PSC)

Document No. PC 963288P101 Rev./Change No. 0

Title Abandon Acid Storage Tank, T-47

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

Removal of acid pumps P-68B, P-72A, and P-72B, and their associated piping, as well as abandoning T-47 in place will not increase the probability of an accident previously evaluated in the SAR. The acid supply to the polisher regeneration station is not credited with initiating any of the evaluated accidents, and the changes made by this PC will not increase the probability category of any of the evaluated accidents.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The consequences of the evaluated accidents is not be increased by removing the acid pumps/piping and abandoning T-47. This change has no bearing on off-site dose consequences of any of the evaluated accidents. The systems, structures and components relied upon to mitigate the consequences of an accident are not impacted by removing the acid pumps and piping and abandoning T-47 in-place.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The probability of a malfunction of equipment important to safety is not being increased. The acid supply equipment in question is not important to safety. The piping and tank are below grade (beneath equipment hatches) near the SW area of the turbine building "bowling alley". Equipment important to safety is shielded by distance and structures from this acid system.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The consequences of a malfunction of equipment important to safety is not increased by this change. The off site dose consequences for analyzed accidents are not impacted by the abandonment of T-47 or removal of the acid pumps/piping associated with it. The systems, structures and components relied upon to mitigate the consequences of an accident are not impacted by the acid supply equipment for the polisher regeneration cabinet.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 2

The possibility of an accident of a different type than any previously evaluated in the SAR is not created by abandonment of T-47 or removal of the associated acid pumps and piping. The impact to the plant would not be such that conditions or consequences would be created which exceed those already evaluated in the SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR will not be created. The acid supply piping and equipment is isolated from equipment important to safety by distance and by the structures/walls of the buildings containing safety related equipment. The consequences of abandoning T-47 in-place and removing it's associated pumps/piping do not pose a threat to equipment important to safety

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

There are no margins of safety defined in the bases for any technical specification which address T-47 or it's associated equipment. The margins of safety which are defined in the technical specification bases are not affected by this change.

Iver J. Jacobson	Iver J. Jacobson	7/31/97 8/26/96
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: ~~1/10/97~~ 2-14-97 1/5/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 9/25/97

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. PC 963457P101 Rev./Change No. 0

Title **Removal of CV-6671, FO-6671, and Related Equipment and Piping**

Brief description of proposed change: **Removal of inactive reheat steam piping & equipment connected to the E11A & B Condenser.**

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Basis for Determination (Questions 1, 2 & 3):

This PC is removing the inactive piping associated with heating steam to condenser E-11A and E-11B. This piping has been previously disabled by the installation of a blank plates. The branch connection at the main steam header is being capped and caps are also being installed at the condenser connection on both E-11A and E-11B. This change is beyond the scope of the Operating License detail and will not require a change to it. SAR Figures 10-1 & A-8 (MS isometric 1-MS-101) will be affected by removal of CV-6671 and associated piping. There are no other SAR documents affected. This PC will not involve a test or experiment not described in the SAR, nor will there by any environmental impacts. An RSE is not required, since processing of radioactive material is not involved and new release paths are not created. The VSC equipment and facilities are not affected by removing this piping section.

☒ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Page ___ of

Document No. **PC 3457P101** Rev./Change No. **0**

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS: **50.59 Unit 1**	**All - LRS Search (CV-6671, Condensate Heating, Heating Steam)**
MANUAL SECTIONS: **Unit 1 SAR**	**Section 10, Text, Tables**
FIGURES: **Unit 1 SAR**	**Figure 10-1 & A-8**

Certified Reviewer's Signature _____ Printed Name **Douglas Edgell** Date **4/27/98**

Reviewer's certification expiration date: **3/17/99**

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature _____ Printed Name Ives J. Jacobson Date 4-27-98

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **PC 963457P101** Rev./Change No. **0**

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3

10CFR50.59 Eval. No. FEN-98-107
(Assigned by PSC)

Document No. **963457P101** Rev./Change No. **0**

Title **Removal of CV-6671, FO-6671, and Related Equipment and Piping**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

Removal of the inactive piping associated with main steam heating steam supply to condenser E-11A will not increase the probability of any accidents evaluated in the SAR. The probability of a Main Steam Line Break accident is not increased. This PC will include capping the branch connection at the main steam line header in the turbine building basement and capping condenser connnections 20 and 70. The lines being capped is not used and has previously been rendered unusable by installation of a blanks. The pipe cap materials and installation will be in accordance with the main steam critical pipe specifications and will not reduce the reliability of the MS piping or system. Removal of this branch connection has been evaluated to ensure piping supports and analysis are not adversely impacted.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

The inactive piping section and valves being removed are not relied upon for any accident response or mitigation purposes. The branch connection is located in the turbine building basement on a non safety related portion of the main steam header. The off-site dose or other consequences of evaluated accidents will not be increased due to removal of this equipment.

3. Will the probability of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

The piping section and valves to be removed are inactive and are not considered equipment important to safety. They are located in the turbine building basement and are remote from equipment important to safety. Removal of this inactive piping and equipment will not affect the safety related components in the main steam system or other systems and will not increase the probability of their malfunction.

4. Will the consequences of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

Removal of this inactive piping and valves and capping the condenser connections will not affect off-site dose or other consequences of a malfunction of equipment important to safety. This equipment is not relied upon for accident response or mitigation and does not affect equipment which is important to safety.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Removal of this inactive piping will not result in the possibility of conditions or events which are different than or not bounded by accident analysis currently in the SAR. The main steam line break analysis will remain bounding, and assumptions and inputs to that analysis will not be affected by the removal/capping of this inactive heating steam line.

PAGE_____ REV. #_____

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR will not be created by the removal CV-6671 and the piping connection to condenser E-11A or E-11B. This equipment/piping does not serve an active function, is not important to safety, and is physically located (in TB basement) from equipment which is important to safety.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

There are no margins of safety in the technical specifications related to CV-6671 or this inactive heating steam supply to the condenser. The scope of this PC is beyond the level of detail in the tech. spec bases and will not impact information or conclusions in them.

Certified Reviewer's Signature	Douglas Edgell Printed Name	4/27/98 Date

Reviewer's certification expiration date: 3/17/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 4/28/98

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

PAGE 3 REV. 0 This Document contains 3 Pages.

Document No. PC973993P101 Rev./Change No. 0

Title Downgrade of Fire Wrap and Suppression System in Room 79

Brief description of proposed change:

The 1-hour rated fire wrap and the preaction sprinkler system were installed in the Upper North Piping Penetration Room in order for the cabling associated with the HPI isolation valves to meet the separation requirement of 10CFR50 Appendix R, Section III.G.2. Subsequent to the installation of these fire protection systems, additional flow paths for the HPI/Make-Up system were installed. The isolation valves are not located within this fire area (i.e. Fire Area B, Fire Zone 79-U) and are available to be manually aligned, as required. Therefore, the installed fire protection systems are no longer necessary elements of the Appendix R program. The fire wrap will be removed, while the sprinkler system will no longer be maintained as a "Regulatory required" system.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☒	No☐
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1,2

Document No. PC973993P101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

PAGE 4 REV. 0

Basis for negative responses on questions 1 & 3 is as follows : The existence of the 1-hour fire wrap and the preaction sprinkler system is not part of the Operating License nor does this change involve any experiment or testing.

Basis for response on questions 2 is as follow : The only portion of the SAR that is affected by this change is the FHA, where the fire wrap material is described as being installed in Zone 79-U. This section will be revised.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	50.59 – Unit 1 (wrap, firewrap, Hymec, fire-rated, Zone 79-U, 1*hour, 20 foot separation, suppression, sprinkler)
MANUAL SECTIONS:	Appendix 9D.2, 9D.3 and FHA section for Fire Zone 79-U
FIGURES:	FS-104

Woody Walker — Woody Walker — 08/25/98
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 05/21/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
N/A		

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Thomas D. Robinson — THOMAS D. ROBINSON — 9-14-98
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

PAGE 5 REV. 0

Document No. PC973993P101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Eval. No. FEN-98-144
(Assigned by PSC)

Document No. PC 973993P101 Rev./Change No. 0

Title DOWNGRADE OF FIREWRAP AND SUPPPRESSION SYSTEM IN ROOM 79

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The fire wrap and sprinkler system were designed to mitigate the consequences of a fire. Fire is not an accident that has been evaluated in the SAR. The sprinkler system is a preaction system, that requires both a smoke detector to actuate and a fusible link to melt before the system will discharge. The system operation is unaffected by this change. Therefore, downgrading/removing these components will not affect the probability of any accident evaluated in the SAR.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

An accident caused by a fire has not been evaluated in the SAR. Even so, redundant components remain available that are independent of this fire area. Therefore, the removal of the fire wrap and the reclassification of the sprinkler system will not effect the dose release rates associated with any accident that has been evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The fire wrap is installed on conduits and a junction box associated with CV1219. Once the fire wrap is removed, the associated cables would be more likely to receive fire damage, than with the fire wrap installed. However, redundant valves (CV1278 and CV1279) are located in a different fire area and are available for Safe Shutdown. Therefore, the removal of the fire wrap will not affect the performance of any required equipment important to safety. The system operation of the sprinkler system will not be changed. Instead, the classification of this system will be changed, such that if the system is out of service, regulatory required compensatory measures will not be required. Therefore, this change will not increase the probability of a malfunction of any equipment.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

These fire protection systems were utilized to protect cables associated with HPI/Make-up system isolation valves such that one train of inventory make-up would be available for a fire in this zone. Subsequent modifications have added two additional flow paths, whose valves are available for manual operation, such that a fire will not affect the ability to achieve and maintain safe shutdown. Therefore, this change will not increase the dose release rates for a fire in this area.

ER-973993P101

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The downgraded/removed components were required to mitigate the consequences of a fire. Subsequent evaluation has determined that these components are no longer required. The system operation of the sprinkler system remains the same. Therefore, the possibility of a accidental discharge of fire water leading to a flooding concern has not been increased.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The removal of the fire wrap does not affect the ability of the installed cable to perform as designed. The sprinkler system will still perform as originally designed and will not create a new failure mode for nearby plant equipment.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

As this change will not remove any tech spec related equipment from service, the downgrade/removal of these fire protection components will not affect any technical specification margin to safety.

Woody Walker — Woody Walker — 08-25-98

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 05/21/99

Assistance provided by:

Printed Name — Scope of Assistance — Date

PSC review by: [signature] Date: 11/12/98

This Document contains 3 Pages.

Document No. PC 980006P101 Rev./Change No. 0

Title Level Gage for P-6B Day Tank 980006P101

PAGE 18 REV 0

Brief description of proposed change:

This Plant Change replaces Level Gage LG-5213 and Switch LSL-5213. These components are associated with Tank T-29, the diesel driven fire pump (P-6B) fuel oil day tank. This modification will require revising drawing M-219, Sh 1 (P&ID). This drawing is SAR Figure 9-16.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. PC 980006P101 Rev./Change No. 0 980006P101

Basis for Determination (Questions 1, 2, & 3): PAGE 19 REV 0

This Plant Change replaces Level Gage LG-5213 and Switch LSL-5213. These components are associated with Tank T-29, the diesel driven fire pump (P-6B) fuel oil day tank. This modification will require revising drawing M-219, Sh 1 (P&ID). This drawing is SAR Figure 9-16.

No changes to the LBDs will be necessary. The text of the SAR will not require revision.

1. The TS, OL, and Confirmatory Orders were reviewed and no sections require revision. The review included tables and figures; it was determined that this Plant Change does not affect these documents.
2. This Plant Change will require revision of the U1 SAR (Fig. 9-16). This Plant Change will not require changes to the Core Operating Limits Report, the FHA, Bases of the Technical Specifications, the Technical Requirements Manual, or the NRC Safety Evaluation Reports.
3. This Plant Change does not change the function of any system and does not involve any test or experiment.
4. The environmental impact determination was completed. This Plant Change does not have any environmental effects.
5. This Plant Change does not involve processing radioactive material or impact monitored effluent release points.
6. There is no potential impact to the Ventilated Storage Cask equipment or procedures.
7. This Plant Change will not require changes to the QAMO or the E-plan.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	All (Fire) (P6B) (Fire Pump)
MANUAL SECTIONS:	U1 SAR 9.8, U2 SAR 9.5.1
FIGURES:	U1 SAR Fig. 9-16

Gary W. Liffick — Gary W. Liffick — 4/28/98

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 1/9/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
Ron Hendrix	Technical Input	4/27/98

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Ronald D. Hendrix — Ronna D. Hendrix — 6/18/98

Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. PC 980006P101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3

980006P101

PAGE 21 REV 0

This Document contains 2 Pages.

Document No. 980006P101 Rev./Change No. 0 10CFR50.59 Eval. No. FEN-98 087 (Assigned by PSC)

Title Level Gage for P-6B Day Tank

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

This change affects only the instrumentation associated with the fuel oil day tank (T-29) for the diesel driven fire pump (P-6B). The new components satisfy the requirements of the applicable NFPA Codes. There are no accidents discussed in either the Unit 1 or Unit 2 SAR that are initiated by the fire protection system. The fire protection system is relied upon only for mitigation of the consequences of fires. This Plant Change improves the ability to monitor the fuel oil day tank parameters and therefore increases the likelihood that pump P-6B will be available for service when needed.

The modification of this tank level instrumentation has no impact on the probability of any of the postulated accidents in the SAR.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

This Plant Change affects only the type of level indicator and low level switch associated with fuel oil tank T-29. There are no accidents discussed in either the Unit 1 or Unit 2 SAR that are initiated by the fire protection system. The fire protection system is relied upon only for mitigation of the consequences of fires. The failure of piping or components associated with this Plant Change will not increase the failure considerations or consequences previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The components being added/modified are not safety related, although they could possibly affect safety related equipment. All new piping and components associated with this Plant Change meet the specifications of the existing piping systems. The modifications associated with this Plant Change are limited to the fuel oil day tank for the diesel driven fire pump and cannot increase the probability of a malfunction of equipment important to safety.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The new components meet the same requirements of the system being modified. The operation of the diesel driven fire pump (P-6B) will not be changed by this Plant Change. Additionally, the failure of any of the components changed by this Plant Change cannot affect the consequences of a malfunction of equipment important to safety.

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5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

This Plant Change affects only the type of level instrumentation installed on the fuel oil day tank for the diesel driven fire pump (P-6B). The diesel driven fire pump will function as before and no new accident scenarios have been created by this Plant Change. The possibility of a new type accident than previously evaluated in the SAR will not be created by this Plant Change.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The components being added/modified are not safety related, although they could possibly affect safety related equipment. The equipment being installed by this Plant Change is compatible with existing materials in the system. The possibility of malfunction of any equipment remains unchanged by this Plant Change. No new malfunctions of equipment important to safety have been created.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

The modifications associated with this Plant Change will not affect the margin of safety as defined in the bases for any Technical Specifications. The function of the diesel driven fire pump (P-6B) is not affected by this Plant Change. There are no applicable Technical Specifications for fire protection equipment. Likewise, no Technical Specification margin of safety is reduced.

Certified Reviewer's Signature	Printed Name	Date
	Gary W. Liffick	4/28/98

Reviewer's certification expiration date: 1/9/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
Ron Hendrix	Technical Input	4/27/98

PSC review by: _____ Date: 7/14/98

FORM TITLE: ARKANSAS NUCLEAR ONE 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

PC 980066 P 201
PAGE 6/ REV 0

This Document contains 3 Pages.

Document No. PC 980066P201 Rev./Change No. 0

Title SW Traveling Screen Upgrades

Brief description of proposed change:

This Plant Change modifies the two Service Water Traveling Screens (2F-7A & 2F-7B) and their screenwash supply piping. This modification is being performed to reduce the amount of debris passing through the traveling screens and into the Service Water Pump basket strainers. Screen mesh size will be changed from 3/8" to 3/16". An additional spray header will be added to each traveling screen. These screens will continue to function as originally designed. Unit 1 Drawing M-209 Sh 4 (P&ID) SAR Fig. 9-10 will be revised. Also, Unit 2 Drawings M-2209 Sh 1 (P&ID) SAR Fig. 10.4-1 and E-2811, Sh 1, SAR Fig. 8.3-54 will be revised. The text of the SAR (9.5.5.3) will also require revision.

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☒

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☒ No☐

   Core Operating Limits Report? Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

Document No. PC 980066P201 Rev./Change No. 0 PAGE 62 REV 0

Basis for Determination (Questions 1, 2, & 3):

This Plant Change modifies the two Service Water Traveling Screens (2F-7A & 2F-7B) and their screenwash supply piping. These screens will continue to function as originally designed. Unit 1 Drawing M-209 Sh 4 (P&ID) SAR Fig. 9-10 will be revised. Also, Unit 2 Drawings M-2209 Sh 1 (P&ID) SAR Fig. 10.4-1 and E-2811, Sh1. SAR Fig. 8.3-54 will be revised. The text of the SAR (9.5.5.3) will also require revision.

1. The TS, OL, and Confirmatory Orders were reviewed and no sections require revision. The review included tables and figures; it was determined that this Plant Change does not affect these documents.
2. This Plant Change will require revision of the U1 SAR (Fig. 9-10) and the U2 SAR (Fig. 10.4-1). This Plant Change will not require changes to the Core Operating Limits Report, the FHA, Bases of the Technical Specifications, the Technical Requirements Manual, or the NRC Safety Evaluation Reports.
3. This Plant Change does not change the function of any system and does not involve any test or experiment.
4. The environmental impact determination was completed. This Plant Change does not have any environmental effects.
5. This Plant Change does not involve processing radioactive material or impact monitored effluent release points.
6. There is no potential impact to the Ventilated Storage Cask equipment or procedures.
7. This Plant Change will not require changes to the QAMO or the E-plan.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # , (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	All (Service Water) (Screens)
MANUAL SECTIONS:	Unit 1: 9.3.2.1 Unit 2: 9.2.1, 9.2.1.2.2.1, 9.5.5.3, Table 9.2-2, Table 9.2-5
FIGURES:	Unit 1 Fig 9-10, Unit 2 Fig. 10.4-1 and Fig. 8.3-54

Gary W. Liffick — Gary W. Liffick — 3/22/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 1/9/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
Ted Ivy	Technical Input	3/22/99

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Ted S. Ivy — Ted S. Ivy — 4/21/99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. PC980066P201 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 2 Pages.

Document No. 980066P201 Rev./Change No. 0 10CFR50.59 Eval. No. EEN-99-033
(Assigned by PSC)

Title SW Traveling Screen Upgrades

PC 980066 P 201
PAGE 64 REV 0

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

This change affects the two Unit 2 Service Water traveling screens and their screenwash piping. The modified components meet the same requirements as the existing configuration. These modifications will not increase the probability of any accidents described in Chapter 15 of the SAR. One accident is applicable: 15.1.30 Loss of Service Water System. This Plant Change improves the ability of the traveling screens to keep debris from entering the Service Water System and therefore reduces the probability of failure of the Service Water System while operating on the lake. If a traveling screen system failure occurred, Service Water could be transferred to the Emergency Cooling Pond (ECP).

The modification of this equipment and piping has no impact on the probability of any of the postulated accidents in the SAR. In fact, it reduces the probability of a service water pump strainer becoming plugged with debris.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

The consequences of any accident analyzed in the SAR will neither increase nor decrease as a result of this modification. This Plant Change affects only the traveling screens and their screenwash piping. The failure of piping or components associated with this Plant Change will not increase the failure considerations or consequences previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

The components being added/modified are not safety related. All new piping and components associated with this Plant Change meet or exceed the specifications of the existing piping systems.

The probability of clogging of the Service Water Pump discharge strainers will be decreased by the installation of this modification. This will result in greater assurance that both trains of Service Water will be available during any accident conditions. Based upon this evaluation, the probability of a malfunction of equipment important to safety will be decreased.

4. Will the consequences of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

The consequences of a malfunction of any Service Water components is unchanged by this modification. No changes are being made that would increase or decrease the consequences of a malfunction of these components or the Service Water System.

Based upon this evaluation, the consequences of a malfunction of equipment important to safety will not be increased.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

Document No. 980396P101 Rev./Change No. 0

Title AUTOTRANSFORMER PROTOMATIC RELEASE REPLACEMENT

Brief description of proposed change:

This Plant Change will replace the Protomatic releases, air compressor, air dryer, air lines and pneumatic detectors with electrical controls for all four switchyard autotransformers. A Notifier AFP-200 analog fire panel C636 will be installed in the deluge valve house. C636 will be powered from the local 120/240 VAC panel board and from batteries designed for 24 hour in standby operation with 5 minutes of alarm at the end of the 24 hours. Fenwal Detect-A-Fire 190° rate compensated heat detectors will be installed in each of the existing pneumatic detector locations, except for the elimination of one detector location between the East side coolers and the transformer. The new heat detector strings will be supervised and power limited NFPA 72 1996 Style B initiating device circuits. The Signal Line Circuits (SLC) will be supervised and power limited NFPA 72 1996 Style 4. The heat detectors, tamper switches and fire water flow pressure switches will be monitored by Notifier MMX-101 monitor modules connected to the SLC.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

Document No. 980396P101 Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1. Operating License documents do not provide system requirements or descriptions to a level of detail that would be affected by the proposed changes to the autotransformer suppression systems.
2. No Unit 1 or Unit 2 SAR text documents will require revision to prevent the documents from being no longer true or accurate, or to prevent a violation of any requirements therein. However, P&ID drawing M-219 sht. 4 is included in the Unit 1 SAR as figure 9-16 and will require modification to show the proposed change to deluge valve trim details.
3. The specified post modification testing results in no impact on plant systems with a defined margin of safety which could be changed, nor will it degrade a SSC required for mitigation of an accident. Therefore, the specified testing is outside the scope of tests and experiments as intended to determine if an unreviewed safety question exists.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____ (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If a keyword search was done on LRS, "all" may be entered under "Section" with the keyword(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	50.59 - Common "All" (sprinkler; rate w/2 rise; pneumatic* w/2 detect*; heat w/2 detect*; protomatic)
MANUAL SECTIONS:	Unit 2 SAR 9.5 & Unit 1 SAR 9.8
FIGURES:	Unit 1 SAR 9-16 and Unit 2 SAR 9.5-1

Ronald D. Hendrix — Ronald D. Hendrix / — 6/11/98

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 3/19/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Woody Walker — WOODY WALKER — 7/22/98

Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 980396P101 Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3

Document No. 980396P101 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-98-101 (Assigned by PSC)

Title AUTOTRANSFORMER PROTOMATIC RELEASE REPLACEMENT

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

Ronald D. Hendrix	Ronald D. Hendrix	6/11/98
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 3/19/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [illegible] Date: 8/7/98

FORM TITLE:	FORM NO.	REV.
10CFR50.59 REVIEW CONTINUATION PAGE	1000.131C	3

Document No. 980396P101 Rev./Change No. 0

10CFR50.59 Review Continuation Page

10CFR50.59 Evaluation Continuation

Question #1:
No accidents identified in the SAR are directly attributable to the autotransformer suppression systems. Therefore, the probability of an accident previously evaluated in the SAR will not be increased due to modifications of the systems.

Question #2:
No accident identified in the SAR of either unit is directly attributable to the autotransformer suppression systems. The consequences of a postulated accident previously evaluated in the SAR will therefore not be increased by modifications of the systems.

Question #3:
As stated in the Unit 1 SAR section 9.8.1 the fire protection system is designed so that pipe rupture or inadvertent operation does not cause loss of function of plant structures, systems and components important to safety. As equipment important to safety is unaffected by pipe rupture or inadvertent operation of the fire system the probability of a malfunction of equipment important to safety will not be increased by this modification.

Question #4:
The fire protection system is designed so that pipe rupture or inadvertent operation does not cause loss of function of plant structures, systems and components important to safety. Therefore, the consequences of a malfunction of equipment important to safety will not be increased by this modification as it has no impact on systems important to safety.

Question #5:
This modification of the fire system will not create a change in the system configuration that would create a new accident scenario which is outside the bounds of existing accidents evaluated in the SAR. Therefore, the possibility of an accident of a different type than any previously evaluated in the SAR will not be created.

Question #6:
The fire protection system is designed so that pipe rupture or inadvertent operation does not cause loss of function of plant structures, systems and components important to safety. Therefore, the possibility of a malfunction of equipment important to safety of a different type other than any previously evaluated in the SAR will not be created.

Question #7:
The basis of the Technical Specifications do not specify a margin with respect to this portion of the fire protection system being changed. Therefore, the margin of safety as defined in the basis for any Technical Specification will not be reduced.

FORM TITLE: ARKANSAS NUCLEAR ONE 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. PEAR 96-0031 Rev./Change No. 0

Title Abandon Service (Pallet) Air Compressor, C-3C (2C-26)

Brief description of proposed change: This PEAR is authorizing the abandonment of the C-3C service air compressor and it's associated attendant components. The C-3C service air compressor has not been actively used for many years, with SA being supplied by other equipment (2C-43, C-3A&B). This compressor is located in U1 RAB El. 335', behind the vendor supplied resin processing skid (Duratek, Diversatek, etc.) and as such is in a posted radiation area with difficult access. Furthermore, a past contamination event involving the SA system resulted in portions of the C-3C piping becoming contaminated and unsuitable for use. For these various reasons, it is no longer desirable to maintain or operate C-3C. The equipment will be left in place in an isolated and deenergized status per this PEAR with appropriate configuration documents updated accordingly. If future needs for further isolation, replacement, or space develop, then additional engineering authorization can be provided. The SAR descriptions of the SA systems are also being updated to reflect the presence of the Sullair compressor, 2C-43, and crosstied operation of the two SA systems.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☑
Operating License?	Yes☐	No☑
Confirmatory Orders?	Yes☐	No☑

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☑	No☐
Core Operating Limits Report	Yes☐	No☑
Fire Hazards Analysis?	Yes☐	No☑
Bases of the Technical Specifications?	Yes☐	No☑
Technical Requirements Manual?	Yes☐	No☑
NRC Safety Evaluation Reports?	Yes☐	No☑

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☑

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☑

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5 Yes☐ No☑

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☑

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☑
E-Plan?	Yes☐	No☑

Document No. PEAR 96-0031 Rev./Change No.

Basis for Determination (Questions 1, 2 & 3):
The C-2C (renamed from 2C-26) service air compressor and associated components affected by this PEAR are beyond the level of detail in either unit's Operating License documents. This equipment is mentioned in the U2 SAR, section 9.3.1, and U1 SAR Figure 9-14 (P&ID M-218 Sh.2). Valve alignments will be changed and a note added to U1 SAR Figures 9-7 and 9-14 (P&IDs M-234 Sh.1 & M-218 Sh.2) reflecting the isolation of this equipment and it's inactive status. The system descriptions will be revised in both units SAR to reflect this change and clarify the SA system operation. The inactivation of the C-3C compressor and associated components will not constitute a change or experiment not described in the SAR. Equipment required to respond post-accident will not be degraded or otherwise impaired by this ER.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	**50.59 Common keywords: service air, pallet, c-3, 2c26, filter w/5 air, F-8, F8, compressor**
MANUAL SECTIONS:	
U1 SAR	**Section 9.3, 9.9**
U2 SAR	**Sections 9.3.1, 1.2, Table 1.2-1, 15.1.34**
FIGURES:	
U1 SAR	**9-14**

Certified Reviewer's Signature	Printed Name	Date
Iver J. Jacobson	Iver J. Jacobson	4/15/99

Reviewer's certification expiration date: 1/26/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date
N/A		

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
	DAVID N. MCKENNEY	5/11/99

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. PEAR 96-0031 Rev./Change No.

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☑	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☑	Increase thermal discharges to lake or atmosphere?
☐	☑	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☑	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☑	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☑	Install any new transmission lines leading offsite?
☐	☑	Change the design or operation of the intake or discharge structures?
☐	☑	Discharges any chemicals new or different from that previously discharged?
☐	☑	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☑	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☑	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☑	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☑	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Eval. No._ FFN-99-043
(Assigned by PSC)

Document No. PEAR 96-0031 Rev./Change No. 0

Title Abandon Service (Pallet) Air Compressor, C-3C

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

The C-3C air compressor and associated components do not affect the evaluated accidents in the SAR for either unit. This equipment is not credited with accident initiation and abandoning this equipment will not increase or affect the probabilities of an evaluated accident. Operation of the SA system will remain essentially unchanged and it's reliability will not suffer due to isolation and abandonment of this equipment due to the presence of more reliable, redundant equipment elsewhere in the system.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

The off-site dose conditions will not be increased by discontinuing use of the C-3C compressor and associated components. The service air system is not safety related and is not required for accident mitigation functions. The inputs and assumptions for the evaluated accidents will remain bounding and conservative for this change.

3. Will the probability of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

The equipment associated with this PEAR is not important to safety and does not affect equipment that is important to safety. Abandoning the C-3C service air compressor will not affect the reliability of the SA system due to the presence of additional redundant compressors within the system. The SA system is isolated from equipment important to safety and has no direct operability supporting role for safety related equipment. Thus, the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

Discontinuing use of C-3C with it's related components will not affect off-site dose consequences associated with a malfunction of equipment important to safety. The components evaluated and affected by this PEAR are not important to safety and do not provide a support role for such equipment. The accident analysis assumptions for evaluated accidents are not affected and will remain bounding with C-3C isolated and abandoned. The plant operating conditions will not be changed by this PEAR such that the consequences of a malfunction of equipment important to safety will be increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

This PEAR will not create the possibility of a different type accident than those evaluated in the SAR. Isolating and abandoning the C-3C compressor will not affect equipment important to safety and will not create conditions which could cause other equipment malfunction or different plant response than those previously evaluated in the SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

This PEAR does not affect equipment important to safety and the affected equipment does not support operability of equipment important to safety. The evaluated changes will isolate and abandon equipment that has been idle for several years. The proposed changes will not affect the SA system reliability or create plant conditions which could cause a malfunction of equipment important to safety that is different than any previously evaluated.

7. Will the margin of safety as defined in the bases for any technical specification be reduced? Yes ☐ No ☒

The margins of safety in the technical specification bases are not affected by the changes to the SA system evaluated by this PEAR. The technical specification bases do not specifically address this equipment and are not impacted by discontinuing operation of the C-3C compressor.

Certified Reviewer's Signature	Iver J. Jacobson Printed Name	4/15/99 Date

Reviewer's certification expiration date: 1/26/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date
N/A		

PSC review by: ___ Date: 6/24/99

Document No. 1000.001 Rev./Change No. 029-03-0

Title Organization and Responsibilities

Brief description of proposed change: Renewal organization changes for Nuclear Safety and Quality

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No X

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☒ No☐

   Core Operating Limits Report Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

   QAMO? Yes☒ No☐

   E-Plan? Yes☒ No☐

Document No. **1000.001** Rev./Change No. **029-03-0**

Basis for Determination (Questions 1, 2 & 3): The ANO Nuclear Safety organization and Echelon Operations Support organization are to implement EOI Renewal initiated organizational changes which affect the organizational structure and assignment of functional responsibilities related to operation and administration of ANO to be effective September 2, 1999. 8/20/99

The changes to be implemented are administrative and do not effect addition nor deletion of any functions or responsibilities as defined in regulatory requirements or license commitments. The changes modify some titles, institute new titles and relocate some functional responsibilities and reporting relationships.

These changes affect organization functions and responsibilities other than those specifically discussed in the Unit 1 & 2 Tech Specs. Accordingly, there is no change required in the Operating License Documents.

The Unit 1 & 2 SARs, which have recently been updated to include organization and responsibility descriptions previously included as Section 1 of the ANO QA Manual Operations, are affected by the organizational changes. However, as stated above, there are no additions nor deletions of functions associated with these changes. The changes are administrative in nature and do not impact any regulatory requirements or commitments.

Changes covered by this review are as follows:

1000.001/ Unit 1 & 2 SAR/QAPM/Emergency Plan changes:

- Change responsibility for the Quality organization from the Director, Nuclear Safety to the new position of Manager, Quality Assurance reporting to the new offsite position of Director, Oversight with onsite management interface/communications on quality related matters through the Director, Nuclear Safety Assurance.
- Delete Coordinator, Quality position.
- Title changes of Quality organization supervisory staff from Supervisor(s),QA/QC/NDE to Supervisor(s), Audits, Inspections, NDE.
- Change Director, Nuclear Safety title to Director, Nuclear Safety Assurance
- Change Manager, Nuclear Safety title to Manager, Licensing and delete Supervisor, Licensing positions.
- Add Manager, Corrective Action & Assessment and delete Supervisor, IHEA and Supervisor, IEA
- Delete section describing Manager, Material Requirements although offsite position of Manager, Material Requirements remains and reports to the Director, Oversight
- Adjust SAR organization charts (Figures 12-6 for Unit 1 and Figure 13.1-5 for Unit 2 to show title changes, new positions and respective reporting
- Adjust E-Plan Figure B-1 to show change to Director, Nuclear Safety title and addition of Manager, Quality Assurance

For each of the changes, compliance with the applicable regulatory requirements and commitments are maintained and no specific activities or functions are deleted. Additionally, the changes do not affect training requirements or personnel qualifications necessary for any required plant function.

For those positions deleted, the required functions and responsibilities are transferred or integrated into other positions and departmental functions. For new positions, no new functions were added. The new positions are added to distribute responsibility and strengthen the hierarchical structure of the overall ANO and offsite support staff.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item # __, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59 common	**All (Nuclear Safety), coordinator, NDE, (Quality Control), organization, organization's, Licensing, Audit, (material requirements), organizational, quality, (industry events)**

MANUAL SECTIONS:

FIGURES:
EP(Figure B-1), U-1 SAR(Fig. 12-6), U-2 SAR(Fig. 13.1-5)

Wm M Butzlaff — Certified Reviewer's Signature | **William M. Butzlaff** — Printed Name | **8/25/99** — Date

Reviewer's certification expiration date: **1/12/00**

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Guy Kevin Floyd — Certified Reviewer's Signature | Guy Kevin Floyd — Printed Name | 8-26-99 — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. 1000.001 Rev./Change No. 029-03-0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FFN

10CFR50.59 Eval. No. 99-067
(Assigned by PSC)

Document No. 1000.001 Rev./Change No. 029-03-0

Title Organization and responsibilities

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

The organizational changes modify titles and reporting requirements, and relocate functional responsibilities for the Nuclear Safety and Quality organizations at ANO. Personnel qualifications, training requirements, and level of responsibility for principal plant management are not impacted by this change. Current processes and programs that control plant design and compliance with regulatory requirements and commitments are unchanged. Therefore, because this is an administrative change that does not decrease the level of authority of the plant management staff, this change does not increase the probability of occurrence of an accident previously evaluated in the SARs.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

Yes ☐ No ☒

The organizational changes modify titles and reporting requirements, and relocate functional responsibilities for the Nuclear Safety and Quality organizations at ANO. Personnel qualifications, training requirements and level of responsibility for principal plant management are not impacted by this change. Current processes and programs that control plant design and compliance with regulatory requirements and commitments are unchanged. Therefore, because this is an administrative change that does not affect the level of personnel qualification or responsibility, or affect plant processes, this change does not increase the consequences of an accident evaluated previously in the SARs.

3. Will the probability of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

The organizational changes modify titles and reporting requirements and relocate some functional responsibilities for the Nuclear Safety and Quality organizations.
Personnel qualifications, training requirements and level of responsibility for principal plant management are not affected by this change. Current processes and programs that control plant design and compliance with regulatory requirements are unchanged. Therefore, because this is an administrative change that does not affect the level of personnel qualification or responsibility for plant management, or affect plant processes, this change does not create the possibility of an accident of a different type than any evaluated previously in the SARs.

4. Will the consequences of a malfunction of equipment important to safety be increased?

Yes ☐ No ☒

ARKANSAS NUCLEAR ONE		
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The organizational changes modify titles and reporting requirements, and relocate some functional responsibilities. This is an administrative change and has no direct effect on plant equipment. Personnel qualifications, training requirements, and level of responsibility for plant management associated with the design and maintenance of plant equipment are not impacted by this change. Therefore, this change has no effect on the probability of occurrence of a malfunction of equipment important to safety evaluated previously in the SARs.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

Yes ☐ No ☒

This change is an administrative change that does not decrease the level of personnel qualification or responsibility for plant management associated with design and maintenance of plant equipment nor does it affect plant processes. Therefore, this change does not increase the consequence of a malfunction of equipment important to safety evaluated previously in the SARs.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

Yes ☐ No ☒

Since this change is an administrative change, modifying some titles and reporting requirements, which does not affect personnel qualification, training requirements and level of management associated with design and maintenance of plant equipment, this change does not create the possibility of an accident of a different type than any evaluated previously in the SARs.

7. Will the margin of safety as defined in the basis for any technical specification be reduced?

Yes ☐ No ☒

This change is an administrative organizational change that is not related to Tech Spec Bases including any margin of safety described therein. This change has no effect on any plant process discussed in the Tech Specs and therefore, this change does not reduce any margin of safety as defined in the basis for ant Tech Spec.

Certified Reviewer's Signature: _____ Printed Name: William M. Butzlaff Date: 8/25/99

Reviewer's certification expiration date: 1/12/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 9/2/99

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 4 Pages.

Document No. 1000.028 Rev./Change No. 022-02-0

Title Control of Temporary Alterations

Brief description of proposed change:

The procedure is being revised so that calibration of protective relays on operable equipment is excluded from the requirements of the Temporary Alteration Procedure. A new exclusion is being added to Attachment 2 of the procedure.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. 1000.028 Rev./Change No. 022-02-0

Basis for Determination (Questions 1, 2, & 3):

Most of the protective relays installed the U1 and U2 switchgear are provided with design features that allow removal of the relay from an inservice load with out making the load inoperable. Also, the protective relay schemes on many of the loads provide overlapping (or redundant) protection, such that removal of one relay will not degrade the protection of the equipment. Exclusion # 12 of the Temporary Alteration (TA) Procedure excludes instrument calibration from the requirements of the TA procedure, but is doesn't specifically address protective relays. To avoid the possibility of incorrectly interpreting Exclusion #12, it was decided that a new, specific exclusion should be added to cover protective relays. This procedure change adds "Exclusion # 24" to the Temporary Alteration Procedure.

Existing calibration tasks and procedures for the protective relays provide adequate work control to ensure that relays that are removed for calibration are reinstalled upon completion of the task. The majority of the protective relays have connecting plugs (pie-plates) to facilitate removal of the relay with no impact on the operation of the protected equipment. The connecting plug essentially takes the relay out of the circuit so that the relay can be removed for maintenance. No specific instructions are needed to cover the use of the connecting plugs, and no specific PMT is needed when re-installing a relay and connecting plug.

Not all protective relays will be included by this new exclusion. Only those relays that can be removed without degrading the level of protection of the protected equipment will be removed. This includes most of the relays on the switchgear, including those associated with motor loads, and load centers supply breakers. Any loss (or reduced redundancy) of the Technical Specification (TS) function (detecting under-voltage, separating from offsite power, shedding busses, starting EDGs and sequencing loads, etc) is not be allowed under this exclusion.

In most applications, protective relaying doesn't serve a safety function, so removal of the relay will not impact the operability of the protected equipment. The applicable breaker will still be able to perform it's safety function of supplying Class 1E power to the safety load. These protective relays only detect and attempt to limit the damage caused by a fault, however, they don't prevent faults. Of course, some protective relays do have safety functions (detecting under-voltage, separating from offsite power, shedding busses, starting EDGs and sequencing loads, etc), and removal would make the associated equipment inoperable. Removal of these relays is not allowed under this exclusion.

Answers to Questions 1, 2 and 3:

1. The U1 and U2 Operating License Documents do not address in-service calibration of protective relays, and contain no statements that would be made untrue by the removal of a protective relay.

2. The U1 License Based Documents address protective relays in numerous locations, but not in any detail that would prohibit removal of a relay from inservice equipment for calibration. Calibrating relays on running equipment will not make any SAR documents untrue or inaccurate. The U2 SAR, however, does contain statements that motor and feeders have 3 overcurrent relays and is also shown on several SAR figures. Equipment is allowed to be taken out of service for maintenance and calibration for reasonable time periods. This does not violate requirements in the SAR, and no LDCR change is necessary for temporary removal of one protective relay.

3. No testing is required by this procedure revision. Actual calibration of the protective relays is covered by other approved plant procedures

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____ (If checked, note appropriate item #, send LDCR to Licensing).

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Document No. 1000.028 Rev./Change No. 022-02-0

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS: **ALL (U1, U2)**	**Keywords: (Relay), (Antimotoring), (Overcurrent), (Protective w/5 relay), (Voltage Balance), (Calibration w/5 relay), (Overvoltage), (Ground Fault), (Online) (Different* w/5 relay), (Connecting Plug), (Neg* w/5 phase), (relay testing), (Switchgear Maintenance)**

MANUAL SECTIONS: **U1 SAR Chapter 8, 8.3, 8.3.1.3** **U2 SAR Chapter 8**

FIGURES: **U1 SAR Figure 8-1** **U2 SAR Figures 8.3-1, 8.3-2, 8.3-3, 8.3-4, 8.3-5**

Certified Reviewer's Signature	Printed Name	Date
	John Mike Ekis	1/16/99

Reviewer's certification expiration date: 4/22/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
Thomas Marshall	Review of U2 LBDs	1/16/99

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
	Thomas Marshall	1/16/99

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 1000.028 Rev./Change No. 022-02-0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Page ___ of

10CFR50.59 Eval. No. FEN-99-014
(Assigned by PSC)

Document No. **1000.028** Rev./Change No. **022-02-0**

Title **CONTROL OF TEMPORARY ALTERATIONS**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

The activity addressed is removing protective relays, one at a time, for a limited time, for purposes of calibration, from motors and Load Center feeders. With one relay removed, adequate protection will be maintained by the other relays, and the protected equipment will remain operable. No relays required by Tech Specs are included in this exclusion.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   This activity does not impact any accident initiator for any accident previously evaluated in the SAR. This activity cannot cause any accident previously evaluated in the SAR. Therefore, It will not increase the Probability of any accident previously evaluated.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   This activity will not impact radiation dose consequences for any accident evaluated in the SAR. It will have no impact on mitigating the dose consequences of any accident. This activity cannot cause any accident evaluated in the SAR and will not impact any mitigating actions which are taken credit for in the SAR. Therefore, the consequences of an accident previously evaluated in the SAR will NOT be increased.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   This activity cannot cause a malfunction of equipment important to safety. Protective relays have design features allowing them to be removed with no impact to the protected equpment. Since it cannot cause a malfunction, then the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

This activity does not impact any mitigation measures or equipment and will not affect dose consequences for the malfunction of any Safety-related equipment. There will still be adequate overcurrent protection even with one relay removed, so a malfunctioning piece of equipment will still be isolated from the bus. Therefore, consequences will not be increased.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

This activity cannot cause an accident. The relays are to limit or prevent damage from a fault and not for Nuclear Safety concerns. Adequate relaying protection will be maintained, and the protected piece of equipment will still be operable with one relay removed. The accidents evaluated in the SAR bound any accident that could be postulated, to be caused by this activity.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

This activity cannot cause a malfunction of equipment important to safety. These relays are to limit damage to the equipment in case of a fault and do not serve a safety function. Adequate relaying protection will be maintained, and the protected piece of equipment will still be operable with one relay removed. Therefore, this activity cannot create the possibility of a malfunction of equipment different than evaluated in the SAR.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

This activity will not require removing any equipment from service when it is required to be operable and will have no impact on any margin of safety specified or implied in the bases for any technical specification.

Thomas N. Marshall — Certified Reviewer's Signature

Thomas N. Marshall — Printed Name

1/15/99 — Date

Reviewer's certification expiration date: 7/15/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 1/25/99

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. 1000.043 Rev./Change No. 016-02-0

Title Steam Generator Water Chemistry Monitoring Unit II

Brief description of proposed change: PC to incorporate specifications for high pH operation.

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☒

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☒ No☐

   Core Operating Limits Report Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

Document No. Rev./Change No. 016-02-1

Basis for Determination (Questions 1, 2 & 3):

See page 4.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59-Unit 2	**All Key words- (feedwater w/30 ph, condens* w/30 ph, ammonia, hydrazine, ETA, ethanolamine, copper, iron, secondary w/30 ph, polisher, start* w/30 blowdown, demineralizer, DI, amine*, NH3, N2H4, Cu, Fe)**
MANUAL SECTIONS:	
	Unit 2 SAR 10.3,10.4
FIGURES:	
	Unit 2 SAR 10.4.5

Philip C. Robbins — Certified Reviewer's Signature

Philip C. Robbins — Printed Name

7-22-99 — Date

Reviewer's certification expiration date: **11-10-00**

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

N/A — Certified Reviewer's Signature

N/A — Printed Name

N/A — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **1000.043** Rev./Change No. **016-02-0**

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

This procedure change provides specifications for operating the Unit 2 secondary system with elevated pH. Higher pH will result in lower feedwater iron corrosion and transport. The pH could not be increased in the past because of potential copper corrosion. The copper condenser tube bundles have been changed to titanium. The only significant copper components remaining are the steam generator blowdown heat exchangers. System Engineering evaluated the effect of operating the heat exchangers under high pH conditions. The report concluded that the heat exchangers can be operated with high pH for the interim (until replacement in 2R14).

The bases for questions 1-3 are listed below.

1. No –The license-based documents do not contain specifications for secondary pH. They also do not address modes of operation for the secondary demineralizer.

2. Yes – The SAR documents contain tables that list secondary pH specifications. A LDCR (2-10.3-0011) has been turned in based on a previous evaluation. This LDCR (not yet in place) removes the SAR tables. This change also states that the condensate demineralizer may be bypassed. Operating without a demineralizer causes some discrepancy with the SAR. Design Engineering performed a 50.59 evaluation, which addresses these SAR discrepancies.

3. No – Increasing secondary pH is not a test or experiment.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

10CFR50.59 Eval. No. ~~FMN~~ EFN 99-050
(Assigned by PSC)

Document No. 1000.043 Rev./Change No. 016-02-0

Title Steam Generator Water Chemistry Monitoring Unit II

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   See attached.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   See attached

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   See attached.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

   See attached

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   See attached.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

   See attached

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

See attached.

Philip C. Robbins — Philip C. Robbins — 7-21-99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 11-10-00

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 8/9/99

Discussion

This procedure change involves revising specifications for high pH operation on the Unit 2 secondary system. In the past high pH has not been possible due to the copper tubes in the condenser. In 2R13 the tube bundles were changed out. The new tubes are made of titanium. Increasing pH will result in lower corrosion of carbon steel surfaces. As a result iron transport to the steam generators will be reduced.

The only significant copper components remaining in the system are the steam generator blowdown heat exchangers. These heat exchangers are scheduled to be replaced in 2R14. System Engineering and Design Engineering evaluated operating with high pH in the interim and concluded that the heat exchangers should not fail. The evaluation is attached.

The Unit 2 SAR contains some specifications that would be affected by this procedure change. The specifications are being removed by a previous LDCR (2-10.3-0011).

The startup-blowdown demineralizers are being modified to allow condensate to bypass them. This causes some discrepancy with the SAR. The 50.59 performed by Design Engineering identified these discrepancies. An LDCR was written to correct the SAR wording.

Answers to the seven questions on pages one and two are listed below.

1. Will the probability of an accident previously evaluated in the SAR be increased?

No. The chemistry of the secondary system affects only one accident scenario. That accident is Steam generator tube rupture with or without a concurrent loss of AC power. This accident could result from failure of steam generator tubes due to secondary side corrosion. The changes to elevate pH will result in lower feedwater corrosion and hence lower amounts of iron being transported to the steam generators. Reducing iron deposits will mean fewer crevices to concentrate impurities next to tube surfaces. A standby demineralizer will be available if needed in the case of a condenser tube leak. Therefore the probability of a previously evaluated accident will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

No. Increasing secondary pH does not play a role in changing or preventing actions described in any accident previously evaluated in the SAR. This activity does not affect any barriers to mitigate dose to the public or to release radioactive materials.

3. Will the probability of a malfunction of equipment important to safety be increased?

No. The procedure changes will not be detrimental to the steam generators. The high pH and corresponding lower deposition rates will serve to prevent corrosion of tubes. The ability of the steam generators to provide a mitigating function for accidents will be maintained. The probability of a malfunction of this equipment will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased?

No. The change maintains secondary chemistry controls. In the case of a primary to secondary leak the higher secondary pH will help keep iodine in solution. It will not result in increased radiological release or an increase in dose if failures occur in components related to safety.

5. Will the possibility of an accident of a different type than previously evaluated in the SAR be created?

No. This procedure change does not negatively affect secondary chemistry controls. It does not degrade steam generator chemistry or increase secondary corrosion. The change will actually reduce corrosion. Therefore, the possibility of an accident different than previously indicated will not be created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than that previously evaluated in the SAR be created?

No. The procedure change does not introduce a potential detrimental affect on any equipment important to safety. The change maintains or reduces the potential for corrosion, and does not introduce any type of failure mode not previously recognized or evaluated.

7. Will the margin to safety as defined in the Bases of any technical specification be reduced?

No. Section 3/4.4.5 of the Unit Two Technical Specifications Bases states " The plant is expected to be operated in a manner that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained with those limits, localized corrosion may result in stress corrosion cracking. The extent of the cracking during plant operation would be limited by the limitation of steam generator

tube leakage between the primary coolant and the secondary coolant system (primary – secondary leakage = 150 gallons per day per steam generator)." This procedure change will not result in increased steam generator corrosion, and therefore will not cause steam generator tube leakage to be affected. Therefore the margin to safety defined in Tech Spec Bases is not reduced.

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 3 Pages.

Document No. 1015.036 Rev./Change No. 006-01-0

Title Containment Building Closeout

Brief description of proposed change:

This change is to authorize positioning the incore drain tank valve RBS-8 in the OPEN position during normal operations. With the drain in the CLOSED position any leakage would be allowed to collect in the bottom of the incore tank until it exceeded the level of the incore cable tank penetrations (several inches). The valve is being positioned to allow any leakage from the incore closure assemblies to drain to the reactor building basement floor.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. 1015.036 Rev./Change No. 006-01-0

Basis for Determination (Questions 1, 2, & 3):

The only appearance of the incore tank drain valve RBS-8 within the licensing basis documents is on the Piping and Instrument Diagram M-235 SH1 (SAR figure 9-11). The technical specifications, confirmatory actions, and operating license do not address the position of this valve. The only SAR description or figure affected is Figure 9-11. A 10CFR50.59 evaluation is therefore required. Placing RBS-8 in the OPEN position does not constitute any type of test or experiment. No environmental impact will result from this change. The position of this valve does not affect dry fuel storage activities, the emergency plan, or the QA manual; a 10CFR50.54 evaluation is not required.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: Incore AND tank, incore AND tank AND drain, incore instrument tank, RBS-8

MANUAL SECTIONS: 9.6, 7.3

FIGURES: 9-11, 7-23, 7-24

Certified Reviewer's Signature	Printed Name	Date
	David N. McKenney	12/27/98

Reviewer's certification expiration date: 6/6/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
James Crabill	Extended LRS search.	12/27/98
Karen Heag	Safety Analysis Impact	12/27/98
Bill Fitzgibbon	Discussion on drain path for RBS-8	12/27/98

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
12/27/98	N/A	

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 1015.036 Rev./Change No. 006-01-0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 2 Pages.

Document No. 1015.036 Rev./Change No. 006-01-0 10CFR50.59 Eval. No. 98-160 (Assigned by PSC)

Title Containment Building Closeout

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature	Printed Name	Date
	David N. McKenney	12/27/98

Reviewer's certification expiration date: 6/6/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
Bill Fitzgibbon	Drain Path for RBS-8	12/27/98

PSC review by: _____ Date: 12/27/98

Document No. 1015.036 Rev./Change No. 006-01-0

10CFR50.59 Review Continuation Page

Will the probability of an accident previously evaluated in the SAR be increased?

Positioning Incore Tank Drain Valve RBS-8 in the OPEN position during power operations will not result in any accident previously analyzed in the SAR. The tank is drained and the cable penetrations into the bottom of the tank are open during normal operation. Opening the tank drain valve will simply prevent a shallow accumulation in the bottom of the tank should a leak occur. This drain valve is not an accident initiator.

Will the consequences of an accident previously evaluated in the SAR be increased?

Opening the drain valve will not increase the consequences of any accident. The tank drain path to the reactor building basement floor and subsequently to the sump will not impact any safety analysis or accident response. Opening the drain valve will allow the entire volume of water that might enter the incore tank during an accident requiring reactor building spray, to drain back to the sump in accordance with the design.

Will the probability of a malfunction of equipment important to safety be increased?

Opening the incore tank drain valve will not result in a malfunction of any equipment important to safety. The water which may drain to the basement floor, will not impact any safety related equipment. Keeping the bottom of the incore tank dry will prevent any damage to the incore cables and connectors. Therefore this change in valve alignment may decrease the probability of failure of the ICCMDS core exit thermocouples which are safety related.

Will the consequences of a malfunction of equipment important to safety be increased?

Drain valve RBS-8 is not utilized by any equipment important to safety. It performs no safety function. The drain path isolated by this valve is not utilized by equipment important safety.

Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

This valve is not an accident initiator. No accidents will be created by the position of this valve.

Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

The OPEN drain valve position will ensure that the incore tank is maintained drained during normal operations. This is the design condition for this tank. The OPEN valve position will ensure that the design condition is maintained and no new failure mechanisms are created.

Will the margin of safety as defined in the basis for any technical specification be reduced?

This valve position change has no effect on the margin of safety as defined in the technical specifications. There are no technical specification margins associated with this valve.

ARKANSAS NUCLEAR ONE		Page
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

This Document contains 4 Pages.

Document No. 1103.015 Rev./Change No. REV 38, PC-1

Title REACTIVITY BALANCE CALCULATION

Brief description of proposed change:

Added a work sheet allowing for SDM to be verified using the COLR rod insertion limit curves during critical operation with no inoperable rods. Specified that the minimum SDM be more negative than –1.0%dk/k by ensuring rod index is above the limit in the COLR rod insertion limit curves. Prior to this change, the limit for critical operations at all times was -1.5%, but use of the COLR rod insertion limit curves, which contain appropriate uncertainty and margin, does not require the additional 0.5% administrative margin.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☒	No☐
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. 1103.015 Rev./Change No. REV 38, PC-1

Basis for Determination (Questions 1, 2, & 3):

1. This procedure change will allow Operations to verify adequate shutdown margin during critical operations with no inoperable rods using the COLR rod insertion limit curves. This will reduce the operator burden of performing a reactivity balance calculation once per shift for SDM verification. Because the shutdown margin limit lines on the COLR rod insertion limit curves correspond to a –1.0%dk/k SDM limit, it was necessary to eliminate the additional 0.5%dk/k administrative requirement when using the curves. The rod insertion limit curves are created using NRC approved methodology and contain appropriate uncertainty and margin such that the additional 0.5%dk/k is not necessary. Technical Specification 3.5.2.1 requires that available SDM be greater than or equal to that specified in the COLR with the highest worth control rod fully withdrawn, and Technical Specification 3.5.2.5.3 requires that control rod position be in accordance with the control rod insertion limit curves in the COLR. Although shutdown margin is addressed extensively in the Operating License documents, the changes made in this PC are in accordance with Technical Specifications and the Technical Specifications and other Operating License documents do not specify the method used to calculate/verify adequate shutdown margin. Therefore, this procedure change does not require a change to the Operating License documents.

2. The SAR (multi volume set) analyses assume/require the presence of a –1.0%dk/k shutdown margin at all times. The COLR specifies that –1.0% dk/k SDM shall be maintained at all times. This is maintained by keeping control rod index above the SDM limit from the COLR rod insertion limit curves during critical operations. In addition, the Bases for Technical Specifications 3.5, and 4.9, and past SERs refer to a –1.0%dk/k shutdown margin requirement. The use of the COLR rod insertion limit curves for SDM verification with a –1.0%dk/k limit is in accordance with the SAR, COLR, past SERs, and the Bases for the Technical Specifications. This procedure change does not make these documents untrue or inaccurate, nor does it violate any of the requirements in these documents.

Section 5.6.2.A.3 of the Fire Hazards Analysis states that ANO has a procedural requirement of a –1.5%dk/k SDM. This PC changes the requirement to –1.0%dk/k SDM when using the COLR curves for verification during critical operations with no inoperable rods. This change will require a 50.59 evaluation.

3. This procedure change does not involve changing, adding , or deleting a test or experiment. The procedure change is not a test of plant systems, structures, or components since no acceptance criteria is placed on the equipment involved and their continued proper functioning is not in question. This procedure revision is not an experiment since all plant systems, structures, and components remain in normal configurations.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____. (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document Section

LRS: Unit 1 50.59 - All(shutdown margin, sdm, rod insertion limit, rod insertion w/20 limit, rod index w/20 limit, rod position w/20 limit, RIL, reactivity balance)

MANUAL SECTIONS: Unit 1 TS(3.1.3.5, 3.1.8.3, 3.5.2.1, 3.5.2.2, 3.5.2 and 4.9 Bases), Unit 1 SAR(3.1.2.2, 3.2, 3A.5.1), Unit 1 COLR, Fire Hazards Analysis (5.6.2), Unit 1 SERs (Ammendments 33, 43, 68, 103, 137)

FIGURES: Unit 1 COLR(1-A&B, 2-A&B, 3-A&B)

Jonathan M. Ralston	Jonathan M. Ralston	11/9/98
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 3/18/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Donald L Helm	DONALD L. HELM	11/23/98
Certified Reviewer's Signature	Printed Name	Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 1103.015 Rev./Change No. REV 38, PC-1

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 1 Page.

Document No. FIRE HAZARDS ANALYSIS Rev./Change No. REV. 5 10CFR50.59 Eval. No. FFN-99-010 (Assigned by PSC)

Title Fire Hazards Analysis, Section 5.6.2.A.3

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Jonathan M. Ralston — Certified Reviewer's Signature

Jonathan M. Ralston — Printed Name

11/9/98 — Date

Reviewer's certification expiration date: 3/18/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 1/13/99

1. Will the probability of an accident previously evaluated in the SAR be increased?

This change will remove a reference to a procedure requirement that is more restrictive than licensing basis requirements. The current text states that we are procedurally required to maintain an available shutdown margin of 1.5% dk/k. The Technical Specifications refer to a COLR requirement of 1.0% dk/k which is assumed in the SAR accident analyses. This change will also remove discussion of crediting the negative reactivity associated with the maximum worth stuck rod for additional shutdown margin. The current text of this discussion states that the stuck rod will have a worth greater than 1.5% dk/k. This is incorrect for the current cycle.

The required available shutdown margin (1.0%dk/k) is an assumption used in SAR accident analyses and the Reactivity Balance Update Manual (RBUM) calculations used to demonstrate compliance with 10 CFR 50, Appendix R, and is not an accident initiator. In addition, all shutdown margins assume the maximum worth rod stuck out. Therefore, removal of this procedure reference to 1.5% dk/k and discussion of crediting the stuck rod for shutdown margin from the Fire Hazards Analysis will not increase the probability of an accident previously evaluated in the SAR.

2. Will the consequences of an accident previously in the SAR be increased?

The RBUM Appendix R calculation assumes a 1%dk/k available shutdown margin with the most reactive rod stuck out. This calculation demonstrates the ability to shutdown the reactor and maintain a 1% dk/k shutdown margin during cooldown without letdown. SAR accident analyses crediting available shutdown margin also assume a 1% dk/k available shutdown margin with the most reactive rod stuck out. Therefore, removal of the 1.5% dk/k shutdown margin reference and the discussion of crediting the stuck rod for additional shutdown margin from the Fire Hazards Analysis will not alter any of the inputs or assumptions used in any accident analysis and will not increase the consequences of these accidents previously evaluated in the SAR.

3. Will the probability of a malfunction of equipment important to safety be increased?

This proposed change to the Fire Hazards Analysis will remove reference to the current procedurally required 1.5% dk/k shutdown margin and discussion of crediting the stuck rod for additional shutdown margin. Removal of this information from the Fire Hazards Analysis is editorial in nature and does not alter or degrade the performance of any plant equipment and therefore will not increase the probability of a malfunction of equipment important to safety.

4. Will the consequences of a malfunction of equipment important to safety be increased?

A 1.0%dk/k available shutdown margin with the most reactive rod stuck out is credited in SAR analyses as well as the RBUM Appendix R calculation. This requirement will ensure the reactor will be shutdown upon a reactor trip and maintain shutdown conditions during cooldown without letdown. The proposed change to the Fire Hazards Analysis does not alter any inputs, assumptions or methodologies employed in the analysis or any SAR analysis and therefore will not increase the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?

This proposed change is editorial in nature and, as discussed above, maintains all assumptions and conditions used in the accident analyses. The change will not create the possibility of an accident of a different type than previously evaluated in the SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?

This proposed change removes text from the Fire Hazards Analysis that is inconsistent with the analyses performed demonstrating compliance with 10 CFR 50, Appendix R, and other SAR analyses. Removal of this information is editorial in nature and does not alter or degrade the performance of any plant equipment and therefore will not create the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR.

7. Will the margin of safety as defined in the basis for any technical specification be reduced?

The Bases for Technical Specification 3.5.2 assume the highest worth control rod remains in the full out position in the discussion of the shutdown margin control rod insertion limit. The Bases for Technical Specification 4.9 state that a shutdown margin of at least 1%dk/k with the most reactive rod in the fully withdrawn position is always maintained. This proposed change is consistent with the bases of the Technical Specifications and will not reduce the margin of safety as defined by the basis of any Technical Specification.

Document No. **1104.024** Rev./Change No. **026-00-0**

Title **INSTRUMENT AIR SYSTEM**

Brief description of proposed change: **Statement added to description stating that the system supplies job-site filtration units which provide respirable air. Valve alignment, air dryer operation, and other editorial changes. See attached.**

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. **1104.024** Rev./Change No. **026-00-0**

Basis for Determination (Questions 1, 2 & 3):

See attached continuation sheet.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
Unit 1 50.59	**All (breath* w/10 "instrument air", respira*, grade w/20 air)**
MANUAL SECTIONS:	
Unit 1 SAR	**9.9**
FIGURES:	
Unit 1 SAR	**9-14**

Philip B. Lea — Phillip B. Lea — 10/13/99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: **2/11/2001**

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

N/A — _____ — _____

Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. 1104.024 Rev./Change No. 026-00-0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. 1104.024 Rev./Change No. 026-00-0

10CFR50.59 Review Continuation Page

Section 3.0	Added a statement in Description section that IA supplies job-site filtration units that provide OSHA grade D respirable air.

SAR section 9.9 describes the Breathing Air System as the system used for grade D respirable air. The SAR states that the Instrument Air System is designed to provide a continuous supply of compressed air for pneumatic instrument and valve operation. Therefore, since the SAR is so detailed concerning the purposes and services of the Unit 1 IA System, this procedure change will make the SAR inaccurate. A 50.59 Evaluation and a Licensing Document Change Request are submitted with this procedure change.

Section 3.3, 10.2, & 10.3	Eliminated use of the PURGE SAVER function.
Step 4.1.9	Added reference to CR-C-99-070, Lack of administrative controls for the use of IA for respirable grade air.
Step 5.2 and 5.11	Made editorial change to specify C-2A and C-2B, and C-2A and C-2B running with M-1.
Old 5.14 and 5.15	Deleted two precautions - one specified that the housing doors must be closed, the other required an unnecessarily high purge air flow for compressed air temperatures >120°F.
Old 8.4.3	Deleted step that required I&C to adjust purge air flow for high compressed air temperatures.
Note at 8.7.1	Deleted superfluous note that stated that C-2A/B are standby compressors.
Step 9.1	Replaced "Verify ***both*** IA compressors..." with "Verify ***available*** IA compressors...".
Sections 10.2 and 10.3	Edited instructions for adjusting purge air flow. Reduced desired purge rates to ~20 to 30 psig. Eliminated high purge air flow for compressed air temperatures >120°F – 52 psig has proven unnecessary. Added instruction to adjust purge flow based upon desiccant indicator. Edited 10.2.6 and 10.3.6 to better describe alternation between drying towers.
Attachment A	Page 5 of 6, for IA-736 and IA-732, expanded the footnote to direct, "Do not adjust. Throttled per 'Placing Boiler IA Compressor C-32 and Dryer M-195 into service' section."
Attachment B	Page 6 of 24, added new valve, Radwaste Vent Damper CV-2111 IA Isol (IA-2111).
Attachment B	Page 10 of 24, changed normal position of IA-195 to closed. Renamed IA-495 to match its function.
Attachment B	Page 12 of 24, changed normal position of IA-145 to closed.
Attachment B	Page 13 of 24, renamed IA-502.
Attachment B	Page 16 of 24, renamed IA-496 and IA-499.

Document No. **1104.024** Rev./Change No. **026-00-0**

10CFR50.59 Review Continuation Page

Attachment B	Page 17 of 24, changed normal position of IA-140 to closed and renamed it. Renamed IA-531 and IA-533. Deleted IA-532, it is no longer on the system.
Attachment B	Page 18 of 24, renamed IA-1026.
Attachment B	Page 20 of 24, changed normal position of IA-554 to closed and renamed it.
Attachment B	Page 21 of 24, changed normal position of IA-75 to closed and renamed it.

Valve position change are being made with DRN #99-02528. This changes SAR figure 9-14. Therefore, the attached 50.59 Evaluation addresses these changes.

Renaming valves is an approved process. This is a non-technical editorial change. There is no conflict with any LBD.

Other changes are beyond the level of detail contained in the LBDs non-technical – there is no conflict with any LBD.

Throughout	Updated format and punctuation. Eliminated the use of "increase". Replaced job request with MAI. Replace SIMs with WMS. Corrected name of IA-51. Eliminated "pending" inaccessible valve status and updated references to 1015.035.

Other than the changes mentioned above concerning the IA System supplying job-site filtration units for providing respirable air, and the changes to SAR figure 9-14, this procedure change will not require a change to the Facility Operating License, Tech Spec or any Confirmatory Order nor will it make any information inaccurate or violate a requirement in any SAR document. This procedure change does not involve a test or experiment not described in the SAR.

10CFR50.59 Eval. No. FFN # 99-098
(Assigned by PSC)

Document No. 1104.024 Rev./Change No. 026-00-0

Title INSTRUMENT AIR SYSTEM

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

This evaluation addresses two issues -- the IA System supplying job-site filtration units for respirable air, and DRN that closes five IA System valves and eliminates a sixth on SAR figure 9-14 (M-218 sh. 3).

The administrative controls that exist in Breathing Air (1601.603) ensure that the end user will obtain OSHA grade D respirable air from their respirator. For instance, 1601.603 requires informing the Control Room that they will be connecting to the system, it requires purging the system, and taking periodic samples of system air for oil and contaminates.

Closing the five valves on the SAR figure will remove hundreds of feet of unused air lines from the active system. This will remove the IA System's exposure to breaks and leaks from these abandoned lines. The valve that is being eliminated is a spare connection that no longer exists on the system.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   Use of the IA System to supply job-site filtration units does not affect IA System performance or reliability. The IA System has sufficient capacity to support the occasional additional air load. Normally only one of four of the oil-free IA Compressors is in-service at any given time.

   Closing the five valves and eliminating the spare connection will have no affect on IA System operation. This will remove the IA System's exposure to breaks and leaks from these abandoned lines.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

   SAR section 9.9.2.3 states that the Compressed Air System is not required for safe shutdown of the plant. This change to the design purpose of the Instrument Air System will not degrade, or prevent actions described or assumed in any accident discussed in the SAR. The IA System is not Q and is not relied upon to mitigate the consequences of an accident. Utilization of the IA System to supply job-site filtration units will not hinder the IA System from performing any of its previously described design functions.

   Closing the five valves and eliminating the spare connection has neither an affect on IA System operation nor on any other plant system or component.

   Therefore there is no change to any off-dose calculations.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

This change will have no affect on IA System performance or reliability and will have no affect on any equipment important to safety.

Closing the five valves and eliminating the spare connection has neither an affect on IA System operation nor on any other plant system or component.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

This change will have no affect on IA System performance or reliability and will have no affect on any equipment important to safety.

Closing the five valves and eliminating the spare connection has neither an affect on IA System operation nor on any other plant system or component.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

This change will have no affect on IA System performance or reliability. Since administrative controls are in place to protect end users from oil and contaminates, using instrument air to supply job-site filtration units creates no credible personnel hazard.

Closing the five valves and eliminating the spare connection has neither an affect on IA System operation nor on any other plant system or component.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

Using the IA System to supply job-site filtration units can not possibly create any new type of accident different than any previously evaluated in the SAR. This change will have no affect on IA System performance or reliability and will have no affect on any equipment important to safety.

Closing the five valves and eliminating the spare connection has neither an affect on IA System operation nor on any other plant system or component. There is no conceivable way this change could create any new malfunction of any equipment.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

The IA System is not mentioned in the bases of any Tech Spec.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3

Phillip B. Lee — Phillip B. Lee — 10-13-99

Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 2-11-2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 10/29/99

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

This Document contains 4 Pages.

Document No. 1403.190 Rev./Change No. 1

Title TEMPORARY POWER TO THE ADMINISTRATION BUILDING

Brief description of proposed change:

This procedure revision adds an additional method of supplying temporary power to the B9 load center in the admin building. The normal supply to B9 is from breaker A116. The new method supplies 4160VAC power from breaker A206. This requires that the original B9 field cables be disconnected from the back of A116, and temporarily spliced to cables from A206. The splice will be located in the rear of cubicle A116, but will be insulated from the A116 buswork. This will allow A1 to be deenergized for maintenance without losing the admin building power for the duration of the maintenance. To make the splice, the admin building will have to be powered down for a short period of time. During this time, the security diesel will be carrying the security loads.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. 1403.190 Rev./Change No. 1

Basis for Determination (Questions 1, 2, & 3):

Maintenance is required on the A1 switchgear during odd numbered outages, requiring it to be deenergized. Breaker A116 is the normal supply for the Administration Building load center B9. This procedure will supply power to the Administration Building from breaker A206. None of the security diesel operation will be impacted by this procedure revision. There will be a short period of time that the Administration building is deenergized; and during this time, the security diesel will be running to supply the security loads. When the maintenance is complete, the temporary power will be removed, and the system realigned to it's normal configuration. Note: The Administration Building is a shared structure, so License Based Documents from both units were reviewed.

1. None of the U1 or U2 Operating License documents specifically address the normal supply to the Administration Building. The Operating License documents do not specifically address A116 or A206. Therefore, implementation of this procedure change will not make any of the OL Documents inacurrate.
2. The U1 SAR documents mention the Adminstration Building and it's emergency function. Unit 1 SAR figure 8-1 shows the Administration Building powered from A1. This figure will be inaccurate for the period of time that temporary power is supplied to the Administration Building. Since this is a temporary condition, no LDCR is needed. The U2 SAR documents do mention that the Administration Building is a shared system., but do not address the power supply for the building. The U1 and U2 SAR documents mention that the TSC SPDS Console is powered from a diesel backed supply. The will remain true even if temporary power is supplying the building.
3. This procedure change involves no tests or experiments other than normal PMT (meggering, phase rotation checks).

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: ALL(Common) Keywords: (Admin* w/10 build*), (B9), (A116), (A206), (Splice), (X9), (Security w/5 Diesel)

MANUAL SECTIONS: U1 SAR Chapter 8, Section 5.3.5.1; U2 SAR Chapter 8

FIGURES: U1 SAR Figure 8-1, U2 SAR Figure 8.3-4

Certified Reviewer's Signature	Printed Name	Date
	John Ekis	6/16/99

Reviewer's certification expiration date: 3/31/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
none		

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1, 2

Search Scope Review Acceptability (NA, if perfomed by Technical Reviewer per 1000.006)

Gary Sullins	Gary Sullins	8-4-99
Certified Reviewer's Signature	Printed Name	Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 1403.190 Rev./Change No. 1

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 2 Pages.

Document No. Procedure 1403.190 Rev./Change No. 1 10CFR50.59 Eval. No. FFN-99-056 (Assigned by PSC)

Title Temporary Power to the Administration Building

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

This procedure revision provides instructions for powering the Administration Building from spare breaker A206 instead of its normal supply of A116. Unit 1 SAR figure 8-1 shows the Admin Bldg supplied by A1, therefore, the SAR will be untrue while temporary power is being supplied. Admin Building power, whether from A116 or A206 is non-Q, non-ESF. Therefore, any accident involving admin bldg power will be bounded by a loss of off site power event, which is addressed in the U1 SAR.

There is another source of power in the admin building, the security diesel, which supplies the security loads. This procedure will in no way impact the ability of the security diesel to perform it's function.

1. **Will the probability of an accident previously evaluated in the SAR be increased?** Yes ☐ No ☒

   Neither the administration building nor the A2 bus is considered to be an accident initiator for any accident previously evaluated in the SAR. Therefore, powering the admin bldg from the A2 bus cannot increase the Probability of any accident previously evaluated in the SAR.

2. **Will the consequences of an accident previously evaluated in the SAR be increased?** Yes ☐ No ☒

   This activity will not impact radiation dose consequences for any accident evaluated in the SAR. The only accident that can possibly be tied to this activity is a "Loss of offsite power", and it is highly unlikely that this would occur as a result of connecting the admin building to A206. Per the SAR, a loss of offsite power will have "no resulting radiological hazard to station operating personnel or to the public, since only secondary system steam is discharged to the atmosphere". Therefore, the consequences of an accident previously evaluated in the SAR will NOT be increased.

3. **Will the probability of a malfunction of equipment important to safety be increased?** Yes ☐ No ☒

   There is no equipment important to safety impacted by this activity. Both the A2 bus and the B9 load center in the admin bldg are non-Q components. A failure of this equipment would not result in any Safety-related equipment being out of service. Therefore, the probability of a malfunction of safety-related equipment is not increased.

4. **Will the consequences of a malfunction of equipment important to safety be increased?** Yes ☐ No ☒

   Neither the A2 bus, nor the admin building are relied upon to mitigate an accident, or to mitigate the malfunction of equipment important to safety. Therefore, there can be no increase in the off-site dose caused by this activity.

5. **Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?** Yes ☐ No ☒

   The accidents evaluated in the SAR bound any accident that could be postulated by this activity. The worst case scenario that could possibly result from powering the admin building from A2 would be a loss of offsite power, which has been previously evaluated in the SAR.

6. **Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?** Yes ☐ No ☒

   The only type malfunction this activity could possibly create is the loss of offsite power, however, that does not involve equipment important to safety. Powering the admin bldg from A2 will have no impact on any equipment important to safety. The only impact it might have is a slight load increase on the A2 bus, but not anywhere near the capacity of the bus. Therefore, there will be no possibility of creating a malfunction of a "Q" equipment of a different type previously evaluated in the SAR.

7. **Will the margin of safety as defined in the basis for any technical specification be reduced?** Yes ☐ No ☒

   This activity will not require removing any equipment from service when it is required to be operable and will have no impact on any margin of safety specified or implied in the bases for any technical specification. None of the tech spec bases contain any reference to the A2 bus or to the admin building load center.

Certified Reviewer's Signature	John (Mike) Ekis Printed Name	Date

Reviewer's certification expiration date: 3/31/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date
None		

PSC review by: _____ Date: 8/12/99

Document No. **1617.009** Rev./Change No. **14/PC-4**

Title **PANEL 2C357 VALVE ALIGHMENT**

Brief description of proposed change: **Added requirement for chemist to contact U2 Ops to verify 2RE-8231-1 is not aligned for periodic containment building pressurization when performing U2 Containment Air Surv. Also deleted U1 and U2 PASS pressurizer water and steam space sampling instructions from procedure.**

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ Nox

   Operating License? Yes☐ Nox

   Confirmatory Orders? Yes☐ Nox

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yesx No☐

   Core Operating Limits Report Yes☐ Nox

   Fire Hazards Analysis? Yes☐ Nox

   Bases of the Technical Specifications? Yes☐ Nox

   Technical Requirements Manual? Yes☐ Nox

   NRC Safety Evaluation Reports? Yes☐ Nox

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ Nox

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ Nox

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ Nox

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ Nox

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

   QAMO? Yes☐ Nox

   E-Plan? Yesx No☐

Document No. **1617.009** Rev./Change No. **14/pc-4**

Basis for Determination (Questions 1, 2 & 3):
Please see Page 4.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59 Common	**All (post accident sampling, pressurizer w/10 post accident sampling, pressurizer steam space, pressurizer water space, 2re-8231-1)**
MANUAL SECTIONS:	
U1 SAR	**Section 9.2.2**
U2 SAR	**Section 9.3.2.1**
	Section 9.3.2.2.4
EPLAN	**Section I 2.2.6**

FIGURES:
None

Certified Reviewer's Signature	Printed Name	Date
	Greg Stephenson	**8/4/98**

Reviewer's certification expiration date: **1/5/00**

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature	Printed Name	Date
NA	NA	NA

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **1617.009** Rev./Change No. **14/pc-4**

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	x	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	x	Increase thermal discharges to lake or atmosphere?
☐	x	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	x	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	x	Modify the design or operation of cooling tower which will change drift characteristics?
☐	x	Install any new transmission lines leading offsite?
☐	x	Change the design or operation of the intake or discharge structures?
☐	x	Discharges any chemicals new or different from that previously discharged?
☐	x	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	x	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	x	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	x	Result in a change to nonradiological effluents or licensed reactor power level?
☐	x	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

Document No. 1617.009 Rev./Change No. 14/PC-4

10CFR50.59 Review Continuation Page

Discussion–

Chemistry Procedure 1617.009, "Panel 2C357 Valve Alignment," is being revised to remove instructions for sampling Unit 1 & 2 pressurizer gas space and water space using the PASS system. This is being done as a result of a PASS pressurizer sample line code evaluation performed by Design Engineering. The evaluation determined that existing PASS valves which would be used to obtain a pressurizer sample are not rated for the theoretical temperatures and pressures exhibited by pressurizer samples thus, not meeting the line class code. Therefore, Design Engineering requested that Chemistry delete the pressurizer sampling instructions from 1617.009 to rectify the condition. From a regulatory standpoint, the only required sample points for commitment purposes are the RCS Hotleg, Containment Sump, and Containment Air. Thus, deleting these two sample points will not affect NRC PASS commitments.

Along with this procedure change, a requirement is being added for Chemistry to verify that 2RE-8231-1 is not aligned for periodic containment building depressurization when performing a Unit 2 PASS Containment Air grab sample. This requirement is being transferred from a previously approved Operations Procedure 2104.015, "Post Accident Sampling System", therefore, no further evaluation will be performed on this issue.

Basis for Determination–

Question 1: Will the proposed activity require a change to the Operating License (TS, OL, & CO)?

Answer: This procedure change includes deleting PASS pressurizer water and steam space sampling instructions due to line class code requirement issues. The PASS sampling requirements are not specifically mentioned within the Operating License. Therefore the change being made to this procedure will not conflict or result in the information contained within the Operating License being untrue.

Question 2: Will the proposed activity result in the SAR documents {COLR, SAR, QAMO, EP, FHA, TS Bases, & SER} (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document?

Answer:

Both Unit 1 & 2 SAR's state that pressurizer water and steam space samples are available using the PASS system. An LDCR has been submitted to revise Unit 1 SAR Section 9.2.2 and Unit 2 SAR Sections 9.3.2.1 and 9.3.2.2.4 by adding a statement to clarify that although pressurizer steam and water space samples can be

aligned to the post accident system, this is not done due to code compliance issues regarding associated PASS sample valves. The Emergency Plan Manual Section I 2.2.6 also states that the pressurizer samples are available using the PASS system. The same clarification statement used in the SAR's will be added to the Emergency Plan Manual.

Question 3: Will the proposed activity involve a test or experiment not described in the SAR?

Answer: This procedure modification does not involve a test or experiment that is not already described in the SAR.

10CFR50.59 Eval. No. FEN-98-117
(Assigned by PSC)

Document No. **1617.009** Rev./Change No. **14/PC-4**

Title **PANEL 2C357 VALVE ALIGNMENT**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased?

   Yes ☐ No X

   The probability of an accident previously evaluated in the SAR will not be increased. The equipment affected by this change is not credited with initiating any of the evaluated accidents in the SAR. This change will not create any new conditions that would increase the likelihood of the events which are credited with initiating an evaluated accident.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

   Yes ☐ No x

   The consequences of an accident previously evaluated in the SAR will not be increased. This change will not affect off-site conditions following an accident. The change involves deleting pressurizer water and steam space sampling instructions using the Post Accident Sampling System. The deleted instructions are not relied upon for accident mitigation and will not hinder equipment which is relied upon for accident mitigation.

3. Will the probability of a malfunction of equipment important to safety be increased?

   Yes ☐ No x

   The probability of a malfunction of equipment important to safety will not be increased. The scope of this change involves removing pressurizer water and gas space sampling instructions from Chemistry Procedure 1617.009. The instructions are being removed based upon line class code compliance issues and the fact that due to the boiling mechanism ongoing in the pressurizer and the limited means for volume turnover in the tank, the radiochemical data provided by these sample points would be of extremely limited usefulness. Based upon this fact and lack of specification in NUREG 0737, the only required sample points for commitment purposes are the RCS Hotleg, Containment Sump, and Containment Air. Removal of these instructions will not affect the required sample points. Furthermore, deletion of the aforementioned sampling instructions will not increase the probability of a malfunction of equipment important to safety.

4. Will the consequences of a malfunction of equipment important to safety be increased?

   Yes ☐ No x

   The consequences of a malfuction of equipment important to safety will not be increased by this change. There are no new accident conditions or events created by this change which would result increased.

consequences to the plant or public from a malfunction of safety related equipment. Existing accident analysis and plant operating parameters will not be challenged or changed.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No x

The possibility of an accident of a different type other than any previously evaluated in the SAR will not be created. There are no new conditions or plant operating practices resulting from this change which would cause a new or different type of accident than those already evaluated in the SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No x

The possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR will not be created. This change does not modify or change any equipment important to safety. There are no new failure modes for equipment important to safety created by this change.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No x

There are no margins of safety defined in the technical specifications bases for the affected Post Accident Sampling System components. The margins of safety defined in the T.S. bases for other systems will not be changed or affected

Certified Reviewer's Signature _____ Greg Stephenson (Printed Name) _____ 8/4/98 (Date)

Reviewer's certification expiration date: 1/5/00

Assistance provided by:

Printed Name | Scope of Assistance | Date

PSC review by: _____ Date: 8/31/98

99-1-002, Rev. 0 FORM TITLE:	ARKANSAS NUCLEAR ONE		Page 1
	10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

This Document contains 4 Pages.

Document No. TAP-99-1-002 / EL 99/329E102 Rev./Change No. 0

Title CONNECT NITROGEN TO CONDENSER E11A AND E11B

Brief description of proposed change:

This Temporary Alteration connects the Low Pressure Nitrogen Supply Header to the Unit 1 condenser hotwells to suppress the dissolved oxygen content in the condensate system.

The maximum available pressure will be limited by the low-pressure nitrogen relief valve PSV-8332. This will require valve N2-118 to be maintained in the open position to insure that the hose is protected by this relief valve. The permanent pressure regulator(s) will be utilized to control normal operating pressure. A flow indicator will be used to measure flow. Isolation valves will be provided to allow securing a nitrogen or vacuum leak. The effects of nitrogen on condenser vacuum will be self-limiting since the volumetric capacity of the vacuum pump(s) increases with decreasing vacuum.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

Document No. TAP-99-1-002 / EC 991329E10 / Rev./Change No. 0

Basis for Determination (Questions 1, 2, & 3):

1. The ANO-1 technical specifications, operating license and confirmatory orders do not detail the low-pressure nitrogen demands; therefore no change will be required as a result of this alteration.
2. The Unit 1 SAR figures10-2 (M-204 sh1) and 9-4 (M-233 sh1) depict the connection point that adds nitrogen into the condensate system and the required valve lineup. Installation of this alteration will make these SAR figures inaccurate due to the addition of the previously mentioned connections. No other information in the LBD will be made untrue by this installation.
3. The continuous addition of nitrogen to the Unit 1 condenser does not constitute a test or experiment. It is simply a performance improvement in addition to the permanently installed nitrogen addition system.
4. This temporary alteration will not result in an impact to the environment.
5. The alteration does not require an RSE. The attachments to the nitrogen system and the hotwells are outside of any radiologically controlled area.
6. Although the VSC process utilizes nitrogen, the N2 system will still have adequate capacity to allow processing spent fuel.
7. The alteration has no impact on the QAM or the Emergency Plan.

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ___ (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS; the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: Condenser, Nitrogen

MANUAL SECTIONS: 9, 10

FIGURES: 9-4, 10-2

Certified Reviewer's Signature	David N. McKenney Printed Name	1/20/99 Date

Reviewer's certification expiration date: 6/6/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

N/A Certified Reviewer's Signature	NA Printed Name	

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. TAP-99-1-002 /ER 99/329 E/0 Z Rev./Change No. 0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

Document No. TAP-99-1-002/~~E2991329~~ E162 Rev./Change No. 0 10CFR50.59 Eval. No. FFN-99-013 (Assigned by PSC)

Title CONNECT NITROGEN TO CONDENSER E11A AND E11B

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature	Printed Name	Date
	David N. McKenney	1/19/99

Reviewer's certification expiration date: 6/6/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 1/19/99

Document No. TAP-99-1-002 /EC 991329E102 Rev./Change No. 0

10CFR50.59 Review Continuation Page

The addition of an additional temporary nitrogen supply to the Unit 1 condensers has the possibility to affect the nitrogen system and the condenser for each unit.

The nitrogen system supplies high pressure nitrogen to maintain the proper pressure on the Unit 1 Core Flood Tanks and the Unit 2 Safety Injection Tanks. The nitrogen system also supplies nitrogen over pressure blankets for many of the tanks in the radioactive waste systems on both units.

The condenser will be the recipient of the nitrogen supplied through the installation of this temporary alteration. The addition of nitrogen to the condenser for each unit will reduce the amount of dissolved oxygen in the condensate/feedwater. Vacuum in the condenser is normally maintained by condensing steam and the vacuum pumps. The vacuum pumps and associated air ejectors also remove non-condensables from the condenser. Addition of the nitrogen supply to the condenser will require the vacuum pumps to extract more non-condensables.

1. The accidents evaluated in the SAR, which are even remotely related to the installation of this alteration, are Loss of Vacuum, Steam Generator Tube Rupture, and Waste Gas Tank leakage or Rupture.

   The addition of the relatively small amount of nitrogen to the condenser will not result in the failure of the condenser vacuum system's ability to maintain sufficient vacuum on each unit. The ability of the condenser to maintain the proper vacuum will not be changed, since the condenser vacuum pumps have adequate capacity to overcome the small amount of nitrogen introduced by this alteration.

   The nitrogen system will be required to supply a continuous supply of nitrogen to both the Unit 1 and Unit 2 Condensers as well as maintain the pressure in the Core Flood Tanks, SIT Tanks, and various Radioactive Waste tanks. The Core Flood and SIT tanks are maintained at a certain pressure by batch feeding nitrogen and then bottling up the tanks. The Radioactive Waste tanks are maintained at a relatively low pressure. The Nitrogen system has sufficient capacity to supply both units' condensers as well as the other design loads. The additional load to the nitrogen system will not initiate any of the accidents evaluated in the SAR, therefore the probability of the steam generator tube rupture, or waste gas tank rupture, is not changed.

2. The nitrogen system is not used to mitigate any of the accidents described in the SAR. The addition of nitrogen to the condensers will not change the consequences of a loss of vacuum accident. The steam generator tube rupture event is mitigated to some extent by the ability to maintain condenser vacuum, but since the condenser vacuum system has sufficient capacity to maintain vacuum with the additional nitrogen input, the consequences of a steam generator tube rupture is not changed. The ability of the nitrogen system to maintain a blanket on certain waste tanks will not mitigate the consequences of a tank rupture. Based on this information, the consequences of an accident previously evaluated will not change and dose rates associated with these accidents will not change.

3. The temporary alteration being installed has no direct interface with safety related equipment. The loss of the condenser's ability to maintain vacuum will result in a turbine trip. The piping system, connecting the nitrogen system to equipment important to safety, has not been affected by this alteration. Adequate isolation valves and the proper selection of hose/tubing size would minimize any impact a nitrogen line rupture would have on the overall system. The Core Flood and SIT tanks are batch fed and then isolated from the nitrogen system during normal operations, therefore none of these tanks will be adversely affected by this alteration. The safe shutdown capabilities of both Unit 1 and Unit 2 will not be changed. The probability of a malfunction of equipment important to safety is not changed by the installation of this temporary alteration.

4. Continued on the next page

4. The additional supply of nitrogen to the condenser will not change the consequences of the malfunction of any equipment important to safety. The addition of nitrogen to the condenser will not change the consequences of a waste gas tank rupture or the loss of the condenser. Although a steam generator tube rupture would result in increased activity in the secondary, the condenser vacuum system has adequate capacity to maintain vacuum even with the addition of nitrogen. Since the core flood tanks and the SIT tanks are filled one at a time and then isolated, the ability of the tanks to mitigate the consequences of a loss of coolant event will not change. No new release path(s) will be created by the installation of this temporary alteration.

5. Any accidents associated with the installation of the temporary nitrogen feed to the condenser, are bounded by the existing accident analysis in the Unit 1 and Unit 2 SAR. The only failures which could occur, are a failure of the nitrogen system, or a loss of condenser vacuum due to excessive nitrogen introduction. Since the SIT and Core Flood tanks are filled and then isolated and the other critical nitrogen loads have accumulators, failure of the nitrogen system will not create an accident of a different type than that analyzed in the SAR(s). The loss of condenser vacuum has been analyzed.

6. The equipment installed by this alteration performs no function important to safety. The installation of this temporary equipment cannot result in a new type of malfunction of existing equipment. The system parameters associated with the nitrogen system will not be changed by this alteration. No new failure mode(s) will be created as a result of this alteration.

7. The ability of the condenser to maintain vacuum conditions is discussed in the bases of the technical specifications. The ability of the condenser to maintain the proper vacuum will not be changed, since the condenser vacuum pumps have adequate capacity to overcome the small amount of nitrogen introduced by this alteration. The nitrogen system's ability to supply nitrogen to the core flood and SIT tanks will not be degraded by this alteration. The margin of safety as defined in the bases for any technical specification is not changed.

Based on the responses presented above, an Unreviewed Safety Question will not be created by the installation of this Temporary Alteration.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

This Document contains 1 Page.

Document No. TALT 99-1-005 Rev./Change No. 0 10CFR50.59 Eval. No. (Assigned by PSC) FFN # 99-070

Title TEMPORARY COOLING WATER TO VCH-3 CONDENSER

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Certified Reviewer's Signature	Printed Name	Date
	Robert J. Priore	8/25/99

Reviewer's certification expiration date: 9/17/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 9/3/99

Document No. TAI+ 99-1-005 Rev./Change No. Ø

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

No. Effected systems are the Admin Building Chiller Condenser and the Plant Fire Water System. The Admin Building Chiller Condenser is unrelated to any accident evaluated in the Safety Analysis Report. The Fire Water System is the central component of the ANO Fire Protection Program. The purpose of the Fire Protection Program is to provide protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by fire suppression activities will not compromise the ability to achieve the safe shutdown of the plant. This Alteration has been specifically engineered to not degrade the function of the Plant Fire Water System. Therfore, the effectiveness of the ANO Fire Protection Program will not be degraded and the probability of no accidents previously evaluated in the SAR, including the Chapter 6 single failure evaluation for the ECCS, will NOT be increased.

This is to say that no changes within or between accident classifications of the probability of any accident will occur due to this Alteration. It does not appear warranted to apply any addition engineering evaluation or consultation to resolve this question. No system will have to be operated outside of its design limit with the implementation of this Alteration. In a similar manner, this change will not increase the possibility of operator errors.

Each SAR chapter 14 accident was evaluated to determine the role that the Plant Fire Water System may play in those accidents. The Chapter 14 accidents reviewed include:

14.1.2.2 Startup Accident

14.1.2.3 Rod Withdrawal Accident at Rated Power Operation

14.1.2.4 Moderator Dilution Accident

14.1.2.5 Cold Water Accident (can not happen at ANO-1 per the ANO-1 SAR due to there being no check valves associated with this accident scenario and an RCP interlock preventing pump start when power is greater than 22% is part of the ANO-1 design).

14.1.2.6 Loss of Flow is caused by failure of a Reactor Coolant Pump including a locked rotor event and failure of a pump motor. This system is completely unrelated to the Reactor Coolant Pumps and their associated control system.

14.1.2.7 Stuck-out, Stuck-in, or Dropped Control Rod Accident – this system could, in no way, lead to the sticking of a Control Rod Drive Mechanism or the dropping of a Control Rod.

14.1.2.8 Loss of Load or Electric Power – the Plant Fire Water System in no way provides feedback to ANO's Electrical Distribution System.

14.1.2.9 Turbine Overspeed - the Plant Fire Water System is completely unrelated to the Turbine Control System and can not contribute to the probability of this accident occurring.

14.1.2.10 Fuel Loading Errors - the Plant Fire Water System is completely unrelated Fuel Loading and can not contribute to the probability of this accident occurring.

14.2.2.1 Steam Line Failure - the Plant Fire Water System is completely unrelated to the ANO-1 Main Steam System and can not contribute to the probability of a Steam Line accident occurring.

14.2.2.2 Steam Generator Tube Failure - the Plant Fire Water System is completely unrelated to the ANO-1 Once Through Steam Generators and can not contribute to the probability of an OTSG tube failure accident occurring.

14.2.2.3 Fuel Handling Accident - the Plant Fire Water System is completely unrelated to Fuel Handling and can not contribute to the probability of this accident occurring.

14.2.2.4 Rod Ejection Accident - the Plant Fire Water System is completely unrelated to the integrity of the Reactor Coolant System Pressure Boundary in the vicinity of the Control Rod nozzles in the Reactor Vessel and can not contribute to the probability of this accident occurring.

14.2.2.5 Loss of Coolant Accident - the Plant Fire Water System is completely unrelated to the integrity of the Reactor Coolant System and can not contribute to the probability of this accident occurring.

14.2.2.6 Maximum Hypothetical Accident - the Plant Fire Water System is completely unrelated to the Maximum Hypothetical Accident and can not contribute to the probability of this accident occurring.

14.2.2.7 Waste Gas Tank Rupture - the Plant Fire Water System is completely unrelated to the Waste Gas Tank and can not contribute to the probability of this tank rupture occurring.

Finally, the following has been determined:

The Plant Fire Water System is not an initiator of any accidents and it will not have its reliability or performance affected by this Alteration.

The Plant Fire Water System will not be operated outside of its design limits because of this alteration nor will its system interfaces be effected.

The Plant Fire Water System will not be overpressurized and the possibility of operator errors due to added complexity will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

No. The Alteration proposed for implementation is completely unrelated to the accidents evaluated in the SAR as listed in Question 1, above, so it can reasonably concluded that off-site dose (including all radiological consequences, changes in radionuclide population, release rates and durations, release mechanisms, and impact on radiation release barriers) will not increase.

It can reasonably be determined that this conclusion applies to the access to all plant areas, too. Access to no areas, post-accident, will be limited due to this Alteration.

In addition, this Alteration will not prevent actions described and assumed to occur in all of the chapter 6 and 14 accidents, it will not alter any assumptions made in evaluating those accidents, it does not play any mitigating role in controlling the consequences of those accidents, it will effect no barriers which mitigate dose to the public, and it will not introduce any new pathways for release.

- There are no actions associated with accidents described in the SAR that are effected by the Fire Water System to be changed, degraded, or prevented.
- There are no assumptions associated with those accidents effected by the Fire Water System to be altered by this change.
- This installation plays no role in mitigating the consequences of any accident evaluated in the SAR.
- The installation or use of this Temporary Alteration will not effect any barriers which mitigate the dose received by the public.
- The installation or use of this Temporary Alteration will not intorduce any new pathways for the release of radioactive material.

3. Will the probability of a malfunction of "Equipment Important to Safety" be increased?

No. This change will not effect any ""Equipment Important to Safety"", or 'Q' equipment, by degrading any aspect of performance below any design basis. The Fire Water System is engineered to mitigate fires in the plant to prevent them from affecting ""Equipment Important to Safety"". This function will not be degraded by this Temporary Alteration. This conclusion was reached by performing a simple qualitative engineering analysis (mass balance).

In addition, there will be no indirect effects on ""Equipment Important to Safety"". All of the equipment utilized in this Alteration will be selected in accordance with the appropriate industry practice – no design specifications (seismic, separation, environmental, single-failure, etc.) are associated with this cooling water system. This Alteration will not degrade the reliability of any safety systems – it will not impose additional loads outside of the analyzed design of the

Fire Water System. Neither will it delete or modify support system performance or delete or modify protection features or reduce redundancy or independence. This Alteration will not change the frequency of operations of the Fire Water System or frequency or severity of testing requirements.

Since there are no effects to any ""Equipment Important to Safety"", either directly or indirectly, there will be no increase in the probability of failure of any of this equipment and there will not be any degradation of equipment reliability.

4. **Will the consequences of a malfunction of "Equipment Important to Safety" be increased?**

No. In much the same way as in questions 2 and 3, installing this Temporary Alteration will not increase the dose to the public due to any accident evaluated in SAR chapter 6 or 14 or the Fire Hazards Analysis. No access to any areas, post-accident, will be limited due to this change. Therefore, operator actions required to mitigate the consequences of malfunction of "Equipment Important to Safety" will not be effected or limited.

Again, no "Equipment Important to Safety" will be effected by this Temporary Alteration. Even, if we were to assume that "Equipment Important to Safety", including that equipment added to the plant, malfunctioned and this change had been implemented, the malfunction would not be related to this Alteration and the consequences of that accident would not have been increased, even a tiny amount, due to this Temporary Alteration.

The installation of this Temporary Alteration will in no way effect the finding, by the NRC, that the exposure limits approved in our plant's licensing basis was acceptable. Since no exposure increase was deemed plausible because of this Alteration, the SAR (including the FHA) values for such exposures were not reviewed.

Finally, the installation of this Temporary Alteration will in no way effect the failure mode of any "Equipment Important to Safety" such that it would fail in a manner that would result in an increse in the radiological release attributed to any evaluated accident.

5. **Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?**

No. There are no types of accidents created by the installation of this Temporary Alteration involving an initiator or failure not considered in the SAR or that have consequences bounded by those currently evaluated in the SAR. Therefore, there are no unbounded accidents that are created by this change. The installation of this Temporary Alteration will not create an accident scenario similar to ones that were not explicitly evaluated in the SAR, with effects that exceed analyses that were not included in the SAR, due to their estimated effects being bounded by accidents already in the SAR.

The circumstances of the accidents evaluated in the SAR (listed above) will not be altered by this Alteration. There will be NO accident scenarios created by this change so there will be no new initiators created because of this change nor will any other scenarios that were previously enveloped by those evaluated in the SAR now have a probability that is NOT bounded by the accidents evaluated in the SAR. In a similar vein, there are no scenarios whose likelihood is now increased to the point of being credible that have consequences that are not bounded by those currently evaluated in the SAR.

There were no types of accidents that could be postulated as occurring as a result of the installation of this Temporary Alteration. Therefore, we could not test those accidents to determine if they would be bounded by accidents currently evaluated in the SAR.

6. **Will the possibility of a malfunction of "Equipment Important to Safety" of a different type than any previously evaluated in the SAR be created?**

No. There are no accidents, let alone one with circumstances different enough from those currently evaluated in the SAR, that will be created with this change. There are no initiators or failures not considered in the SAR that will be introduced by this change. Similar to question 5, this change will NOT increase the possibility of any malfunctions that were previously bounded by the SAR accidents listed in Question 1, above. All of the SAR accidents will remain bounding after this change is implemented. Since there are no malfunctions created or exacerbated by this change, there are no malfunctions that will have undesirable consequences that will be created either during normal or abnormal operations.

The first step used in determining whether the possibility of a malfunction of "Equipment Important to Safety" of a different type was to identify the types of malfunctions of Important-to-Safety-Equipment that the proposed Activity could create. There were none. Therefore, the possibility of a malfunction of "Equipment Important to Safety" of a different type than any previously evaluated in the SAR will NOT be created

TA1+ 99-1-005

7. Will the margin of safety as defined in the basis for any technical specification be reduced?

No. VCH-3 is not referenced in the ANO-1 Technical Specifications, nor is the Fire Protection System. Therefore, the margin of safety as defined in the bases of the Technical Specifications **will not be reduced.**

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 SAFETY EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2

This Document contains 1 Page.

FFN # 99-119

Document No. TALT 1-99-015 Rev./Change No. _____ 10CFR50.59 Eval. No. (Assigned by PSC) _____

Title P-6BTemporary Gear Box

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

Robert J Pierce — Certified Reviewer's Signature

Robert J Pierce — Printed Name

12/17/99 — Date

Reviewer's certification expiration date: 9/17/99

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 12/19/99

Document No. Temporary Alteration 1-99-015 Rev./Change No. _____

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

No. Effected systems are the Plant Fire Protection System and several plant areas covered by the FPS. The Plant Fire Protection System is unrelated to any accident evaluated in the Safety Analysis Report. The Plant Fire Protection System is the central component of the ANO Fire Protection Program. The purpose of the Fire Protection Program is to provide protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by fire suppression activities will not compromise the ability to achieve the safe shutdown of the plant. This Alteration has been evaluated in ER992213E302 to not degrade the function of the Plant Fire Water System below any regulatory limits. Therefore, the effectiveness of the ANO Fire Protection Program will not be degraded below any regulatory required limits and the probability of no accidents previously evaluated in the SAR, including the Chapter 6 single failure evaluation for the ECCS, will be increased.

This is to say that no changes within or between accident classifications of the probability of any accident will occur due to this Alteration. It does not appear warranted to apply any additional engineering evaluation or consultation to resolve this question. No system will have to be operated outside of its design limit with the implementation of this Alteration.

In a similar vein, this change will not increase the possibility of operator errors.

Each SAR chapter 14 and 15 (ANO-1 and ANO-2 Accident Analyses) accident was evaluated to determine the role that the Plant Fire Protection System may play in those accidents. The Chapter 14 and 15 (ANO-1 and ANO-2 Accident Analyses) accidents reviewed include:

Startup Accident, Rod Withdrawal Accident at Rated Power Operation, Moderator Dilution Accident, Cold Water Accident (can not happen at ANO-1 per the ANO-1 SAR due to there being no check valves associated with this accident scenario and an RCP interlock preventing pump start when power is greater than 22% is part of the ANO-1 design), Loss of Flow (caused by failure of a Reactor Coolant Pump including a locked rotor event and failure of a pump motor. This system is completely unrelated to the Reactor Coolant Pumps and their associated control system).

Stuck-out, Stuck-in, or Dropped Control Rod Accident – (this system could, in no way, lead to the sticking of a Control Rod Drive Mechanism or the dropping of a Control Rod).

Loss of Load or Electric, Turbine Overspeed, Fuel Loading Errors, Steam Line Failure, Steam Generator Tube Failure, Fuel Handling Accident, Rod Ejection Accident, Loss of Coolant Accident, Maximum Hypothetical Accident, Waste Gas Tank Rupture, etc.

Finally, the following has been determined:

The Plant Fire Protection System is not an initiator of any accidents, it will not have its reliability or performance affected below any regulatory limits, it will not be operated outside of its design limits nor will its system interfaces be effected, and will not be over-pressurized and the possibility of operator errors due to added complexity will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

No. The Alteration proposed for implementation is completely unrelated to the accidents evaluated in the SAR as described above so it can reasonably concluded that off-site dose (including all radiological consequences, changes in radionuclide population, release rates and durations, release mechanisms, and impact on radiation release barriers) will not increase.

It can reasonably be determined that this conclusion applies to the access to all plant areas, too. Access to no areas, post-accident, will be limited due to this Alteration.

In addition, this Alteration will not prevent actions described and assumed to occur in all of the chapter 6 and 14 and 15 (ANO-1 and ANO-2 Accident Analyses) accidents, it will not alter any assumptions made in evaluating those accidents, it

does not play any mitigating role in controlling the consequences of those accidents, it will effect no barriers which mitigate dose to the public, and it will not introduce any new pathways for release.

- There are no actions associated with accidents described in the SAR that are effected by the Fire Protection System to be changed, degraded, or prevented.
- There are no assumptions associated with those accidents effected by the Fire Protection System to be altered by this change.
- This installation plays no role in mitigating the consequences of any accident evaluated in the SAR.
- The installation or use of this Temporary Alteration will not effect any barriers which mitigate the dose received by the public.
- The installation or use of this Temporary Alteration will not introduce any new pathways for the release of radioactive material.

3. Will the probability of a malfunction of equipment important to safety be increased?

No. This change will not effect any equipment important to safety, or 'Q' equipment, by degrading any aspect of performance below any design basis. The Fire Protection System is engineered to mitigate fires in the plant to prevent them from affecting equipment important to safety. This function will not be degraded by this Temporary Alteration. Specifically, the Cable Spreading Rooms and Turbine Building Basements were evaluated for impact by this Alteration. The Cable Spreading Rooms are the most limiting regulatory-required areas in the plant and with the implementation of this alteration those rooms will still have enough fire water supplied at a high enough pressure to be adequately protected. The Turbine building basements are not regulatory required protected spaces but were evaluated separately. This conclusion was reached by performing a simple qualitative engineering analysis (flow study) in Engineering Evaluation ER991909E301.

In addition, there will be no indirect effects on equipment important to safety. All of the equipment utilized in this Alteration will be selected in accordance with the appropriate industry practice – design specifications (National Fire Protection Association, Underwriters Laboratory, seismic, separation, environmental, single-failure, etc.). This Alteration will not degrade the reliability of any safety systems – it will not impose additional loads outside of the analyzed design of the Fire Water System. Neither will it delete or modify support system performance or delete or modify protection features or reduce redundancy or independence. This Alteration will not change the required frequency of operations of the Fire Protection System or frequency or severity of testing requirements. The operations department may choose to test the affected pump more frequently if doing so would demonstrate that an effective plan to monitor degraded equipment is desired. This testing will have a negligible impact on the performance of the Diesel Driven Fire pump.

Since there are no effects to any equipment important to safety, either directly or indirectly, there will be no increase in the probability of failure of any of this equipment and there will not be any degradation of equipment reliability.

4. Will the consequences of a malfunction of equipment important to safety be increased?

No. In much the same way as in questions 2 and 3, installing this Temporary Alteration will not increase the dose to the public due to any accident evaluated in SAR chapter 6 or 14 and 15 (ANO-1 and ANO-2 Accident Analyses) or the Fire Hazards Analysis. No access to any areas, post-accident, will be limited due to this change. Therefore, operator actions required to mitigate the consequences of malfunction of equipment important to safety will not be effected or limited.

Again, no equipment important to safety will be effected by this Temporary Alteration. Turbine building equipment (all non-Q) will be effected to the extent that a fire watch will be procedureally required to be posted in the Turbine Building basement in the event that P-6A is declared inoperable for any reason. Even, if we were to assume that equipment important to safety malfunctioned and this change had been implemented, the malfunction would not be related to this Alteration and the consequences of that accident would not have been increased, even a tiny amount, due to this Temporary Alteration.

The installation of this Temporary Alteration will in no way effect the finding, by the NRC, that the exposure limits approved in our plant's licensing basis was acceptable. Since no exposure increase was deemed plausible because of this Alteration, the SAR (including the FHA) values for such exposures were not reviewed.

Finally, the installation of this Temporary Alteration will in no way effect the failure mode of any equipment important to safety such that it would fail in a manner that would result in an increase in the radiological release attributed to any evaluated accident.

5. **Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?**

No. There are no types of accidents created by the installation of this Temporary Alteration much less one that is different, involving an initiator or failure not considered in the SAR, from those currently evaluated in the SAR. Therefore, there are no accidents, let alone unbounded accidents, are created by this change. The installation of this Temporary Alteration will not create an accident scenario similar to ones that were not explicitly evaluated in the SAR, with effects that exceed analyses that were not included in the SAR, due to their estimated effects being bounded by accidents already in the SAR.

The circumstances of the accidents evaluated in the SAR (listed above) will not be altered by this Alteration. There will be NO accident scenarios created by this change so there will be no new initiators created because of this change nor will any other scenarios that were previously enveloped by those evaluated in the SAR now have a probability that is NOT bounded by the accidents evaluated in the SAR. In a similar vein, there are no scenarios whose likelihood is now increased to the point of being credible that have consequences that are not bounded by those currently evaluated in the SAR.

There were no types of accidents that could be postulated as occurring as a result of the installation of this Temporary Alteration. Therefore, we could not test those accidents to determine if they would be bounded by accidents currently evaluated in the SAR.

6. **Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created?**

No. There are no accidents, let alone one with circumstances different enough from those currently evaluated in the SAR, that will be created with this change. There are no initiators or failures not considered in the SAR that will be introduced by this change. Similar to question 5, this change will NOT increase the possibility of any malfunctions that were previously bounded by the SAR accidents listed above. All of the SAR accidents will remain bounding after this change in implemented. Since there are no malfunctions created or exacerbated by this change, there are no malfunctions that will have undesirable consequences that will be created either during normal or abnormal operations.

The first step used in determining whether the possibility of a malfunction of equipment important to safety of a different type existed was to identify the types of malfunction of important to safety equipment that the proposed Activity could create. Then a number of scenarios different from those were evaluated for plausibility. Finally, it was determined that there were, indeed, no accidents of a different type from those currently evaluated in the SAR that might be created by this change.

7. **Will the margin of safety as defined in the basis for any technical specification be reduced?**

No. The Fire Protection System is no longer referenced in the ANO-1 Technical Specifications. Therefore, the margin of safety as defined in the bases of the Technical Specifications **will not be reduced.**

FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	3 PC-1

This Document contains 5 Pages.

Document No. WP1409.674 Rev./Change No. 000-00-0

Title LEAK TEST OF BS-3, ANO-1

Brief description of proposed change:

This work plan performs a leak check on BS-3, the Reactor Building Spray (BS) test and recirculation header isolation valve. It does this in the direction where pressure would possibly be seen while on post LOCA sump recirculation due to leakage through either BS-2A or BS-2B. Leakage monitoring through this path is needed to address potential off-site dose concerns from BWST openings (i.e. the 4" overflow line and vacuum breaker opening). It controls test equipment installation, removal (IAW 1000.028 provisons), test conduct, and documentation requirements. This WP is identical to 1409.628, which determined there was no significant leakage through BS-3 on 4/30/97.

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☒	No☐
Core Operating Limits Report?	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. WP1409.674 Rev./Change No. 000-00-0

Basis for Determination (Questions 1, 2, & 3):

This WP performs valve alignments, installs test gages & fittings/adapters, and provides directions for monitoring, venting, and leak testing. Dedicated operators are utilized to ensure that adverse conditions are mitigated before off site dose or flooding become concerns. A non-ECCS part of the BS system is pressurized and leakage downstream of BS-3 is measured against a reference leakage. The increase in leakage is attributed to be through BS-3. Provisions are included in the WP to prevent BS suction piping over pressurization by installing non-Q needle valves upstream of BS-2A and BS-2B in the unlikely event we have through seat leakage. QAMO requirements for procedural temporary modifications have been included, i.e. dual sign offs for installation and removal.

This WP is intended to be performed during power operation but can be performed during refueling or maintenance outages. This WP is not considered an IPTE per 1000.143 screening criteria due to this work being considered within the normal/common activities of the organizations responsible for the testing, i.e. OPS and SYE. As noted in the WP, this identical testing was performed on 4/30/97. Pre-job briefings are included to discuss the testing with the personnel involved.

The WP utilizes dedicated operators to open and close valves and to monitor and adjust temporary valves as required. The use of operators for controls on the "Q" versus non-Q equipment does not invalidate any SAR or LBD intent. Actually, just the opposite is true. SAR Section 5 credits administrative controls for closure of penetration manual isolation valves while SAR sections 14.2.2.5.2.3 and 6.2.2.1 reference operator action for support of long term core cooling and throttling (BS) flows respectively. Therefore, taking credit for the use of dedicated operators to isolate the BS vent valves in the event of a LOCA does not violate any LBD or TS and is an acceptable means to protect both trains of BS and the health and safety of the public.

In terms of the Operating License and LBD's for the search criteria noted on page 3, SAR section 9.4 references the use of the test and recirculation header for BWST purification via the bypass purification loop. Operations associated with BWST purification and surveillance runs on P-34A/P-34B/P-35A/P-35B will not be available during this test. However, the test conditions will not make the BWST or any safety related equipment inoperable or result in a significant reduction in any TS monitored parameter. In addition, SAR references to fuel transfer canal filling and draining will not be true. As such, an Evaluation is conservatively attached to this Determination even though these situations are only a part of the SFP system general description. In terms of makeup water for the SFP, the SAR references a temporary hose connection for service water as a SFP makeup source. This resource is not affected by this WP. All other operating license and LBD's are not made untrue as a result of the activities controlled by this WP.

Filed as WP9674_det

FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1, 2

☐ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document Section

LRS: U1-50.59, test and recirculation, dilution, back*flow, offsite dose, administrative control w/50 manual isolation, test recirculation w/100 BWST, operator action w/50 BWST, test line w/10 BWST, hydro*test, recirculation line.

MANUAL SECTIONS: SAR 14.2.2.5.2.3, 6.1, 6.2, 9.4.1, 9.4.2

FIGURES: 9-11, 9-12, 6-1, 6-2, 6-3, Table 6-6 & 6-8

James J. Souto — James J. Souto — 2/15/99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 2/6/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Reviewer per 1000.006)

Robert J. Prioie — Robert J. Prioie — 2-16-99
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. WP1409.674 Rev./Change No. 000-00-0

Complete the following Determination. If the answer to any item below is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

FORM TITLE:	FORM NO.	REV.
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2

Document No. 1409.674 Rev./Change No. 000-00-0 10CFR50.59 Eval. No. FFN-99-028 (Assigned by PSC)

Title Leak Test of BS-3, ANO-1

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

James J. Souto — Certified Reviewer's Signature
James J. Souto — Printed Name
2/15/99 — Date

Reviewer's certification expiration date: 2/6/01

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 3/11/99

FORM TITLE:	FORM NO.	REV.
10CFR50.59 REVIEW CONTINUATION PAGE	1000.131C	3

Document No. 1409.674 Rev./Change No. 000-00-0

10CFR50.59 Review Continuation Page

1. Will the probability of an accident previously evaluated in the SAR be increased?

The activities noted in this WP do not affect any ECCS equipment operation. BS would still function as designed. While this testing basically prevents surveillance runs on both DH and Spray pumps, it does not impact the ECCS path to the core (for LPI) or the reactor building (for BS). An indirect affect on the BWST boron concentration could occur if all administrative controls were ignored and the test required multiple days to complete. Under these conditions, some boron concentration dilution could occur. However, there are steps in the WP to sample and recirculate the BWST if the test time exceeds 100 minutes. This will result in approximately 50 gallons of non-borated water being added to the BWST and has been roughly noted to result in less than a 1 ppm reduction in boron concentration. As such, the dilution accident bounds this condition due to the flow rates and times noted in SAR Tables 14-7 and 14-8.

A related condition possibly affected by this WP is off site dose concerns due to leakage from the non-Q needle valves used in this testing and the potential over pressurization of the BS suction piping. By virtue of the use of dedicated operators, the BS system isolation valves can be closed quickly to mitigate off site dose concerns. In consideration of accident type conditions, it will take approximately 25 to 30 minutes at full ECCS flows to drain the BWST. Since the BS vent valves in use for this WP are small (3/4") and easily manipulated, the dedicated operator will have sufficient time to close the valves before sump recirculation is initiated. In the event of a single failure of the "Q" isolation valves, the dedicated operator would contact the Control Room to secure that train of BS. Again, sufficient time is available for OPS responses before going on sump recirculation. Therefore, the existing off site dose analysis bounds the WP worst case conditions. Over pressurization of the BS suction piping is mitigated by the use of the needle valves and specifications for maximum gage pressures. With additional controls for the use of relief valves, all reasonable prudent actions and conditions are accounted for and mitigated.

The Administrative controls included in WP1409.674 are intended to prevent any plant equipment degradation or off site dose problems from occurring. The expected short duration and OPS coordination ensures that scheduling problems between BWST purification and ECCS surveillances do not occur. In consideration of the detailed reviews and procedural controls, the WP activities will not cause any accident to become more frequent or increase the frequency of a dilution accident or off site dose. Based on the above discussions, the probability of an accident previously evaluated in the SAR will not be increased as a result of the activities noted in WP 1409.674.

2. Will the consequences of an accident previously evaluated in the SAR be increased?

A dedicated operator will be required per this workplan to be in Upper North Piping Penetration room during the entire duration of this test. The operator will perform manual valve manipulations to align the system as necessary to perform this test, and more importantly, be in a position that he or she can isolate the temporary vents or notify the Control Room to secure that train of BS (in case of a single failure of the "Q" valves) immediately upon an ES actuation. The temporary vents or securing the train could undoubtedly be accompolished before RB sump recirculation is established at the 6' BWST level. The assumed time for operator action (of less than 30 minutes) is a reasonable expectation based on the close proximity of the two temporary vent rigs and the small 3/4" vent valves in use. The test is also coordinated with OPS to ensure there are no surveillance test conflicts.

For a failure of the test equipment, the minimal amount of time that this potential leak path would be open to allow flow diversion out the temporary vents would not have an impact on off-site dose releases. This determination was based on offsite dose analysis Nuclear Chemistry (Mike Frala) performed to verify there would be no potential impact on offsite dose. The calculation did not credit the radioactive isotope removal capability of the penetration room ventilation system and it assumed a conservative 50 gallon total out flow from the temporary vents based on BWST water radiological levels.

Since any leakage is mitigated by the dedicated operator or Control Room before sump recirculation is initiated, the existing SAR leakage bounds the activities in this WP. Therefore, the activities associated with WP 1409.674 will not result in an increase in off site dose consequences. As such, the consequences of an accident previously evaluated in the SAR will not be increased.

3. Will the probability of a malfunction of equipment important to safety be increased?

This WP affects the Reactor Building Spray (BS) system. Engineering provisions have been included in the WP to address system interconnections (P-9 header with BS and the use of back flow check valve), DH and BS surveillances scheduling (via OPS coordination), BS suction piping over pressurization (needle valves are installed to bleed off any BS-2A and BS-2B through seat leakage), and the maximum hydro pressure is controlled (by the use of a relief valve on the hydro or hand pump). Dedicated operators are utilized to monitor and adjust the Engineered equipment to obtain the necessary information and to mitigate leakage problems post LOCA if they occur. The Engineered equipment is selected to maintain BS system pressure ratings and is compatible with the boric acid water. The adapters, fittings, and the needle valves are not "Q" materials. However, similar fittings etc. are used throughout the plant in ECCS systems, i.e. SS Parker fittings. In combination, the administrative and Engineered provisions ensure that the BS system will not be adversely affected by this WP. In consideration of a single failure of BS-2400C or BS-2401C, one train of BS would become inoperable. However, these valves are operated periodically during fill and vent operations and have not exhibited catastrophic failures to date. In addition, the dedicated operator would contact the Control Room for train isolation and mitigate the situation as necessary, i.e. reinstall

the caps if valve internal problems are suspected. Since a single failure of a BS pump has been analyzed as being acceptable, this testing will not subject the system to more stringent conditions. As such, this test will in no way degrade the ability of the BS System to perform its intended safety function. Therefore, the probability of a malfunction of equipment important to safety will not be increased.

4. Will the consequences of a malfunction of equipment important to safety be increased?

The consequences of an off-site dose release would be negligible and would not result in any discernible increase in offsite exposure. Operator action is credited for isolating the temporary vents and/or isolating the particular BS train (as a result of a single valve failure) in the event of an ES actuation well before RB Sump Recirculation is required by the plant. The amount of out flow leakage from the temporary vents while still drawing suction from the BWST during an ES condition has been concluded through empirical data (Chemistry analysis) not to be of a magnitude with respect to quantity and known BWST activity levels to increase offsite dose levels. In consideration of the dedicated operator to mitigate the following; 1) a single non-Q vent valve failure is mitigated by closing the respective BS system vent valve and 2) in the event the BS vent valve failed, the operator would initiate BS train isolation or install a pipe cap; offsite dose concerns would therefore be mitigated as the above actions would be completed well before initiation of sump recirculation. Therefore, the consequences of a malfunction of equipment important to safety will not be increased.

5. Will the possibility of an accident of a different type than previously evaluated in the SAR be created?

Operator action will be credited with isolating or shutting temporary vent valves in the event of an ES actuation to prevent excessive leakage out the vents should a failure of the non-Q equipment occur. It should also be noted that even if the non-Q temporary vent rigs, comprising of high pressure Parker fittings and valves, were to break off from the attached pipe nipples at BS-2400C & BS-2401C, isolation of the diversion flow could still be accomplished by shutting the aforementioned valves. If either of the "Q" isolation valves fail, the operator would notify the Control Room and have that train of BS isolated. He or She could then evaluate the mechanical condition of the failed valve and reinstall the pipe cap as a compensatory measure. Otherwise, that train of BS would be out of service for the event. However, a total failure of either of these "Q" valves to maintain pressure boundary is very unlikely. Dedicated operators are strategically located to mitigate potential problems if a LOCA occurs during the performance of this WP. The primary response being the closure of the needle valves and vent valves if BS is manually or automatically started. The provision for operator action to close BS-2400C & BS-2401C is not described in the SAR but is consistent with the approach taken in SAR sections 5.2.2.4.1, 6.2.2.1, and 14.2.2.5.2.2 for closing specific manual and non-automatic Reactor Building isolation valves, throttling flows post LOCA, and for support of long term core cooling. Based on operator actions and the Engineered provisions of WP1409.674, the possibility of an accident of a different type than previously evaluated in the SAR will not be created.

6. **Will the possibility of a malfunction of equipment important to safety of a different type than that previously evaluated in the SAR be created?**

   As previously noted, provisions are included in the WP for dedicated operators to monitor and adjust based on test conditions and the use of Engineered equipment specifically selected for this testing. In addition, specific limits and precautions, prerequisites, and instruction steps are included to alert OPS that the test and recirculation header will not be available during this testing. If the use of non-Q fittings etc. results in a failure, the Operators would quickly mitigate the leakage by closing the associated valve(s). If one of these valves fails to close, the operator would then have that specific train of BS isolated or install caps if conditions warrant.

   The test equipment selected has proven reliability and is used throughout ANO in other higher pressure systems. This equipment in conjunction with the administrative controls and dedicated operators result in multiple checks and balances to prevent any loss of BS system functions or excessive leakage. These provisions comprise a multiple defense in depth to ensure reliability. As such, a failure of the temporary installed equipment on the BS system would not have an adverse impact on the BS system or any other safety related equipment. Guidance delineated in the workplan provides specific instructions to prevent the possibility of a malfunction of equipment important to safety by monitoring pressures and isolating valves etc. as required. Therefore, the possibility of a malfunction of equipment of a different type than that previously evaluated in the SAR will not be created.

7. **Will the margin to safety as defined in the Bases of any Technical Specification be reduced?**

   The performance of this workplan will not render any component in the BS System to be inoperable nor will it impact any ECCS component from performing its intended safety function. This is accomplished by administrative controls, dedicated operators, OPS notification/coordination steps, and the use of Engineered equipment.

   This testing will help resolve NRC concerns with BWST back leakage through the test and recirculation header during post LOCA sump recirculation operation and possibly allow for less frequent testing intervals. In consideration of the WP provisions, both trains of BS will be considered operable during the conduct of this test. As such, there are no reductions in any margin to safety as defined in the TS Bases.

Filed as wp9674_eval.doc

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1

Document No. 1409.702 Rev./Change No. ~~00-000-0~~ 000-00-0 NR 8/21/99

Title FREEZE SEAL FOR CV-1213, CV-1214, & CV-1215

Brief description of proposed change: Work Plan to Install a Freeze Seal to provide isolation for valve repair

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☒ No☐

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

MB 9/21/99

Document No. 1409.702 Rev./Change No. ~~00-000-0~~ 000-00-0

Basis for Determination (Questions 1, 2 & 3):
Answers to Questions 1& 2 are No. The license basis documents do not discuss or reference installation or use of freeze seals. The answer to question 3 is "Yes" since the freeze seal could potentially create an unisolable leak, breaching the protective barrier of the Reactor coolant system.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
U1 50.59	**ALL (Freeze Seal, Freeze Plug, Liquid Refrigerant, CO_2, Carbon dioxide)**
MANUAL SECTIONS:	
U1 SAR	**14.2.2.5**
FIGURES:	

Walter A. Hill — Walter A. Hill — SEPT. 21, 1999
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 5/28/00

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

MB 9/21/99

Document No. 1409.702 Rev./Change No. ~~00-000-0~~ 000-00-0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Eval. No. FFN# 99-084
(Assigned by PSC)
000-00-0 MD 9/21/99

Document No. 1409.702 Rev./Change No. ~~00-000-0~~

Title FREEZE SEAL FOR CV-1213, CV-1214, & CV-1215

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

THE ACCIDENT PREVIOUSLY EVALUATED IN THE SAR IS A SMALL LINE BREAK WHICH CAN NOT BE ISOLATED. NON-DESTRUCTIVE TESTING WILL BE PERFORMED PRIOR TO AND SUBSEQUENT TO FREEZE SEALING THIS PIPE TO INSURE THAT THE INTEGRITY OF THIS LINE HAS BEEN MAINTAINED. REGARDING THE VALVE BODY, THE LINE WOULD BE OPEN TO THE ATMOSPHERE WHEN THE VALVE BONNET IS REMOVED, BUT CONTINGENCY MEASURES ARE IN PLACE IF THE FREEZE SEAL WERE TO FAIL. THE PROBABILITY OF AN ACCIDENT PREVIOUSLY EVALUATED IN THE SAR WILL NOT BE INCREASED DUE TO THE REACTOR COOLANT SYSTEM BEING AT A LOWER PRESSURE DURING THIS ACTIVITY. THE PRESSURE ON THE FREEZE SEAL WILL BE APPROXIMATELY 40 PSIG DUE TO THE HEAD OF WATER IN THE LINE. IN ADDITION, THE LOWEST TEMPERATURE (MAXIMUM NEGATIVE TEMPERATURE) THAT THE PIPE WILL SEE WILL NOT PRODUCE BRITTLE FRACTURE CONDITIONS FOR THE PIPE.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

THE CONSEQUENCES OF AN ACCIDENT WILL NOT BE INCREASED. THE CONSEQUENCES WILL REMAIN THE SAME FOR A COOLANT SPILL FROM A SMALL LINE BREAK OR FROM A VALVE BEING OPEN TO ATMOSPHERE. UPON LOSS OF THE FREEZE SEAL FUEL HANDLING WILL BE STOPPED, RESULTING IN NO CHANGES TO THE CONSEQUENCES OF THE FUEL HANDLING ACCIDENT ANALYSIS IN THE LBD'S. DUE TO THE SHORT AMOUNT OF TIME THAT THE PIPE WOULD BE OPEN UPON LOSS OF THE FREEZE SEAL, NO MEASUREABLE LOSS OF RCS INVENTORY WILL OCCUR.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

THE PROBABILITY OF A MALFUNCTION OF EQUIPMENT IMPORTANT TO SAFEY WILL NOT BE INCREASED. WITH THE FREEZE SEAL IN PLACE THE EQUIPMENT UP STREAM FROM THE SEAL WILL CONTINUE TO OPERATE AS BEFORE. THE EQUIPMENT DOWN STREAM FROM THE SEAL WILL BE OUT OF SERVICE WHILE THE FREEZE SEAL IS IN PLACE. THE FREEZE SEAL IS LOCATED WHERE IT WILL HAVE NO IMPACT ON OPERATING EQUIPMENT.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

THE CONSEQUENCES OF A MALFUNCTION OF EQUIPMENT IMPORTANT TO SAFEY WILL NOT BE INCREASED. WITH THE FREEZE SEAL IN PLACE THE EQUIPMENT UP STREAM FROM THE SEAL WILL CONTINUE TO OPERATE AS BEFORE AND THE CONSEQUENCES OF EQUIPMENT MALFUNCTION REMAIN THE SAME. THE EQUIPMENT DOWN STREAM FROM THE SEAL WILL BE OUT OF SERVICE WHILE THE FREEZE SEAL IS IN PLACE. THE FREEZE SEAL IS LOCATED WHERE IT WILL HAVE NO IMPACT ON OPERATING EQUIPMENT.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

THERE IS NO POSSIBILITY OF AN ACCIDENT OF A DIFFERENT TYPE BEING CREATED, BECAUSE THE ONLY FAILURE IS THE SEAL FAILING OR THE PIPE BURSTING AND DUMPING COOLANT WATER IN THE REACTOR BUILDING. THIS IS THE SAME AS THE SMALL LINE BREAK EVALUATED IN THE SAR.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

THE POSSIBILITY OF A MALFUNCTION OF EQUIPMENT IMPORTANT TO SAFETY DIFFERENT THAN PREVIOUSLY EVALUATED WILL NOT OCCUR. WITH THE FREEZE SEAL IN PLACE THE EQUIPMENT UP STREAM FROM THE SEAL WILL CONTINUE TO OPERATE AS BEFORE. THE EQUIPMENT DOWN STREAM FROM THE SEAL WILL BE OUT OF SERVICE WHILE THE FREEZE SEAL IS IN PLACE. THE FREEZE SEAL IS LOCATED WHERE IT WILL HAVE NO IMPACT ON OPERATING EQUIPMENT.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

WITH THE FREEZE SEAL IN PLACE THE EQUIPMENT UP STREAM FROM THE SEAL WILL CONTINUE TO OPERATE AS BEFORE, MARGINS OF SAFETY ASSOCIATED WITH REACTOR COOLANT SYSTEM WILL NOT BE IMPACTED BY THE FREEZE SEAL. NO OTHER TECH SPEC SYSTEM ARE INVOLVED.

Walter A. Hill	WALTER A. HILL	SEPT. 21, 1999
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: MAY 28, 2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] FOR WALT PERKS PER TELECON Date: 9/21/99

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-03-0

Document No. **Work Plan 1409.708** Rev./Change No. **0**

Title **MAKEUP TANK RELIEF PATH ISOLATION CONTROLS**

Brief description of proposed change: **Addressing T-4 aspects of Primary Vacuum Degasifier Maintenance**

Will the proposed Activity:

1. Require a change to the Operating License including:

   Technical Specifications (excluding the bases)? Yes☐ No☒

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

   SAR (multi-volume set for each unit)? Yes☒ No☐

   Core Operating Limits Report Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☐ No☒

4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.) Yes☐ No☒

5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒

6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

Document No. **Work Plan 1409.708** Rev./Change No. **0**

Basis for Determination (Questions 1, 2 & 3):
This change is beyond the level of detail specified in the Operating License or any OL documents. This temporary change deals with a degraded condition (Vacuum Degasifier component) which will be corrected and then the affected system will be restored to its previous condition (as described in the SAR), therefore this temporary change will not make the SAR or any SAR documents permanently untrue or inaccurate. The Makeup Tank, although purchased to ASME section III, is not safety related and is maintined seismic category I only to protect the integrity of the isolation valve CV-1275. The isolation of the vent and relief path has been determined to be acceptable by Engineering, therefore this is not a test and providing an equivalent protection does not constitute an experiment not described in the SAR.

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59 Unit 1	**All(PSV-1249, CV-12*, CV-4614, GZ*, ABV*, hydrogen over*, makeup tank, makeup w/5 relief, tank w/5 relief, tank w/5 vent)**
MANUAL SECTIONS:	
ANO-1 SAR	**4.2.3.5-4.2.3.8, 6.1.2.4.6, 9.1, Table 9-1, Table 9-2, 11.1.3.6.2, 14.1.2.4.1, Appendix A A7.1**
ANO-1 Proposed ITS	**3.4.11**
ANO-1 Proposed ITS Bases	**3.4.11, 3.4.12, 3.4.13, 3.4.15**
ANO-1 Tech Spec	**3.1.6, 3.2, 4.0.5**
ANO-1 TS Bases	**3.1.4, 3.1.6, 3.2**
ANO-1 NSE	**chapter 9**
FIGURES:	
ANO-1 SAR	**Fig. 11-1, 9-3**

John Richardson	**John Richardson**	**02/02/2000**
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: **07/08/2000**

Assistance provided by:

Printed Name	Scope of Assistance	Date
None		

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Alan Cox	Alan Cox	2/2/00

Document No. **Work Plan 1409.708** Rev./Change No. **0**

10CFR50.59 Review Continuation Page

1.0 This work plan controls and implements conditions and measures to be taken when the makeup tank relief and vent path are not available.

With the exception of isolating the makeup tank vent and relief path, all of the information presented in the workplan consisting of Notes, Cautions and operating instructions is taken from currently reviewed and approved procedure 1104.002 and Note 7.1 is from ER91-R-1018-02 ATT 1 pgs 176-179 EOP Setpoint Basis Document. Therefore the Notes and Cautions and operating instructions will not impact any of the LBDs.

2.0 This workplan is intended to be used during temporary maintenance activities and not for permanent changes to the plant.

This condition is allowed since it is to correct a degraded and non-conforming condition in the Primary Vacuum Degasifier system and does not represent a permanent change to the facility. The isolation and restoration of the vent path will be considered a Temporary Alteration to SSCs and Temporary Alteration Controls will be implemented in this workplan. The impact on an attached SSC (the Makeup Tank) requires the performance of a 50.59 review per 1000.131 and this represents that review to determine the impact on the attached SSC.

3.0 When the makeup tank vent and relief path are isolated the SAR Figure 11-1 will be untrue either by closing ABV-40 or other methods such that the T-4 is no longer capable of being connected to T-76.

Since this is a temporary activity associated with a degraded or non-conforming condition and will not be a change to the design of the plant this correction to the SAR figure is not warranted. Those sections of the SAR which detail that venting of the T-4 is an activity that raises the amount of Waste Gas collected or contributes to total radioactive gas generation over an operating cycle will also not require revision as this is not a permanent change to the facility.

4.0 Isolation of the Makeup Tank Relief and Vent Path

The isolation of the Makeup Tank vent path has occurred previously while the makeup tank remained in service. Previous approved revisions to Leak Testing the Gaseous Radwaste System (1305.013) Revision 4 PC-1 allowed isolation of the vent path while the Makeup Tank remained in service. This condition resulted in Condition Reports (CR-ANO-1-88-0186 and CR-ANO-1-93-0186) which specifically addressed isolation of the vent path while the T-4 remained in service. The Operability Assessments and subsequent Engineering Evaluations (PEAR 93-0417, ER MCS-89-0641 and related ER-92-R-1043-029) determined that the unacceptability of the condition stemmed from interpretations of ASME Boiler and Pressure Vessel Codes. However ER 002283-R101, issued to address the concern of isolating the relief capability, has determined the acceptability of this condition, text follows:

Document No. **Work Plan 1409.708** Rev./Change No. **0**

10CFR50.59 Review Continuation Page

"ANO-1 makeup drain piping is designed to ANSI B31.7, Class III piping requirements, which references ANSI B31.1, and Draft Nuclear Pump and Valve Code valve requirements. These codes set stress limits on piping and components, and require that fluid expansion effects be considered. Better guidance is obtained from the later ASME B&PV Code, Section III, 1971 Edition, Article ND-7000, which requires that vessels, piping, valves and pumps which are pressure-containing components of the system shall be protected while in service from the consequences arising from steady state and transient conditions that are in excess of the design conditions. Paragraph ND-7153 of the code states that no stop valve shall be placed relative to a pressure relief device so that it could reduce the overpressure protection below that required, unless positive controls exist so that the relieving capacity requirements are met under all conditions of operation of the system."

5.0 Failure of the dedicated operator to provide overpressure protection.

An additional consideration would arise should the dedicated operator be unable to complete his tasks of providing makeup tank overpressure protection. The function of the makeup tank during those situations where the dedicated operator would not be present (such as control room fires, DBAs) is summarized in EAR 92-003:

Makeup Tank T-4 is an ASME Section III component which is not needed for safe shutdown. In the event of a rupture of the tank, the resulting release would be significantly lower than the calculated release for the gas decay tank. 10CFR100 limits and the more stringent NUREG-0800 limits would not be approached.

6.0 This workplan retains the instruction to isolate the T-4 at an 18 inch level.

Since the workplan will require isolation of the T-4 on low level, the inability of the Makeup Tank Vent Valve (CV-1257) to vent will not impact emergency operations.

This change does not impact environmental controls such that an environmental impact evaluation would be required. Since a dedicated operator is provided in lieu of PSV-1249 and an approved work plan will be utilized during this activity which does not allow any change in Radwaste Processing a Radiological Safety Evaluation is not required. The details of the Emergency Plan and the QAMO/QAPM will not require evaluation under 10CFR50.54 since this activity will be performed consistent with their details. This change does not impact the VSC or any VSC facilities therefore a 10CFR72.48 review is not required.

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 003-03-0

10CFR50.59 Eval. No. FFN # 00-005
(Assigned by PSC)

Document No. **Work Plan 1409.708** Rev./Change No. **0**

Title **MAKEUP TANK RELIEF PATH ISOLATION CONTROLS**

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The Makeup Tank Vent and Relief path isolation may impact the following SAR accidents:

Moderator Dilution Accident (14.1.2.4): The nominal moderator dilution event considered is the pumping of water with zero boron concentration from the makeup tank to the RCS. Isolation of the makeup tank vent and relief path will have no impact on the SAR detailed controls concerning prevention of moderator dilution accident. Establishment of the dedicated operator as an equivalent measure of the operation of the makeup tank relief valve will not result in more frequent dilutions or other additions to the makeup tank. The dedicated operator will take action in the event of makeup tank overpressure and all compensatory actions will result in lowering the liquid volume in the makeup tank and not result in an addition to the makeup tank. The probability of an increase in the moderator dilution accident does not increase due to the isolation of the makeup tank relief and vent pathway.

Waste Gas Tank Rupture (14.2.2.7): Venting of the Reactor Coolant Makeup Tank is a contributor to the total activity contained in a WGDT (SAR 11.1.3.6.2). This activity will isolate the venting capability of the Makeup Tank to the WGDTs. The WGDT analysis is bounded by the maximum curie content of the WGDTs, which is analyzed and verified to not be exceeded throughout an operating cycle. Isolation of a source of radioactive gas will not result in an increase in the amount of Waste Gas collected by the WGDTS. Since the amount of gas collected by the WGDTs will not be raised, the probability of this accident is not increased.

Therefore the probability of an accident previously evaluated in the SAR will not be increased.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

The Makeup Tank Vent and Relief path isolation may impact the following SAR accidents:

Waste Gas Tank Rupture (14.2.2.7): Venting of the Reactor Coolant Makeup Tank is a contributor to the total activity contained in a WGDT (SAR 11.1.3.6.2).

Venting of the Reactor Coolant Makeup Tank is a contributor to the total activity contained in a WGDT. This activity will isolate the venting capability of the Makeup Tank to the WGDTs, therefore the consequences of this accident could be lessened by the isolation of the Makeup Tank vent. The Makeup Tank vent is not credited with mitigating the consequences of a rupture of the Waste Gas Tank. The probability of an accident previously evaluated in the SAR will not be increased.

Isolation of the Makeup Tank vent path will have no impact on accident analyses which assume reactor coolant makeup response such as steam generator tube rupture or loss of coolant accident.

The work plan requires the establishment of a dedicated operator to the makeup tank relief and vent function for controlling makeup tank overpressure. Accident analyses are bounded by the accident's progression to the initiation of Engineered Safeguards. Engineered Safeguards operation is not impacted by the operation of the makeup tank other than isolating the makeup tank at a low level (18") condition. The dedicated operator and all licensed personnel in the control room would be tasked with ensuring that all Emergency Operating Procedure actions (such as isolation of the makeup tank on low level) are completed.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

The Makeup Tank is not safety related and is not required to be operable. The equipment important to safety which is associated with the Makeup Tank is the HPI system. Operability of the HPI system is ensured by maintaining the level and pressure in the Makeup Tank with procedural limits, or by isolating the Makeup Tank from the HPI suction header. The activity addressed by this ER will make it impossible to vent the Makeup Tank in the event of an ECCS actuation, however, evaluations performed by ER980331E101 and ER980331E102 show that there is sufficient time to isolate the Makeup Tank from the HPI system to prevent the introduction of gas into the suction header. The establishment of a dedicated operator will ensure that this action is taken in a timely manner.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

No equipment important to safety is directly affected by this activity except the HPI system as noted in the previous question. This activity will not have any effect on the operation of the HPI system as the Makeup Tank will be isolated from the HPI system in the event that the level in the Makeup Tank falls too low, and the dedicated operator will ensure that the tank is not overpressurized.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

The only effect that the isolation of the relief path could have on the Makeup Tank is to allow the pressure to increase beyond the relief valve setpoint or to cause the level to be lower than it otherwise would since the operator may divert letdown flow to reduce the pressure. If tank level decreases to 18", the tank will be isolated, preventing the introduction of air into the HPI suction header, and the HPI pumps will be aligned to the BWST. The overpressurization of the Makeup Tank is not possible with letdown diverted except by adding too much hydrogen. Since three operators are required to add hydrogen, and the fill rate is controlled by an operator in the control room who will be observing tank pressure, it is not credible that the tank could be pressurized enough to challenge the tank without operator intervention to prevent it, particularly since there will be an operator dedicated to maintaining Makeup Tank pressure. While the overpressurization of the Makeup Tank to the point at which it could rupture is not considered credible, the effects of this event has been investigated under EAR 92-003, which showed that the consequences of such an occurrence would have a less significant radiological release than the rupture of the gas decay tank. Furthermore, the original seismic category I design of the Makeup Tank has been maintained to ensure that boundary valve CV-1275 is protected during a DBE from seismic II over I hazards and possible hydrogen explosions caused by the rupture of the tank.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

As noted in the response to question 3, the only safety related equipment influenced by the Makeup Tank is the HPI system. The likelihood of a malfunction of the HPI system will not be increased by the isolation of the Makeup Tank vent path since an operator will be constantly monitoring the level and pressure in the tank and will isolate it from the HPI system if the level drops to 18". The HPI system has been evaluated in ER980331E101 and ER980331E102 to show that the system can be isolated in time to prevent the introduction of air into the suction header.

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

No margin of safety has been identified in the basis for any technical specification which would be reduced by this activity. According to the Bases of Technical Specification 3.1.4, one of the three ways that the activity resulting from a steam generator tube rupture could be brought back into specification is by venting the makeup tank gases. Only one of the three possible actions is required, however, and since the degasifier vacuum pump seal water pump (P99) is out of service, this action is not likely to be the action chosen anyway. The other two actions, a gradual decrease in power or an increase in letdown rate, would still be available.

Certified Reviewer's Signature	John Richardson Printed Name	2/2/2000 Date

Reviewer's certification expiration date: **7/8/2000**

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 2/2/00

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-03-0

Document No. WP-1409.709 Rev./Change No. 0

Title P-34A BEARING MODIFICATION STARTUP TESTING

Brief description of proposed change: See the attached continuation page

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. WP-1409.709 Rev./Change No. 0

Basis for Determination (Questions 1, 2 & 3):
See attached continuation page

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59-Unit 1	**All[(LPI or Decay) w/10 (Test or Experiment), (LPI or Decay) w/10 bearing, bearing cool*, bearing hous*, service water w/10 bearing, service water w/10 cooler, E50A, LPI, DH*]**
MANUAL SECTIONS:	
Unit 1 SAR	**1.4.30, 4.2.5.1, 6.1.2, 6.1.3, 9.3, 9.5, 14.1.1, 14.2.1, A.7.6; Tables 14-1 and 14-18**
Unit 1 TS	**3.1, 3.3, 3.6, 3.8, 4.5**
FIGURES:	
Unit 1 SAR	**6-1, 6-2, 9-6, 9-12, 9-18, 9-20**

Certified Reviewer's Signature	Donald E. Bentley Printed Name	3/3/2000 Date

Reviewer's certification expiration date: 5/4/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if perfomed by Technical Review per 1000.006)

Certified Reviewer's Signature	Keith Nichols Printed Name	4/4/2000 Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. WP-1409.709 Rev./Change No. 0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Review Continuation Page

Brief description of proposed change:

ER 002334N102 was issued to resolve high inboard bearing temperatures experienced during outage 1P002 documented in CR-ANO-1-2000-0068. The modification changes the inboard bearing housing from stainless steel to the originally installed cast iron configuration, changes the inboard bearing fit, installs a locked open ¾" ball valve in the inboard bearing cooler service water return line and installs a dial temperature indicator in the inboard bearing cooler service water housing.

WP-1409.711 "P-34A Bearing Modification Testing" was written to demonstrate the first level of assurance of modification acceptability by testing P-34A using ~55°F service water supplied by the normal flow path with P-34A aligned to the BWST and then to the RCS at ~180°F.

This work plan (WP-1409.709) establishes the instructions, acceptance criteria, and controls required to demonstrate the second level of assurance that the modification performed under ER 002334N102 for P-34A was satisfactory. Testing will be performed with P-34A aligned to the RCS at 255-280°F with pump cooling water supplied by a test rig at ~34°F and then at ~121°F. The test rig containing a heated 55 gallon drum, a cooled 55 gallon drum, temporary valves, piping, pressure instruments, and pumps connected in place of the normal service water supply and is capable of supplying ~32-121°F cooling water to P-34A bearings and seals. Instructions and controls are contained in the WP for installation, checkout, use and removal of the temporary cooling water test rig and temporary non-intrusive instrumentation.

P-34A will be removed from service and declared inoperable at the beginning of this WP. Service water to P-34A will be isolated and tagged via CV-3840 and SW-38A. Once the test rig is installed, P-34A will be started and placed in service on the RCS using OP-1104.004, however P-34A will still be considered inoperable. After completion of the tests utilizing the test rig, the system will be returned to it's normal configuration with all test equipment removed, OP-1104.004 Supplement 1 "Low Pressure Injection (Decay Heat) Pump P-34A & Components Quarterly Test" will be conducted to return the pump to operable status for DHR and LPI.

Basis for Determination (Questions 1, 2, & 3):

1. Surveillance tests of P-34A are described in the Technical Specifications. This WP establishes equipment performance testing requirements and directs that a surveillance test be performed in accordance with approved plant surveillance procedure OP-1104.004. This WP does not change the surveillance requirement or procedure. The balance of the activities conducted under this WP are beyond the level of detail contained within the operating license documents. The operating license documents are therefore not impacted.
2. The SAR describes the performance requirements of P-34A in terms of flow rates, pressures, pumped fluid temperature capabilities, and other pump performance characteristics. Per SAR section 4.2.5.1 "Decay Heat Removal", the decay heat removal system provides the capability for cooling the RCS below about 280 °F. Also, per SAR Table 14-47 "Reactor Building Design Basis Accident Chronology of Events" at 35 seconds into the accident the LPI pumps begin to inject and at 1300 seconds (21.6 minutes) the Reactor Building Sump reaches a maximum temperature of 282°F. Per SAR section 6.1.2.1.2 "Low Pressure Injection System" LPI suction from the BWST last for approximately 25 minutes with all engineered safeguard pumps operating and assuming the maximum break size. When BWST reaches 6' the operator opens the suction valves from the reactor building sump and closes the BWST outlet valves allowing for recirculation of spilled reactor water. Also described are the service water supply sources (Dardanelle Reservoir and Emergency Cooling Pond) as well as the temperature extremes of the sources providing cooling for the bearing and stuffing box cooler E-50A. Per SAR section 9.3.2.1, 95°F is the peak lake temperature and 121°F is the peak ECP temperature. This Activity (i.e. WP-1409.709) validates the capability of P-34A and E-50A to meet the requirements of the extreme service conditions of RCS at ~280°F and service water supplied at ~32-121°F. Testing of P-34A directed by this WP and OP-1104.004 is consistent with the details described in the SAR.

Bases of the Technical Specifications elaborate on the TS surveillance and system performance requirements but the WP does not invalidate any details provided. The balance of the WP details are beyond the level of detail addressed in the SAR documents.

3. P-34A will be removed from service and declared inoperable prior to beginning this test. After installation of the test rig, operation of P-34A will be conducted via approved plant procedure OP-1104.004 . The test rig is used in place of the normal service water supplied to the bearing and stuffing box cooler E-50A. The Service Water system will be isolated from the test rig during performance of the WP by CV-3840 and SW-38A.

   This WP is considered a "test" by the definition in OP-1000.131 "10CFR50.59 Review Program" since it is an "activity that determines if a condition can be proved". The "condition" to be proven is that P-34A can operate satisfactorily at extreme SW temperatures with RCS temperature close to 280°F. Even though this is a test, it does not require a safety evaluation based on OP-1000.131 Attachment 2 as follows:

   - For the Service Water side of P-34A: Tests on equipment declared inoperable and isolated from operable safety related equipment per approved procedures do not normally require a safety evaluation. In this workplan, P-34A will be removed from service and declared inoperable prior to beginning the test. Additionally, P-34A bearing and stuffing box cooler E-50A and the temporary test rig that is to be used for cooling P-34A bearings and seals will be isolated from the SW loop via locked closed valves CV-3840 and SW-38A.

   - For the pumping fluid (RCS/BWST) side of P-34A: Tests using approved procedures do not normally require a safety evaluation. Even though P-34A will be technically inoperable, the pump will be placed in service recirculating water to and from the RCS. This will be done in accordance with Procedure 1104.004 "Decay Heat Removal Operating Procedure".

Although the answer to Questions 1, 2, and 3 are "No" and the Basis for Determination indicate that a 50.59 Evaluation is not required, one is performed as an added measure of conservatism.

10CFR50.59 Eval. No. 00-018
(Assigned by PSC)

Document No. WP-1409.709 Rev./Change No. 0

Title P-34A BEARING MODIFICATION STARTUP TESTING

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

During the performance of this activity, the 'A' DHR pump will be aligned to take suction from the DHR drop line and return the RCS fluid to the RCS via the DHR cooler. RCS pressure is limited to 300 psig at the suction of P-34A with RCS temperature limited to 280°F in this mode of operation and is based on the DHR system capabilities. Performance of P-34A will be monitored to ensure it is operated within it's limitations and requirements. The results from this test validate the pump's capabilities to perform it's function. This ensures it will perform as required in all modes of operation. Accidents discussed in Ch. 6 and 14 of the Unit 1 SAR assume the ECCS mode of operation of P-34A (i.e. LPI) is required. P-34A is not an existing SAR accident initiator nor will WP-1409.709 activities change its required design capabilities to lead to it being an accident initiator. This activity therefore has no effect on the probability of an accident analyzed in the SAR.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

During performance of this activity, the 300 psig and 280°F RCS limitations prevent the plant from operating in a mode assumed as the initial conditions in the SAR Ch. 6 and 14 accidents. Additionally, P-34A will be declared inoperable during performance of WP-1409.709. Service Water will be isolated from P-34A pump bearing cooler utilizing existing safety related Service Water valves during performance of WP-1409.709. Therefore since the Unit will not be relying on the function of this pump to mitigate the consequences of an accident during performance of this work plan, this work plan will not increase the consequences of an accident previously evaluated in the SAR. Results from the activity provide additional assurance that the ECCS LPI function of P-34A will function when called upon.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

During the performance of WP-1409.709, P-34A will be operated using approved plant procedure OP-1104.004. This procedure provides the limits, precautions and detailed operating instructions for P-34A. Additional instrumentation will be used to monitor the performance of the pump and motor for predicting trends during its operation. Testing P-34A toward the extremes of it's design basis operating conditions will provide added assurance it will function properly over the entire range of operating conditions. These measures improve the ability to determine P-34A will be capable of performing it's design functions. The test rig used to provide cooling water is

configured such that it will not exceed the service water design capabilities of flow, temperature, or pressure. Instrumentation is used to monitor the test rig cooling water supply flow, pressure and temperature, setting up the bounding service water conditions that could be provided to P-34A. The cooling water will be of the same quality as service water to ensure that it is acceptable for this application. The probability of a malfunction of equipment important to safety therefore will not increase.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

During performance of this WP, P-34A parameters are monitored IAW OP-1104.004 and the additional instrumentation installed for the test. This maintains the existing limits on P-34A and the service water lines that are connected to the test rig but isolated from other equipment important to safety with existing SW valves. The consequences of a malfunction of the pump and service water lines will not be increased by this test. Since P-34A will be declared inoperable during the performance of this work plan, the plant will not be in a mode that requires P-34A to mitigate the consequences of an accident and therefore performing this test will not increase the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

P-34A flow will be tested IAW approved operating procedures and through existing safety related piping & components. This work plan does not authorize operating P-34A outside of existing approved operating procedures. The current isolation boundary capabilities are unchanged for the flow path. The test rig will be isolated from the operating service water system by closed safety related isolation valves. This prevents the test rig from impacting operating equipment important to safety. The test rig capability and instructions for operation of the test rig maintain cooling water parameters to P-34A pump within existing design basis conditions. A possibility of an accident of a different type is therefore not created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

All interfacing equipment and processes to P-34A are unchanged other than the cooling water. Cooling water pressure from the test rig pumps when they are dead headed is less than the dead head pressure of service water pumps and the 126 psig service water piping limit. Temperature limits of the service water lines is 150°F. Termination criteria of the WP are well below this value. Cooling flow will be maintained within current limits. Quality of the cooling water is maintained. The possibility of a malfunction of equipment important to safety of a different type is not created.

Document No. WP-1409.709 Rev./Change No. 0

7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

This WP does not authorize any change to the performance or acceptance criteria of P-34A or the service water system. This work plan will provide the controls necessary for properly isolating the service water and will provide the controls for operating P-34A with existing approved system operating procedures. This work plan will not cause an interface with any other systems besides the RCS, Decay Heat Removal or Service Water. Therefore the margin of safety as defined in the basis of the technical specification is unchanged.

Certified Reviewer's Signature | Donald E. Bentley (Printed Name) | 3/3/2000 (Date)

Reviewer's certification expiration date: 5/4/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 3/5/00

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-03-0

Document No. WP-1409.710 Rev./Change No. 0

Title P-34B BEARING MODIFICATION STARTUP TESTING

Brief description of proposed change: See the attached continuation page

Will the proposed Activity:

1. Require a change to the Operating License including:

Technical Specifications (excluding the bases)?	Yes☐	No☒
Operating License?	Yes☐	No☒
Confirmatory Orders?	Yes☐	No☒

2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:

SAR (multi-volume set for each unit)?	Yes☐	No☒
Core Operating Limits Report	Yes☐	No☒
Fire Hazards Analysis?	Yes☐	No☒
Bases of the Technical Specifications?	Yes☐	No☒
Technical Requirements Manual?	Yes☐	No☒
NRC Safety Evaluation Reports?	Yes☐	No☒

3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐	No☒
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐	No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐	No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐	No☒

7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

Document No. WP-1409.710 Rev./Change No. 0

Basis for Determination (Questions 1, 2 & 3):
See attached continuation page

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item #, send LDCR to Licensing).

Search Scope:

List sections reviewed in the Licensing Basis Documents specified in Question 1, 2 and 3. If a search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Section 6.1.2 if LBD changes are required.**

Document	Section
LRS:	
50.59-Unit 1	**All[(LPI or Decay) w/10 (Test or Experiment), (LPI or Decay) w/10 bearing, bearing cool*, bearing hous*, service water w/10 bearing, service water w/10 cooler, E50B, LPI, DH*]**
MANUAL SECTIONS:	
Unit 1 SAR	**1.4.30, 4.2.5.1, 6.1.2, 6.1.3, 9.3, 9.5, 14.1.1, 14.2.1, A.7.6; Tables 14-1 and 14-18**
Unit 1 TS	**3.1, 3.3, 3.6, 3.8, 4.5**
FIGURES:	
Unit 1 SAR	**6-1, 6-2, 9-6, 9-12, 9-18, 9-20**

Certified Reviewer's Signature — Donald E. Bentley (Printed Name) — 3/3/2000 (Date)

Reviewer's certification expiration date: 5/4/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

Search Scope Review Acceptability (NA, if performed by Technical Review per 1000.006)

Certified Reviewer's Signature — Keith Nichols (Printed Name) — 3/4/2000 (Date)

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. WP-1409.710 Rev./Change No. 0

Complete the following Determination. If the answer to any checklist item is "Yes", an Environmental Evaluation is required. See Section 6.1.4 for additional guidance.

Will the Activity being evaluated:

Yes	No	
☐	☒	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
☐	☒	Increase thermal discharges to lake or atmosphere?
☐	☒	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
☐	☒	Modify the design or operation of cooling tower which will change drift characteristics?
☐	☒	Install any new transmission lines leading offsite?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Discharges any chemicals new or different from that previously discharged?
☐	☒	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
☐	☒	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
☐	☒	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
☐	☒	Result in a change to nonradiological effluents or licensed reactor power level?
☐	☒	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

10CFR50.59 Review Continuation Page

Brief description of proposed change:

ER 002334N102 was issued to resolve high inboard bearing temperatures experienced during outage 1P002 documented in CR-ANO-1-2000-0068. The modification changes the inboard bearing housing from stainless steel to the originally installed cast iron configuration, changes the inboard bearing fit, installs a locked open ¾" ball valve in the inboard bearing cooler service water return line and installs a dial temperature indicator in the inboard bearing cooler service water housing.

WP-1409.712 "P-34B Bearing Modification Testing" was written to demonstrate the first level of assurance of modification acceptability by testing P-34B using ~55°F service water supplied by the normal flow path with P-34B aligned to the BWST and then to the RCS at ~180°F.

This work plan (WP-1409.710) establishes the instructions, acceptance criteria, and controls required to demonstrate the second level of assurance that the modification performed under ER 002334N102 for P-34B was satisfactory. Testing will be performed with P-34B aligned to the RCS at 255-280°F with pump cooling water supplied by a test rig at ~34°F and then at ~121°F. The test rig containing a heated 55 gallon drum, a cooled 55 gallon drum, temporary valves, piping, pressure instruments, and pumps connected in place of the normal service water supply and is capable of supplying ~32-121°F cooling water to P-34B bearings and seals. Instructions and controls are contained in the WP for installation, checkout, use and removal of the temporary cooling water test rig and temporary non-intrusive instrumentation.

P-34B will be removed from service and declared inoperable at the beginning of this WP. Service water to P-34B will be isolated and tagged via CV-3841 and SW-38B. Once the test rig is installed, P-34B will be started and placed in service on the RCS using OP-1104.004, however P-34B will still be considered inoperable. After completion of the tests utilizing the test rig, the system will be returned to it's normal configuration with all test equipment removed, OP-1104.004 Supplement 2 "Low Pressure Injection (Decay Heat) Pump P-34B & Components Quarterly Test" will be conducted to return the pump to operable status for DHR and LPI.

Basis for Determination (Questions 1, 2, & 3):

1. Surveillance tests of P-34B are described in the Technical Specifications. This WP establishes equipment performance testing requirements and directs that a surveillance test be performed in accordance with approved plant surveillance procedure OP-1104.004. This WP does not change the surveillance requirement or procedure. The balance of the activities conducted under this WP are beyond the level of detail contained within the operating license documents. The operating license documents are therefore not impacted.

2. The SAR describes the performance requirements of P-34B in terms of flow rates, pressures, pumped fluid temperature capabilities, and other pump performance characteristics. Per SAR section 4.2.5.1 "Decay Heat Removal", the decay heat removal system provides the capability for cooling the RCS below about 280 °F. Also, per SAR Table 14-47 "Reactor Building Design Basis Accident Chronology of Events" at 35 seconds into the accident the LPI pumps begin to inject and at 1300 seconds (21.6 minutes) the Reactor Building Sump reaches a maximum temperature of 282°F. Per SAR section 6.1.2.1.2 "Low Pressure Injection System" LPI suction from the BWST last for approximately 25 minutes with all engineered safeguard pumps operating and assuming the maximum break size. When BWST reaches 6' the operator opens the suction valves from the reactor building sump and closes the BWST outlet valves allowing for recirculation of spilled reactor water. Also described are the service water supply sources (Dardanelle Reservoir and Emergency Cooling Pond) as well as the temperature extremes of the sources providing cooling for the bearing and stuffing box cooler E-50B. Per SAR section 9.3.2.1, 95°F is the peak lake temperature and 121°F is the peak ECP temperature. This Activity (i.e. WP-1409.710) validates the capability of P-34B and E-50B to meet the requirements of the extreme service conditions of RCS at ~280°F and service water supplied at ~32-121°F. Testing of P-34B directed by this WP and OP-1104.004 is consistent with the details described in the SAR.

Bases of the Technical Specifications elaborate on the TS surveillance and system performance requirements but the WP does not invalidate any details provided. The balance of the WP details are beyond the level of detail addressed in the SAR documents.

3. P-34B will be removed from service and declared inoperable prior to beginning this test. After installation of the test rig, operation of P-34B will be conducted via approved plant procedure OP-1104.004 . The test rig is used in place of the normal service water supplied to the bearing and stuffing box cooler E-50B. The Service Water system will be isolated from the test rig during performance of the WP by CV-3841 and SW-38B.

   This WP is considered a "test" by the definition in OP-1000.131 "10CFR50.59 Review Program" since it is an "activity that determines if a condition can be proved". The "condition" to be proven is that P-34B can operate satisfactorily at extreme SW temperatures with RCS temperature close to 280°F. Even though this is a test, it does not require a safety evaluation based on OP-1000.131 Attachment 2 as follows:

   - For the Service Water side of P-34B: Tests on equipment declared inoperable and isolated from operable safety related equipment per approved procedures do not normally require a safety evaluation. In this workplan, P-34B will be removed from service and declared inoperable prior to beginning the test. Additionally, P-34B bearing and stuffing box cooler E-50B and the temporary test rig that is to be used for cooling P-34B bearings and seals will be isolated from the SW loop via locked closed valves CV-3841 and SW-38B.
   - For the pumping fluid (RCS/BWST) side of P-34B: Tests using approved procedures do not normally require a safety evaluation. Even though P-34B will be technically inoperable, the pump will be placed in service recirculating water to and from the RCS. This will be done in accordance with Procedure 1104.004 "Decay Heat Removal Operating Procedure".

Although the answer to Questions 1, 2, and 3 are "No" and the Basis for Determination indicate that a 50.59 Evaluation is not required, one is performed as an added measure of conservatism.

10CFR50.59 Eval. No. 00-~~010~~-019
(Assigned by PSC)

Document No. WP-1409.710 Rev./Change No. 0

Title P-34B BEARING MODIFICATION STARTUP TESTING

A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO EACH QUESTION MUST BE ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A SIMPLE STATEMENT OF CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDANCE FOR RESPONSE.

If the answer to any question on this form is "Yes," then an unreviewed safety question is involved. If the answer to all questions is "No," then the proposed change does not involve an unreviewed safety question.

1. Will the probability of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

During the performance of this activity, the 'B' DHR pump will be aligned to take suction from the DHR drop line and return the RCS fluid to the RCS via the DHR cooler. RCS pressure is limited to 300 psig at the suction of P-34B with RCS temperature limited to 280°F in this mode of operation and is based on the DHR system capabilities. Performance of P-34B will be monitored to ensure it is operated within it's limitations and requirements. The results from this test validate the pump's capabilities to perform it's function. This ensures it will perform as required in all modes of operation. Accidents discussed in Ch. 6 and 14 of the Unit 1 SAR assume the ECCS mode of operation of P-34B (i.e. LPI) is required. P-34B is not an existing SAR accident initiator nor will WP-1409.710 activities change its required design capabilities to lead to it being an accident initiator. This activity therefore has no effect on the probability of an accident analyzed in the SAR.

2. Will the consequences of an accident previously evaluated in the SAR be increased? Yes ☐ No ☒

During performance of this activity, the 300 psig and 280°F RCS limitations prevent the plant from operating in a mode assumed as the initial conditions in the SAR Ch. 6 and 14 accidents. Additionally, P-34B will be declared inoperable during performance of WP-1409.710. Service Water will be isolated from P-34B pump bearing cooler utilizing existing safety related Service Water valves during performance of WP-1409.710. Therefore since the Unit will not be relying on the function of this pump to mitigate the consequences of an accident during performance of this work plan, this work plan will not increase the consequences of an accident previously evaluated in the SAR. Results from the activity provide additional assurance that the ECCS LPI function of P-34B will function when called upon.

3. Will the probability of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

During the performance of WP-1409.710, P-34B will be operated using approved plant procedure OP-1104.004. This procedure provides the limits, precautions and detailed operating instructions for P-34B. Additional instrumentation will be used to monitor the performance of the pump and motor for predicting trends during its operation. Testing P-34B toward the extremes of it's design basis operating conditions will provide added assurance it will function properly over the entire range of operating conditions. These measures improve the ability to determine P-34B will be capable of performing it's design functions. The test rig used to provide cooling water is

configured such that it will not exceed the service water design capabilities of flow, temperature, or pressure. Instrumentation is used to monitor the test rig cooling water supply flow, pressure and temperature, setting up the bounding service water conditions that could be provided to P-34B. The cooling water will be of the same quality as service water to ensure that it is acceptable for this application. The probability of a malfunction of equipment important to safety therefore will not increase.

4. Will the consequences of a malfunction of equipment important to safety be increased? Yes ☐ No ☒

During performance of this WP, P-34B parameters are monitored IAW OP-1104.004 and the additional instrumentation installed for the test. This maintains the existing limits on P-34B and the service water lines that are connected to the test rig but isolated from other equipment important to safety with existing SW valves. The consequences of a malfunction of the pump and service water lines will not be increased by this test. Since P-34B will be declared inoperable during the performance of this work plan, the plant will not be in a mode that requires P-34B to mitigate the consequences of an accident and therefore performing this test will not increase the consequences of a malfunction of equipment important to safety.

5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

P-34B flow will be tested IAW approved operating procedures and through existing safety related piping & components. This work plan does not authorize operating P-34B outside of existing approved operating procedures. The current isolation boundary capabilities are unchanged for the flow path. The test rig will be isolated from the operating service water system by closed safety related isolation valves. This prevents the test rig from impacting operating equipment important to safety. The test rig capability and instructions for operation of the test rig maintain cooling water parameters to P-34B pump within existing design basis conditions. A possibility of an accident of a different type is therefore not created.

6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? Yes ☐ No ☒

All interfacing equipment and processes to P-34B are unchanged other than the cooling water. Cooling water pressure from the test rig pumps when they are dead headed is less than the dead head pressure of service water pumps and the 126 psig service water piping limit. Temperature limits of the service water lines is 150°F. Termination criteria of the WP are well below this value. Cooling flow will be maintained within current limits. Quality of the cooling water is maintained. The possibility of a malfunction of equipment important to safety of a different type is not created.

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7. Will the margin of safety as defined in the basis for any technical specification be reduced? Yes ☐ No ☒

This WP does not authorize any change to the performance or acceptance criteria of P-34B or the service water system. This work plan will provide the controls necessary for properly isolating the service water and will provide the controls for operating P-34B with existing approved system operating procedures. This work plan will not cause an interface with any other systems besides the RCS, Decay Heat Removal or Service Water. Therefore the margin of safety as defined in the basis of the technical specification is unchanged.

Certified Reviewer's Signature | Donald E. Bentley (Printed Name) | 3/3/2000 (Date)

Reviewer's certification expiration date: 5/4/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 3/5/00