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

This Document contains 3 Pages.

Document No. ER992124E201 Rev./Change No. 0

Title Work Plan 2409.654 - Alternate ACW Return Path for 2CV-1481-1 Maintenance.

Brief description of proposed change:

In support of maintenance and testing of 2CV-1481-1, a portion of the ACW Return header needs to be isolated. To prevent securing Condenser Vacuum System and Control Room Chillers it is desired to allow the ACW Outlets from 2E46A/B (Vacuum Pump Seal Water Cooler), 2E10 (Steam Packing Exhauster Cooler) and 2E134A/B, 2E135A/B (Control Room Chiller Condensers) to be routed to floor drains. This activity will be controlled by Work Plan 2409.654 which meets the requirements of Procedure 1000.028, Control of Temporary Alterations.

Will the proposed Activity:

1. Require a change to the Operating License including:
 

Technical Specifications (excluding the bases)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Operating License?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Confirmatory Orders?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
Core Operating Limits Report?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Fire Hazards Analysis?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bases of the Technical Specifications?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Technical Requirements Manual?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
NRC Safety Evaluation Reports?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. Involve a test or experiment not described in the SAR?  
(See Attachment 2 for guidance)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?
 

QAMO?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
E-Plan?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

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**Basis for Determination (Questions 1, 2, & 3):****1. Technical Specifications (excluding the Bases), Operating License, and Confirmatory Orders;****2. "Safety Analysis Report" –SAR (multi-volume set), COLR, FHA, TS Bases, TRM, NRC SER's;**

The SAR Figures 9.2-1 (M-2211 Sheet 1) and 3.2-3 (M-2221 Sheet 1) depicts the normal valve lineup for ACW through the components affected by Work Plan 2409.654. The Work Plan will change some of these valve positions on a temporary basis.

**3. Test or Experiments not described in the SAR:**

Work Plan 2409.654 does not involve any test or experiments on any components, systems or groups of systems.

☐ 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.**

DocumentSection

LRS: 50.59 – Common  
50.59 – Unit 2

All ("Control Room Chiller"; "Control Room w/10 Ventilation")  
All ("ACW"; Auxiliary Cooling Water")

**MANUAL SECTIONS:**

FIGURES: Unit 2-SAR Figure 9.2.1 and 3.2-3

Certified Reviewer's Signature

John Harvey

Printed Name

11/11/99

Date

Reviewer's certification expiration date:

12/11/99

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

Cleveland Reasoner

Printed Name

11/11/99

Date

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## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. ER992124E201

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:

- | <u>Yes</u>               | <u>No</u>                           |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |



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This Document contains 2 Pages.

Document No. ER992124E201 Rev./Change No. 0 10CFR50.59 Eval. No. FFN 99-103  
 (Assigned by PSC)  
 Title Work Plan 2409.654 - Alternate ACW Return Path for 2CV-1481-1 Maintenance.

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 temporary changes allowed by ER992124E201 will not allow the affected components to operate outside their existing control bands. The availability of the ACW supply will not be affected. 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 temporary changes allowed by ER992124E201 will not allow the affected components to operate outside their existing control bands. In so doing there will be no change in the off-site dose consequence of any accident previously evaluated in the SAR.

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

The temporary changes allowed by ER992124E201 will not allow the affected components to operate outside their existing control bands. The ACW diverted to the floor drains will not impact the Emergency Cooling Pond (ECP) since the normal supply will be Lake Dardenelle and ACW is isolated on accidents that automatically swap the SW supplies to the ECP. 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 temporary changes allowed by ER992124E201 will not allow the affected components to operate outside their existing control bands. The changes allowed will not adversely impact equipment important to safety and therefore will not impact the offsite dose consequence associated with the 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? Yes ☐ No ☒

Since ACW will still be supplying the cooling water to the affected components, the cooling water supply for the affected components has not change from the analyzed condition. Adequate flow rates through the components to drains will be verified for proper operation. Based on this the possibility of an accident of a different type than previously identified in the SAR will not be created.

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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?

Yes ☐ No ☒

Since ACW will still be supplying the cooling water to the affected components, the cooling water supply for the affected components has not change from the analyzed condition. Adequate flow rates through the components to drains will be verified for proper operation. 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?

Yes ☐ No ☒

This change is below the scope of the technical specification basis.

  
Certified Reviewer's Signature

John Harvey

Printed Name

11/11/99

Date

Reviewer's certification expiration date: 12/11/99

Assistance provided by:

Printed Name

Scope of Assistance

Date

PSC review by:



Date:

11/11/99

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This Document contains 4 Pages.

Document No. ER992141E202 / TA 00-2-009 Rev./Change No. 0

Title Temporary 480VAC Power for the 2R14 Turbine Work

Brief description of proposed change:

This Temporary Alteration and the associated ER will provide 2400 amp capability of temporary 480VAC power to the turbine building. This power will be supplied from 2P3B Circ Water Pump Breaker 2H20, through a temporary 6900/480VAC step-down transformer. This TA will be inservice while the plant is in cold or refueling shutdown, during which time the circulating water system will not have to be operable. The temporary transformer will be connected to a temporary load center, both of which will be located in the tube pulling pit area. The 6900VAC cable will be run all by itself in temporary conduit so there will be no separation issues or fire loading issues. The 480VAC cabling will be run in tray or on the floor between the transformer and the load center. This distance will be extremely short, and will be danger flagged and mechanically protected as applicable. None of these cables will be energized until the plant has reached cold shutdown. Note: Some of the cabling and conduit will be installed prior to the outage while the plant is in power ops. None of this cabling or conduit will be connected to plant equipment until the plant reaches cold shutdown.

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?  
QAPM? Yes ☐ No ☒  
E-Plan? Yes ☐ No ☒
8. Does this review depend on future NRC approval of other actions?  
(NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9) Yes ☐ No ☒

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Document No. ER992141E202 / TA 00-2-009 Rev./Change No. 0

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

See the attached 1000.131C form for the answers to these three questions.

☐ 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.**

<u>Document</u>	<u>Section</u>
LRS: 50.59 – Unit 2	All ("CW w/10 breaker", "Circ* w/10 shutdown", "electrical distribu*", "temporary power", "electrical separa*", "cable separa*", "raceway", "transient combustibles", "PVC", "Tube w/5 (pull* or pit)", "circ* w/5 breaker")

MANUAL SECTIONS: SAR Sections 8.3.1.1.8.8, 8.3.1.4.4, 8.3.1.6.5, 10.4.1.3, 10.4-5, Table 10.4-1  
TS Sections 3/4.8.1.1, 3/4.8.1.2, 3/4.8.2.1, 3/4.8.2.2

FIGURES: SAR Figures 1.2-1, 1.2-2, 1.2-3, 1.2-4, 1.2-5, 1.2-6, 8.3-1, 8.3-3, 8.3-26-1, 8.3-27, 8.3-68, 8.3-69, 8.3-70, 8.3-71, 8.3-72, 8.3-73, 8.3-74, 8.3-75, 10.4-1, 10.4-4


	<u>John Ekis</u>	<u>8/4/00</u>
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 3/31/01

Assistance provided by:

<u>Printed Name</u>	<u>Scope of Assistance</u>	<u>Date</u>
<u>None</u>		

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

	<u>MICHAEL R. GRAY</u>	<u>8/15/00</u>
Certified Reviewer's Signature	Printed Name	Date

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## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. ER992141E202 / TA 00-2-009Rev./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

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

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10CFR50.59 Review Continuation Page

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

**Question # 1:**

The proposed activities result in no changes to any permanent electrical loads. The temporary electrical system will not interface with Class 1E, safe shutdown, or associated circuits.

No confirmatory orders were found that related to the systems affected by this Temp. Alt.

The Operating License had no requirements for the Circ Water system or it's power supplies.

The only Technical Specification sections related to this activity is 3/4.8.2.2 – AC Distribution – Shutdown which specifies the power requirements for modes 5 & 6. The temporary changes to the electrical system specified in this TA will not affect the operability of the required AC busses.

**Question # 2:**

The 2R14 temporary power supply for the turbine deck will be connected to the 2P3B (Circ Water) power feed in the back of breaker 2H20. The Circulating Water System is described in SAR sections 10.4.1.3 & 10.4.5, but this information will not be made untrue by installation of this TA. The circulating water system will be inoperable while this TA is in place, but that is being handled via Hold Cards.

The SAR (Paragraph 8.3.1.6.5) discusses SU2 load shedding, and indicates that, after a fast transfer, only one CW pump will remain running. The load shedding circuitry is set up to trip the 2P3A motor, and leave the 2P3B pump running. Since neither CW pump will be running while this TA is installed, the load shedding circuit will serve no purpose, however, it will still function as if there was a motor connected to 2H20 instead of a temporary transformer. Should a fast transfer occur while the TA is installed, the breaker for 2P3A will get a trip signal (but it will already be open), and the breaker for 2P3B will remain closed, just like would occur if the CW system were in service. A calculation was done to ensure that the loading from the TA is within the capability of the SU2 transformer. Therefore, neither the wording, nor the intent of this SAR statement will be made untrue by this TA.

The SAR addresses cable separation requirements between 1E and Non-1E circuits. This is not a concern because the temporary cabling installed by this TA will be entirely in the Turbine Building, and can in no way come in contact with Class 1E cables. Combustible materials will be controlled in accordance with ANO Procedure 1000.047, "Control of Combustibles". This will ensure the temporary power systems do not affect the Fire Hazards Analysis.

SAR Figures 8.3-1, 8.3-3, 8.3-26 Sh.1, and 8.3-27 **are all made inaccurate** by the planned temporary alteration to the 2P3B power supply breaker. Instead of breaker 2H20 supplying 2P3B, it will supply a temporary transformer in the tube pulling pit area. This made two of the SAR figures inaccurate. The protective relaying for this breaker is being modified to protect a transformer instead of a motor, so the relaying circuit had to be modified, making the other two SAR figures inaccurate. Therefore, a 10 CFR 50.59 evaluation is required. No LDCR is needed because these changes are all temporary.

None of the other SAR documents will be made untrue or inaccurate by the installation of this temporary alteration.

**Question # 3:**

The only testing required by this TA are the PMT associated with the installation and removal of the temporary alteration. None of the PMT tests degrade the margins of safety, or degrade the adequacy of SSC that are relied upon to prevent or mitigate accidents. There are no tests or experiments specified by this temporary alteration that are not described in the SAR.

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This Document contains 3 Pages.

Document No. ER992141E202 Rev./Change No. 0 10CFR50.59 Eval. No. FFN#00-093  
TA-00-2-009 (Assigned by PSC)  
 Title Temporary 480VAC Power for the 2R14 Turbine Work

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.

Installation of this temporary power TA for the 2R14 turbine work will result in several of the U2 SAR figures being inaccurate. Specifically the single line drawings that show breaker 2H20 powering the 2P3B Circ Water motor will not be accurate (Figures 8.3-1, 8.3-3). Also, the figures that show the 2H bus protective relaying will be inaccurate (Figures 8.3-26-1, 8.3-27).

This TA will only be inservice when the plant is in cold or refueling shutdown, when the Circulating Water (CW) system is not needed. With the exception of the 2H20 breaker, the CW system will be out of service and hold carded while this TA is inservice. Breaker 2H20 will be disconnected from 2P3B, and will be connected to a temporary stepdown transformer that will supply a temporary 480VAC load center in the tube pulling pit area.

There are only a few accidents in the U2 SAR that are applicable while the plant is in cold shutdown or below, and they are: rod withdrawal from subcritical condition, uncontrolled boron dilution, inadvertent loading of fuel in improper location, waste gas decay tank rupture and fuel handling accident. Only these accidents will be considered while answering the following questions.

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

The temporary electrical power supply for the 2R14 turbine work has been verified to have no adverse effect on the function of existing SSCs and will not directly impact any existing equipment. None of the temporary modifications being made by this TA involve components that are accident initiators (for those accidents that apply while the plant is in cold shutdown conditions; see list above), nor do they interface with any equipment that is an accident initiator.

Therefore, the proposed activities do not increase the probability of occurrence of an accident previously evaluated in the SAR.

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

Neither the 2H2 bus nor the Circulating Water system is relied upon to mitigate any of the accidents that have been evaluated in the U2 SAR for cold shutdown conditions. As a matter of fact, both of these systems are normally out of service during cold shutdown and refueling shutdown. Since those are the only 2 systems impacted by this TA, this activity will cause no increase in the off site dose as a result of accidents previously evaluated in the SAR.



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

No equipment important to safety is impacted by this activity. Both the 2H2 bus and the Circulating Water system are non-Q SSC's. The temporary cabling and raceway will not be routed on, above, or around any SR equipment. The temporary transformer and load center are being installed in the tube pulling pit area of the turbine building, which is not in the vicinity of any safety related SSC's. A failure of any of the equipment used by this TA will 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 2H2 bus nor the Circulating water system is relied upon to mitigate any accident or to mitigate the malfunction of equipment important to safety. As a matter of fact, both of these systems are normally out of service during cold shutdown and refueling shutdown. Therefore, there can be no increase in the off-site dose caused by the installation of this TA.

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

The only accident that could be postulated as a result of this TA, would possibly be the loss of the 2H2 bus due to overload, or improper installation of the TA. Since this bus is normally deenergized during cold and refueling shutdown conditions, obviously it's loss would not be considered an accident of a different type. All of the temporary equipment, cable, and raceway will be installed using normal work practices, and safety precautions, and the only interface that the TA will have on existing plant equipment is on the 2H2 bus. Therefore there is no possibility of an accident being created of a different type than 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 of malfunction this activity could possibly create is a loss of the 2H2 bus, however, this bus is normally deenergized when the plant is in cold or refueling shutdown. Also, the bus is not safety related, and it interacts with no safety-related equipment that would malfunction due to a loss of the bus.


(Note: The 2H2 bus does serve a function to protect the containment penetrations from failure due to overcurrent, but none of the protective relays that serve this function are impacted by this TA).

All of the temporary equipment, cable and conduit being installed by this TA is in the Turbine Building, and can in no way impact the operation of safety related equipment. Therefore, this TA will not create a malfunction of safety related equipment 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?** Yes ☐ No ☒

This activity will not require removing any equipment from service when it is required to be operable. None of the Tech Spec bases mention the 2H2 bus, nor do they mention the circulating water system. Therefore this TA will have no impact on any margin of safety specified or implied in the bases for the technical specifications


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 Certified Reviewer's Signature	John Ekis Printed Name	8/7/00 Date
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Reviewer's certification expiration date: 3/31/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
None		

PSC review by:  Date: 8/24/2000

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

Page 1 of 1

Document No. 963355L201

Rev./Change No. 0

Title HP TURBINE MEGAWATT RECOVERY EFFORT

PAGE 3 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:
  - 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 attachment

\* Changes to these documents require an evaluation in accordance with 10CFR50.54.  
See Section 6.2.1.B.

FORM TITLE:

ARKANSAS NUCLEAR ONE

10CFR50.59 DETERMINATION

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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  
50.59-UNIT 2 LRS

Section2SAR

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

# FIGURE 10.2-2

# FIGURE 10.2-4

# SAR SECTION 10.2.2

SAR SECTION 10

SAR SECTION 15

2TS

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

E-PLAN

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

QAMO

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

2SER

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

2LFO

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

2NSE

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

FHA

LRS "All" (high pressure turbine, extraction, steam flow, turbine generator, steam pressure)

  
 Certified Reviewer's Signature

Nathan R. Berberich

Printed Name

Date

Reviewer's certification expiration date:

1/15/98

Assistance provided by:

Printed Name

Scope of Assistance

Date

ARKANSAS NUCLEAR ONE		
FORM TITLE:	10CFR50.59 DETERMINATION	FORM NO. 1000.131A
		REV. 2 PC-2.3

## ENVIRONMENTAL IMPACT CHECKLIST (UNIT 1 and UNIT 2)

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Document No. 963355L201

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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:

<u>Yes</u>	<u>No</u>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Increase thermal discharges to lake or atmosphere?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Modify the design or operation of cooling tower which will change drift characteristics?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Install any new transmission lines leading offsite?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Change the design or operation of the intake or discharge structures?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Discharges any chemicals new or different from that previously discharged?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Result in a change to nonradiological effluents or licensed reactor power level?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

**Determination:**

DOCUMENT NUMBER  
963355L201

PAGE 6 REV. 0

This LCP will modify the Unit 2 High Pressure Turbine and #3 steam lead drain line for the purpose of increasing the flow passing capacity of the Unit 2 Main Turbine. This modification will restore a portion of the lost electrical generation capacity of Unit 2 due to  $T_{hot}$  reduction and S/G tube plugging.

ANO-2 main steam pressure has gradually decreased over the years because of the reduction in  $T_{hot}$  to 600° F and steam generator tube plugging. As the steam pressure has fallen, the turbine control valves have been opened further to maintain the reactor at full power. Eventually, pressure dropped to the point where the turbine valves were fully open. Further reduction in steam pressure led to the current situation where the main turbine could not pass the required steam flow to allow the reactor to reach full power.

The proposed modification will in affect "open up" the steam path and allow for larger steam flow than the original design. This will permit the reactor to reach full power under the current steam conditions and increase net electrical generation. The modification to the steam path will be limited to the first two stages of the High Pressure Turbine. The first stage stationary blading or "nozzles" along with the first stage rotating blading or "buckets" will be replaced. Additionally, the second stage stationary blading or "diaphragms" and second stage buckets will be removed. A flow guide will be installed in place of the second stage diaphragm to direct the exhaust of the first stage into the suction side of the third stage. The throttle pressure and first stage pressure transmitters will be respanned to accommodate the new steam conditions.

The volumetric flow passing capacity of the turbine is controlled by the HP section of the turbine, chiefly the first (governing) stage. Any change to the flow passing capability of the turbine would have to include modification of the first stage. The main control valves are used to regulate what fraction of the total flow is passed depending on desired generator load. The new design first stage nozzle will have a larger cross sectional area than the original. The new design nozzle in conjunction with the new first stage buckets and effectively removing the second stage will increase the flow passing capacity of the main turbine. Consequently, for a given control valve position, the turbine will pass more steam after the modification than before which will allow the plant to recover a portion of the lost electrical generation due to S/G degradation.

Additionally, there will be a minor modification to the steam lead drain lines. This will consist of removing an integral strainer-orifice (2FO-0209 & 2F-397) from the 1" steam lead drain line between the #3 main control valve and HP turbine. Also the opening and closing logic for the steam lead drain valve (2CV-0209) will be modified.

This design change is not responsible for the decrease in main steam pressure on Unit 2. Other engineering evaluations have addressed the effect of dropping main steam pressure for ANO-2. This determination\evaluation will be limited to the scope of the HP Turbine modification and associated issues relating to the requirements of a 50.59 review.

**Basis for Determination:**

- 1) This 50.59 determination evaluates the HP Turbine modifications as outlined in LCP 963355L201. This modification involves replacing the HP Turbine 1st stage buckets and nozzle plate, removing the 2nd stage buckets, and replacing the 2nd stage stationary blading with a flow guide. The purpose of this modification is to increase the flow passing capacity of the main turbine to help compensate for lower main steam pressure caused by Thot reduction and S/G maintenance. This modification will not impact the Technical Specifications, Operating License, or confirmatory orders.
- 2) Sar figures 10.2.-4 sheet 1 and 10.2-2 will require revision. Section 10.2.2 of the SAR will require revision. No other LBD information will be caused to be untrue or inaccurate.
- 3) LCP 963355L201 does not involve any test or experiment not described in the SAR.
- 4) This LCP will increase the unit 2 base heatrate which will in turn increase the thermal discharge to the cooling tower @ 2825 MWT from the RCS. See attached Environmental Evaluation.
- 5) The proposed activity does not involve the processing of radioactive material outside the aux. bldg., Reactor Bldg., or low level Radwaste Storage bldg., and does not create a new pathway outside of the monitored ventilation or drainage pathways.
- 6) The proposed activity does not involve any potential impact upon a spent fuel ventilated Storage Cask.



FORM TITLE:

ARKANSAS NUCLEAR ONE

10CFR50.59 EVALUATION

FORM NO.

1000.131B

REV.

2

DOCUMENT NUMBER  
963355L201

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10CFR50.59 Eval. No. FFN-97-148  
(Assigned by PSC)Document No. LCP 963355L201Rev./Change No. 0Title HP TURBINE MEGAWATT RECOVERY EFFORTPAGE 8 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?  
See attachment  
Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased?  
See attachment  
Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased?  
See attachment  
Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased?  
See attachment  
Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?  
See attachment  
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?  
See attachment  
Yes ☐ No ☒
7. Will the margin of safety as defined in the bases for any technical specification be reduced?  
See attachment  
Yes ☐ No ☒

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.69 EVALUATION	FORM NO. 1000.131B	REV. 2

[Signature] Nathan Berberich  
Certified Reviewer's Signature Printed Name 1/25/97  
Date

Reviewer's certification expiration date: 1/15/98

Assistance provided by:

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Printed Name

Scope of Assistance

Date

PSC review by: [Signature] Date: 1/30/97

1) The proposed modification to the high pressure turbine and #3 steam lead drain line will not increase the likelihood of a turbine trip or turbine malfunction to occur. The following previously evaluated accidents were assessed for this review which can have a turbine trip/malfunction as an accident initiator:

*Loss of External Load or Turbine Trip*

*Loss of All Normal and Preferred AC Power to the Station Auxiliaries*

*Loss of Condenser Vacuum*

*Turbine Trip with Failure of Generator Breakers to Open*

*Malfunction of Gland Steam System*

All turbine related systems will functionally perform the same as prior to the modification. The turbine emergency trip system, overspeed protection system, extraction steam system, and turbine valves will have no significant operational changes due to this modification. Main turbine operation will continue to be bounded by the safety analysis.

The proposed HP turbine modification will have a limited effect on secondary plant parameters such as temperature, pressure, and enthalpy. These changes will primarily be in the high pressure sections of the turbine steam path, feedwater system, and extraction system (reference attached before and after heat balance diagrams.) These changes were reviewed with respect to possible accident initiators for the following previously evaluated accidents:

*Excess Heat Removal due to Secondary System Malfunction*

*Major Secondary Pipe Breaks With or Without Concurrent Loss of AC Power*

The changes as determined by the heat balance diagrams were determined to have no significant influence on the expected failure rates of the secondary system equipment or piping. The changes to the secondary system as shown the attached heat balance diagrams will not adversely impact the conservative assumptions used by any safety analysis and remain bounded by the existing safety analysis. There are no accident initiators which will have increased probabilities of occurrence caused by this modification. Therefore, the previously evaluated accidents in the LBDs are no more probable to occur than before.

2) The modifications proposed by LCP 963355L201 will not affect the ability to mitigate the consequences of any previously evaluated accidents. Nor does it change, degrade, or prevent actions described in an accident discussed in the SAR. There will be no change to any barriers to mitigate dose to the public or create any new pathways for release of radioactive material. There is no affect to the dose consequences of any previously evaluated accident in the LDB due to this modification. The dose consequences and assumptions used in the SAR analysis are still bounding. Therefore, there is no change to the consequences of any previously evaluated accident in the LDB due to this modification.

- 3) The modification proposed to the HP Turbine and #3 steam lead drain line will not affect the ability of the turbine or turbine support systems to perform as outlined in the LBDs. The turbine is no more likely to overspeed than previously analyzed. Additionally, the likelihood of a malfunction of the turbine to trip or failure of turbine valve closure on a turbine trip is no more likely than previously analyzed. The proposed modification was designed by the original equipment manufacturer and meets all of the original design specifications for material and construction practices. Turbine related missile generation is no more likely than previously analyzed. This modification will not increase the probability of a malfunction of equipment important to safety.
- 4) The modification proposed to the HP Turbine and #3 steam lead drain line will not affect the ability of safety related equipment or equipment that could affect the operation of safety related equipment to mitigate the effects of a previously evaluated accident described in the LBDs. There would be no change in the dose consequences to the public due to this modifications impact on equipment important to safety. This modification will not adversely impact the conservative assumptions used by any safety analysis and remain bounded by the existing safety analysis. Implementation of the proposed modification will not increase the consequences of a malfunction of equipment important to safety.
- 5) The proposed modifications to the HP Turbine and #3 steam lead drain line are designed to improve the main turbine's ability to utilize lower pressure steam. This decrease in steam pressure has been caused by Thot reduction and ongoing S/G maintenance. Operation at the reduced steam pressure on the secondary side will make small changes to the secondary plant parameters as outlined on the attached heat balance diagrams. However, the turbines operational characteristics will be functionally equivalent to the original design. Engineering evaluations performed by the check valve program and erosion/corrosion program ensured that the changes in steam conditions for the extraction steam lines would not have a negative impact on plant safety or performance. All previous analysis are still applicable and bounding. No new accident initiators have been created. The possibility of an accident of a different type than previously evaluated in the LBD will not be created.
- 6) There are no new accident initiators created by the proposed modification. The modification is functionally equivalent to the existing design. All original codes and design standards have been met. The high pressure turbine pressure boundary will remain unchanged. All process piping parameters will remain below the maximum design allowable. The possibility of a different type of a malfunction of equipment important to safety than that previously evaluated in the SAR is not created.
- 7) Operation of the main turbine with the proposed modification to the HP Turbine completed, will be within the Technical Specifications limits and Bases. No margin of

safety will be affected. Therefore, the margin to safety as defined in the Bases of any Technical Specification will not be reduced.

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<b>FORM TITLE:</b> 10CFR50.59 DETERMINATION	<b>FORM NO.</b> 1000.131A	<b>REV.</b> 2 PC-2.3

This Document contains 3 Pages.

Document No. LCP 963501L201

Rev./Change No. 0

Title UNIT 2 CIRCULATING WATER PUMP MOTOR REPLACEMENT

Will the proposed Activity:

1. Require a change to the Operating License including:
 

Technical Specifications (excluding the bases)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Operating License?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Confirmatory Orders?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
  
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 <input type="checkbox"/> No <input checked="" type="checkbox"/>
SAR (multi-volume set for each unit)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
QAMO?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
E-Plan?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
FHA	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bases of the Technical Specifications?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
NRC Safety Evaluation Reports?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
  
3. Involve a test or experiment not described in the SAR?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
  
4. Result in a potential impact to the environment? (Complete Environmental Impact Checklist of this form.)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
  
5. Result in the need for a Radiological Safety Evaluation per section 6.2.4.B?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
  
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.2.4.B?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Basis for Determination:

See attached page for basis of determination

\* Changes to these documents require an evaluation in accordance with 10CFR50.54. See Section 6.2.1.B.

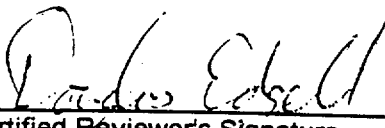
ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 2 PC-2,3

Document No. LCP 963501L201

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.

<u>Document</u>	<u>Section</u>
ANO-2 Tech Specs	All LRS (Circulating Water, 2P3*, 6000)
ANO-2 Op. License	All LRS (Circulating Water, 2P3*, 6000)
ANO-2 Confirmatory Orders	All LRS (Circulating Water, 2P3*, 6000)
QAMO	All LRS (Circulating Water, 2P3*, 6000)
E-Plan	All LRS (Circulating Water, 2P3*, 6000)
FHA	All LRS (Circulating Water, 2P3*, 6000)
ANO-2 Tech. Spec. Basis	All LRS (Circulating Water, 2P3*, 6000)
NRC SER	All LRS (Circulating Water, 2P3*, 6000)
ANO-2 SAR	All LRS (Circulating Water, 2P3*, 6000) Table 10.4-2, Figures 10.4-1, 10.4-4, 8.3-3, 8.3-1

  
 Certified Reviewer's Signature

Douglas Edgell

Printed Name

4/17/97  
 Date

Reviewer's certification expiration date: 3/17/99

Assistance provided by:

Printed Name	Scope of Assistance	Date
Brian Williams	Electrical Considerations	2/13/97

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FORM TITLE:

ARKANSAS NUCLEAR ONE

10CFR50.59 DETERMINATION

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1000.131A

REV.

2 PC-2,3

**ENVIRONMENTAL IMPACT CHECKLIST  
(UNIT 1 and UNIT 2)**Document No. LCP 963501L201Rev./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:

YesNo

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

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**Basis for Determination:**

1. This 50.59 determination evaluates the replacement of ANO-2 Circulating Water Pump Motor 2P3A as outlined in LCP 963501L201. The existing 6000 hp motor will be replaced with a 7000 hp motor of similar design. The motor will operate at the same rated speed as the existing motor. The circulating water system pump and system performance is not expected to change as a result of this modification. The circulating water systems provides no safety function. The ANO-2 TS, Operating License, Conformatory Orders, QAMO, E-Plan, FHA, Bases of the Technical Specifications, SERs are not impacted by this modification. However, SAR Table 10.4-2 and Figure 10.4-1, 10.4-4, 8.3-3 and 8.3-1 will require revision as a result of this modification.
2. LCP 963501L201 does not involve any test or experiment not described in the SAR.
3. The replacement of the existing 6000 hp motor with a 7000 hp motor will not change the steady state operation or performance of the circulating water system and will not result in a potential impact to the environment.

DOCUMENT NUMBER  
963501L201

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FORM TITLE:	10CFR50.59 EVALUATION	FORM NO. 1000.131B
		REV. 2

10CFR50.59 Eval. No. FFN-97-100  
(Assigned by PSC)

Document No. LCP 963501L201

Rev./Change No. 0

Title Unit 2 Circulating Water Pump Motor 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 ☒

The proposed modification replaces the existing 6000 hp Circulating Water Pump Motor (2P3A) with a reconditioned 7000 hp motor. The following previously evaluated accidents were assessed for this review:

Loss of Condenser Vacuum  
Loss of Normal or Preferred Power to the Station Auxiliaries

The proposed modification will not change the function or operation of the circulating water system. The 7000 hp motor will operate at the same rated speed (356 RPM) as the existing motor. Therefore, the pump and system performance will be unchanged at full rated speed. This modification will change the pump acceleration time from 4.2 seconds to 3.7 seconds at 100% rated voltage. The existing discharge valve opening logic and time delay is adequate to prevent damage to the system or pump as a result of the faster acceleration time. Installation of the 7000 hp motor will result in an increase in electrical current of approximately 1.2%. However, the additional loading has been analyzed for normal and accident conditions and found to be acceptable per calculation 963501L201-01. The starting conditions of the new motor were also analyzed in Calculation 963501L201-01 and found to be acceptable, with the exception of starting the motor from the Startup 2 Transformer. Therefore, this restriction will be added to the operating procedures to prevent starting the motor from the Startup 2 Transformer. Therefore, the proposed modification will not increase 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 ☒

This modification does not change the function or operation of the Circulating Water System. The consequences of failure of any component affected by this modification does not change as a result of this modification. 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 ☒

The Circulating Water System is not essential to safety. The proposed modification will not affect the ability of the circulating water system to perform as outlined in the LBD's. The probability of a malfunction of equipment important to safety will not be increased as a result of this modification.

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FORM TITLE: <b>10CFR50.59 EVALUATION</b>	FORM NO. <b>1000.131B</b>	REV. <b>2</b>

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

Yes ☐ No ☒

The proposed modification will not involve any safety related equipment or affect the ability of any safety related equipment to mitigate the consequences of a previously evaluated accident described in the LBD's.

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 new accident initiators created by the proposed modification. The function and operation of the system and components are not changed by this modification. The reconditioned spare motor is functionally equivalent to the existing design. The system and component failure modes remain unchanged. This modification will not created 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?

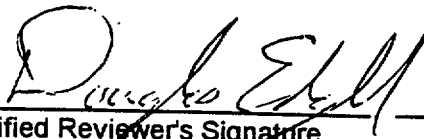
Yes ☐ No ☒

The function and operation of the Circulating Water System and components are not changed by this modification. The proposed modification does not involve or affect any equipment important to safety. Therefore, the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR has not been created.

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

Yes ☐ No ☒

There are no Technical Specification safety limits or basis defined for Circulating Water System. Therefore, the margin of safety as defined in the Bases of any technical specification will not be reduced.

 **Douglas Edgell**  
 Certified Reviewer's Signature Printed Name Date

Reviewer's certification expiration date: 3/17/99

Assistance provided by:

Printed Name Scope of Assistance Date  
 Brian Williams Electrical Considerations 4/18/97

PSC review by:  Date: 5/2/97

**100**

ARKANSAS NUCLEAR ONE		
FORM TITLE:	FORM NO.	REV.
10CFR50.59 DETERMINATION	1000.131A	003-04-0

This Document contains 3 Pages.

Document No. SAR, Unit 1 & Unit 2

Rev./Change No. Amendment No. 16

Title Conduct of Operations; Section 12, Unit 1 SAR & Section 13, Unit 2 SAR

Brief description of proposed change: The current Operations Department title of "Shift Superintendent" (and previous title of "Shift Supervisor") is being changed to "Shift Manager". The change is being implemented for consistency at Entergy Operations Incorporated (EOI) nuclear sites as part of the "Renewal Project."

Will the proposed Activity:

1. Require a change to the Operating License including:
 

Technical Specifications (excluding the bases)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Operating License?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Confirmatory Orders?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
Core Operating Limits Report	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Fire Hazards Analysis?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bases of the Technical Specifications?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Technical Requirements Manual?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
NRC Safety Evaluation Reports?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. Involve a test or experiment not described in the SAR?  
(See Attachment 2 for guidance)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:
 

QAPM?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
E-Plan?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
8. Does this review depend on future NRC approval of other actions (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

## ARKANSAS NUCLEAR ONE

FORM TITLE:

10CFR50.59 DETERMINATION

FORM NO.

1000.131A

REV.

003-04-0

Document No. SAR, Unit 1 &amp; Unit 2

Rev./Change No. Amendment No. 16

**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.**

DocumentSection

LRS:

**50.59 - Common** All (shift super\*, shift manager\*, shift w/5 operation\*, operation\* W/5 super\*)

## MANUAL SECTIONS:

Unit 1 SAR	4.1.2.6, 7.2.2.3.2, 8.3.1.6, 9.8.3.4, 9.8.3.5.2, 9.8.3.7, 11.3.2, 12.1.1.3.1.1.1, 12.1.1.3.1.1.1.1, 13.1.1
Unit 2 SAR	8.3.1.6.3, 9.5.1.5.4, 9.5.1.5.5, 9.5.1.5.7, 12.4.2, 13.1.1.3.1
Tech Specs	<u>Unit 1</u> ; 6.1, 6.2, 6.11.2 and Table 6.2-1, <u>Unit 2</u> ; 6.1, 6.2, 6.13.2 and Table 6.2-1
ANSI/ANS-3.1-1978	3.0, 4.0, 5.0
E-Plan	TOC, Definitions, and Sections A, B, E 1.0 & 1.1, F 1.0 & 3.0, G 3.0, H 1.1, I 1.0 & 2.3.2, J, K 1.1 & 2.2.2, Table B-1
SER	Unit 1 Amendment #70 & #198, Unit 2 Amendment #209
NSE	Unit 1 and Unit 2: 13.1

## FIGURES:

Unit 1 SAR	12-1 through 12-06, 13-1, 13-2
Unit 2 SAR	13.1-1 through 13.8-1
E-Plan	B-1, B-2, B-3, B-8, B-10

  
 Certified Reviewer's Signature

Jerry Storbakken  
 Printed Name

5-15-2000  
 Date

Reviewer's certification expiration date: 01/04/2001

Assistance provided by:

Printed Name

Larry W. Kilby

Scope of Assistance

Performance phase for 50.59 qualification.

Date

5/11/00

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

  
 Certified Reviewer's Signature

Phillip B. Lee  
 Printed Name

5.18.00  
 Date

ARKANSAS NUCLEAR ONE		
FORM TITLE:	10CFR50.59 DETERMINATION	FORM NO. 1000.131A
		REV. 003-04-0

## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **SAR, Unit 1 & Unit 2**

Rev./Change No. **Amendment No. 16**

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:

- | <u>Yes</u>               | <u>No</u>                           |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |



ARKANSAS NUCLEAR ONE		
FORM TITLE:	FORM NO.	REV.
10CFR50.59 REVIEW CONTINUATION PAGE	1000.131C	003-04-0

This Document contains 1 Page.

Document No. SAR, Unit 1 & Unit 2

Rev./Change No. Amendment No. 16

### 10CFR50.59 Review Continuation Page

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

The title change is a result of the RENEWAL PROCESS. The responsibility and authority of the position does not change. The proposed change does not affect any plant systems, structures or components or the operation of plant equipment; therefore, there is no test or experiment. The operating license is not affected by this change. SER Amendment No. 198 for Unit 1 and Amendment No. 209 for Unit 2 provided the basic groundwork for this title change. This SER incorporated in T.S. 6.1.2 for both units a functional description for the individual in charge as holding an SRO license rather than naming a particular position. This SER further states, in Section 2.2, "The licensee will be required to document in the Safety Analysis Report (SAR), the position responsible for the control room command function." For this reason an Evaluation is being performed even though simple title changes do not require Evaluation. CONDUCT OF OPERATIONS, SAR Section 12, Unit 1, and Section 13, Unit 2, contains title references and are the primary sections requiring changes. LDCR is submitted for SAR changes.

The E-Plan is affected by the title change and requires a 50.54 Evaluation.

Other documents such as ANSI, NSE, Technical Specifications, INITIAL TEST AND OPERATION section of the SAR and other older documents will not require change due to SER Amendment No. 198 for Unit 1 and Amendment No. 209 for Unit 2. As stated above, Technical Specifications provides a functional description and the SAR specifies the position title. This SER was utilized to make the previous title change from Shift Supervisor to Shift Superintendent. CONDUCT OF OPERATIONS, SAR Section 12, Unit 1, and Section 13, Unit 2, currently define Superintendents, Shift Operations and clearly state, "These individuals provide the 'shift supervisor' function". The historical progression of the title is preserved by changing the title to Managers, Shift Operations as necessary and stating, "These individuals provide the 'shift supervisor or shift superintendent' function".

<b>ARKANSAS NUCLEAR ONE</b>		
FORM TITLE: <b>10CFR50.59 EVALUATION</b>	FORM NO. <b>1000.131B</b>	REV. <b>003-04-0</b>

This Document contains 2 Pages.

10CFR50.59 Eval. No. FFN# 00-034  
(Assigned by PSC)

Document No. SAR, Unit 1 & Unit 2

Rev./Change No. Amendment No. 16

Title Conduct of Operations; Section 12, Unit 1 SAR & Section 13, Unit 2 SAR

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 title change is a result of the renewal process. The responsibility and authority of the position does not change. The proposed change does not affect any plant systems, structures or components or the operation of plant equipment. Therefore, the initiation or probability of an accident previously evaluated is unchanged.

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

The proposed title change does not affect any plant barriers or result in any new pathway for release of radioactive material. The ability to access vital areas or mitigate accident consequences is not changed. Therefore, the onsite and offsite dose consequences of any accident previously evaluated in the SAR is not increased.

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

The proposed change does not affect any plant systems, structures, components or the operation of any plant equipment. The proposed change does not install any new structure, system or component. Therefore, the probability of a malfunction of equipment important to safety is not changed.

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

The proposed title change does not alter or affect any Q, F or S plant equipment. The probability of a malfunction of equipment important to safety is not changed, and no new failure mechanisms are introduced. Therefore, the offsite dose consequences of a malfunction of equipment important to safety are not changed.

**ARKANSAS NUCLEAR ONE**

FORM TITLE:

**10CFR50.59 EVALUATION**

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**1000.131B**

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**003-04-0**

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

Yes ☐ No ☒

The proposed change does not add any new or affect any existing plant systems, structures, components or the operation of any plant equipment. The position title change will not initiate or create any new or 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 ☒

The title change does not affect any Q, F or S plant equipment or the operation of any plant equipment. The proposed change does not install any new structure, system or component. Therefore the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR is not created.

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

Yes ☐ No ☒

The position title being changed does not appear in any Technical Specification Bases and no protective barriers or limits are impacted. Therefore, the margin to safety as defined in the bases of any technical specification will not be reduced.

  
Certified Reviewer's Signature

Jerry Storbakken  
Printed Name

5-15-2000  
Date


Reviewer's certification expiration date: 1/4/2001

Assistance provided by:

Larry W. Kilby  
Printed Name

Performance phase of 50.59 qualification  
Scope of Assistance

5/11/00  
Date

PSC review by:  Date: 5/22/2000

**101**

ARKANSAS NUCLEAR ONE		Page 1
FORM TITLE:	10CFR50.59 DETERMINATION	FORM NO. 1000.131A REV. 003-04-0

This Document contains 3 Pages.

Document No. SAR 9.3.4.2.2 Rev./Change No. 0

Title Dilute the RCS During Heatup

Brief description of proposed change:

This SAR change will allow the RCS boron concentration to be reduced while heatup of the RCS is ongoing.

Will the proposed Activity:

- Require a change to the Operating License including:
  - Technical Specifications (excluding the bases)? Yes ☐ No ☒
  - Operating License? Yes ☐ No ☒
  - Confirmatory Orders? Yes ☐ No ☒
- 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 ☒
- Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)
- Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes ☐ No ☒
- Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes ☐ No ☒
- Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes ☐ No ☒
- Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?
  - QAPM? Yes ☐ No ☒
  - E-Plan? Yes ☐ No ☒
- Does this review depend on future NRC approval of other actions? (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9) Yes ☐ No ☒

ARKANSAS NUCLEAR ONE		Page 2
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-04-0

Document No. SAR 9.3.4.2.2 Rev./Change No. 0

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

See page 4 for the basis of the determination of the responses to Questions 1, 2, and 3.

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

**Search Scope:**

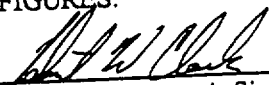
List sections reviewed in the Licensing Basis Documents specified in questions 1, 2 and 3. If search was performed on LRS, the LRS search index should be entered under "Section" with the search statement(s) used in parentheses. Controlled hard copies of the documents shall be reviewed (LRS is not verified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

<u>Document</u>	<u>Section</u>
-----------------	----------------

LRS: See Page 5 of this determination.

MANUAL SECTIONS: ANO-2 Tech Spec 3.4.1.3; 3.4.1.2; 3/4.1.1.3; 3/4.4.9; 3.4.3  
 SAR 9.3.4.2.2; 9.3.4.2.5; 15.1.4  
 SER 2, 24, 82, 104

FIGURES: None

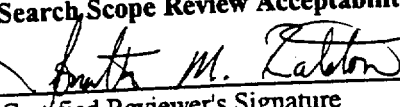
 Certified Reviewer's Signature	<u>Robert Wayne Clark</u> Printed Name	<u>08/10/00</u> Date
---	---	-------------------------

Reviewer's certification expiration date: 11/12/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
N/A		

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

 Certified Reviewer's Signature	<u>Jonathan M. Ralston</u> Printed Name	<u>8-10-00</u> Date
---	--	------------------------

## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. SAR 9.3.4.2.2Rev./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:

YesNo

- |                          |   |   |
|--------------------------|---|---|
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | X | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | X | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | X | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | X | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | X | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | X | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | X | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | X | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | X | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | X | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | X | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | X | 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.  
003-04-0

Document No. SAR 9.3.4.2.2

Rev./Change No. 0

10CFR50.59 Review Continuation Page

**BASIS FOR DETERMINATION**

1. The proposed change is to allow the heatup of the RCS while diluting the boron concentration in the RCS. The heatup limits, the minimum flowrate to ensure adequate mixing of the boron and the shutdown margin requirements listed in the ANO-2 Technical Specifications are not being changed. All these limits will remain as they currently are. This change is beyond the scope of the ANO-2 Operating License and Confirmatory Orders. Based on the above, no changes are required to the ANO-2 Technical Specifications, Operating License or Confirmatory Orders due to this change.

2. Section 9.3.4.2.2 of the ANO-2 SAR currently states "The RCS boron concentration is not reduced during heatup." The proposed change is to this statement. Based on this, a 10CFR50.59 Evaluation is required.

The shutdown margin requirement of 5% in the ANO-2 COLR for all modes of operation is to be maintained during this evolution; therefore no change to the COLR is required.

The proposed change is beyond the scope of the Fire Hazards Analysis, the bases of the ANO-2 Technical Specifications, the ANO-2 Technical Requirements Manual and the NRC SERs. Therefore no change is required to these documents.

3. This change is not a test or an experiment that is not described in the ANO-2 SAR. This change will not require any unusual operating conditions. The RCS will be heated up and the boron concentration determination will be done as before. The sampling frequency and concentration determination will occur more frequently but this is not considered to be an unusual operating condition. The PSAR for ANO-2 stated that "[w]ithin the limitations placed on the shutdown margin, the boric acid concentration may be reduced during heatup." It appears that the plant was originally designed to allow for the dilution of the RCS boron concentration while heating the RCS.



FORM TITLE:		ARKANSAS NUCLEAR ONE	Page 5
10CFR50.59 REVIEW CONTINUATION PAGE		FORM NO. 1000.131C	REV. 003-04-0

Document No. SAR 9.3.4.2.2

Rev./Change No. 0

10CFR50.59 Review Continuation Page

LRS SEARCH: ALL ("dilu\*"; "heatup"; "heat-up"; "heat up")

<u>ANO-2 Tech Specs</u>	3/4.1.1.3; 3.4.1.2; 3.4.1.3; 3.4.3; 3/4.4.9
<u>ANO-2 OL</u>	None
<u>ANO-2 Confirmatory Orders</u>	None
<u>ANO-2 SAR</u>	2.3.2.4; 2.3.4.2.3; 2.3.4.1; 2.3.4.2; 2.3.4.3; 2.3.4.4; 2.3.5.1; 2.3.5.2; 2.2.2.1; 2.2.2.4; 3.9.1.1; 4.2.1.1.1.1; 4.2.1.2.4.1; 5.2.1.5; 5.2.2.4; 5.2.4.3; 5.2.4.3.1; 5.2.7.1.2; 5.3.2; 5.5.1.2; 5.5.10.2; 5.5.13.2; 5.6.1.4; 6.3.3.2.3.5; 7.2.1.1.5; 7.2.2.1.1; 7.2.2.2.2; 7.4.1.3.1; 7.6.1.3; 7.7.1.1.6; 7.7.1.5; Table 7.2-6; Table 7.2-7; Table 7.2-8; Table 7.5-1; 9.3.3.2.2; 9.3.4.2.2; 9.3.4.2.4; 9.3.4.2.5; 9.3.4.3.5; 9.3.4.3.10; 9.3.6.3; 9.4.1.1.2; 9.4.1.3; 9.5.1.2.2; 9.5.1.3.2; 9.5.9.3; Table 9.3-6; Table 9.3-7; 10.4.4.1; 10.4.5.2; 10.4.5.5; 11.2.1; 11.2.2.1; 11.2.2.2; 11.2.6.4.1; 11.2.6.4.2; 11.2.7; 11.2.8; 11.2.9; 11.3.8; 11.4.2.1.5; 11.4.2.2.4; 11.6.6; Table 11.2-1; Table 11.2-15A; Table 11.2-15B; 12.1.2.1; 12.1.3.1; 14.1.4; 14.1.4.2; 14.1.4.3.1; Table 14.1-1; Table 14.1-2; Table 14.1-3; 15.1.0.5.2; 15.1.4; 15.1.7.1; 15.1.13.4.1; 15.1.14.2.1; 15.1.14.2.2.1; 15.1.14.2.4.2; 15.1.18.2.1; 15.1.23.2.2; Table 15.1.0-5; Table 15.1.4-1; Table 15.1.13-2
<u>ANO-2 COLR</u>	None
<u>FHA</u>	5.5.2; 5.6.2; 6.2.5
<u>Bases for ANO-2 Tech Specs</u>	3/4.1.1.3; 3/4.4.9; 3/4.4.12; 3/4.5.1; 3/4.9.1; 3/4.9.8
<u>TRM</u>	None
<u>SERs</u>	
Original SER	4.3.2; 5.7; 15.4.3; Table 15.1
Subsequent SERs	2; 24; 36; 82; 104; 106; 124; 126; 133; 152; 153; 180; 190; 196

ARKANSAS NUCLEAR ONE		FORM NO. 1000.131B	REV. 003-04-0
FORM TITLE:	10CFR50.59 EVALUATION		

This Document contains <sup>5</sup> Pages.

FFN # 7WC 8/10/00  
10CFR50.59 Eval. No. 00-009  
(Assigned by PSC)

Document No. SAR 9.3.4.2.2

Rev./Change No.  $\emptyset$

Title Dilute the RCS During Heatup

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.

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 ☒

See the attached pages for the responses to the above questions

ARKANSAS NUCLEAR ONE

FORM TITLE:

10CFR50.59 EVALUATION

FORM NO.

1000.131B

REV.

003-04-0

Robert W Clark

Certified Reviewer's Signature

Robert W Clark

Printed Name

08/10/00

Date

Reviewer's certification expiration date: 11/12/01

Assistance provided by:

Printed Name

Scope of Assistance

Date

N/A

PSC review by: T Brown

Date: 8/12/00

FORM TITLE:

10CFR50.59 REVIEW CONTINUATION PAGE

FORM NO.

1000.131C

REV.

003-04-0

Document No. SAR 9.3.4.2.2

Rev./Change No. 0

10CFR50.59 Review Continuation Page**SUPPLEMENTAL INFORMATION**

Section 9.2.3.2, "Startup", of the ANO-2 PSAR stated "Within the limitations placed on the shutdown margin, the boric acid concentration may be reduced during heatup. The shutdown group of CEAs must be in the fully withdrawn position before the operator may start diluting the concentration of boric acid in the reactor coolant system. The operator may inject a predetermined amount of demineralized makeup water by operating the system in the 'Dilute' mode."

In letter dated July 6, 1978, ANO-2 revised this section of the FSAR in Amendment 48 to be more consistent with the actual operating procedures. These changes were as a result of discussions with the I&E inspector as outlined in Inspection Report 50-368/78-12. The revised section read "The RCS boron concentration is not reduced during heatup. Desired dilutions are performed during steady state temperature conditions and are normally only performed while in hot standby."

Procedure 2102.002, "Plant Heatup", Limit and Precaution 5.5 states that "RCS dilution during plant heatup is NOT allowed due to the addition of positive reactivity from two sources at the same time. If heatup is stopped, then the RCS may be diluted provided at least one RCP is running in each loop and SDC is secured." If the core has a positive MTC (e.g., beginning of life of the core for the last several cores) then positive reactivity would be added while heating the RCS. The converse is also true. If the core has a negative MTC then negative reactivity will be added while heating the RCS.

The program used to determine the amount of boron required to maintain the shutdown margin (RHOBAL) accounts for the temperature effects on reactivity. Therefore if one uses RHOBAL to determine the amount of soluble boron for each temperature range for a heatup, it can be determined if dilution should be attempted during heatup (e.g., if higher temperatures require less boron, the overall reactivity change due to a heatup is negative).

Beyond the above discussion, the basis for this change could not be found. It can be assumed that the issue was related to the Uncontrolled Boron Dilution event and the possibility of adding positive reactivity from two sources at the same time (e.g., positive MTC).

The proposed SAR change will restore the intent of the PSAR discussion - to allow the boron concentration to be reduced while heating the RCS. None of the setpoints or operating limits (e.g., Shutdown Margin, High Log Power, CPC VOPT, and heatup rates) is being revised due to this SAR change.

**BASIS FOR EVALUATION RESPONSES**

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

**NO**

The proposed SAR change is to allow the controlled reduction of the RCS boron concentration while heating the RCS. The required shutdown margin will be maintained throughout the evolution. As discussed above none of the equipment setpoints or operating limits is being revised due to this change. All these setpoints and limits will be maintained. The appropriate actions required if these limits are violated are in the Technical Specifications and are not being changed.

One of the events that define the required Shutdown Margin is the Uncontrolled Boron Dilution event. The Shutdown Margin has to be enough that once the operator is made aware of an event that there is at least 10 minutes of operator inaction is accommodated. To dilute the RCS all three charging pumps may be used. The inadvertent starting of all three charging pumps is the initiator for the Uncontrolled Boron Dilution event. The difference between the two is the first is a controlled evolution, the operators are taking deliberate actions whereas in the uncontrolled scenario, the pumps are running for 10 minutes before the operators take action.

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All three charging pumps operating are one of the assumptions used in the LTOP analysis. The current limiting event for LTOP is a mass addition event. This is the simultaneous inadvertent starting of all three charging pumps and two HPSI pumps. Again the analysis assumes 10 minutes of operator inaction before the event is terminated. The HPSI pumps are addressed administratively and those procedural steps are not being changed. As discussed above for the Boron Dilution event, the difference is the use of all three charging pumps for dilution during a heatup is a deliberate action as compared to an uncontrolled event. The Technical Specifications require LTOP protection when the RCS is below 220°F.

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? NO

The change described above is to allow the dilution of the RCS boron concentration while performing a RCS heatup. None of the equipment setpoints or limits is being changed. The appropriate actions required if these setpoints or limits are violated are in the Technical Specifications and are not being changed. This change does not require any changes to plant equipment. The change to plant operations is to perform two operations simultaneously as compared to in series. The change does not create any new pathways for radioactive material to be released into the environment or change the source terms assumed in any accident previously evaluated in the SAR.

Therefore, this change will not increase 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 proposed SAR change described above does not involve any changes in equipment. This change will alter the manner in which the unit is operated; however, the function and duty of the equipment important to safety is not altered.

This change does not affect the initiators to any event defined in the SAR. See the discussion in response to question #1 as it relates to the starting of the three charging pumps and initiators for events discussed in the SAR.

Since no equipment will be operated outside of its design basis and there is no impact on the reliability of any equipment important to safety and no impacts to any accident initiators, the proposed changes 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? NO

The proposed change described above does not require any changes to the assumptions concerning equipment availability or failure modes. This change does not involve any changes in equipment. In addition, this change does not impact negatively the overall function or duty of the equipment important to safety. This change will not result in a change to the evaluated consequences of the accidents, which also included consideration of all relevant equipment malfunctions.

Therefore, the consequences of 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? NO

This change (described above) does not create an additional failure mode than what has already been analyzed. No initiators to any of the accidents are impacted by the proposed change. See the discussion in response to question #1 as it relates to the starting of the three charging pumps and initiators for events discussed in the SAR.

No new operating conditions or plant configurations are created that could lead to an accident of a different type than any previously evaluated in the SAR.

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Therefore, 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?

NO

No changes in the failure modes of the equipment important to safety are assumed in the proposed change described above. No initiators to any of the accidents are impacted. See the discussion in response to question #1 as it relates to the starting of the three charging pumps and initiators for events discussed in the SAR. No new operating conditions or plant configurations are created that could lead to a malfunction of equipment of a different type than any previously evaluated in the SAR.

Therefore, the possibility of 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?

NO

No acceptance criteria were found in the Bases of the ANO-2 Technical Specifications which is explicitly associated with the simultaneous heating the RCS and diluting the boron concentration. However, there are several Technical Specifications (e.g., shutdown margin requirements, boron dilution, heatup, LTOP) that control the various pieces of the evolution.

- Basis to Specification 3 / 4.1.1.1 (Shutdown Margin) states the "SHUTDOWN MARGIN requirements vary throughout core life as a function of fuel depletion, RCS boron concentration and RCS Tavg. The most restrictive condition occurs at EOL with Tavg at no load operating temperature and is associated with a postulated steam line break accident and resulting uncontrolled RCS cooldown. ... With Tavg  $\leq$  200F, the reactivity transients resulting from any postulated accident are minimal and the shutdown margin provides adequate protection." The margin to safety as defined by the basis of this Technical Specification will be maintained with this evolution.
- Basis for Specification 3 / 4.1.1.3 (Boron Dilution) states the "a minimum flow rate of at least 2000 gpm provides adequate mixing, prevents stratification and ensures that reactivity changes will be gradual during boron concentration reductions in the Reactor Coolant System. ... The reactivity change rate associated with boron concentration reductions will therefore be within the capability of operator recognition and control." This evolution will maintain a minimum of 2000 gpm therefore the margin to safety as defined by the basis of this Technical Specification will be maintained with this evolution.
- Bases for Specification 3 / 4.3 (Instrumentation) states the "LCOs for the RPS and the ESFAS instrumentation systems require the OPERABILITY of the bypass permissive removal channels." The bases also discuss the bypass for the Logarithmic Power Level - High trip and manual bypass for the CPC trips. These bypasses and their setpoints are not being changed; therefore the margin to safety as defined by the basis of this Technical Specification will be maintained with this evolution.
- Bases for Specification 3 / 4.4.9 (Pressure / Temperature Limits) is dependent upon the material properties of the reactor vessel. Based on these properties, the heatup rates and the associated induced stresses are determined. This evolution does not impact the material's properties; therefore, the margin to safety as defined by the basis of this Technical Specification will be maintained with this evolution.
- Bases for Specification 3 / 4.4.12 (LTOP) defines the worst-case design basis pressurization event as the simultaneous injection of two HPSI pumps and all three charging pumps to the water-solid RCS. The event described in the bases bounds this evolution; therefore, the margin of safety as defined by this Technical Specification will be maintained.

Therefore, the margin of safety as defined in the basis for any ANO-2 Technical Specification will not be reduced.

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FORM TITLE:

## ARKANSAS NUCLEAR ONE

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, 003-04-0

This Document contains 3 Pages.

Document No. Unit One SAR, Section 11.2.6.2.2  
Unit Two SAR, Section 12.3.2.2Rev./Change No. Amendment 16  
Amendment 15Title Health Physics, Nuclear Chemistry Laboratory Facility (title for both Unit One and Unit Two SAR)Brief description of proposed change: The change to the Unit 1 and Unit 2 SAR is to remove reference to the "health physics laboratory".

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:

QAPM?

Yes ☐ No ☒

E-Plan?

Yes ☐ No ☒

8. Does this review depend on future NRC approval of other actions
- 
- (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9)

Yes ☐ No ☒



FORM TITLE:

## ARKANSAS NUCLEAR ONE

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Document No. Unit One SAR, Section 11.2.6.2.2  
Unit Two SAR, Section 12.3.2.2Rev./Change No. Amendment 16  
Amendment 15**Basis for Determination (Questions 1, 2 & 3):**

See continuation page, form 1000.131C.

☐ 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.**

DocumentSection

LRS:

50.59 Common

50.59 Common (health physics, physics, laboratory, controlled access w/5 facilities, nuclear chemistry\*, chemistr\*, lab, gamma spectroscopy, spectroscopy, laboratories, count room, counters, sample-detector, health physics room)

## MANUAL SECTIONS:

Unit 1 TS/Unit 2 TS

Unit 1, 3.1.5, 6.12.2.5, 6.12.2.6, Unit 2, 6.8.4

Unit 1 SER/Unit 2 SER

35/60

Unit 1 SAR/Unit 2 SAR

1.4.3, 1.4.51, 1.4.55, 2.8, 9.8, 11.1, 11.2/12.3.2

## FIGURES:

Unit 1 SAR

SAR Figure 11-8, Drawing Number A-415, SAR Figure 1-3, Drawing Number M-003, SAR Figure 9-13, SAR Figure A-2, Drawing Number M-004

Unit 2 SAR

SAR Figure 12.1-11, Drawing Number M-2294

  
Certified Reviewer's Signature

Ron Schwartz

Printed Name

9/11/00

Date

Reviewer's certification expiration date: 12/06/01

Assistance provided by:

Printed Name

Eddie Frix

Scope of Assistance

Performed for OJT

Date

8/8/2000

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

  
Certified Reviewer's Signature

Gerald A. Doran

Printed Name

9-11-00

Date

FORM TITLE:

## ARKANSAS NUCLEAR ONE

10CFR50.59 DETERMINATION

FORM NO.

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, 003-04-0

**ENVIRONMENTAL IMPACT DETERMINATION  
(UNIT 1 and UNIT 2)**Document No. Unit One SAR, Section 11.2.6.2.2  
Unit Two SAR, Section 12.3.2.2Rev./Change No. Amendment 16  
Amendment 15

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:

YesNo☐☒

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: <b>10CFR50.59 REVIEW CONTINUATION PAGE</b>	FORM NO. <b>1000.131C</b>	REV. <b>'003-04-0</b>

This Document contains 1 Page.

Document No. **Unit One SAR, Section 11.2.6.2.2**  
**Unit Two SAR, Section 12.3.2.2**

Rev./Change No. **Amendment 16**  
**Amendment 15**

### **10CFR50.59 Review Continuation Page**

1. Will the proposed activity require a change to the Operating License including the Technical Specifications (excluding bases), Operating License or Confirmatory Orders?

The proposed change will not affect the work processes, procedures or practices that are performed by Radiation Protection. The proposed change is due to facility modifications. The functions and equipment that previously existed in or were carried out in the laboratory still exist and continue to be carried out. This change affects the title and description of the "health physics laboratory" in both the Unit 1 and Unit 2 SAR (see form 1000.150A). This change does not affect the design of the plant and has no effect on the Technical Specifications, Operating License and Confirmatory Orders.

2. Will the proposed activity result in information in the following SAR documents being no longer true or accurate or violate a requirement stated in the document for the SAR, Core Operating Limits Report, Fire Hazards Analysis, Bases of the Technical Specifications, Technical Requirements Manual, and NRC Safety Evaluation Reports?

The proposed change WILL affect the Unit 1 SAR, section 11.2.6.2.2 and the Unit 2 SAR, section 12.3.2.2. The proposed change is to remove reference to the "health physics laboratory" from both the Unit 1 and Unit 2 SAR. Radiation Protection still performs the functions described in the SAR. The equipment that is used for detecting, analyzing and measuring the types of radiation expected to occur at a nuclear power station, equipment calibration, maintenance and use of National Institute of Standards and Technology traceable sources and equipment is still utilized and will not be affected.

The proposed change will only affect the title and description of the "health physics laboratory" described in the SAR. There will be no impact upon the Core Operating Limits Report, Fire Hazards Analysis, Bases of Technical Specification, Technical Requirements Manual and NRC Safety Evaluation Reports.

3. Will the proposed activity involve a test or experiment not described in the SAR?

The proposed change will affect the title and description of the "health physics facilities" in the SAR. The change does not involve any actual tests or experiments. The change will not affect any equipment that is used or provides data for any test or experiments. The proposed change will not involve anything not already described in the SAR.

FORM TITLE:

## ARKANSAS NUCLEAR ONE

10CFR50.59 EVALUATION

FORM NO.

1000.131B

REV.

'003-04-0

This Document contains 2 Pages.

10CFR50.59 Eval. No. FFN# 00-112  
(Assigned by PSC)Document No. Unit One SAR, Section 11.2.6.2.2  
Unit Two SAR, Section 12.3.2.2Rev./Change No. Amendment 16  
Amendment 15Title Health Physics, Nuclear Chemistry Laboratory Facility (title for both Unit One and Unit Two SAR)

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 probability of an accident previously evaluated in the SAR will not be increased. This is because the change will not affect any plant components. Because no plant components will be affected, there is no possibility of affecting the accidents previously evaluated in the SAR. The change will remove the term "health physics laboratory" from both the Unit 1 and Unit 2 SAR. This removal does not affect any SAR related requirements that would increase the probability of an accident.

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

Yes ☐ No ☒

The consequences of an accident previously evaluated in the SAR cannot be increased by this change. The change will not affect the work processes, procedures or practices that are performed by Radiation Protection. The change will not affect any plant components. Because no plant components will be affected, there is no possibility of affecting the accidents previously evaluated in the SAR. The change affects the term "health physics laboratory" that is used in describing facilities and equipment in both the Unit 1 and Unit 2 SAR.

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

Yes ☐ No ☒

The equipment that is used for detecting, analyzing, and measuring the types of radiation expected to occur at a nuclear power station, including equipment calibration, maintenance and use of National Institute of Standards and Technology traceable sources and equipment will not be affected. The SAR contains a general description of equipment in the Radiation Protection facility. The SAR does not contain equipment specification. The equipment that is utilized is not safety related and its malfunction cannot affect a safety-related component, system or the plant.

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

Yes ☐ No ☒

The equipment specified in the SAR for the Radiation Protection facility is used for detecting, analyzing, and measuring the types of radiation expected to occur at a nuclear power station. This includes equipment calibration, maintenance, the use of National Institute of Standards and Technology traceable. This equipment is stand-alone laboratory equipment. The malfunction of stand-alone lab equipment will not increase the consequences of a malfunction of equipment

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important to safety. The RP equipment that is described in the SAR is not safety related it couldn't affect safety-related equipment, safety-related components, systems or the plant.

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

Yes ☐ No ☒

The change will only affect only the description and title of facilities and equipment described in the SAR. This equipment cannot affect the operation of the plant. The equipment is stand-alone equipment and does not provide data or control information to other plant components. Because of this, there is no possibility of creating an accident of a different type than any 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 "health physics laboratory" equipment that is described in the SAR does not affect plant operation. The facilities and equipment that is described in the SAR are utilized in a stand-alone manner and are not connected to any plant systems. The equipment does not provide any data that is directly imputed into plant systems. The malfunction of this equipment cannot affect any equipment that is used to operate the plant in a safe manner.

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

Yes ☐ No ☒

The Technical Specification Bases margins of safety are not affected by this change to the SAR. Because the plant has been remodeled, there is no longer a "Health Physics Laboratory". The functions and equipment that previously existed in or were carried out in the laboratory still exist and continue to be carried out. The ability of Radiation Protection to analyze and measure radiation has not been affected. Therefore, the margin to safety as defined in the basis of any Technical Specification will not be reduced by this change to the SAR.

Ron Schwartz  
Certified Reviewer's Signature

Ron Schwartz  
Printed Name

8/18/00  
Date

Reviewer's certification expiration date: 12/6/2001

Assistance provided by:

Eddie Frix  
Printed Name

Performed for OJT  
Scope of Assistance

8/9/2000  
Date

PSC review by: R. Fuller

Date: 9-28-00

**103**

<b>ARKANSAS NUCLEAR ONE</b>		
<b>FORM TITLE:</b> <div style="text-align: center; margin-top: 10px;"><b>10CFR50.59 DETERMINATION</b></div>	<b>FORM NO.</b> <div style="text-align: center; margin-top: 10px;"><b>1000.131A</b></div>	<div style="text-align: right; padding-right: 5px;">Page 1</div> <b>REV.</b> <div style="text-align: center; margin-top: 10px;"><b>003-04-0</b></div>

This Document contains 3 Pages.

Document No. SAR 4.5.3.2 LDCR Rev./Change No. \_\_\_\_\_

Title SAR 4.5.3.2 LDCR

Brief description of proposed change:

SAR Section 4.5.3.2 implies that the intermediate core power distribution test must be performed at 70% power. The test may be performed at any power level between 40%-70% power and is dependent only upon the power level at which the predictions are supplied.

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?
 

QAPM? Yes ☐ No ☒  
 E-Plan? Yes ☐ No ☒
8. Does this review depend on future NRC approval of other actions?  
 (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9) Yes ☐ No ☒

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<b>FORM TITLE:</b> <div style="text-align: center; margin-top: 10px;"><b>10CFR50.59 DETERMINATION</b></div>	<b>FORM NO.</b> <div style="text-align: center; margin-top: 10px;">000.131A</div>	<b>REV.</b> <div style="text-align: center; margin-top: 10px;">003-04-0</div>

Document No. SAR 4.5.3.2 LDCR

Rev./Change No. \_\_\_\_\_

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

Please 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 and verified and searches only text, not figures or drawings). **Attach and distribute a completed LDCR per Attachment 1 on 6.1.2 if LBD changes are required.**

Document

Section

RS: Unit 2 50.59 ALL("Planar Radial Peaking Factor", Fxy, "total integral radial peaking factor", Fr, "core average axial peak", Fz, "3-D power peak", Fq, rpd, physics test", power ascension test", PAT, Intermediate power, IPL)

**MANUAL SECTIONS:** Unit 2 TS(3/4.2.2, 3/4.10.2) and bases, SAR(4.5.3.2)

**FIGURES:** None

  
 Certified Reviewer's Signature

Jonathan M. Ralston

Printed Name

11/21/00

Date

Reviewer's certification expiration date: 3/16/02

Assistance provided by:

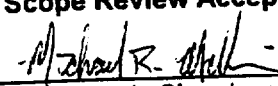
Printed Name

N/A

Scope : Assessment

Date

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

  
 Certified Reviewer's Signature

Michael R. McKinney  
 Printed Name

11/22/00  
 Date



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FORM TITLE:	10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-04-0

## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. SAR 4.5.3.2 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

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 003-04-0	

Document No. SAR 4.5.3.2 LDCR Rev./Change No. \_\_\_\_\_

10CFR50.59 Review Continuation Page

This LDCR proposes changing SAR section 4.5.3.2. The current wording implies that the intermediate power level core power distribution test can only be performed at 70% power. This test may be done any time between 40-70% power and is dependent only upon the power level at which the predictions are supplied.

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

- 1) Technical Specification 3.2.2 requires the measured PLANAR RADIAL PEAKING FACTORS (Fxy) to be less than or equal to the Fxy used in COLSS and the CPCs. Surveillance 4.2.2.2.a requires this determination to be done after each fuel loading with THERMAL POWER greater than 40% but prior to operation above 70% power. The core power distribution surveillance is not used to satisfy this technical specification surveillance, but is used to verify that the core power distribution (including Fxy) is consistent with predictions and that reactor power may be increased to 100% and remain within the design limits. The measurement of core power distribution parameters is beyond the scope of the remaining Operating License documents. This SAR change will therefore not require a change to the Operating License documents.
- 2) Section 4.5.3 of the SAR describes the Power Ascension Tests performed following refueling. This LDCR proposes changing this section to specify the acceptable range for the intermediate power core power distribution test rather than approximately 70% as currently defined by the SAR. This will require a 10 CFR 50.59 Evaluation. This change is beyond the scope of the remaining SAR documents and therefore do not result in information being no longer true or accurate or violate a requirement stated in the other SAR documents.
- 3) This test is described in section 4.5.3 of the SAR and therefore does not involve a test or experiment not described in the SAR.

<b>ARKANSAS NUCLEAR ONE</b>		
<b>FORM TITLE:</b> <div style="text-align: center; font-weight: bold;">10CFR50.59 SAFETY EVALUATION</div>	<b>FORM NO.</b> <div style="text-align: center; font-weight: bold;">1000.131B</div>	<div style="text-align: right; font-size: small;">Page 1</div> <b>REV.</b> <div style="text-align: center; font-weight: bold;">003-04-0</div>

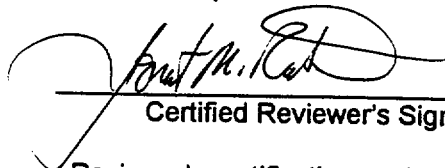
This Document contains 1 Page.

Document No. SAR 4.5.3.2 LDCR      Rev./Change No. \_\_\_\_\_      10CFR50.59 Eval. No. FFN#00-14  
 Title SAR 4.5.3.2 LDCR      (Assigned by PSC)

**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 <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 2. Will the consequences of an accident previously evaluated in the SAR be increased?  | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 3. Will the probability of a malfunction of equipment important to safety be increased?  | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 4. Will the consequences of a malfunction of equipment important to safety be increased?   | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?                                    | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 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 <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 7. Will the margin of safety as defined in the basis for any technical specification be reduced?   | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |



Certified Reviewer's Signature

Jonathan M. Ralston  
Printed Name

11/21/00  
Date

Reviewer's certification expiration date: 3/16/02

Assistance provided by:

Printed Name	Scope of Assistance	Date
N/A		

PSC review by:



Date:

11/27/00

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FORM TITLE:	FORM NO.	REV.	
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Document No. SAR 4.5.3.2 LDCR

Rev./Change No. \_\_\_\_\_

10CFR50.59 Review Continuation Page

Cycle 7 implemented the Fast Power Ascension Method of Shape Annealing Matrix (SAM) measurement which replaced the previous method that required a hold at 50% power for approximately 3 days to achieve Xenon equilibrium. Prior to Cycle 7, the intermediate core power distribution measurement was performed at the 50% power level hold while waiting to perform the SAM measurement. With the 50% power level hold eliminated for Cycle 7 and forward, this test was moved to 70% power and the SAR changed accordingly. The acceptance criteria for the test remain the same for 70% as the original 50% power test. According to ANSI/ANS-19.6.1-1997, "Reload Startup Physics Tests for Pressurized Water Reactors," the intermediate power level core power distribution measurement may be performed between 40% and 70% power. As the test requires comparison to predictions, it is limited only to the power level for which the predictions are supplied.

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

The intermediate core power distribution analysis is performed to verify proper fuel loading and consistency with design predictions. The acceptance criteria ensure that the power distribution is consistent with predictions and that reactor power may be increased to 100% and remain within design limits. The power level at which this is done is arbitrary and may be performed between 40%-70% power. The specific power level at which this is performed is dependent only upon the power level at which the predictions are supplied. This test is a verification that the core is operating as designed and is not an accident initiator. Therefore this change does not increase the probability of an accident previously evaluated in the SAR.

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

The intent of this test is to verify the core is operating as designed. Any power level between 40%-70% is acceptable for this test provided predicted data exists for the specified plateau. Changing the SAR to indicate the acceptable range rather than a specific power level continues to verify the core is operating as designed and has no impact on offsite dose consequences of a previously analyzed accident.

- 3., Will the probability of the malfunction of equipment important to safety be increased? **NO**

The test is a non intrusive test using installed instrumentation to collect data and compare to predictions. Data collected from the incore detectors is used to with an offline computer code to measure the core power distribution which is then compared to predictions. The power level at which this test is performed has no impact on equipment, much less equipment that is important to safety.

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

This test and its acceptance criteria are equally applicable at any power level between 40%-70% power for the power level plateau at which predictions are provided. Performing this test at a power level other than 70% has no impact on the dose 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**

This is a passive test that only collects data which is then compared to predictions. The acceptance criteria is not changed by this SAR change and is equally applicable at all power levels between 40%-70% power. The performance of this test at any power level is not an accident initiator and therefore cannot create the possibility of an accident not previously evaluated in the SAR.

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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? **NO**

This test collects data from installed instrumentation and performs analysis using an off line computer code. This data can be collected at any power level and changing the point at which this test is performed to the appropriate interval rather than a specific power level does not alter the way the plant is operated. Performance of this test at any power level 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? **NO**

Although this test is not specifically credited for meeting Technical Specification surveillance 4.2.2.2.a, the performance of this test does require the measurement of Fxy to compare to predictions. The basis of 3.2.2 states that determining the measured Fxy after each fuel loading prior to exceeding 70% power provides additional assurance that the core was properly loaded. This does not specifically define a true margin of safety, but performing the core power distribution between 40% - 70% power is consistent with the basis of this Technical specification. No other TS bases define any margin of safety with respect to the performance of the intermediate core power distribution test.

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FORM TITLE:	FORM NO.	REV.	
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This Document contains 3 Pages.

Document No. MAI 13760 Rev./Change No. 0

Title FLOW AND DP VERIFICATION FOR 2VUC-25A/B

Brief description of proposed change:

Flow switches 2FS-8535-1 and 2FS-8536-2 are non-Q switches that monitor air flow through the cooling units (2VUC-25A/B) and generate an alarm if flow drops below the established setpoint. MAI 13760 noted that the flow switches were generating alarms for low DP/Flow. Therefore it became necessary to verify actual flow and DP with test instrumentation. In order to perform the verification, it is necessary to temporarily remove the flow switches from service and connect a manometer to its pressure point tubing. These flow switches, while out of service, do not prohibit operation of the equipment (2VUC-25A/B). The flow switches and tubing will be returned to their original configuration after the flow and DP verification is completed per the MAI.

Will the proposed Activity:

1. Require a change to the Operating License including:
 

Technical Specifications (excluding the bases)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Operating License?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Confirmatory Orders?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
Core Operating Limits Report?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Fire Hazards Analysis?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bases of the Technical Specifications?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Technical Requirements Manual?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
NRC Safety Evaluation Reports?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. Involve a test or experiment not described in the SAR?  
(See Attachment 2 for guidance)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?
 

QAMO?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
E-Plan?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

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

Document No. MAI 13760

Rev./Change No. 0

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

MAI 13760 controls the temporary installation of test instrumentation (manometer or other pressure-measuring instrument) to the pressure point tubing for flow switches 2FS-8535-1 and 2FS-8536-2. These flow switches are non-Q switches that monitor airflow through the cooling units (2VUC-25A/B) and generate an alarm if flow drops below the established setpoint. The installation of the temporary test instrumentation will not require a change to the Operating license since the details are not described in these documents. This installation has no affect on any other permanent plant equipment other than the alarm function. A search of the licensing basis documents revealed that SAR figure 9.4-2 would not be accurate for the short duration of the temporary test equipment installation. No other figures or descriptions in the SAR are affected by this installation. The details of this installation are not described in the COLR, Tech Spec. Bases, FHA, or any NRC SER's. As shown in the environmental impact determination, this does not impact the environment. This temporary installation of test equipment does not involve a test or experiment not described in the SAR. However, because SAR figure 9.4-2 is affected, a 50.59 evaluation is 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: All "flow switch w/10 room", "cpc room"

MANUAL SECTIONS: SAR section 9.4

FIGURES: 9.4-2

  
Certified Reviewer's Signature

Lindsley S. Bramlett

Printed Name

9/13/99

Date

Reviewer's certification expiration date: 8/4/00

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

STEVEN L. SMITH

Printed Name

9/14/99

Date



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

## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. MAI 13760

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

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

FORM TITLE:

ARKANSAS NUCLEAR ONE

FORM NO.  
1000.131BPage 1  
REV.  
3 PC-2

10CFR50.59 SAFETY EVALUATION

This Document contains 2 Pages.

Document No. MAI 13760

Rev./Change No. 0

10CFR50.59 Eval. No.  
(Assigned by PSC)

FFN #

99-081

Title Flow and DP Check for 2VUC-25A/B

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

  
 Certified Reviewer's Signature

 Lindsley S. Bramlett  
 Printed Name

 9/13/99  
 Date

Reviewer's certification expiration date: 8/4/2000

Assistance provided by:

Printed Name

Scope of Assistance

Date

PSC review by:

Date: 9/16/99

ARKANSAS NUCLEAR ONE			Page 2
FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE	FORM NO. 1000.131C	REV. 3	

Document No. MAI 13760

Rev./Change No. 0

10CFR50.59 Review Continuation Page

1. Flow switches 2FS-8535-1 and 2FS-8536-2 are both non-Q switches that monitor air flow through the cooling units (2VUC-25A/B) and generate an alarm if flow drops below the established setpoint. MAI 13760 noted that the flow switches were generating alarms for low DP/Flow. Therefore, it became necessary to verify actual flow and DP with test instrumentation. In order to perform the verification it is necessary to temporarily remove the flow switches from service and connect a manometer to its pressure point tubing. These flow switches, when out of service, do not prohibit operation of the equipment (2VUC-25A/B) and will be returned to their original configuration after the verification is completed. As a result of the temporary installation of the manometer, the flow switch will be out of service. Consequentially, the alarm will be generated when the unit is operated while the FS pressure point tubing is removed. The installation of the manometer is non-intrusive to both the flow system and the cooling system and will therefore allow the cooling unit to be functional if so desired by Operations. Therefore the probability of an accident previously evaluated is not increased.
2. Since the flow switches 2FS-8535-1 and 2FS-8536-2 are both non-Q switches that have no control function or interlocks that would prohibit the operation of the equipment, therefore the consequences of an accident previously evaluated in the SAR will not change.
3. Flow switches 2FS-8535-1 and 2FS-8536-2 are both non-Q switches and have no control function or interlocks for the 2VUC-25A/B cooler. The switches only feed alarms that warn of possible low flow. Since the coolers will remain functional, there is no effect on equipment important to safety. Therefore the probability of a malfunction of equipment important to safety is not increased.
4. Flow switches 2FS-8535-1 and 2FS-8536-2 are both non-Q switches and have no control function or interlocks for the 2VUC-25A/B coolers. The switches only feed alarms that warn of possible low flow. The temporary installation of the manometer does not change the operation of the coolers. The installation of the manometer is non-intrusive to both the flow system and the cooling system and will therefore allow the cooling unit to be functional if so desired by Operations. Therefore the consequences of a malfunction of equipment important to safety will not be increased.
5. Flow switches 2FS-8535-1 and 2FS-8536-2 are both non-Q switches and have no control function or interlocks for the 2VUC-25A/B coolers. The switches only feed alarms that warn of possible low flow. The temporary installation of the manometer does not change the operation of the coolers. The installation of the manometer is non-intrusive to both the flow system and the cooling system and will therefore allow the cooling unit to be functional if so desired by Operations. The possibility of an accident of a different type than any previously evaluated is not created.
6. Flow switches 2FS-8535-1 and 2FS-8536-2 are both non-Q switches and have no control function or interlocks for the 2VUC-25A/B coolers. The temporary installation of the manometer does not change the operation of the coolers. The installation of the manometer is non-intrusive to both the flow system and the cooling system and will therefore allow the cooling unit to be functional if so desired by Operations. Therefore the possibility of a malfunction of equipment important to safety of a different type than previously evaluated is not created.
7. The 2VUC-25A/B, 2FS-8535-1 and 2FS-8536-2 are not mentioned in the Technical Specifications Bases. Since the installation of the manometer is non-intrusive to both the flow system and the cooling system, it will not degrade any margin of safety. In addition, all possible offsite dose consequences are bounded by previous analyses. Therefore the margin of safety as defined in the Bases of any Technical Specification is not reduced.

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FORM TITLE:

## ARKANSAS NUCLEAR ONE

10CFR50.59 DETERMINATION

FORM NO.

1000.131A

REV.

003-04-0

Document No. 002239N201Rev./Change No. 0Title: Reactor Building Pressure and Oxygen Control (CAMS Upgrade)Brief description of proposed change: See page 4.

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:

QAPM?

Yes ☐ No ☒

E-Plan?

Yes ☐ No ☒

8. Does this review depend on future NRC approval of other actions (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9)

Yes ☐ No ☒

ER 002239N201

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Document No. 002239N201

Rev./Change No. 0

**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 1&2,  
OE-10643

Purge, CAMS, Atmosphere, Containment w/10 pressure, Containment w/10 Oxygen, Containment w/10 monitor.

MANUAL SECTIONS:

SAR Ch 3, Ch 9, 9.4-4(M2261 sh1)

11.4.2.2.3, TS bases 3.4.6.1 and 3.4.6.2

FIGURES:

9.4-4 (M-2261 Sh 1

  
Certified Reviewer's Signature

Keith Perkins

Printed Name

04/04/00

Date

Reviewer's certification expiration date: 07/31/00

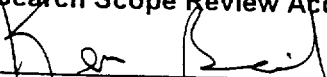
Assistance provided by:

Printed Name

Scope of Assistance

Date

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

  
Certified Reviewer's Signature

Keith Perkins  
Printed Name

6/6/00

Date

ER 002239N201

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## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. 002239N201Rev./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:

YesNo☐☒

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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Brief description of proposed change:

ER 002239N201 makes a change to the CAMS units that will allow fresh air into the Reactor building during normal power operation. The slow continuous supply of fresh air will prevent Oxygen depletion in the building below safe levels for human occupancy. Low Oxygen levels have placed workers at risk and delayed refueling outages. Normal Oxygen levels will allow work on the Polar Crane and material staging 1-2 days earlier. Three valves and a debris strainer will be added to each CAMS unit. This will allow CAMS sample flow to continually discharge from the RCB while allowing fresh make-up air into the RCB to maintain oxygen at levels in the RCB. The discharge piping out of each CAMS unit will be modified such that the addition of valves (isolation and throttling valves with trash debris screen / filter) will be installed to allow fresh air from the Auxiliary building to be pipe into the RCB via the negative pressure of the RCB, and a crossover pipe with isolation valve to allow the air to be closed to the RCB and discharge exclusively into the Auxiliary building ventilation system.

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

Question 1:

The proposed modification does not alter any Operating License documents. No changes to the Technical Specification will be required with the installation of the proposed modification. The Licensing department has prepared Licensing document LIC-00-024 providing their evaluation that no Operating License documents is affected or requires revision.

Question 2:

ANO-2 SAR figure 9.4-4 sheet 1 will be revised and add a figure 9.4-4 sheet 4 (Piping & Instrument Diagram, Air Flow & Control Diagram, Heating, Ventilating & Air Conditioning, Containment Building).

Sections 5.2.7.1.1 'Containment Monitoring', 5.2.7.1.1.B 'Containment Pressure, Oxygen and Hydrogen Control During Power Operations (Modes 1-4)', and 11.4.2.2.3 'Containment Atmosphere Monitoring System' will be revised / added as appropriate to reflect and included functional intent of the proposed installed NC package.

No information in the Core Operating Limits Report, Fire Hazards Analysis, Technical Requirement Manual, or NRC Safety Evaluation Reports are impacted or require revision due to the installation of the proposed modification. No information in the SAR documents will be untrue or inaccurate or violate any requirements due to the installation of this modification. The Licensing department has prepared Licensing document LIC-00-024 providing their evaluation that no changes are required to any past or present commitments or the Technical Specifications.

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Question 3:

There are no test or experiments as described in the SAR regarding the proposed modification. There is not a test or experiment involved with the installation of the proposed modification. Therefore there are changes to any test or experiment described in the SAR.

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## ARKANSAS NUCLEAR ONE

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10CFR50.59 Eval. No. FFN# 00-068  
(Assigned by PSC)Document No. 002239N201Rev./Change No. 0Title: Reactor Building Pressure and Oxygen Control (CAMS 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.

Written responses providing basis for answers to questions 1 through 7 start on page 2.

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 SignatureKeith Perkins  
Printed Name04/04/00  
DateReviewer's certification expiration date: 07/31/00

Assistance provided by:

Printed Name

Scope of Assistance

Date

PSC review by: Date: 7/10/00

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10CFR50.59 SAFETY EVALUATION QUESTIONS 1 THROUGH 7 WRITTEN RESPONSES PROVIDING THE BASIS FOR THE ANSWERS TO THE QUESTIONS FOR ER 002239E201:

Overview of ER002239 Modification - Reactor Building Pressure & Oxygen Control (CAMS Upgrade):

The following discusses operation of the proposed NC 002239N201 'RCB Pressure & Oxygen Control (CAMS Upgrade)' to the CAMS piping system. The discussion provides a history and description of the modification that should be useful when reviewing the 50.59 Evaluation. The goal of this modification is to increase personnel safety and reduce outage duration (~ 36 hours).

History

Tech Specs require RCB pressure to be maintained within narrow limits to ensure structural integrity of the RCB during design bases accidents. The RCB has never had a system specifically designed for this function (i.e., NC 002239N201 will add airflow control capability as a new design function to an existing system.). Operations began using the CAMS units for pressure control early in Unit 2 history. The temporary measures developed by Ops became permanent when piping replaced temporary hoses (Ref. PC-95-8052). The CAMS units have proven to be an adequate system for maintaining RCB pressure.

Improved operations and long unit run times have created personnel safety issues associated with the current use of CAMS for RCB pressure control. The problem is oxygen depletion and hydrogen build-up in the RCB environment. RCB oxygen levels decrease over time because of nitrogen ingress into the RCB from SIT leakage and electrical penetration leakage. SIT leakage has recently been reduced but electrical penetrations will continue to have some Nitrogen leakage into the RCB due to the design of the penetration module. Hydrogen concentration increases slowly due to small RCS leaks.

RCB gas concentration changes because of the way RCB pressure is controlled. The CAMS sample pump draws air from the RCB and discharges air to one of two places. Sample pump discharge can be aligned to the RCB or to the Auxiliary building. RCB pressure increases when sample pump discharge is aligned to the RCB. Pressure decreases when CAMS discharge is aligned to the Auxiliary building. It is known that given continuous in-leakage of nitrogen and periodic removal of RCB atmosphere inert the building with nitrogen, but allow hydrogen concentrations to increase. After months of operation, oxygen levels are reduced below the minimum safe concentration for human occupancy (19.5%) and hydrogen concentrations increase levels greater than 10% of the lower explosive limit.

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Some oxygen leaks into the RCB. The RCB is maintained at a negative pressure per TS 3.6.4.1 and per procedure 2104.033. Because of the negative pressure, air is drawn into the CAMS units through the filter housing seal. (The CAMS units are not designed to be leak tight and there are no requirements for the CAMS unit to be leak tight). The resulting effect is a very slow exchange of air in the RCB. Fresh air slowly and continuously leaks into the RCB and causes RCB pressure to increase. The leakage of air into the RCB is too slow to prevent oxygen depletion and hydrogen buildup. Air leakage into the RCB is desirable to maintain oxygen concentrations acceptable for human occupancy. The modification will enhance the CAMS in such a way as to take advantage of airflow into the RCB. The modification will add airflow control capability as a design function of the CAMS.

#### Modification Description

NC 002239N201 will add airflow control capability as a new design function to an existing system. The new function is essentially an enhancement of the existing CAMS. The modification will add three valves and a screen at each CAMS unit that will allow the CAMS units to continually discharge CAMS sample flow to the Auxiliary building ventilation while allowing fresh air into the building. The modification will allow throttling filtered air into the Reactor Building as necessary to maintain Reactor Building pressure within Tech Spec limits. The new function will allow sufficient airflow in and out of the building such that Oxygen concentration will not drop below the minimum required for human occupancy. The airflow will also reduce the buildup of Hydrogen in the building. In order to achieve required airflow in and out of the Reactor Building, both CAMS units must be in operation. The modification will not impact the RCS leak detection capability of the CAMS units. (RCS leak detection is the primary function provided by the CAMS units. This function is required by Tech Spec 3.4.6.1.)

#### Evaluation Questions

*(Please refer to the "History" and "Modification Description" sections above when considering the response to the Questions below.)*

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Question 1

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

Implicit in this question are three implied questions associated with the CAMS system. The implied questions are listed below. The answer to Question 1 is 'NO'.

Implied Question 1

Does the design bases list failure of a CAMS unit as an accident initiator?

The design bases were reviewed for assumptions credited with the initiation of an accident. Failure of a CAMS unit was not listed as a cause of an accident. Since the modification only enhances the CAMS and does not affect other equipment this modification does not change the probability of an accident being initiated.

Implied Question 2

How is the CAMS unit credited with reducing the probability of an accident?

The CAMS unit is used to provide operators early RCS leak detection capability. The CAMS units are an integral part of the leak before break detection philosophy. The philosophy is intended reduce the probability of a LOCA by allowing the Operations department to take compensatory action before RCS integrity is significantly challenged.

Implied Question 3

Will the modification reduce the leak detection capability of a CAMS unit such that the probability of a LOCA is increased?

The leak detection function of the CAMS will not be impacted by this modification. The additional airflow pathway added by the modification is isolated from the radioactivity detection system within the CAMS unit. This aspect of the modification will ensure the CAMS unit sample is not diluted with fresh air. By separating the fresh air from the sample stream the leak detection capability of the unit is maintained.

The CAMS unit suction points are physically far from the sample return points. This separation ensures that the CAMS sample is a representative sample of the Reactor Building area sampled. The RCB ventilation flow rates are orders of magnitude greater than the fresh air make-up rates. The large difference between the RCB

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ventilation flow rates and CAMS sample flow rates ensures adequate mixing of air in the RCB such that the CAMS sample is representative of the RCB area being sampled.

Since the CAMS units RCS leak detection capability is not changed, the probability of a LOCA evolving from a small leak is not changed.

## Question 2

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

Implicit in this question are two implied questions associated with the CAMS system. The implied questions are listed below. The answer to Question 2 is 'NO'.

## Implicit Question 1

Does the modification within the CAMS unit reduce the capability to mitigate the consequences of an accident?

The CAMS provides operators early RCS leak detection capability. The CAMS units are an integral part of the leak before break detection philosophy. The philosophy is intended to reduce the likelihood of a LOCA by allowing the Operations department to shut the reactor down or take other mitigating action before RCS integrity is seriously challenged. Since the CAMS units are not designed to withstand RCB accident pressure they must be isolated from the post LOCA RCB and Post Accident Hydrogen Analyzer Piping by valves that close on a CIAS and SIAS actuation. The CAMS units are not required to withstand earthquake conditions and are postulated to fail during or after an earthquake. As discussed above, the CAMS units do not have leakage criteria.

The modification opens two addition pathways for release by installing the RCB air make-up valves and a debris screen. The pathways directly connect the Auxiliary building atmosphere with the RCB atmosphere during normal power operations. The pathways, however, are being installed on the CAMS side of isolation valves that close on a CIAS or SIAS. Since the new airflow paths are on the CAMS side of the isolation valves, the modification does not change the consequences of a previously evaluated accident. Therefore, airflow pathways within the CAMS isolation valve boundary do not impact the offsite dose consequences of an accident. Since the CAMS units do not provide mitigation of accidents, the modification of a CAMS unit can not affect the consequences of an accident.

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Implicit Question 2

Does the modification affect components outside of the CAMS unit such that the capability to mitigate the consequences of an accident is reduced?

Make-up airflow will enter the RCB through the new pathways within the CAMS units. The air, however, will travel through Containment Isolation Valves (CIVs) to get into the RCB. CIV operability could be challenged if debris is allowed to enter the pathway and travel to the seat of a CIV. If the debris were trapped in the seat, the CIV may not fully close.

The modification includes a screen on the make-up air intake piping to prevent large debris from entering the pipe. The screen is only required to prevent large debris such as paper or plastic from entering the pipe. Dust and fine particles normally found in the air do not require filtering, therefore filters will not be installed. The screen mesh forms small holes approximately 3/32" x 1/32". The mesh-size of the screen was determined by considering existing system design requirements and history of operation as discussed below.

The CAMS system suction piping can be aligned to many locations in the RCB. The suction piping is open-ended pipe. There is no filter or screen on the piping. A filter or screen can not be used on the CAMS suction piping because it would filter the sample and prevent the CAMS from functioning properly. Even though the suctions are open-ended pipes, the CIVs close tightly and have a good history of Local Leak Rate Testing (LLRT).

The dust and particles in the air do not significantly affect the leak rate of the CIVs. Based on the current design and the proven success from operating experience, fine-mesh filters will not be installed on the make-up air piping.

The only plausible risk of debris intrusion into the CAMS piping is from personnel working near the make-up air piping. The area around the make-up air piping is seldom occupied so the risk of debris intrusion is low. However, the consequences of debris in the piping are great and could challenge containment isolation operability. A (trash / debris) screen (i.e., identified with filter component numbers) will be added on the make-up air inlet as a measure of protection from debris intrusion. The mesh size of the screen must be small enough to stop large pieces of paper or plastic, but large enough to allow sufficient air flow for the modification to perform its function. The modification will install a canister shaped screen mesh that has approximately 3/32" x 1/32 " holes. Each hole has an area of approximately 0.0029 in<sup>2</sup>. This will prevent large debris from entering the piping. Particles entering the piping will be so small that they will travel through piping and through the valve. CIV operability will not be impacted by this modification.

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Per the above discussion, the modification does not affect components outside of the CAMS unit in such a way that reduces the capability of other equipment to mitigate the consequences of an accident.

### Question 3

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

Implicit in this question is two implied questions associated with the CAMS system. The implied questions are listed below. The answer to Question 3 is 'NO'. The CAMS is not assumed to function in any accident analysis and therefore is not considered equipment important to safety.

#### Implicit Question 1

Will this modification reduce the leak detection capability of the CAMS unit?

The leak detection function of the CAMS will not be impacted by this modification. The additional airflow pathway added by the modification is isolated from the radioactivity detection system within the CAMS unit. This aspect of the modification will ensure the CAMS unit sample is not diluted with fresh air. By separating the fresh air from the sample stream the leak detection capability of the unit is maintained.

#### Implicit Question 2

Will this modification affect the operation of the containment isolation valve in such a way as to challenge containment integrity?

The discussion in Implicit Question 2 of Evaluation Question 2 above provides the answer to this question. As discussed above, normal dust and particles found in the air do not prevent the CIV from closing and forming an acceptable leak tight boundary. The modification establishes criteria for screen hole size to prevent intrusion of debris that could impact operation of the CIVs. The modification installs a canister shaped screen with 3/32" x 1/32" holes to add additional protection for CIV operation. The design does not increase the probability of a malfunction of equipment important to safety. The piping, valves and screen will be installed such that seismic qualification is maintained for the containment penetration and the CAMS units. The design ensures that there are no adverse effects on any other safety related equipment.



Document No. 002239N201Rev./Change No. 0Question 4

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

The answer to Question 4 is 'No'. The CAMS units do not perform safety function during an accident. They are isolated from the accident.

Implicit in Question 4 is the question "Does this modification change the safety function of equipment such that the consequences of a malfunction of that equipment are increased?"

The modification is entirely within the boundaries of the CAMS units (i.e. on the CAMS side of the CIAS/SIAS isolation valves). The change is being designed such that it will not impact operation of other equipment. Since it does not impact other plant equipment, it does not adversely impact the safety function of other equipment. The change creates two new airflow paths from the RCB, (one flow path from each CAMS), but these paths are in the CAMS unit envelope isolated by CIAS/SIAS. ER002239N201 documents that there are no offsite dose consequences associated with this condition. See Question 7 below. As discussed in Evaluation Question 1 above, the function of CAMS is not changed by this modification. Since the safety significance is not changed the new function does not increase reliance on the CAMS.

Question 5

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

The answer to Question 5 is 'NO'.

A search of the SAR was performed to identify the type of accidents evaluated in the SAR. Failure of a CAMS unit was not credited with initiating an accident. The modification is entirely within the boundaries of the CAMS units (i.e. on the CAMS side of the CIAS/SIAS isolation valves). Enhancements within these boundaries will not create a new type of accident unless the enhancement adds components such that new and significant hazards are created. The following discussion addresses added components and the use of those components, then concludes no new hazards are created.

This modification adds components similar in nature to components already installed in the CAMS system. The addition of three manual valves and a filter will not create a new hazard. These components will be operated in a manner consistent with CAMS operation (i.e. The valves will allow controlled airflow within the system). Since the

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components are similar to existing components and will be used in a manner consistent with the existing system. addition of these components will not create a new type of accident. Air will be throttled into the RCB as necessary to control RCB pressure with in administrative and Tech Spec limits. The current use of the CAMS to control RCB pressure requires the Operations Department to monitor and adjust CAMS as necessary to maintain RCB pressure with in limits. The modification will not change the requirement for Operations to monitor and adjust to control RCB pressure. Therefore, the potential for exceeding RCB pressure limits is not changed by this modification.

#### 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 answer to Question 6 is 'NO'.

The modification is designed such that it will not affect any equipment outside the normal flowpaths of the CAMS systems. Therefore, the possibility of a new type malfunction of equipment outside the CAMS flow path is not created. The design requirements of the modification ensure that equipment within the CAMS flowpaths will not malfunction in a new way. This change does not create malfunction types not previously evaluated in the SAR.

#### Question 7

Will the margin of safety as defined in the basis for any Technical Specification be reduced?

The answer to Question 7 is 'NO'.

The Tech Spec basis was reviewed to determine the margin of safety placed on the CAMS units. There is no specific margin of safety applied to the CAMS units. Therefore, the margin of safety as defined in the Tech Spec Bases is not reduced.

The offsite dose consequences of the installation of ER002239N201 will not be increased since the new piping is isolated by SIAS and CIAS actuations. The dose consequences of normal operation will be negligible since the approximately 15 SCFM per CAMS discharge will be diluted by the 52,250 SCFM Auxiliary building ventilation flow. The dilution combined with the particulate and charcoal filtration provided by the Auxiliary building ventilation will make the release non-detectable at the vent stack. The noble gasses released will be a small fraction of the 10CFR 20 site boundary limits.

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The CAMS unit primary function is to detect RCS leakage. When RCB activity increases to the CAMS annunciator setpoint an alarm is generated in the control room (panel 2C14 2K-10 B6 Containment Particulate/Gas Activity High). When this alarm is generated operators refer to annunciator corrective action procedure 2203.012J for guidance. ER002239N201 will modify the procedure to instruct operations to realign the CAMS sample return to the RCB. The alarm will be evaluated prior to realigning the CAMS system for oxygen control operations. These procedural changes will provide an additional barrier to exceeding offsite release during normal operations.

Tech Specs section 1.30 defines Purge-Purging as follows;

Purge or Purging is the controlled process of discharging air or gas from a confinement to reduce airborne radioactive concentrations in such a manner that replacement air or gas is required to purify the confinement.

This definition does not apply to the ER002239N201 because the modification will not significantly reduce the airborne radioactive concentrations in the RCB. The air replacement rate is extremely low such that the system does not meet the requirements of a purge as listed in ANSI/ANS-56.6, Pressurized Water Reactor Containment Ventilation Systems. The standard discusses "Purge" systems and defines them as high volumetric flow rate systems capable of one to one and one-half complete air changes per hour. The document defines a low flow rate system as one that is capable of one complete air change out every 40 hours. The Branch Technical Position, CSB 6-4, suggests at power purge lines be "about 8 inches in diameter for PWR plants". Clearly the CSB and ANS-56.6 were written to address systems that will rapidly change the RCB volume and purify the RCB atmosphere.

Even though the CAMS modification does not meet the definition of a purge system, the new system is being designed to meet the requirements listed in ANS-56.6 and CSB 6-4. The following bullet items are features of the CAMS modification that meet or exceed the requirements listed in CSB 6-4 and ANS-56.6;

- The CSB requires the isolation valves actuate closed on a LOCA with in 5 seconds, and that redundant isolation valves are used. There are three isolation valves that will isolate each CAMS flow path upon CIAS / SIAS actuation. All three valves are solenoid operated valves and will close much faster than 5 seconds.

The standard discusses "Purge" systems and defines them as high volumetric flow rate systems capable of one to one and one-half complete air changes per hour. The document defines a low flow rate system as one that is capable of one complete air change every 40 hours. The Branch Technical Position CSB 6-4 suggests at power purge lines be "about 8 inches in diameter for PWR plants". The CAMS modification will move approximately 30 scfm. This flow rate will require 41 days of continuous operation in order to change the RCB

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volume one time. This flow rate is well below the rate listed in CSB 6-4 and ANS-56.6. The air discharge line is 1" diameter pipe.

An engineering review was performed and it is easily shown that even a flow rate of 100 scfm at power operations would not significantly impact offsite dose consequences.

Based on these reviews and design of the system it can be concluded that this modification will not reduce the margin of safety to maintaining the health and safety of the public.

The NRC concurred with this assessment when they reviewed the 50.59 evaluation associated with PC-95-8052. That change modified the CAMS such that periodic airflow from the RCB could be discharged to the Auxiliary building ventilation at approximately 15 scfm. (Ref Evaluation number FFN-95-174. Also reference 0CAN108812, Microfilm No.: 40150679 in which the NRC concurred with the evaluation

Attachments

ER002239-I201

LIC-00-024

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Title Unit 2 Electrical Uprate for 2R14

Brief description of proposed change: This NCP evaluates the overall impact to the electrical distribution system (EDS) from the Replacement Steam Generator Project and from all other 2R14 modifications that affect the EDS.

Will the proposed Activity:

1. Require a change to the Operating License including:
 

Technical Specifications (excluding the bases)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Operating License?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Confirmatory Orders?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
Core Operating Limits Report	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Fire Hazards Analysis?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bases of the Technical Specifications?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Technical Requirements Manual?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
NRC Safety Evaluation Reports?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
3. Involve a test or experiment not described in the SAR?  
(See Attachment 2 for guidance)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:
 

QAPM?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
E-Plan?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
8. Does this review depend on future NRC approval of other actions (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

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**Basis for Determination (Questions 1, 2 & 3):** See Attached C Form

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☐ 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 2 50.59

Fault Current, "Short Circuit Current", Short Circuit, generator w/10 protection, relay w/10 protection, relay w/10 setting / s, 2A301, 2A-301, transformer w/10 load / ing, Millstone, penetration w/10 fault, penetration w/10 current, peneration w/10 protection, penetration w/10 amps, degraded voltage, service water pump, RCP w/10 loading, overcurrent relay, generator loss of excitation, generator distance backup, generator stator ground

**MANUAL SECTIONS:**

Unit 2 TS Bases 3 / 4.8, Unit 2 SAR  
Section 8.3.1.2.4.A

**FIGURES:**

Unit 2 SAR Figures All

David A. Robinson  
Certified Reviewer's Signature

David A Robinson  
Printed Name

6/22/00  
Date

Reviewer's certification expiration date: 03/01/01

Assistance provided by:

Printed Name  
Brad Risner

Scope of Assistance  
SAR searches,

Date  
6/22/00

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

Robert J. Buser  
Certified Reviewer's Signature

Robert Buser  
Printed Name

6-28-00  
Date

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**ENVIRONMENTAL IMPACT DETERMINATION  
(UNIT 1 and UNIT 2)**

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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:

YesNo

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |



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(Assigned by PSC)

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Title Unit 2 Electrical Uprate for 2R14

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 C Form

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

See Attached C Form

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

See Attached C Form

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

See Attached C Form

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

See Attached C Form

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 C Form

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


See Attached C Form

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	David A Robinson	6/22/00
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 03/01/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
<hr/>		
PSC review by: 		Date: 9/7/00

<b>ARKANSAS NUCLEAR ONE</b>		
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**10CFR50.59 Review Continuation Page**

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During 2R14, the Unit 2 steam generators will be replaced per ER 980642D207 and D210. In conjunction with this modification, Unit 2 will increase maximum electrical power output from approximately 928 MW to 973 MW during cycle 15. ER 002370 was written to evaluate the acceptability of the electrical distribution system (EDS) for the change in power output as well as to evaluate the overall impact to the EDS from all 2R14 modifications affecting the distribution system.

This NCP includes the evaluations documented in ER's 002365E201, 002366E201, 002367E201, 002368E201. These ER's evaluated the "overall" impact to the distribution system from the Replacement Steam Generator Project and from other 2R14 modifications impacting the EDS. This 50.59 review will cover this NCP and the ER evaluations. The 50.59 only discusses the impacts to the distribution system and plant documentation as noted in the ER reviews as well as any physical modifications to the plant that are required as a result of the evaluations. This 50.59 also includes a rollup of the 50.59 reviews for the following NCPs:

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

NCP 980397N201: "Generator Stator Rewind"

NCP 981000N201: "Turbine / Exciter Heat Detector Disconnects"

• **ER002365E201**

This ER evaluated the impacts to protective devices and metering circuits on the electrical distribution system. No components were found to require replacement due to the electrical power uprate. However, setpoint changes to the generator loss-of-excitation, generator distance backup, generator stator ground and switchgear cubicle 2A301 overcurrent relays will be necessary. Additionally, various calculations were revised to incorporate the changes to the Unit 2 short circuit study.

• **ER002366E201**

This ER evaluated the impacts to transformers, electrical buses and cables on the medium voltage (4.16 KV) and high voltage (6.9 KV and above) distribution systems. Loading on the Main, Unit Auxiliary, Startup #3 (SU3) and Startup #2 (SU2) transformers was found to be acceptable for post 2R14 operation. Loading on all 4.16 KV and 6.9 KV buses and cables was also found to be acceptable for the expected load changes due to 2R14 modifications.

The iso-phase bus system is being evaluated for adequacy and if any necessary modifications are required they will be add to this NCP via a NCPR. This 50.59 will also be revised as required by NCPR.

• **ER002367E201**

This ER evaluated the impacts to the Unit 2 short circuit calculations and to the Unit 2 Millstone degraded voltage calculations.

**Unit 2 Short Circuit Calculations (Ref. ER 002367E201)**

Removal of the current limiting reactors on bus 2A3 per NCP 963089N201 will increase the available fault current on the Unit 2 EDS. Calculation 92-E-0037-05, "Unit 2 Short Circuit Study", was revised to determine the maximum available fault currents and conservatively included the removal of the current limiting reactors on bus 2A4, which is currently scheduled for 2R15, as well

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as the removal of the CLR on bus 2A3. The only significant changes in fault currents were on buses 2A3, 2A4 and 2A5, where the fault current levels increased from approximately 18,000A (2A3 and 2A4) and 14,000A (2A5) to approximately 47,000A and 26,000A, respectively. Based upon the results of the short circuit study, calculation 92-E-0037-08, "ANO Unit 2 Equipment Short Circuit Rating Study" was revised to verify equipment ratings are still acceptable for the new fault currents. The calculation showed all equipment ratings are above the calculated fault currents, with the exception of the branch breakers on the 6.9 kV and the non-safety 4.16 kV buses. The calculated fault current slightly exceeded the ratings of these breakers for an assumed three phase, bolted, zero impedance fault at the breaker terminals. However, the probability of such a fault is unlikely and even if the branch breaker fails to interrupt the fault current on these buses, the main breakers are adequately rated to momentarily withstand and interrupt the fault. This conclusion is dependent upon the replacement of the Magneblast breakers on bus 2A1, 2H1 and 2A3 with Siemens vacuum breakers per DCP's 963089D201 and D203 as well as replacement of various 480 VAC MCC breakers per NCP 963474N201. NCP 963089N201 included a prerequisite to install these DCP/NCP's prior to or in conjunction with the removal of the current limiting reactors on bus 2A3. NCP 963089N201 will also add additional bracing on the 2A3 bus to assure the bus can withstand the increase in the maximum available fault current. It should be noted that the branch breakers on the 6.9 kV system which supply the Reactor Coolant Pumps are adequately rated for the maximum fault current available at the containment penetrations.

#### Unit 2 Millstone Degraded Voltage Calculations (Ref. ER 002367E201)

Calculations 94-E-0001-05, "ANO Unit 2 Millstone Study - SU3 Cases" and 92-E-0065-01, "ANO Unit 2 Degraded Voltage Study for SU-2" were reviewed for impacts due to 2R14 modifications. No impacts to calculation 92-E-0065-01 were noted. The only impact to calculation 94-E-0001-05 was the expected change in the normal operating configuration of the containment cooling fans from four fans running to three fans running per NCP 991522N201. Since one fan will now be in stand-by, this fan will now start at t=18.2 seconds on a fast transfer to SU-3 with a SIAS signal present. Calculation 00-E-0017-01 was issued to analyze starting of the containment cooling fan at t=18.2 seconds. The calculation concluded that the voltages at the Unit 2 electrical buses remain above the minimum acceptable levels established for proper equipment operation and that the Millstone degraded voltage relays at load center 2B5 and 2B6 will not actuate.

#### • ER002368E201

This ER evaluated the impacts to the 125 VDC, 120 VAC, 480 VAC, Station Blackout and Emergency Diesel Generator systems as well as evaluating impacts to electrical equipment room heat loads. Although there are minor load changes expected to these systems from 2R14 modifications, all changes were appropriately addressed in the corresponding modification package 50.59's and will not be discussed in this 50.59. No significant impacts to any of these systems or topical areas were noted in the evaluation.

#### **OTHER MODIFICATIONS AND EVALUATIONS USED AS DESIGN INPUTS**

Modifications related to Steam Generator Replacement (ER 980642D207 and D210), Secondary Plant Upate (ER 002361N201) and Containment Upate (ER 991864N201) may indirectly impact the EDS by changing the operating loads of various equipment on the distribution system. IRF 002369I201 was issued to MCS Design Engineering to determine loading changes on various pumps and other equipment due to steam generator replacement and power upate. For normal loading conditions during cycle 15, the only increase in loading noted was a 200 HP increase in total loading for the service water pumps and a possible increase in the loading on the RCP pumps of 58 HP per pump. Although normal loading for some components is expected to increase, the load is bounded by assumptions in these calculations. No loading increases were noted for accident conditions from that previously documented in the EDG loading

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calculations 85-S-00002-01 and 89-E-0144-01. Although accident loading for some components is expected to increase, the load is bounded by that already assumed in these calculations.

Basis For Determination:

Question 1

NO

NCP 002370N201: "Unit 2 Electrical Uprate"

The Technical Specification, Operating License, and Confirmatory Orders were reviewed to determine if any changes to these documents would be caused by this NCP. A search was made on LRS, which found no conflicting information regarding these changes. Therefore, no changes are required to any of these documents.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

No Operating License documents were changed by this NCP.

NCP 980397N201: "Generator Stator Rewind"

No Operating License documents were changed by this NCP.

NCP 981000N201: "Turbine / Exciter Heat Detector Disconnects"

No Operating License documents were changed by this NCP.

Question 2

YES

NCP 002370N201: "Unit 2 Electrical Uprate" Unit 2 SAR Section 8.3.1.2.4 A "Regulatory Guide 1.63" will be revised to address changes to the 6.9 KV penetration available fault current value discussion. In the process of checking new fault current levels (due to the 2R14 changes) against EDS equipment ratings, a significant difference in results was noted for the 6.9 KV RCP penetration circuits versus that reported under Unit 2 SAR 8.3.1.2.4.A "Regulatory Guide 1.63". The calculated value for available fault current was approximately 37,000 Amps versus 20,500 Amps noted in the SAR. (It should be noted that the fault current at the 6.9 KV buses is only increasing about 1% due to 2R14 changes, so the discrepancy with the SAR value is not primarily due to the 2R14 changes.) Even though the current and withstand times listed in the SAR are approximate, it is prudent to update the values for the 6.9 KV penetrations to those which more accurately reflect the present engineering data results.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement" Unit 2 SAR Figure 9.2-1 will be revised to address changes in heat load and ACW flows.

NCP 980397N201: "Generator Stator Rewind" No SAR document changes were required for this modification.

NCP 981000N201: "Turbine / Exciter Heat Detector Disconnects" No SAR document changes were required for this modification.

None of the other SAR documents require any changes by any of the four NCP's.

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Question 3

NO

NCP 002370N201: "Unit 2 Electrical Uprate"

No tests or experiments that could degrade the margins of safety or degrade the adequacy of any structures, systems or components to prevent or mitigate accident consequences that are not already described in the SAR will be performed by this NCP.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

No new tests or experiments were required by this NCP.

NCP 980397N201: "Generator Stator Rewind"

No new tests or experiments were required by this NCP.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

No new tests or experiments were required by this NCP.

Note: The 50.59's for NCP's 980397N201 "Generator Stator Rewind" and 981000N201 "Turbine / Exciter Heat Detector Disconnects" were determinations only and do not require an evaluation. The 50.59's for NCP's 002370N201 "Unit 2 Electrical Uprate" and 980406N201 "ANO Unit 2 Main Generator Hydrogen Cooler Replacement" both require SAR changes and, therefore, require evaluations.

Evaluation Questions:

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

NO

NCP 002370N201: "Unit 2 Electrical Uprate"

The revised Unit 2 Short Circuit Calculation (92-E-0037-05) calculated a fault current value ( $\approx 37,000$  AMPS) at the 6.9 KV penetrations that is larger than the value stated in the SAR (20,500 AMPS). However, this new fault current value will not increase the probability of any accident evaluated in the SAR because the penetration (as stated in the SAR) is rated to withstand a fault current of 63,100 amps. Also the new fault current value is within the supply breaker interrupting rating which will allow the breaker to clear a fault of this magnitude. Therefore, this change does not result in any probability changes for any accident initiator.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The proposed activity replaces the H2 coolers with coolers that are similar in fit, form and function. The new coolers are designed and manufactured to equivalent standards and are being specified by the original equipment manufacturer. SAR Chapter 15 lists 3 accidents related to turbine trips. Section 15.1.7 discusses "Loss of External Load and/or Turbine Trip". Section 15.1.29 "Turbine Trip with coincident failure of turbine bypass valves to open" refers back to the discussion in Section 15.1.7. SAR Section 15.1.33 "Turbine trip with failure of generator breaker to open" is the final relevant accident in SAR Chapter 15. These accidents are not influenced by the proposed change because H2 cooler failure is not any more likely with the replacement coolers.

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

NCP 002370N201: "Unit 2 Electrical Uprate"

No accidents were found in the SAR that would have their radiation dose consequences altered by this change in fault current values since the new value is less than the rated value. No new pathways are created for the release of radioactive materials

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The proposed change does not impact any equipment credited with accident mitigation nor does it affect fission product barriers or introduce new pathways for fission product release. Furthermore this activity does not create new or aggravate existing onsite dose consequences that might restrict access to vital areas or otherwise impede mitigating actions.

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

NCP 002370N201: "Unit 2 Electrical Uprate"

Since the newly calculated fault value is less than the original design specifications for the 6.9 KV containment building penetrations there will not be any increase in the probability of a malfunction of equipment important to safety.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The replacement coolers meet the manufacturer's requirements of the original hydrogen coolers and therefore the likelihood of failure has not increased. No impact on safety related components could be identified.

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

NCP 002370N201: "Unit 2 Electrical Uprate"

The new fault current values are within the rated values for the containment penetrations and the primary backup protection breakers. Therefore, there will not be any increase in offsite dose consequences caused by this NCP. Additionally, no new SSC's are being installed that could increase offsite dose consequences.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The proposed replacement does not adversely impact the consequence of equipment malfunctions identified in the SAR. Additionally, no new SSCs are being installed that could increase offsite dose consequences. The hydrogen coolers are not relied upon to reduce offsite dose consequences and are not safety related.

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

NCP 002370N201: "Unit 2 Electrical Uprate"

Changing the fault current value for the 6.9 KV penetrations to a value that is still below the penetration rating does not create any new accidents that have not been evaluated in the SAR.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

Replacement of the hydrogen coolers does not create any new circumstances, failure scenarios or interactions between SSCs that have not already been evaluated. Therefore, no new accident scenarios are 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

NCP 002370N201: "Unit 2 Electrical Uprate"

Changing the fault current value for the 6.9 KV penetrations to a value that is still below the penetration rating does not create any new malfunctions of equipment important to safety.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

Replacement of the hydrogen coolers does not create any new equipment functions or impact the method of performing existing equipment functions. Therefore, no new failure mechanisms are postulated.

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

NCP 002370N201: "Unit 2 Electrical Uprate"

No margins of safety could be found in the bases for the technical specifications that are related to this change in fault current values. There is no effect on any fission product boundaries.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The hydrogen coolers are not identified in the Technical Specifications or the Technical Specification Bases for the Turbine Cycle (3/4.7), the AC Sources (3/4.8.1), or the power distribution system (3/4.8.2). Additionally, the replacement coolers are functionally equivalent to the existing coolers. Therefore the margin of safety for the basis of any technical specification is not reduced.



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Title Unit 2 Electrical Upate for 2R14

Brief description of proposed change: This NCP evaluates the overall impact to the electrical distribution system (EDS) from the Replacement Steam Generator Project and from all other 2R14 modifications that affect the EDS.

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:

QAPM?

Yes ☐ No ☒

E-Plan?

Yes ☐ No ☒

8. Does this review depend on future NRC approval of other actions (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9)

Yes ☐ No ☒

## ARKANSAS NUCLEAR ONE

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**Basis for Determination (Questions 1, 2 & 3):** See Attached C FormPAGE 4 REV. 012

☐ 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.**

DocumentSection

LRS:

Unit 2 50.59

Fault Current, "Short Circuit Current", Short Circuit, generator w/10 protection, relay w/10 protection, relay w/10 setting / s, 2A301, 2A-301, transformer w/10 load / ing, Millstone, penetration w/10 fault, penetration w/10 current, peneration w/10 protection, penetration w/10 amps, degraded voltage, service water pump, RCP w/10 loading, overcurrent relay, generator loss of excitation, generator distance backup, generator stator ground

## MANUAL SECTIONS:

Unit 2 TS Bases 3 / 4.8, Unit 2 SAR  
Section 8.3.1.2.4.A

## FIGURES:

Unit 2 SAR Figures All



Certified Reviewer's Signature

David A Robinson

Printed Name

9/13/00

Date

Reviewer's certification expiration date: 03/01/01

Assistance provided by:

Printed Name

Brad Risner

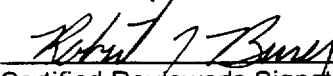
Scope of Assistance

SAR searches,

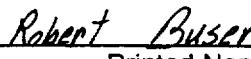
Date

9/13/00

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



Certified Reviewer's Signature



Printed Name

9-13-00

Date

## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. NCP 002370N201

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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:

YesNo

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

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(Assigned by PSC)

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PAGE 6 REV. 0 of 2Title Unit 2 Electrical Update for 2R14

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 C Form

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

Yes ☐ No ☒See Attached C Form

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

Yes ☐ No ☒See Attached C Form

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

Yes ☐ No ☒See Attached C Form

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

Yes ☐ No ☒See Attached C Form

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 C Form

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

Yes ☐ No ☒See Attached C Form

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1000.131B

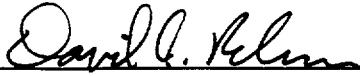
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David A Robinson

9/13/00

Certified Reviewer's Signature

Printed Name

Date

Reviewer's certification expiration date: 03/01/01

Assistance provided by:

Printed Name

Scope of Assistance

Date

PSC review by:



Date:

9/21/00

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During 2R14, the Unit 2 steam generators will be replaced per ER 980642D207 and D210. In conjunction with this modification, Unit 2 will increase maximum electrical power output from approximately 928 MW to 973 MW during cycle 15. ER 002370 was written to evaluate the acceptability of the electrical distribution system (EDS) for the change in power output as well as to evaluate the overall impact to the EDS from all 2R14 modifications affecting the distribution system.

This NCP includes the evaluations documented in ER's 002365E201, 002366E201, 002367E201, 002368E201. These ER's evaluated the "overall" impact to the distribution system from the Replacement Steam Generator Project and from other 2R14 modifications impacting the EDS. This 50.59 review will cover this NCP and the ER evaluations. The 50.59 only discusses the impacts to the distribution system and plant documentation as noted in the ER reviews as well as any physical modifications to the plant that are required as a result of the evaluations. This 50.59 also includes a rollup of the 50.59 reviews for the following NCPs:

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

NCP 980397N201: "Generator Stator Rewind"

NCP 981000N201: "Turbine / Exciter Heat Detector Disconnects"

- ER002365E201

This ER evaluated the impacts to protective devices and metering circuits on the electrical distribution system. No components were found to require replacement due to the electrical power uprate. However, setpoint changes to the generator loss-of-excitation, generator distance backup, generator stator ground and switchgear cubicle 2A301 overcurrent relays will be necessary.

The changes to the generator loss of excitation relay and the generator distance backup relay will be made with the plant in mode 6 (cold shutdown) and the generator off-line. The 2A301 breaker overcurrent relay setpoint changes will be made with the unit in mode 6 and the 2A301 breaker out of service. These setpoint changes will be made using repetitive plant tasks and existing calibration procedures.

Instructions for calibrating the generator stator ground relay will be added to this NCP (002370N201) by a NCPR after the test data is collected during and after the 2R14 outage. Data collection will be performed under a separate work plan and 50.59 review. The generator stator ground relay setpoint change will most likely be performed with the unit in mode 1 since data is required to be collected when the unit is increasing in power. However, since this relay provides an alarm function only, the setpoint change may be performed in any plant mode.

Additionally, various calculations were revised to incorporate the changes to the Unit 2 short circuit study.



- ER002366E201

This ER evaluated the impacts to transformers, electrical buses and cables on the medium voltage (4.16 KV) and high voltage (6.9 KV and above) distribution systems. Loading on the Main, Unit Auxiliary, Startup #3 (SU3) and Startup #2 (SU2) transformers was found to be acceptable for post 2R14 operation. Loading on all 4.16 KV and 6.9 KV buses and cables was also found to be acceptable for the expected load changes due to 2R14 modifications.

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The iso-phase bus system is being evaluated for adequacy and if any necessary modifications are required they will be add to this NCP via a NCPR. This 50.59 will also be revised as required by NCPR.

• ER002367E201

This ER evaluated the impacts to the Unit 2 short circuit calculations and to the Unit 2 Millstone degraded voltage calculations.

Unit 2 Short Circuit Calculations (Ref. ER 002367E201)

Removal of the current limiting reactors on bus 2A3 per NCP 963089N201 will increase the available fault current on the Unit 2 EDS. Calculation 92-E-0037-05, "Unit 2 Short Circuit Study", was revised to determine the maximum available fault currents and conservatively included the removal of the current limiting reactors on bus 2A4, which is currently scheduled for 2R15, as well as the removal of the CLR on bus 2A3. The only significant changes in fault currents were on buses 2A3, 2A4 and 2A5, where the fault current levels increased from approximately 18,000A (2A3 and 2A4) and 14,000A (2A5) to approximately 47,000A and 26,000A, respectively. Based upon the results of the short circuit study, calculation 92-E-0037-08, "ANO Unit 2 Equipment Short Circuit Rating Study" was revised to verify equipment ratings are still acceptable for the new fault currents. The calculation showed all equipment ratings are above the calculated fault currents, with the exception of the branch breakers on the 6.9 kV and the non-safety 4.16 kV buses. The calculated fault current slightly exceeded the ratings of these breakers for an assumed three phase, bolted, zero impedance fault at the breaker terminals. However, the probability of such a fault is unlikely and even if the branch breaker fails to interrupt the fault current on these buses, the main breakers are adequately rated to momentarily withstand and interrupt the fault. This conclusion is dependent upon the replacement of the Magneblast breakers on bus 2A1, 2H1 and 2A3 with Siemens vacuum breakers per DCP's 963089D201 and D203 as well as replacement of various 480 VAC MCC breakers per NCP 963474N201. NCP 963089N201 included a prerequisite to install these DCP/NCPR's prior to or in conjunction with the removal of the current limiting reactors on bus 2A3. NCP 963089N201 will also add additional bracing on the 2A3 bus to assure the bus can withstand the increase in the maximum available fault current. It should be noted that the branch breakers on the 6.9 kV system which supply the Reactor Coolant Pumps are adequately rated for the maximum fault current available at the containment penetrations.

Unit 2 Millstone Degraded Voltage Calculations (Ref. ER 002367E201)

Calculations 94-E-0001-05, "ANO Unit 2 Millstone Study - SU3 Cases" and 92-E-0065-01, "ANO Unit 2 Degraded Voltage Study for SU-2" were reviewed for impacts due to 2R14 modifications. No impacts to calculation 92-E-0065-01 were noted. The only impact to calculation 94-E-0001-05 was the expected change in the normal operating configuration of the containment cooling fans from four fans running to three fans running per NCP 991522N201. Since one fan will now be in stand-by, this fan will now start at t=18.2 seconds on a fast transfer to SU-3 with a CCAS signal present. Calculation 00-E-0017-01 was issued to analyze starting of the containment cooling fan at t=18.2 seconds. The calculation concluded that the voltages at the Unit 2 electrical buses remain above the minimum acceptable levels established for proper equipment operation and that the Millstone degraded voltage relays at load center 2B5 and 2B6 will not actuate.



• ER002368E201

This ER evaluated the impacts to the 125 VDC, 120 VAC, 480 VAC, Station Blackout and Emergency Diesel Generator systems as well as evaluating impacts to electrical equipment room heat loads.



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Although there are minor load changes expected to these systems from 2R14 modifications, all changes were appropriately addressed in the corresponding modification package 50.59's and will not be discussed in this 50.59. No significant impacts to any of these systems or topical areas were noted in the evaluation.

#### OTHER MODIFICATIONS AND EVALUATIONS USED AS DESIGN INPUTS

Modifications related to Steam Generator Replacement (ER 980642D207 and D210), Secondary Plant Uprate (ER 002361N201) and Containment Uprate (ER 991864N201) may indirectly impact the EDS by changing the operating loads of various equipment on the distribution system. IRF 002369I201 was issued to MCS Design Engineering to determine loading changes on various pumps and other equipment due to steam generator replacement and power uprate. For normal loading conditions during cycle 15, the only increase in loading noted was a 200 HP increase in total loading for the service water pumps and a possible increase in the loading on the RCP pumps of 58 HP per pump. Although normal loading for some components is expected to increase, the load is bounded by assumptions in these calculations. No loading increases were noted for accident conditions from that previously documented in the EDG loading calculations 85-S-00002-01 and 89-E-0144-01. Although accident loading for some components is expected to increase, the load is bounded by that already assumed in these calculations.

#### Basis For Determination:

Question 1

NO

NCP 002370N201: "Unit 2 Electrical Uprate"

The Technical Specification, Operating License, and Confirmatory Orders were reviewed to determine if any changes to these documents would be caused by this NCP. A search was made on LRS, which found no conflicting information regarding these changes. Therefore, no changes are required to any of these documents.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

No Operating License documents were changed by this NCP.

NCP 980397N201: "Generator Stator Rewind"

No Operating License documents were changed by this NCP.

NCP 981000N201: "Turbine / Exciter Heat Detector Disconnects"

No Operating License documents were changed by this NCP.

Question 2

YES

NCP 002370N201: "Unit 2 Electrical Uprate" Unit 2 SAR Section 8.3.1.2.4 A "Regulatory Guide 1.63" will be revised to address changes to the 6.9 KV penetration available fault current value discussion. In the process of checking new fault current levels (due to the 2R14 changes) against EDS equipment ratings, a significant difference in results was noted for the 6.9 KV RCP penetration circuits versus that reported under Unit 2 SAR 8.3.1.2.4.A "Regulatory Guide 1.63". The calculated value for available fault current was approximately 37,000 Amps versus 20,500 Amps noted in the SAR. (It should be

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noted that the fault current at the 6.9 KV buses is only increasing about 1% due to 2R14 changes, so the discrepancy with the SAR value is not primarily due to the 2R14 changes.) Even though the current and withstand times listed in the SAR are approximate, it is prudent to update the values for the 6.9 KV penetrations to those which more accurately reflect the present engineering data results.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement" Unit 2 SAR Figure 9.2-1 will be revised to address changes in heat load and ACW flows.

NCP 980397N201: "Generator Stator Rewind" Unit 2 SAR Figure 3.2-6 will be revised to address changes to the generator stator water cooling system.

NCP 981000N201: "Turbine / Exciter Heat Detector Disconnects" No SAR document changes were required for this modification.



None of the other SAR documents require any changes by any of the four NCP's.

Question 3

NO

NCP 002370N201: "Unit 2 Electrical Uprate"

No tests or experiments that could degrade the margins of safety or degrade the adequacy of any structures, systems or components to prevent or mitigate accident consequences that are not already described in the SAR will be performed by this NCP.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

No new tests or experiments were required by this NCP.

NCP 980397N201: "Generator Stator Rewind"

No new tests or experiments were required by this NCP.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

No new tests or experiments were required by this NCP.

Note: The 50.59's for NCP 981000N201 "Turbine / Exciter Heat Detector Disconnects" was a determination only and does not require an evaluation. The 50.59's for NCP's 002370N201 "Unit 2 Electrical Uprate", 980406N201 "ANO Unit 2 Main Generator Hydrogen Cooler Replacement" and 980397N201 "Generator Stator Rewind" require SAR changes and, therefore, require evaluations.

#### Evaluation Questions:

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

NO

NCP 002370N201: "Unit 2 Electrical Uprate"

The revised Unit 2 Short Circuit Calculation (92-E-0037-05) calculated a fault current value ( $\approx 37,000$  AMPS) at the 6.9 KV penetrations that is larger than the value stated in the SAR (20,500 AMPS). However, this new fault current value will not increase the probability of any accident evaluated in the SAR because the penetration (as stated in the SAR) is rated to withstand a fault current of 63,100 amps.



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Also the new fault current value is within the supply breaker interrupting rating which will allow the breaker to clear a fault of this magnitude. Therefore, this change does not result in any probability changes for any accident initiator.

#### NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The proposed activity replaces the H2 coolers with coolers that are similar in fit, form and function. The new coolers are designed and manufactured to equivalent standards and are being specified by the original equipment manufacturer. SAR Chapter 15 lists 3 accidents related to turbine trips. Section 15.1.7 discusses "Loss of External Load and/or Turbine Trip". Section 15.1.29 "Turbine Trip with coincident failure of turbine bypass valves to open" refers back to the discussion in Section 15.1.7. SAR Section 15.1.33 "Turbine trip with failure of generator breaker to open" is the final relevant accident in SAR Chapter 15. These accidents are not influenced by the proposed change because H2 cooler failure is not any more likely with the replacement coolers.

#### NCP 980397N201: "Generator Stator Rewind"

Computer point (T9779) "Turbine Generator Temperature GE RTD 52, slot 52" is actually connected to Main Generator RTD 2TE-9779 not alarm 2TAH-9779 as mistakenly shown on Unit 2 SAR Figure 3.2-6. This computer point is used to indicate the temperature of the generator slot 52 stator bars and does not provide a generator trip function. Therefore, this change does not increase the probability of any accidents evaluated in the SAR. Also on this SAR Figure the 6" to 5" diameter pipe reducer between the Stator Water Cooling 6" piping and the control valve (2CV-9785) will be eliminated. The existing valve body inlet/outlet diameter is 5" while the replacement valve body inlet/outlet diameter is 6". Therefore the reducer is no longer needed and is being replaced with a piece of 6" diameter pipe. The Stator Water Cooling System provides cooling for the main generator stator bars to remove heat generated while the Main Generator is supplying electrical power. The replacement of the 5" diameter components with 6" diameter components in the Stator Water Cooling System will allow the system to better handle the cooling flow requirements of the generator when the generator is rerated during 2R15. This change does not affect the probability of an accident or result in a change to an accident initiator previously evaluated in the SAR.

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

NO



#### NCP 002370N201: "Unit 2 Electrical Uprate"

No accidents were found in the SAR that would have their radiation dose consequences altered by this change in fault current values since the new value is less than the rated value. No new pathways are created for the release of radioactive materials

#### NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The proposed change does not impact any equipment credited with accident mitigation nor does it affect fission product barriers or introduce new pathways for fission product release. Furthermore this activity does not create new or aggravate existing onsite dose consequences that might restrict access to vital areas or otherwise impede mitigating actions.

#### NCP 980397N201: "Generator Stator Rewind"

No accidents that are evaluated in the SAR will have their radiation dose consequences altered as a result of changing Unit 2 SAR Figure 3.2-6 to remove the mistaken indication that computer point T9779 was connected to alarm 2TAH-9779. This computer point is actually connected to 2TE-9779 and is used to indicate the temperature of the generator stator bars located in slot 52 in the plant computer. This computer point is not used to initiate any accident mitigation actions. Replacing the 6" to 5" diameter pipe



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reducer and 5" components with 6" diameter pipe and components in the Stator Cooling Water System will not change, degrade, or prevent actions described or assumed in any accident discussed in the SAR, nor will does it play a role in mitigating the consequences of an accident described in the SAR. Therefore, accident radiation dose consequences are not altered by this NCP.

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

NO



NCP 002370N201: "Unit 2 Electrical Uprate"

Since the newly calculated fault value is less than the original design specifications for the 6.9 KV containment building penetrations there will not be any increase in the probability of a malfunction of equipment important to safety.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The replacement coolers meet the manufacturer's requirements of the original hydrogen coolers and therefore the likelihood of failure has not increased. No impact on safety related components could be identified.

NCP 980397N201: "Generator Stator Rewind"

The computer point was mistakenly shown on the SAR figure and P&ID. Its removal will not affect any equipment important to safety. Stator Water Cooling system control valve 2CV-9785 was a 5" valve. It is being replaced with a new valve that is a 6" valve. The piping this valve was connected to is 6". Therefore, the new valve will not require a reducer as before. This is a non-Q system that does not have an affect on the probability of a malfunction of equipment important to safety.

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

NO



NCP 002370N201: "Unit 2 Electrical Uprate"

The new fault current values are within the rated values for the containment penetrations and the primary backup protection breakers. Therefore, there will not be any increase in offsite dose consequences caused by this NCP. Additionally, no new SSC's are being installed that could increase offsite dose consequences.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The proposed replacement does not adversely impact the consequence of equipment malfunctions identified in the SAR. Additionally, no new SSCs are being installed that could increase offsite dose consequences. The hydrogen coolers are not relied upon to reduce offsite dose consequences and are not safety related.

NCP 980397N201: "Generator Stator Rewind"

As stated in question 3 the computer point was mistakenly shown on the SAR figure and P&ID. Its removal will not result in a increase in dose from any equipment important to safety. Also the removal of the 6" to 5" reducer from the Stator Water Cooling system and its replacement with a 6" pipe will have no offsite dose consequences.

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

NO



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NCP 002370N201: "Unit 2 Electrical Uprate"

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Changing the fault current value for the 6.9 KV penetrations to a value that is still below the penetration rating does not create any new accidents that have not been evaluated in the SAR.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

Replacement of the hydrogen coolers does not create any new circumstances, failure scenarios or interactions between SSCs that have not already been evaluated. Therefore, no new accident scenarios are created.

NCP 980397N201: "Generator Stator Rewind"

Neither of the two changes could cause an accident because the computer point is not used to drive any accident mitigation actions and the replacement of the 6" to 5" diameter pipe reducer and 5" components with 6" diameter pipe and components in the Stator Cooling Water System will make the system better able to meet its design function. Therefore, the changes made by this NCP will not create any new accident not 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? NO

NCP 002370N201: "Unit 2 Electrical Uprate"

Changing the fault current value for the 6.9 KV penetrations to a value that is still below the penetration rating does not create any new malfunctions of equipment important to safety.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

Replacement of the hydrogen coolers does not create any new equipment functions or impact the method of performing existing equipment functions. Therefore, no new failure mechanisms are postulated.

NCP 980397N201: "Generator Stator Rewind"

The computer point's removal will not affect any equipment important to safety. The removal of the 6" to 5" diameter pipe reducer and 5" components and its replacement with 6" diameter pipe and components makes the system better able to remove the heat generated by the generator while producing power. Therefore, this change does not affect any equipment important to safety.



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

NCP 002370N201: "Unit 2 Electrical Uprate"

No margins of safety could be found in the bases for the technical specifications that are related to this change in fault current values. There is no effect on any fission product boundaries.

NCP 980406N201: "ANO Unit 2 Main Generator Hydrogen Cooler Replacement"

The hydrogen coolers are not identified in the Technical Specifications or the Technical Specification Bases for the Turbine Cycle (3/4.7), the AC Sources (3/4.8.1), or the power distribution system (3/4.8.2). Additionally, the replacement coolers are functionally equivalent to the existing coolers. Therefore the margin of safety for the basis of any technical specification is not reduced.

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NCP 980397N201: "Generator Stator Rewind"

No margins of safety could be found in the bases for the technical specifications that are related to these SAR figure changes. There is no effect on any fission product boundaries.



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Title EDG Pnuematic Timer Replacement

Brief description of proposed change: Replace the ITE pneumatic timing relay on the T2A and T3A relays in the EDG 2K-4A and 2K-4B control circuits with Agastat E7012 pneumatic timing relays. Additionally, re-wire the paralleled contacts from relays T3A and T3B in the circuit for the EDG low lube oil pressure trip to place these contacts in series. See Form C for additional information.

Will the proposed Activity:

- Require a change to the Operating License including:
 

Technical Specifications (excluding the bases)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Operating License?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Confirmatory Orders?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
- 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
Core Operating Limits Report	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Fire Hazards Analysis?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bases of the Technical Specifications?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Technical Requirements Manual?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
NRC Safety Evaluation Reports?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
- Involve a test or experiment not described in the SAR?  
(See Attachment 2 for guidance)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
- Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
- Result in the need for a Radiological Safety Evaluation per section 6.1.5?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
- Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
- Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:
 

QAPM?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
E-Plan?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
- Does this review depend on future NRC approval of other actions (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

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

See attached Form C.

☐ 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.

<u>Document</u>	<u>Section</u>
LRS:	
Unit 2 50.59	All (EDG w/10 trip, diesel w/10 trip, T3A, T3B, T2A, T2B, T-3A, T-3B, T-2A, T-2B, ITE, Guide w/50 1.9, EDG w/10 timer, diesel w/10 timer, EDG w/10 relay, diesel w/10 relay, "low lube oil", "speed w/50 jacket", overcrank, over-crank, over w/10 crank

**MANUAL SECTIONS:**

Unit 2 SAR Chap 8, Chap 15	All
----------------------------	-----

**FIGURES:**

Unit 2 SAR Chap 8 Figures	All
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Certified Reviewer's Signature

Brad Risner  
Printed Name

10-29-00  
Date

Reviewer's certification expiration date: 5/2/02

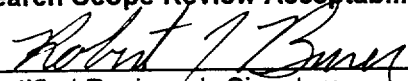
**Assistance provided by:**

Printed Name

Scope of Assistance

Date

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

  
Certified Reviewer's Signature

Robert Buser  
Printed Name

11-3-00  
Date

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## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

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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:

- | <u>Yes</u>               | <u>No</u>                           |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

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(Assigned by PSC)

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Title EDG Pneumatic Timer 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 ☒

See Form C

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

See Form C

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

See Form C

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

See Form C

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

See Form C

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 Form C

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

See Form C

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*Brad Risner*  
 Certified Reviewer's Signature

**Brad Risner**  
 Printed Name

**10/29/00**  
 Date

Reviewer's certification expiration date: **5/2/02**

Assistance provided by:

Printed Name

Scope of Assistance

Date

PSC review by: *BR* Date: **11-4-00**

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### 10CFR50.59 Review Continuation Page

#### Description

This NCP will replace the T2A relay in each of the EDG's control circuits with an Agastat model E7012 time delay relay. Although the T2A relay has both instantaneous and time delay contacts and the Agastat relay has only time delay contacts, the instantaneous contacts on the T2A relay are not being used. The timing unit on the T3A relays for both EDG's will also be replaced with an Agastat model E7012 relay. Since the instantaneous contacts on the T3A relays are being used, the existing J13 relays will be left and relabeled as T3AX and a spare contact from each relay will be used to energize the Agastat time delay relays. The timing unit removed from the T3A relay for EDG 2K-4B will be used to replace the existing timing unit on the 5 timer in cabinet 2C108 only. This will require the timing unit to be converted from on-delay to off-delay by changing the position of the slide switch on the top of the relay. This NCP will also re-wire the existing parallel contacts from relays T3A and T3B in the low lube oil pressure trip circuit to place these contacts in series. This will be done in both for both 2K-4A and 2K-4B. This NCP also covers installation and post modification testing. Installation and testing will be performed with the unit in mode 6 or with the applicable diesel declared inoperable and entering the appropriate technical specifications.

#### Basis For Determination:

Question 1 NO

The Technical Specification, Operating License, and Confirmatory Orders were reviewed to determine if any changes to these documents would be caused by this NCP. A search was made on LRS, which found no conflicting information regarding these changes. Therefore, no changes are required to any of these documents.

Question 2 YES

Unit 2 SAR Figures 8.3-49 sh. 1 and 1A, 8.3-51 sh. 2, sh. 2B, sh. 2C, sh. 2D, sh. 2E, sh. 2G, sh. 2H and sh. 2J, and 8.3-52 will be revised to address changes to the associated ANO drawings for the 2K-4A and 2K-4B EDG control circuits and 2A308 and 2A408 EDG output breakers. None of the other SAR documents require any changes.

Question 3 NO

No tests or experiments that could degrade the margins of safety or degrade the adequacy of any structures, systems or components to prevent or mitigate accident consequences that are not already described in the SAR will be performed by this NCP.

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

Replacement of the T2A and T3A relays with a different type of relay and re-wiring of the low lube oil pressure trip circuit will not affect the probability of an accident evaluated in the SAR. Chapter 15 of the SAR was reviewed for impacts. These changes only affect the EDG's and do not involve any accident initiators or cause the probability of an accident discussed in Chapter 15 to move from one accident category to another, or cause any significant movement within a category.

*gadh 11/4/00*

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

The EDG's supply power to various ECCS system components used for accident mitigation upon loss of the preferred (off-site) power sources. Replacement of the T2A and T3A relays will not affect the function of the EDG's since the reliability and repeatability of the Agastat relays are equal or superior to the ITE relays they are replacing. Re-wiring of the low lube oil pressure trip circuit will eliminate the possibility of an EDG trip on low lube oil pressure during a start due to a relay timing out early or a relay contact failing closed. This change improves the reliability of the EDG to perform its safety function and does not affect any of the actions described in any accident described in the SAR and will not affect any barriers which mitigate dose to the public. This change will not affect any onsite or off-site doses. Thus, the consequences of any accident previously evaluated in the SAR will not be increased.

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

Replacement of the ITE timers with Agastat timers will not increase the probability of a malfunction of the EDG's or the EDG control circuits. The Agastat timers have exhibited an equal or higher degree of reliability and repeatability than the existing ITE relays. Although placing the T3A and T3B contacts in series instead of in parallel will sacrifice some EDG protection (i.e. low lube oil trips will not be enabled unless **both** relays are energized), this change will further ensure the EDG's will be able to perform their safety function by eliminating the possibility of prematurely tripping the EDG on low lube oil pressure due to the early time-out of one of the relays or from one of the contacts failing closed. 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? **NO**

The consequence of a malfunction of the Agastat relays is the same as for the ITE relays, and thus no new consequences of a malfunction of equipment important to safety are introduced by the replacement of the T2A and T3A relays. With the T3A and T3B contacts in series for the low lube oil pressure trip, a failure of one of the relays to operate (energize) or failure of one of the contacts to close when the relay is timed-out will prevent enabling of the low lube oil pressure trip circuit. This is acceptable since this does not prevent the EDG from performing its safety function. It is noted that bypassing of this trip on ES signals is allowed per Reg. Guide 1.9, which implies that single failure of low lube oil pressure protection is not a regulatory concern. Additionally, this configuration will prevent the trip circuit from being enabled prematurely if one of the relays times out early or a contact fails closed. If the trip circuit is enabled prior to the engine developing adequate oil pressure, the engine would trip on low lube oil pressure and would not be available to perform its safety function. This configuration will prevent the possibility of a failure of the T3A or T3B relay to cause a EDG trip on low lube oil pressure during a start. This change will not affect on-site or off-site doses. 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? **NO**

Replacement of the ITE relays and re-wiring of the low lube oil pressure trip circuit does not create the possibility of an accident of a different type than those previously evaluated in the SAR. These changes only affect the Unit 2 EDG's and will increase the reliability of the EDG's to perform their safety function as assumed in multiple accidents described in chapter 15 of the Unit 2 SAR. These changes do not create the possibility of a common-mode failure of both EDG's, which has not been evaluated in the SAR. Thus, the possibility of an accident of a different type will not be created.

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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? **NO**

The proposed changes do not create the possibility of a malfunction of equipment important to safety of a different type than those previously evaluated in the SAR. Replacement of the ITE relays with Agastat relays does not introduce new failures or malfunctions of the EDG's and related control circuits. Although re-wiring of the low lube oil pressure trip circuit does slightly reduce the reliability of an equipment protective function, this change does not affect the ability of the EDG to perform its safety function and eliminates the possibility of the EDG from tripping on low lube oil pressure during a start due to a timer failure. Thus, the possibility of a malfunction of equipment important 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? **NO**

There are no margins of safety defined in the basis for any technical specification related to these relays or to the low lube oil trip circuit. No fission product boundaries are affected by this modification.

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Title HPSI Test Connection Addition.

## Brief description of proposed change:

NCP 003258N201 revision 0 was developed to install a new 3" branch connection on lines 2DCB-1-4" and 2GCD-1-6". The new 3" branch connections each contain a normally closed isolation valve followed by a flange and a blind. Physical connection to these new blinded off lines, by a temporary hose or other piping commodity, is not allowed via this modification package. The intent of this modification package is only to evaluate and qualify the addition of these blinded off branch lines to the existing piping 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 ☒

## 8. Does this review depend on future NRC approval of other actions (NRC, SER, Relief, etc.) ? (Forward change to PSC per 6.3.8 or 6.3.9)

Yes ☐ No ☒

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

Question # 1 & 2: No change to any of the Operating License (Operating License, Technical Specifications including bases and Confirmatory Orders) OR SAR documents is required to implement this modification, except for SAR Figures 6.2-17 and 6.3-2.

(Continued on 10CFR50.59 Review Continuation Page for 10CFR50.59 Determination)

☐ 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.**

DocumentSection

LRS : All applicable Unit 2 sections (ECCS w/10 HPSI; 2DCB; 2GCD; 2P89A; 2P89B; 2P89C; 2P\*89\*;  
and HPSI w/10 valve)

MANUAL SECTIONS: Unit 2 SAR Chapters 3, 5, 6, 7, 9, 11, 13, 14, 15 and 16 (Unit 2 Technical Specifications)

FIGURES: 6.2-17 and 6.3-2

  
Certified Reviewer's Signature

W. G. Donovan

Printed Name

11 / 21 / 2000  
Date

Reviewer's certification expiration date: 10 / 12 / 2002

Assistance provided by:

Printed Name

Timothy Woodson *TW* 11-22-00

Scope of Assistance

Review of Unit 2 SAR and Technical Specification

Date

11 / 20 / 2000

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

  
Certified Reviewer's Signature

Keith Butler

Printed Name

11/22/00  
Date

FORM TITLE:

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**ENVIRONMENTAL IMPACT DETERMINATION  
(UNIT 1 and UNIT 2)**Document No. 003258N201Rev./Change No. 0Page 8

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:

YesNo

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

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Continued from 10CFR50.59 Determination:

A new 3" branch connection is being added to the existing HPSI line 2DCB-1-4" and SDC return line to 2T3 2GCD-1-6". The new 3" branch connections will each contain a normally closed isolation valve followed by a flange and a blind which makes this connection dead-ended. The new branch piping is still within the same local area, same room, in the plant for each line being modified. No other components are being added or replaced as a result of this modification. The function and operation of the system remains unchanged.

Physical connection to these new dead-ended lines, by a temporary hose or other piping commodity, is not allowed via this modification package. The intent of this package is only to evaluate and qualify the addition of these dead-ended branch connections to the existing piping system.

Question # 3: This change does not involve a test or experiment not already discussed in the SAR. Addition of these dead-ended branch lines will not alter any existing test or experiment discussed in the SAR.

Use of these blinded off branch connections to connect to other piping is outside the scope of this 10CFR50.59 review. A different 10CFR50.59 review shall be performed to allow connections to these blinded off lines.

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(Assigned by PSC)

Title HPSI Test Connection 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 ☒

	W. G. Donovan	11 / 21 / 2000
Certified Reviewer's Signature	Printed Name	Date

Reviewer's certification expiration date: 10 / 12 / 2002

Assistance provided by:

Printed Name	Scope of Assistance	Date
Timothy Woodson <u>TPW 11-22-00</u>	Review of Unit 2 SAR and Technical Specification	11 / 20 / 2000

PSC review by:  Date: 11/22/00

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Continued from 10CFR50.59 Safety Evaluation:

**Background :**

New 3" dead-ended branch connections to lines 2DCB-1-4", between 2P-89C and vent pipe containing valves 2SI-1006 and 2SI-1007, and 2GCD-1-6", downstream of valve 2SI-18 in the SDC line return to the Refueling Water Tank 2T3, are being added via this modification package. Physical connection to these new dead-ended branch connections, by a temporary hose or other piping commodity, is not allowed via this modification package. The intent of this modification package is only to evaluate and qualify the addition of these dead-ended branch lines to the existing piping system.

**Question 1 :**

Addition of a new 3" dead-ended branch connection to lines 2DCB-1-4" and 2GCD-1-6" does not increase the probability of an accident previously evaluated in the SAR. The piping and components being added or modified have all been qualified to the applicable ASME or ANSI code rules for all existing loading conditions. No new accidents or failure modes for the system are being created by this modification package.

**Question 2 :**

The consequences of an accident previously evaluated in the SAR will not be increased as a result of implementing this modification package. The modified piping is still all within the same localized area of the plant where the existing piping is located. SAR Table 15.1.13-5 limits the amount of system leakage into the Auxiliary Building atmosphere to prevent excessive radioactivity releases after an accident. The HPSI leakage limit and the total leakage limit listed in this table will not change as a result of this modification. Operations and System Engineering will continue to monitor and assess leakage from the LPSI, HPSI, and Containment Spray systems against the limits described in this table.

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Continued from 10CFR50.59 Safety Evaluation:

DE/MCS addressed the Pressurized Component Failure Missiles, section 3.5.2.3 of the Unit 2 SAR, in 003258I201 response attached to this package. The response states that no new targets are being generated as a result of this modification. Additionally, no appreciable dead leg is being created by either of these two branch line additions, less than 1 gallon of fluid can be contained between the new valve seat and the existing run pipe at each location. Therefore, no significant dilution of system fluids is created by this modification.

The piping modifications performed by this package do not significantly alter any existing requirements of the system such as flow, temperature, pressure, etc. The change out of a short section of existing straight pipe to add the required full size run tees with reducing outlet branches for the new 3" dead ended connections will not adversely affect any existing system calculations other than the deadweight and seismic qualification of the specific lines. These deadweight and seismic qualification revisions show that the system still meets all ASME/ANSI Code requirements and all ANO piping requirements.

It is noted that the Refueling Water Tank 2T3 is vented to the atmosphere, but since this package does not allow any connections to these two new dead ended branch connections, no new path for radioactive fluids is being created to the 2T3 via this modification package. However, in the future if these dead ended branch connections are utilized, a different 10CFR50.59 Safety Evaluation shall be created to address this concern. (Reference Unit 2 SER 039 which discusses this situation.)

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Continued from 10CFR50.59 Safety Evaluation:

**Question 3 :**

Addition of a new 3" dead-ended branch connection to lines 2DCB-1-4" and 2GCD-1-6" does not increase the probability of a malfunction of equipment important to safety. As previously noted, the piping and components being added or modified have all been qualified to the applicable ASME or ANSI code rules for all existing loading conditions. The existing system already contains similar ASME or ANSI valves and flanges, same pressure ratings, materials, types, etc., as the ones being added via this modification package.

**Question 4 :**

The consequences of a malfunction of equipment important to safety will not be increased as a result of implementing this modification package. The modified piping is still all within the same localized area of the plant where the existing piping is located. No new leak paths for radioactive materials outside of the Unit 2 Auxiliary Building are produced by this modification. As previously noted, the modified piping is still all within the same localized area of the plant where the existing piping is located.



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Continued from 10CFR50.59 Safety Evaluation:

**Question 5 :**

The possibility of an accident of a different type than previously evaluated in the SAR will not be created by the addition of a new 3" dead-ended branch connection to lines 2DCB-1-4" and 2GCD-1-6". The revisions to the P&ID's to implement this modification show that these valves are to be normally closed. This package does not allow any temporary or permanent piping or fittings to be connected to the new 3" dead ended branch connections. No system operating, accident or functional modes have been changed or altered as a result of this modification.

The modified piping is still all within the same localized area of the plant where the existing piping is located. The piping and components being added or modified have all been qualified to the applicable ASME or ANSI code rules for all existing loading conditions. The existing system already contains similar ASME or ANSI valves and flanges, same pressure ratings, materials, types, etc., as the ones being added via this modification package.

**Question 6 :**

The possibility of a malfunction of equipment important to safety of a different type that any previously evaluated in the SAR will not be created as a result of implementing this modification package. The modified piping is still all within the same localized area of the plant where the existing piping is located. The piping modifications performed by this package do not significantly alter any existing requirements of the system such as flow, temperature, pressure, etc. The change out of a short section of existing straight pipe to add the required full size run tees with reducing outlet branches for the new 3" dead ended connections will not adversely affect any existing system calculations other than the deadweight and seismic qualification of the specific lines. These deadweight and seismic qualification revisions show that the system still meets all ASME/ANSI Code requirements and all ANO piping requirements.

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Continued from 10CFR50.59 Safety Evaluation:

**Question 7 :**

Addition of a new 3" dead-ended branch connection to lines 2DCB-1-4" and 2GCD-1-6" will not reduced any margin of safety as defined in the basis for any technical specification.

In section 3/4.5 – 4.5.2 of the Unit 2 Technical Specification for ECCS, under Surveillance requirements it states "Each ECCS subsystem shall be demonstrated OPERABLE:" followed by 4.5.2.h in this same section "by performing a flow balance test, during shutdown, following completion of modifications to the ECCS subsystem that alter the subsystem flow characteristics and verifying the following flow rates". This modification will add a new full run size tee with a 3" branch connection, a new 3" normally closed isolation valve (2SI-76), and a flange and blind on the other end of this valve. Replacing a short section of straight pipe with a tee of the same run size is not considered to change the flow characteristics of the HPSI system. The flow resistance through the run sides of the tee is slightly greater than a pipe, but not significantly greater, and is not considered to be changing the HPSI system's flow characteristics or flow balance. The dominant components that resist flows in the HPSI system are the flow orifices, throttle valves, and HPSI injection MOVs. Those components along with the HPSI pumps are the major contributors to determining where the pump curve and system curves intersect for defining the operating characteristics of the HPSI system. The addition of the tee and associated 3" dead ended connection only affects the swing 2P-89C pump's flow path into "A" HPSI train and this affect is insignificant.

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<b>ARKANSAS NUCLEAR ONE</b>		
FORM TITLE: <b>10CFR50.59 DETERMINATION</b>	FORM NO. <b>1000.131A</b>	REV. <b>003-04-0</b>

PAGE 3 REV. # 0 1 of 3

Document No. NCP 963089N201

Rev./Change No. 0

Title Removal of the 2A3 Current Limiting Reactor

Brief description of proposed change: This NCP will remove the current limiting reactor (CLR) 2X31 between 2A1 and 2A3 and splice the existing cables. This will reduce the voltage drop to bus 2A3. This NCP will also install additional bus bracing in 2A3 to provide a higher momentary fault current withstand capability that could be generated by the higher available fault currents due to the CLR removal.

Will the proposed Activity:

1. Require a change to the Operating License including:
 

Technical Specifications (excluding the bases)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Operating License?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Confirmatory Orders?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
  
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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
Core Operating Limits Report	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Fire Hazards Analysis?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Bases of the Technical Specifications?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Technical Requirements Manual?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
NRC Safety Evaluation Reports?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
  
3. Involve a test or experiment not described in the SAR?  
(See Attachment 2 for guidance)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
  
4. Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
  
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
  
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---
  
7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:
 

QAMO?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
E-Plan?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
  
8. Does this review depend on future NRC approval of other actions (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9)
 

	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

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**Basis for Determination (Questions 1, 2 & 3):** See attached form C

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☐ 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.**

DocumentSection

LRS:

Unit 2 50.59

All (2X31, 2A1, 2A3, "current limiting reactor", "bus bracing", "short circuit current", "350 w/10 MVA", "250 w/10 MVA", "rating w/10 switchgear"

Bul. 5-14-00

MANUAL SECTIONS:


Unit 2 SAR Chapter 8

8.3.1.1.8.5, 8.3.1.1.8.5, Table 8.3-2

FIGURES:

Unit 2 SAR Figures

1.2-4, 3.5-4, 3.8-29, 8.3-1, 8.3-4, 8.3-5, 8.3-25, 8.3-39 sh. 1, 9.5-4



Certified Reviewer's Signature

David A Robinson

Printed Name


03/13/00

Date

Reviewer's certification expiration date: 03/01/2001

Assistance provided by:

Printed Name

Brad Risner 

Scope of Assistance

LRS Search, SAR Search

Date

03/10/00

**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:

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**ENVIRONMENTAL IMPACT DETERMINATION  
(UNIT 1 and UNIT 2)**

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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

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

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10CFR50.59 Eval. No. FFN#00-072  
(Assigned by PSC)

Document No. NCP 963089N201

Rev./Change No. 0

Title Removal of the 2A3 Current Limiting Reactor

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 Form C

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

Yes ☐ No ☒See attached Form C

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

Yes ☐ No ☒See attached Form C

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

Yes ☐ No ☒See attached Form C

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

Yes ☐ No ☒See attached Form C

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 Form C

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

Yes ☐ No ☒See attached Form C

ARKANSAS NUCLEAR ONE

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*David A. Robinson*

David A. Robinson

03/13/00

Certified Reviewer's Signature

Printed Name

Date

Reviewer's certification expiration date: **03/01/2001**

Assistance provided by:

Printed Name

Brad Risner

Scope of Assistance

Initial Draft

Date

3-13-00

PSC review by:

*Mika Harris*

Date:

7/13/00



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Document No. NCP 983089N201

### 10CFR50.59 Review Continuation Page

#### **Basis For Determination:**

This NCP will remove the current limiting reactor (CLR) 2X31 between bus 2A1 and bus 2A3, splice the existing cables and adding approximately ten feet of cable tray to support the cables. This will reduce voltage drop to bus 2A3. This NCP will also install additional bus bracing in 2A3 to provide a higher momentary fault current withstand capability, that could be generated by the higher available fault currents, due to the CLR removal. This modification improves the voltage at 2A3 and 2B5 during heavily loaded and/or degraded voltage conditions.

Installation of DCP 963089D203 "2A3 Magneblast Breaker Replacement" and NCP 963474N201 "MCC Cubicle Replacement" are prerequisites to the installation of this NCP. These modifications (DCP and NCP) are replacing 4160 and 480 volt breakers with breakers that have adequate interrupting ratings for the new available fault current rating of the 2A3 and 480 volt buses. NCP 002370N201 "Electrical Uprate Package" is also a prerequisite to installation of this package because this NCP will be performing the short circuit evaluation and verifying that the breaker ratings are acceptable.

Question 1: NO

No mention of the current limiting reactor or the bus rating was found in the Tech. Spec., Operating License, or Confirmatory Orders, therefore, no changes are required to any of these documents.

Question 2: YES

The current limiting reactors are discussed in Chap. 8 of the Unit 2 SAR, Sections 8.3.1.1.8.1, 8.3.1.1.8.5 and the bus ratings are listed in Table 8.3-2. SAR Figures, as listed in the LDCR, show the current limiting reactor. These SAR Sections, Table and Figures will be revised to delete the reference to the CLR and show the appropriate bus ratings.

No mention of the current limiting reactor or the bus rating was found in the Core Operating Limits Report, FHA, Tech. Spec Bases, Technical Requirements Manual or the Unit 2 SER, therefore, no change are required to these documents.

Question 3: NO

No tests or experiments are required which will operate any component in a mode for which it has not been previously analyzed.

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Evaluation Questions:

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

This modification will improve the voltage profile for 4.16KV safety bus 2A3 and its connected loads during degraded voltage conditions, resulting in improved margins for components required for accident mitigation. This modification will not affect the probability of an accident previously evaluated in the SAR or change the frequency class of any accident. Thus, 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? NO

Removal of the current limiting reactor will have no effect on the consequences of any of the accidents evaluated in the SAR. The only affect of this modification will be improved voltages at bus 2A3. These modifications will not affect the actions described or assumed in the SAR or alter any of the assumptions made in evaluating the consequences of any accidents. This modification will also not affect any barriers which mitigate the dose to the public or result in any new pathways for release of radioactive material. Thus, there is no increase to the consequence of an accident previously evaluated in the SAR.

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

This modification is being installed to improve voltages to bus 2A3 by removal of the CLR. This will result in increased margins in operating voltages to safety related equipment supplied from bus 2A3 and further ensure their operation during degraded voltage conditions. Additional bracing is being installed on the 2A3 bus to increase the bus rating due to the increase in the maximum available short circuit current and the prerequisite modifications will ensure that the 2A3 and downstream breakers are adequately rated for this increase. Since the modification will result in improved operating conditions for safety related equipment, the probability of a malfunction of equipment important to safety will not be increased.

## ARKANSAS NUCLEAR ONE

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

NO

This modification does not affect any consequence from a malfunction of equipment important to safety. The removal of the CLR will increase the maximum available short circuit current at bus 2A3 from a fault on or downstream of the bus. However, additional bracing is being installed to increase the bus rating to allow it to withstand a fault at or downstream of the bus. Additionally, the prerequisite modifications will ensure the downstream breakers are also adequately rated for the increase in the short circuit current. Thus, the consequence of a malfunction of equipment supplied from bus 2A3 will not be affected by this change. No other malfunctions of equipment are related to this change.

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

This modification only removes the current limiting reactor between bus 2A1 and 2A3, splices the existing cables and braces the 2A3 bus to withstand higher momentary currents. None of these changes have the potential to 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?

NO

The only possible malfunction of equipment important to safety related to this change would be a loss of the 2A3 bus. A loss of one AC train has already been considered in the SAR. 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 by this change.

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

NO

No margins of safety could be found in the bases for the technical specifications which are related to current limiting reactors or bus ratings or otherwise related to this modification. There is no affect on any fission product boundaries.

III

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

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Document No. 963197N201

Rev./Change No. 0

Title REPLACE SG BLOWDOWN SODIUM ANALYZERS

Brief description of proposed change: SEE TITLE

Will the proposed Activity:

- NC 963197N201
- PAGE 7 REV 0
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: <b>10CFR50.59 DETERMINATION</b>	FORM NO. <b>1000.131A</b>	REV. <b>3 PC-1,2</b>

Document No. **963197N201**

Rev./Change No. **0**

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**NC 963197N201**

**PAGE 8 REV C**

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

The NC will disconnect the instrument air from 2AITS-5933/5935. This change will be shown on P&ID M-2237 sht 5 which is SAR Figure 9.3-2 sht 5.

☐ 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

(Sodium Analyzer, SG Blowdown, Steam Generator Blowdown, 2AITS-5933, 2AITS-5935, 2C377)

**MANUAL SECTIONS:**

**9.3.2.2.1**

**10.3.5**

**Primary Sampling System  
Water Chemistry**

**FIGURES:**

**Figure 9.3-2**

**P&ID Primary Sampling System (Water Analysis)**



Certified Reviewer's Signature

**STEVE CAPEHART**

Printed Name

**9-11-99**

Date

Reviewer's certification expiration date: **5/4/01**

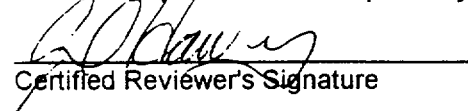
**Assistance provided by:**

Printed Name

Scope of Assistance

Date

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



Certified Reviewer's Signature

**John Harvey**

Printed Name

**9/12/99**

Date

ARKANSAS NUCLEAR ONE		
FORM TITLE: <b>10CFR50.59 DETERMINATION</b>	FORM NO. <b>1000.131A</b>	REV. <b>3</b>

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## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

NC 963197N201

Document No. 963197N201

Rev./Change No. 0

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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.

<b>ARKANSAS NUCLEAR ONE</b>		
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Document No. **NC 963197N201**

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**NC 963197N201**

**10CFR50.59 Review Continuation Page**

**PAGE 10 REV 0**

This Nuclear Change will replace Steam Generator blowdown sodium analyzers 2AITS-5933 and 2AITS-5935. This NC does not change the original design functions provided by this portion of the primary sampling system.

**QUESTION 1 – Operating License**

The type of S/G blowdown sodium analyzer used at ANO is not discussed in the level of detail present in the ANO-1 or ANO-2 Technical Specifications, Operating License or any Confirmatory Orders.

**QUESTION 2 – SAR Documents**

The type of S/G blowdown sodium analyzer used at ANO is not discussed in any of the SAR documents. However, the associated P&ID, M-2237 sht 5, is shown as SAR Figure 9.3-2 and this P&ID is being changed to reflect the disconnection of instrument air from the sodium analyzers.

**QUESTION 3 – Test or Experiment**

The post modification testing performed by this NC is within ANO procedures.

**QUESTION 4 – Environmental Impact**

The modifications made by this NC do not require an Environmental Impact Evaluation per the Environmental Impact Checklist.

**QUESTION 5 – Radiological Safety Evaluation**

The work performed by this NC will not affect the processing of radioactive material. The NC will not create new monitored ventilation or drainage pathways. There will not be any radioactive material generated as a result of this NC.

**QUESTION 6 – Ventilated Storage Cask**

The S/G blowdown sodium analyzers are not associated with the VSC project.

**QUESTION 7 – QAMO or E-PLAN**

The type of S/G blowdown sodium analyzers used at ANO are not reference in the QAMO or E-PLAN.



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10CFR50.59 Eval. No. FFN-99-109  
(Assigned by PSC)

Document No. 963197N101

Rev./Change No. 0

Title REPLACE SG BLOWDOWN SODIUM ANALYZERS

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 affected analyzers are used to monitor sodium concentration in the steam generator blowdown water. The analyzers do not interface with any equipment, piping etc that are considered accident initiators. 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 ☒

The analyzers do not interface with or affect the operating performance of the systems, structures and components required to mitigate the consequences of an accident. Therefore, the consequences of an accident previously evaluated in the SAR are not increased.

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

Yes ☐ No ☒

The analyzers are not considered equipment important to safety and do not physically or electrically interface with any equipment that is considered equipment important to safety. 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?

Yes ☐ No ☒

The analyzers do not interface with any equipment that is important to safety. The critical characteristics of equipment important to safety are not affected by the installation of the new analyzers. Therefore, the consequences of a malfunction of equipment important to safety are not increased.

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

Yes ☐ No ☒

The analyzers are not considered accident initiators and do not interface with equipment that is considered an accident initiator. The function of the steam generator blowdown sodium analyzers to monitor sodium concentrations in the SG water is unchanged by this modification. Therefore, the possibility of an accident of a different type than any previously evaluated in the SAR is not created.

- Yes ☐ No ☒

Yes ☐ No ☒

Date: \_\_\_\_\_

**112**

Document No. 963197N202

Rev./Change No. 0

Title REPLACE STARTUP BLOWDOWN DEMINERALIZER SODIUM ANALYZER 2AIT-4562Brief description of proposed change: SEE TITLE

Will the proposed Activity:

1. Require a change to the Operating License including:

NC 963197N202

Technical Specifications (excluding the bases)?

PAGE 5 REV 0 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 ☒

FORM TITLE:

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'3 PC-1.2

Document No. 963197N202Rev./Change No. 0Page 2 of 4  
NC 963197N202PAGE 6 REV 0**Basis for Determination (Questions 1, 2 & 3):**

The NC will delete 2FIC-4562 & 2SV-4563 and abandon 2IA-184, 2PCV-3000, 2BD-86 and 2AR-4562. These changes will be shown on P&ID M-2229 sht 1 which is SAR Figure 10.4-7.

☐ 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.**

DocumentSection

LRS:

ALL

(Sodium Analyzer, Startup Blowdown, Demineralizer, 2AIT-4562, 2C311)

## MANUAL SECTIONS:

10.4

Water Chemistry

## FIGURES:

Figure 10.4-7

P&amp;ID StartUp and Blowdown Demineralizer System

  
Certified Reviewer's Signature

STEVE CAPEHART

Printed Name

5-18-00  
DateReviewer's certification expiration date: 5/4/01

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 SignatureJohn Harvey  
Printed Name5-18-00  
Date

# ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

NC 963197N202

Document No. 963197N202Rev./Change No. 0

PAGE 7 REV 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:

YesNo☐☒

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:		ARKANSAS NUCLEAR ONE	FORM NO.	REV.
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Document No. NC 963197N202

Rev./Change No. 0

NC 963197N202

10CFR50.59 Review Continuation Page

PAGE 8 REV 0

This Nuclear Change will replace Startup and Blowdown Demineralizer sodium analyzer 2AIT4562. This NC does not change the original design functions provided by this analyzer.

QUESTION 1 – Operating License

The type of Startup and Blowdown Demineralizer sodium analyzer used at ANO is not discussed in the level of detail present in the ANO-1 or ANO-2 Technical Specifications, Operating License or any Confirmatory Orders.

QUESTION 2 – SAR Documents

The type of Startup and Blowdown Demineralizer sodium analyzer used at ANO is not discussed in any of the SAR documents. However, the associated P&ID, M-2229 sht 1, is shown as SAR Figure 10.4-7 and this P&ID is being changed to reflect deletion and abandonment of components associated with the old analyzers.

QUESTION 3 – Test or Experiment

The post modification testing performed by this NC is within ANO procedures.

QUESTION 4 – Environmental Impact

The modifications made by this NC do not require an Environmental Impact Evaluation per the Environmental Impact Checklist.

QUESTION 5 – Radiological Safety Evaluation

The work performed by this NC will not affect the processing of radioactive material. The NC will not create new monitored ventilation or drainage pathways. There will not be any radioactive material generated as a result of this NC.

QUESTION 6 – Ventilated Storage Cask

The Startup and Blowdown Demineralizer sodium analyzer is not associated with the VSC project.

QUESTION 7 – QAMO or E-PLAN

The type of Startup and Blowdown Demineralizer sodium analyzer used at ANO is not referenced in the QAMO or E-PLAN.

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10CFR50.59 Eval. No. FFN# 00-054  
(Assigned by PSC)

Document No. 973197N202

Rev./Change No. 0

Title REPLACE STARTUP AND BLOWDOWN DEMINERALIZER SODIUM ANALYZER 2AIT-4562

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 affected analyzer is used to monitor sodium concentration in the startup and blowdown demineralizer water. The analyzer does not interface with any equipment, piping etc that are considered accident initiators. 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 ☒

The sodium analyzer does not interface with or affect the operating performance of the systems, structures and components required to mitigate the consequences of an accident. Therefore, the consequences of an accident previously evaluated in the SAR are not increased.

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

Yes ☐ No ☒

The sodium analyzer is not considered equipment important to safety and does not physically or electrically interface with any equipment that is considered equipment important to safety. 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?

Yes ☐ No ☒

The sodium analyzer does not interface with any equipment that is important to safety. The critical characteristics of equipment important to safety are not affected by the installation of the new analyzer. Therefore, the consequences of a malfunction of equipment important to safety are not increased.

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

Yes ☐ No ☒

The sodium analyzer is not considered an accident initiator and does not interface with equipment that is considered an accident initiator. The function of the sodium analyzer to monitor sodium concentrations in the startup and blowdown demineralizer water is unchanged by this modification. Therefore, the possibility of an accident of a different type than any previously evaluated in the SAR is not created.



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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? PAGE 10 REV 0  
Yes ☐ No ☒

The sodium analyzer is not considered equipment important to safety and does not interface with any equipment that is considered important to safety. Therefore, the possibility of a malfunction of equipment important to safety of a different type 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? Yes ☐ No ☒

The type of analyzer used to monitor sodium concentrations in the startup and blowdown demineralizer water is not discussed in the basis of any technical specifications. The measuring range of the new analyzer is equivalent to the existing sodium analyzer. Therefore, the margin of safety as defined in the basis for any technical specification is not reduced.

Steve Capehart STEVE CAPEHART 5-18-00  
 Certified Reviewer's Signature Printed Name Date

Reviewer's certification expiration date: 5/4/01

Assistance provided by:

Printed Name Scope of Assistance Date

PSC review by: [Signature] Date: 6/15/2000

**113**

**ARKANSAS NUCLEAR ONE**

FORM TITLE:

**10CFR50.59 DETERMINATION**

FORM NO.

**1000.131A**

REV.

**003-04-0**

This Document contains 3 Pages.

Document No. **NCP 963474N201 IP**

Rev./Change No. **0**

Title **480 V MCC Cubicle Replacement**

Brief description of proposed change: **Unit 2 480 VAC MCC cubicles 2B32C7, 2B53K5, 2B53K6, 2B53L1, 2B53L2 and 2B54A4 will be replaced with new cubicles containing Siemens components. ITE type EH breakers in cubicles 2B12B3, 2B12B4, and 2B12K3 will be replaced with ITE type HE breakers.**

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 ☒

8. Does this review depend on future NRC approval of other actions (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9)

Yes ☐ No ☒

FORM TITLE:		ARKANSAS NUCLEAR ONE	FORM NO.	REV.
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Document No. NCP 963474N201 IP

Rev./Change No. 0

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

**The replacement of the MCC cubicles and breakers will be accomplished during refueling outage 2R14. Replacement activities will be under the control of the Shut Protection Plan. Responses to all questions on page 1 of this review are equivalent to the NCP 10CFR50.59 review responses except a SAR revision is not required for question 2. Replacement activities will be controlled per existing plant procedures, and no changes to the Unit 2 SAR is required for construction and maintenance activities. Testing activities are being controlled per the NCP tests and inspections / acceptance criteria instructions.**

☐ 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 (MCC, CPT\*, overload\*, 2B12\*, 2B32\*, 2B53\*, 2B54\*, and "circuit breaker")

**MANUAL SECTIONS:**

Unit 2 SAR

SAR Chapter 8, and Sections 3.10.2.2.3, 3.11.1, and 7.4.1.1.

Unit 2 Technical Specifications

Tech. Specs. 3.8.2.2, 3.8.2.5, 4.8.2.5, 3.1.2.3, and 3.1.2.4.

Unit 2 Tech. Spec. Bases

Tech. Spec. Bases 3 / 4.8

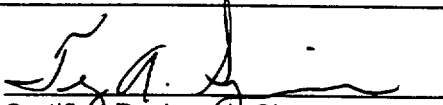
Unit 2 SER

SER Amend 35, 69, and 208.

**FIGURES:**

Unit 2 SAR

SAR Chapter 8 Figures

  
Certified Reviewer's Signature

Terry Allen Sizemore

Printed Name

6/12/2000  
Date

Reviewer's certification expiration date: 7/19/2000

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

JOHN PRZYBYS

Printed Name

6/12/00  
Date

FORM TITLE:

## ARKANSAS NUCLEAR ONE

10CFR50.59 DETERMINATION

FORM NO.

1000.131A

REV.

003-04-0

**ENVIRONMENTAL IMPACT DETERMINATION  
(UNIT 1 and UNIT 2)**Document No. **NCP 963474N201 IP**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:

YesNo☐☒

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

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1000.131B

REV.

003-04-0

This Document contains 1 Page.

10CFR50.59 Eval. No. FFN# 00-074  
(Assigned by PSC)Document No. NCP 963474N201Rev./Change No. 00Title 480 V MCC Cubicle 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 basis for any technical specification be reduced? Yes ☐ No ☒

9

01

Robert J Buser  
Certified Reviewer's SignatureRobert Buser  
Printed Name6/27/2000  
DateReviewer's certification expiration date: 04/07/2001

Assistance provided by:

Printed Name

Scope of Assistance

Date

PSC review by: Michael HamiDate: 7/13/00

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Rev./Change No. 00

10CFR50.59 Review Continuation Page

50.59 Evaluation Continuation

1  
NCP

NCP 963474N201 will replace MCC cubicles 2B32C7, 2B53K5, 2B53K6, 2B53L1, 2B53L2, and 2B54A4 with MCC cubicles utilizing Siemens components. Cubicles 2B53L1 and 2B53L2 which are currently 24" high will be changed to 30" to allow adequate room for cables. ITE type EH breakers in cubicles 2B12B3, 2B12B4, and 2B12K3 will also be replaced with ITE type HE breakers under this NCP. ITE type HE breakers are being installed due to their higher interrupt ratings. The control scheme and function of the MCC cubicles will remain unchanged. The new MCC cubicles will contain currently available Siemens components with greater or equal ratings to the original components. Larger Control Power Transformers (CPT's) will be supplied with the new cubicles to provide additional margin for future use. Breaker sizes for some cubicles will be changed. Breakers and overloads installed will be appropriately sized as documented in design calculations.

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

A review of chapter 15 of the Unit 2 SAR did not reveal any accidents affected by this modification. Table 8.3-8 of the Unit 2 SAR "480-VOLT ENGINEERED SAFETY FEATURES SYSTEM SINGLE FAILURE ANALYSIS" addresses the loss of 480V MCC Feeders or 480 Volt Loads. This failure addresses all possible failures related to this modification package. This modification package will not affect the probability of any accidents listed in chapter 15 of the Unit 2 SAR.

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

This modification will not cause the radiation dose consequences of any accident in chapter 15 of the Unit 2 SAR to be changed. Operation of plant systems will not be affected by this modification. This modification will not change, degrade, or prevent actions described or assumed in an accident discussed in the SAR. No assumptions made previously in evaluating the consequences of an accident will be affected. Mitigation of the consequences of accidents in the Unit 2 SAR will be unaffected. Barriers and pathways for release of radiation and radioactive material are unaffected by this modification. No equipment will be moved and access to vital areas is unaffected.

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

The probability of a malfunction of equipment important to safety will be reduced by this modification. Equipment procured under this modification for safety related applications was procured in accordance with approved ANO specifications and 10CFR50 App B and Part 21. Specifications included applicable electrical and seismic requirements. Installations of larger CPT's will reduce control circuit undervoltage concerns and installation of Siemens type FXD breakers will improve interrupt capability in the event of a fault. Breakers and overloads are sized appropriately in accordance with ANO calculations.

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

The offsite dose consequences will either be reduced or unaffected by this modification. The consequences of a malfunction of equipment important to safety will be decreased by this modification. The installation of Siemens type FXD breakers with increased interrupt capability will reduce the consequences of a fault or short circuit on the load side of the MCC. The increased CPT sizing will reduce the consequences of a failure of a control component. Penetration protection and device protection will remain unchanged as shown in ANO calculations. Therefore, this modification will reduce the likelihood that equipment needed to mitigate offsite or onsite dose would be rendered inoperable.

10 01

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10CFR50.59 Review Continuation Page

50.59 Evaluation Continuation

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

This modification will not alter the circumstances from those considered by previous accident analysis. Since the functions of the systems affected by this modification are unchanged, no new failures or accidents of a different type than previously analyzed in the SAR are created. Table 8.3-8 of the Unit 2 SAR "480-VOLT ENGINEERED SAFETY FEATURES SYSTEM SINGLE FAILURE ANALYSIS" addresses the loss of 480V MCC Feeders or 480 Volt Loads. This failure addresses all possible failures related to this modification package.

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

Table 8.3-8 of the Unit 2 SAR "480-VOLT ENGINEERED SAFETY FEATURES SYSTEM SINGLE FAILURE ANALYSIS" addresses the loss of 480V MCC Feeders or 480 Volt Loads. This failure/malfunction addresses all possible failures related to equipment important to safety affected by this modification. No new failure modes, malfunctions, or failure initiators are created by replacement of the MCC cubicles or breakers. ANO calculations have been performed to verify seismic and electrical qualifications are maintained. All failures/malfunctions are bounded by previous analysis.

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

Section 3/4.8 of the Unit 2 TS Bases "Electrical Power Systems" was reviewed. This modification will not affect the minimum specified redundant AC and DC power sources and distribution systems. Containment electrical penetration protection is also unaffected by this modification as demonstrated by associated calculation. No margins of safety were affected by this modification.

11 01



**114**

Document No. NC 974094N201Rev./Change No. 0Title Upgrade of the Refueling Machine Control Console Computer

Brief description of proposed change: This change will replace the existing outdated and antiquated hardware on the control console for the Refueling Machine. The hardware will include, among others, new design touch screen monitor. In addition, other software changes will be made to increase the efficiency and improve ease of operations. These changes will, in no way, affect the safety features built-in the computer software.

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: <b>10CFR50.59 DETERMINATION</b>	FORM NO. <b>1000.131A</b>	REV. <b>' 003-03-0</b>

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Document No. **NC 974094N201**

Rev./Change No. **0**

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

**Question 1** This change will replace the existing computer hardware, including some changes to the software, on the Refueling Machine control console. The Technical Specifications, Operating License, and Confirmatory Orders do not specifically address the computer and associated software and none of these documents will be changed as a result of the installation of this change.

**Question 2** Although the control console, as part of the refueling machine, is mentioned in the LBD's, none of these documents listed addresses the computerized functions of the console in sufficient detail to require revision with the exception of hoist speed interlock in the SAR. Therefore, only revision to the SAR will be required.

**Question 3** This change does not involve any tests or experiments 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:

All (control console, refueling machine control console, refueling machine console, console computer, refueling machine hoist, refueling machine, 2C405, 2H-1)

**MANUAL SECTIONS:**

Unit-2, SAR Section 9.1.4

**FIGURES:**

Unit-2, SAR Figures 9.1-5 and 9.1-6

  
Certified Reviewer's Signature

Saif U. Khan  
Printed Name

7/15/00  
Date

Reviewer's certification expiration date: 05/03/01

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

David Thompson  
Printed Name

7-31-2000  
Date

**PAGE 4 REV. 0**

## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. NC 974094N201Rev./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:

YesNo

- |                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

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10CFR50.59 Eval. No. FFN# 00-088  
(Assigned by PSC)

Document No. NC 974094N201

Rev./Change No. 0

Title Upgrade of the Refueling Machine Control Console

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.

**BRIEF DESCRIPTION OF SAR CHANGE:**

Currently Paragraph I of Section 9.1.4.5.1 states that the hoist is in slow speed while fuel assembly is within the core. This interlock prevents fast speed movements of the hoist even when the fuel assembly is in clear water position. The clear water position is defined as when the fuel assembly is within the core zone but is positioned such that spacer grids interaction is not possible. This fast hoist speed feature was discussed with the vendor and they had no problems as long as the fuel movements are made in open water. This feature is programmed in the computer to allow hoist fast speed in the core region to take advantage of the open water moves. Administrative controls will assure that fast speed hoist controls are used only when an assembly is in open water. The fuel handler must use the newly installed off-index bypass pushbutton in order to raise/lower a fuel assembly in fast speed. This feature will not affect safety features and other protective devices built into the refueling machine to minimize the possibility of mishandling or equipment malfunctions.

The hoist fast speed feature was added to the Unit-1 Main Bridge prior to 1R15.

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 ☒

No. The addition of hoist fast speed feature will be used only during clear water positions and under the direction of SRO responsible for refueling operations. This feature will not reduce the reliability of overall refueling operations. This new feature is not considered an accident initiator. Administrative controls and physical limitations will be implemented by procedure OP 2503.003, "Operation of Refueling Equipment". Also, all refueling operations are conducted in accordance with prescribed procedures under direct surveillance of qualified supervisor. The refueling machine will still perform as originally designed. This new feature would not cause the probability of accident to be increased from one category to the next higher category or even a significant movement within a category. Therefore, the probability of 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 ☒

No. Fuel handling equipment serves no accident mitigation function. The equipment is not credited with mitigating consequences of fuel handling accident. Therefore, this new feature will not increase the consequences of an accident previously evaluated in SAR.

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

Yes ☐ No ☒

No. The addition of hoist fast speed feature will provide operational flexibility without reducing the reliability of refueling equipment. This new feature only affects the refueling machine, which is non-safety-related system. Therefore, the probability of 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 ☒

No. The addition of hoist fast speed feature will provide operational flexibility without reducing the reliability of refueling equipment. This new feature only affects the refueling machine, which is non-safety-related system. 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 ☒

No. The intended design function of the refueling machine with respect to refueling operations will not be changed following the implementation of hoist fast speed feature. Therefore, the possibility of an accident of a new type 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 ☒

No. The refueling machine is not required to mitigate the design basis events and no changes are being proposed that would have any impact on the reliability of any existing equipment important to safety. Also, the new feature only affects the refueling machine, which is non-safety-related. Therefore, the possibility of equipment malfunctions of a different type than any evaluated previously will not be created.

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

Yes ☐ No ☒

No Technical Specification bases are impacted by the added feature to the refueling machine. Therefore, the margin of safety as defined in the bases for any technical specifications will not be affected.

  
 Certified Reviewer's Signature

Saif U. Khan  
 Printed Name

7/15/00  
 Date

Reviewer's certification expiration date: 05/03/01

Assistance provided by:

Printed Name

Scope of Assistance

Date

PSC review by:  Date: 8/10/00

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This Document contains 3 Pages.

Document No. 974342N201

Rev./Change No. 0

Title 2PSV-5653 AND 2PSV-5654 FLANGE ADDITION

Brief description of proposed change:

This Nuclear Change will add a flange pair on each side of Containment Spray relief valves 2PSV-5653 and 2PSV-5654. This will allow the valves to be easily removed for maintenance. There will be no change to the function or operation of the system as a result of this Nuclear Change. The planned modifications to the piping systems have been qualified for the seismic category I and other applicable 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 ☒

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

1. The flanges added by this Nuclear Change are passive piping components and do not change the function or operation of the system. There is nothing in the Operating License that will be required to be changed as a result of this Nuclear Change.
2. Unit 2 SAR Figure 6.2-17 (P&ID M-2236, sht. 1) will be revised to reflect the additional flanges added by this Nuclear Change. Section 6.2.2.2.1 of the Unit 2 SAR will require revision to note that the flanges which are being added are an exception to using welded joints in the system.
3. There are no tests or experiments as described in the SAR involved with this Nuclear 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: 2 50.59 (2PSV\*5653, 2PSV\*5654, "containment spray", "relief valve", flange\*, ESF w/50 leak\*, ECCS w/50 leak\*)

MANUAL SECTIONS: 2SAR 6.2.1, 6.2.2, 15.1.13, Table 15.1.13-5

FIGURES: 2SAR Fig. 6.2-17



Certified Reviewer's Signature

Keith Butler

Printed Name

12/14/99

Date

Reviewer's certification expiration date: 3/25/01

Assistance provided by:

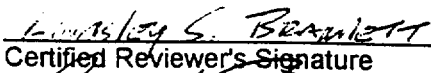
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Scope of Assistance

Date

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



Certified Reviewer's Signature



Printed Name

1/24/2000  
Date



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## ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

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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:

- | <u>Yes</u>               | <u>No</u>                           |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase thermal discharges to lake or atmosphere?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of cooling tower which will change drift characteristics?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Install any new transmission lines leading offsite?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharges any chemicals new or different from that previously discharged?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve incineration or disposal of any potentially hazardous materials on the ANO site?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a change to nonradiological effluents or licensed reactor power level?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.   |

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This Document contains 2 Pages.

Document No. 974342N201 Rev./Change No. 0 10CFR50.59 Eval. No. 00-038  
(Assigned by PSC)  
Title 2PSV-5653 and 2PSV-5654 Flange 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 ☒

No. The flanges being added are passive components and do not change the function or operation of the system. The piping system will remain qualified in accordance with the ASME Section III, Class 2 Code for the seismic Category I and other applicable loads. This modification does not affect any of the initiators of any of the events evaluated in the SAR.

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

This modification will add flange pairs which introduces two potential leak paths in the Containment Spray System. The number of flanges is a factor in determining the ECCS leakage as determined in Calculation 97-R-2002-01. The calculated leakage from Calculation 97-R-2002-01 is shown in SAR Table 15.1.13-5 and affects the dose calculations as discussed in SAR section 15.1.13.4. Section 15.1.13 discusses the Large Break LOCA Accident. ER 974342N201 has been issued from Nuclear Engineering Design which concludes that the total leakage with the inclusion of the flanges is still less than the leakage estimated in chapter 15 of the SAR. Based on this response, it is concluded that the dose consequences of a LOCA as discussed in SAR section 15.1.13.4 will not be increased.

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

The flanges being added by this modification package will not change the function or operation of the system. The flanges on the safety related upstream side of the valve are constructed in accordance with the ASME Section III, Class 2 Code of the material as specified for the applicable line class 2HCB in Specification ANO-M-2555. The piping system is qualified in accordance with the ASME Section III, Class 2 Code for the addition of the flanges. Since the system function and operation will not change, and the flanges meet all the design requirements of the system, this modification will not cause the probability of a malfunction of equipment important to safety to be increased.

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

The flanges being added by this Nuclear Change are passive piping components that do not change the function or operation of any equipment important to safety. The addition of the flanges will not change the method of failure or have any affect on the consequences of a malfunction of any

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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 flanges being added by this Nuclear Change are passive piping components that do not change the function or operation of any system. The addition of the flanges meets the design requirements for the system. The addition of the flanges does not cause any condition that is different than the existing system such that an accident of a different type than previously evaluated in the SAR could 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?

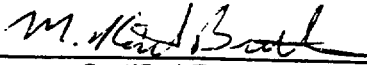
Yes ☐ No ☒

This Nuclear Change does not constitute a functional change in any system as evaluated in the SAR. The flanges being added are passive piping components which do not have any interaction with any equipment important to safety in any way that is different than the existing configuration. There are no new postulated failure modes for any equipment important to safety as a result of this modification.

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

Yes ☐ No ☒

There are no margins of safety as defined in the bases for any technical specification that are related in any way to the addition of flanges as installed by this Nuclear Change.



Certified Reviewer's Signature

Keith Butler

Printed Name

12-15-99

Date

Reviewer's certification expiration date: 3/25/01

Assistance provided by:

Printed Name

N/A

Scope of Assistance

Date

PSC review by:



Date: 4/20/2000

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