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ER992	2124E201		ARKANSAS NUCLEAR ONE		Page 10
FOR	M TITLE:			FORM NO.	REV.
				1000.131A	3 PC-1
				This Document conta	ains 3 Pages.
Docu	iment No.	ER992124E201	Rev./Change No	. 0	
Title		Work Plan 2409.654 - Alternate A	ACW Return Path for 2CV-1481-1 Mair	itenance.	
Brief	description	of proposed change:			
In s To Out 2E <sup>2</sup> con Aite	Support of n prevent sea tlets from 2 134A/B, 2E htrolled by V erations.	naintenance and testing of 20 curing Condenser Vacuum Sy E46A/B (Vacuum Pump Seal 135A/B (Control Room Chille Vork Plan 2409.65 <u>4</u> which me	CV-1481-1, a portion of the ACW ystem and Control Room Chiller Water Cooler), 2E10 (Steam Pa r Condensers) to be routed to flo eets the requirements of Proced	Return header needs s it is desired to allow acking Exhauster Cool oor drains. This activity ure 1000.028, Control	to be isolated. the ACW er) and will be of Temporary
Will t	he propose	d Activity:			
1.	Require a	change to the Operating Lice	ense including:		
	Technical	Specifications (excluding the	bases)?	Y	′es□ No⊠
	Operating	License?		Y	′es□ No⊠
	Confirmat	ory Orders?		Y	′es□ No⊠
2.	Result in i (a) no lon	nformation in the following S/ ger true or accurate, or (b) vio	AR documents (including drawin plate a requirement stated in the	gs and text) being document:	
	SAR (mul	ti-volume set for each unit)?		Y	′es⊠ No⊡
	Core Ope	rating Limits Report?		Y	′es□ No⊠
	Fire Haza	rds Analysis?		٢	′es□ No⊠
	Bases of	he Technical Specifications?		Y	′es□ No⊠
	Technical	Requirements Manual?		Ŷ	′es□ No⊠
	NRC Safe	ty Evaluation Reports?		Y	′es□ No⊠
3.	Involve a (See A	test or experiment not descrit ttachment 2 for guidance)	bed in the SAR?	Ŷ	′es□ No⊠
4.	Result in Impact De	a potential impact to the envir etermination of this form.)	ronment? (Complete Environme	ntal Y	′es□ No⊠
5.	Result in	he need for a Radiological S	afety Evaluation per section 6.1.	<b>5?</b> Y	′es□ No⊠
6.	Result in utilized fo	any potential impact to the eq r Ventilated Storage Cask act	uipment or facilities ivities per Section 6.1.6?	Y	′es□ No⊠
7.	Involve a per Sectio	change under 10CFR50.54 fo on 6.1.7?	or the following SAR documents		
	QAMO?			٢	∕es∏ No⊠
	E-Plan?			١	∕es□ No⊠

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

Document No. ER992124E201

Rev./Change No. 0

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.

Document Section

LRS: 50.59 – Common All ("Control Room Chiller"; "Control Room w/10 Ventilation") 50.59 – Unit 2 All ("ACW"; Auxiliary Cooling Water")

Figure 9.2.1 and 3.2-3

MANUAL SECTIONS:

FIGURES: Unit 2-SAR

- Wann	John Harvey	11/11/99
Certified Reviewer's Signature	Printed Name	Date
V 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

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ER992124E201	ARKANSAS NUCLEAR ON	E	Page 12
FORM TITLE:	10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV.

# 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>	
		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.
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?
	$\boxtimes$	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?
	$\boxtimes$	Install any new transmission lines leading offsite?
	$\boxtimes$	Change the design or operation of the intake or discharge structures?
	$\boxtimes$	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?
	$\boxtimes$	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	$\boxtimes$	Result in a change to nonradiological effluents or licensed reactor power level?
	$\boxtimes$	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

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TORM HILE: 10CFR50.59 SAFETY EVALUATION	FORM NO.	REV.
	This D	3 PC-2
	I his Document conta	ains 2 Pages.
Document No. ER992124E201 Rev /Change No. 0		6 FFALCO INT
Title Work Plap 2409 654 - Alternate ACIM Deturn Dett 1 - Deturn Dett	(Assigned by PS)	0. 1 <u>71/103</u> C)
The Train for 200-1481-1 Maintenance.		
A WRITTEN RESPONSE PROVIDING THE BASIS FOR THE ANSWER TO ATTACHED. EACH QUESTION MUST BE ANSWERED SEPARATELY. A CONCLUSION IS NOT SUFFICIENT. ATTACHMENT 2 PROVIDES GUIDA	EACH QUESTION MI SIMPLE STATEMENT NCE FOR RESPONSI	JST BE COF E.
If the answer to any question on this form is "Yes," then an unreviewed safety to all questions is "No," then the proposed change does not involve an unrevi	question is involved. ewed safety question.	If the answer
<ol> <li>Will the probability of an accident previously evaluated in the SAR increased?</li> </ol>	be Yes 🗌 N	lo 🛛
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.	1 <b>e</b> 1	
2. Will the consequences of an accident previously evaluated in the S be increased?	AR Yes 🗌 N	lo 🖂
The temporary changes allowed by ER992124E201 will not allow the affected components to operate outside their existing control bands. In doing there will be no change in the off-site dose consequence of any accident previously evaluated in the SAR.	50	
3. Will the probability of a malfunction of equipment important to safet increased?	ybe Yes 🗌 N	io 🖂
The temporary changes allowed by ER992124E201 will not allow the affected components to operate outside their existing control bands. Th ACW diverted to the floor drains will not impact the Emergency Cooling Pond (ECP) since the normal supply will be Lake Dardenelle and ACW isolated on accidents that automatically swap the SW supplies to the E The probability of a malfunction of equipment important to safety will not increased.	ne i is CP. ot be	
4. Will the consequences of a malfunction of equipment important to safety be increased?	Yes 🗌 🛛 N	io 🖂
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 safe and therefore will not impact the offsite dose consequence associated to the failure of equipment important to safety.	ie ty with	
<ol> <li>Will the possibility of an accident of a different type than any previo evaluated in the SAR be created?</li> <li>Since ACW will still be supplying the cooling water to the affected components, the cooling water supply for the affected components has change from the analyzed condition. Adequate flow rates through the components to drains will be verified for any previous of the strong the supply for the strong the supply for the strong the strong the supply for the strong the strong the supply for the strong the stro</li></ol>	not	lo 🔀
possibility of an accident of a different type than previously identified in SAR will not be created.	s the	

ER992124E201 ARKANSAS NUCLEAR ONE		Page 14				
FORM TITLE:	FORM NO.	REV.				
10CFR50.59 SAFETY EVALUATION	1000.131B	3 PC-2				
6. Will the possibility of a malfunction of equipment important to safety different type than any previously evaluated in the SAR be created? Since ACW will still be supplying the cooling water to the affected components, the cooling water supply for the affected components has change from the analyzed condition. Adequate flow rates through the components to drains will be verified for proper operation. The possibilit a malfunction of equipment important to safety of a different type than previously evaluated in the SAR will not be created.	y of a Yes □ not y of	No 🖾				
<ul> <li>7. Will the margin of safety as defined in the basis for any technical specification be reduced?</li> <li>This change is below the scope of the technical specification basis.</li> </ul>	Yes 🗌	No 🖾				
Certified Reviewer's Signature Printed Name		Date				
Reviewer's certification expiration date: <u>12/11/99</u> Assistance provided by:						
Printed Name Scope of Assistance		Date				
PSC review by:	Date: _	.11/12/99				

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					Pg 7		
ER99	2141E202, TA	00-2-009	ARKANSAS NUC	LEAR ONE	FORM NO	DEV	Page 1
		10CFR50.59 DETERMI			1000.131A		)3-04-0
					This Document conta	ins 4 F	Pages.
Docu	ument No.	ER992141E202 / TA 00-2-0	09	Rev./Change No.	0		
Title		Temporary 480VAC Power	for the 2R14 T	urbine Work			
Brief Thi bui trar sys be sep load the plan	description s Temporary Iding. This p Insformer. The located in the oration issue d center. This se cables will or to the outa nt reaches co	a of proposed change: Alteration and the associated ER wower will be supplied from 2P3B Cluss TA will be inservice while the plateve to be operable. The temporate tube pulling pit area. The 6900VA is or fire loading issues. The 480V, is distance will be extremely short, loe energized until the plant has rege while the plant is in power ops. Id shutdown.	vill provide 2400 a irc Water Pump E ant is in cold or r ry transformer wi IC cable will be ru AC cabling will b and will be dang eached cold shut None of this cab	amp capability of ten Breaker 2H20, through efueling shutdown, o Il be connected to a f In all by itself in temp e run in tray or on the er flagged and mecha down. Note: Some o ling or conduit will b	aporary 480VAC power to h a temporary 6900/480V luring which time the circlemporary load center, be porary conduit so there we e floor between the trans anically protected as app f the cabling and conduit we connected to plant equ	the turi AC step culating oth of w vill be no former a licable. will be ipment	bine -down water hich will o and the None of installed until the
Will 1	the propose	ed Activity:					
1.	Require a	change to the Operating Lice	ense including:				
	Technical	Specifications (excluding the	bases)?		١	∕es□	No⊠
	Operating	License?			١	∕es□	No⊠
	Confirmat	ory Orders?			١	∕es□	No⊠
2.	Result in (a) no lon	information in the following SA ger true or accurate, or (b) vic	AR documents plate a requiren	(including drawing nent stated in the	gs and text) being document:		
	SAR (mu	ti-volume set for each unit)?			Ň	∕es⊠	No
	Core Ope	erating Limits Report?			Ŋ	∕es⊟	No⊠
	Fire Haza	rds Analysis?			Ň	∕es□	No🛛
	Bases of	the Technical Specifications?			Ň	∕es□	No🖾
	Technica	Requirements Manual?			Ň	∕es□	No⊠
	NRC Safe	ety Evaluation Reports?			Ň	∕es□	No⊠
3.	Involve a (See A	test or experiment not describ Attachment 2 for guidance)	bed in the SAR	?	Ň	∕es[]	No⊠
4.	Result in. Impact D	a potential impact to the envir etermination of this form.)	ronment? (Con	nplete Environmer	ntal .	∕es□	No⊠
5.	Result in	the need for a Radiological Sa	afety Evaluatio	n per section 6.1.	5?	Ƴes⊡	No⊠
6.	Result in utilized fo	any potential impact to the eq or Ventilated Storage Cask act	luipment or fac tivities per Sec	ilities tion 6.1.6?		Ƴes□	No⊠
7.	Involve a per Secti	change under 10CFR50.54 fo on 6.1.7?	or the following	SAR documents			
	QAPM?					Ƴes□	No⊠
	E-Plan?					Yes	No🛛
8.	Does this (NRC SE	review depend on future NR R, Relief, etc)? (forward chan	C approval of c ige to PSC per	other actions? 6.3.8 or 6.3.9)		Yes	No⊠

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

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

## 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.

Document Section

A A

All ("CW w/10 breaker", "Circ\* w/10 shutdown", "electrical distribu\*", "temporary power", "electrical separa\*", "cable separa\*", "raceway", "transient combustibles", "PVC", LRS: 50.59 – Unit 2 "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

8/4/00	John Ekis	In/15	
Date	Printed Name	Certified Reviewer's Signature	
	3/31/01	Reviewer's certification expiration date:	
		Assistance provided by:	
Date	Scope of Assistance	Printed Name None	
	NA, if performed by Technical Reviewer per 1/	Search Scope Review Acceptability (	

Rertified Reviewer's Signature

MILHAEL R. C.

				Pg 9	_
FORM	TITLE:	ARKANS	AS NUCLEAR ONE	FORM NO.	Page 3 REV.
		10CFR50.59 DETERMINATIO	N	1000.131A	003-04-0
		ENVIRONMENTAL (UNIT	IMPACT DETERM 1 and UNIT 2)	IINATION	
Docume	ent No.	ER992141E202 / TA 00-2-009	Rev./Change No.	0	
Complet required	te the foli I. See So	lowing Determination. If the answer ection 6.1.4 for additional guidance.	to any item below is "	Yes", an Environmenta	I Evaluation is
Will the	Activity b	eing evaluated:			
Yes	<u>No</u>				
		Disturb land that is beyond that buildings, creation or removal of 2.5-17. This applies only to area	initially disturbed durin ponds, or other terres as outside the protecte	g construction (i.e., nev trial impact)? See Unit d area.	v construction of 2 SAR Figure
	$\boxtimes$	Increase thermal discharges to I	ake or atmosphere?		
	$\boxtimes$	Increase concentration of chemi tower?	cals to cooling lake or	atmosphere through di	scharge canal or
	$\boxtimes$	Increase quantity of chemicals t tower?	o cooling lake or atmo	sphere through dischar	ge canal or
	$\boxtimes$	Modify the design or operation of	of cooling tower which	will change drift charac	teristics?
	$\boxtimes$	Install any new transmission line	es leading offsite?		
	$\boxtimes$	Change the design or operation	of the intake or discha	irge structures?	
	$\boxtimes$	Discharges any chemicals new	or different from that p	reviously discharged?	
	$\boxtimes$	Potentially cause a spill or unev water or ground water?	aluated discharge whic	ch may effect neighbori	ng soils, surface
	$\boxtimes$	Involve burying or placement of surface water or ground water?	any solid wastes in the	e site area which may e	effect runoff,
	$\boxtimes$	Involve incineration or disposal	of any potentially haza	rdous materials on the	ANO site?
	$\boxtimes$	Result in a change to nonradiol	ogical effluents or licen	sed reactor power leve	!?
	$\boxtimes$	Potentially change the type or ir ANO site.	ncrease the amount of	non-radiological air em	issions from the

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ER992141E202, Rev. TA 00-2-009	ARKANSAS NUCLEAR ONE		Page 4
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Rev./Change No. 0

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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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FORM TITLE:		FORM NO.	REV.
10CFR50.59 S	AFETY EVALUATION	1000.131B	003-04-0

This Document contains 3 Pages.

No 🖾

Document No.	ER992141E202 TA-00-2-009	Rev./Change No.	0	10CFR50.59 Eval. No.	FFN#00-093
		•		(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	Yes 🗌	No 🖂
	increased?		

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 Yes increased?

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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FOR	RM TITLE:	10CFR50.5	9 SAFETY EVALUATI	ON	FORM NO 1000.1	).  31B	REV. 003-04-0
3.	Will the pr increased No equipm bus and the cabling and equipment the tube pu any safety will not res the probab	robability of a light ent important to e Circulating W d raceway will r . The temporar ulling pit area of related SSC's. ult in any safety illity of a malfun	malfunction of equips o safety is impacted by later system are non-Q not be routed on, above ry transformer and load f the turbine building, w A failure of any of the y-related equipment be inction of safety related	ment important to safe this activity. Both the 2 SSC's. The temporary e, or around any SR center are being instal hich is not in the vicinity equipment used by this ing out of service. The equipment is not increas	ety be 2H2 led in y of a TA refore, sed.	Yes 🗌	No 🖾
4.	Will the co increased Neither the any accide matter of fa shutdown a site dose of	onsequences of 2 2 2H2 bus nor to ent or to mitigato act, both of the and refueling so caused by the in	of a malfunction of eq he Circulating water sy e the malfunction of eq se systems are normal hutdown. Therefore, th nstallation of this TA.	guipment important to estem is relied upon to n uipment important to sa ly out of service during here can be no increase	<i>safety be</i> hitigate fety. As a cold in the off-	Yes 🗌	No 🖾
5.	Will the period evaluated The only a be the los Since this conditions type. All normal we will have possibility SAR.	ossibility of an in the SAR be accident that co s of the 2H2 bu s bus is normall s, obviously it's of the temporan ork practices, a on existing plan y of an accident	n accident of a difference e created? ould be postulated as a us due to overload, or i ly deenergized during of loss would not be con- ry equipment, cable, ar and safety precautions, nt equipment is on the t being created of a diff	nt type than any previ result of this TA, would mproper installation of t cold and refueling shutd sidered an accident of a nd raceway will be instal and the only interface t 2H2 bus. Therefore the ferent type than evaluate	ously I possibly he TA. own different led using hat the TA ere is no ed in the	Yes 🗍	No 🖾
6.	Will the p different The only 2H2 bus, refueling safety-rel (Note: Th penetrati serve this All of the the Turbi equipme	ossibility of a type than any type of malfund however, this l shutdown. Als lated equipmen the 2H2 bus doe ons from failure s function are in temporary equipme Building, an nt. Therefore, f	malfunction of equip previously evaluated ction this activity could bus is normally deener to, the bus is not safety at that would malfunction es serve a function to p e due to overcurrent, but mpacted by this TA). aligment, cable and con- this TA will not create a	ment important to safe in the SAR be created possibly create is a loss gized when the plant is related, and it interacts on due to a loss of the be rotect the containment ut none of the protective duit being installed by th t the operation of safety a malfunction of safety r	ety of a f? s of the in cold or with no us. relays that his TA is in related elated	Yes 🗌	No 🖾
7.	equipme Will the r specifica This activ required do they r impact o specifica	nt of a different margin of safe tion be reduce vity will not requise to be operable mention the circ n any margin o tions	t type than previously e ty as defined in the b ed? uire removing any equi . None of the Tech Sp culating water system. If safety specified or im	evaluated in the SAR. asis for any technical pment from service whe ec bases mention the 2 Therefore this TA will h plied in the bases for th	en it is H2 bus, nor ave no e technical	Yes 🗌	No 🛛

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ER992141E202 / TA-00-2-009	ARKANSAS NUCLEAR ONE		Page 3
FORM TITLE: FORM NO. 10CFR50.59 SAFETY EVALUATION 1000.131			REV. 003-04-0
fu D	John Ekis		8/7/00
Certified Reviewer's Signature	Printed Name	9	Date
Reviewer's certification expiration date	e: <u>3/31/01</u>		
Assistance provided by:			
Printed Name None	Scope of Assistance		Date
PSC review by:		Date:	8/24/2000

FO	RM TITLE: ARKANSAS NUCLEAR ONE		
	10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 2 PC-2,3
Do	cument No. 963355L201 Rev:/Change No.	0	Page <u>1</u> of
⊤itl	eHP_TURBINE MEGAWATT RECOVERY EFFORT	PAGE	REV. O
Wil	I the proposed Activity:		
1.	Require a change to the Operating License including:		3
	Technical Specifications (excluding the bases)?		Veel No.
	Operating License?		
	Confirmatory Orders?		
2.	Result in information in the following SAR documents (including drawing (a) no longer true or accurate, or (b) violate a requirement stated in the c	s and text) being	Yes[] No[X]
	Core Operating Limits Report		
	SAR (multi-volume set for each unit)?		
	QAMO?*	,	res⊠ No⊡
	E-Plan?*	١	∕es∏ No⊠
	FHA	١	′es∏ No⊠
	Bases of the Technical Specifications?	Ŷ	′es□ No⊠
	NRC Safety Evaluation Reports?	Y	'es∏ No⊠
3.	Involve a test or experiment not described in the second	Y	es No
4.	Result in a potential impact to the end in the SAR?	Y	es∏ No⊠
	Impact Checklist of this form.)	ii V	
5.	Result in the need for a Radiological Safety Evaluation per section 6.2.4.4	\? v	
6.	Result in any potential impact to the equipment or facilities utilized for Ver	ntilated	
<u>Basis</u> See a	s for Determination:	Ye	es□ No⊠

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

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FORM TITLE:	ARKANSAS NUCLEAR ONE		
	10CFR50.59 DETERMINATION	FORM NO. 1000.131A	, REV. 2 PC-2,3
Document No.	DOCUMENT NUMBER 963355L201 PAGE	REV. O	Page <u>2</u> o
References:	Rev./Change No. List sections reviewed in the Licensing Basis Documents, spec- keyword search was done on LRS, "all" may be entered under in parentheses. Controlled hard copies of the documents shall searches such as LRS are not controlled and search text only, completed LDCR if LBD changes are required.	cified in questior "Section" with t Il be reviewed as , not figures or d	ns 1, 2 and 3. If a he keyword(s) use s computer-based rawings. Attach a
<u>Document</u> 50.59-UNIT 2 L	<u>Section</u> RS LRS "All" (high pressure turbine, extraction,stea pressure)	ım flow, turbine	e generator, stea
ZJAK	LRS "All" (high pressure turbine, extraction,stea pressure) # FIGURE 10.2-2 # FIGURE 10.2-4 # SAR SECTION 10.2.2 SAR SECTION 10.	m flow, turbine	e generator, stea
2TS	SAR SECTION 15 LRS "All" (high pressure turbine, extraction, stear	m flow, turbine	
E-PLAN	LRS "All" (high pressure turbine, extraction,stear pressure)	n flow, turbine	generator, stear
QAMO	LRS "All" (high pressure turbine, extraction,stean pressure)	n flow, turbine	generator, stea
23ER 21 EO	DRS "All" (high pressure turbine, extraction,stean pressure)	n flow, turbine	generator, stean
2NSE	pressure) LRS "All" (high pressure turbine, extraction, steam LRS "All" (high pressure to be	ו flow, turbine	generator, stearr
FHA	pressure) LRS "All" (high pressure turbine, extraction,steam pressure)	1 flow, turbine 1 flow, turbine	generator, steam

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Certified Reviewer's Signature

Nathan R. Berberich Printed Name

Dáte

Reviewer's certification expiration date:\_

Assistance provided by:

Printed Name

Scope of Assistance

Date

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FORM T	FORM TITLE: ARKANSAS NUCLEAR ONE					
		10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 2 PC-2,3		
		ENVIRONMENTAL IMPACT CHECK (UNIT 1 and UNIT 2)	(LIST	Page <u>3</u> of <u>:</u>		
Docum	ent No.	963355L201 Rev./Change No.	, PAGE 5	REV. O		
Comple require	ete the fo d. See S	llowing checklist. If the answer to any checklist item is "Yes" ection 6.2.1.E for additional guidance.	, an Environmental E	valuation is		
Will the	Activity	being evaluated:				
Yes	No					
		Disturb land that is beyond that initially disturbed during buildings, creation or removal of ponds, or other terrestri 2.5-17. This applies only to areas outside the protected a	construction (i.e., new al impact)? See Unit : area.	construction of 2 SAR Figure		
$\boxtimes$		Increase thermal discharges to lake or atmosphere?				
	$\boxtimes$	Increase concentration of chemicals to cooling lake or ati	nosphere through disc	charge canal or		
	$\boxtimes$	Increase quantity of chemicals to cooling lake or atmosphered tower?	ere through discharge	canal or		
	$\boxtimes$	Modify the design or operation of cooling tower which will	Change drift choracter	delle - O		
	$\boxtimes$	Install any new transmission lines leading offsite?		nsucs?		
	$\boxtimes$	Change the design or operation of the intake or discharge	Structure of			
	$\boxtimes$	Discharges any chemicals new or different from that previ				
	$\boxtimes$	Potentially cause a spill or unevaluated discharge which m water or ground water?	nay effect neighboring	soils, surface		
	$\boxtimes$	Involve burying or placement of any solid wastes in the sit surface water or ground water?	e area which may effe	ct runoff,		
	$\boxtimes$	Involve incineration or disposal of any potentially hazardou	IS materials on the AN			
	$\boxtimes$	Result in a change to nonradiological effluents or licensed		U site?		
	$\boxtimes$	Potentially change the type or increase the amount of non-ANO site.	radiological air emissi	ons from the		

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# **Determination:**

DOCUMENT NUMBER 963355L201

PAGE REV O

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 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:

the state of the

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 2) Sar figures 10.2. Advancement of the stage station of the stage station of the stage station of the stage station will not impact the Technical stage station.

PAGE

REV. O

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 hour beat of the section of the sect

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 with the second seco

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.

F	ORM TITLE: ARKANSAS	NUCLEAR ONE		
	10CFR50.59 EVALUATION		ORM NO. 1000.131B	REV.
	DOCUMENT NUMBER 963355L201	10CFR50.	59 Eval. No. FE	Page of
De Ti	Document No. LCP 963355L201	(A: Rev./Change No. <u>(</u> FFORT	Ssigned by PSC)	8REV. 0
A A1 C0	WRITTEN RESPONSE PROVIDING THE BASIS TACHED. EACH QUESTION MUST BE ANSWI DNCLUSION IS NOT SUFFICIENT. ATTACHME	S FOR THE ANSWER TO ERED SEPARATELY. A S INT 2 PROVIDES GUIDAN	EACH QUESTION SIMPLE STATEME ICE FOR RESPON	MUST BE NT OF SE.
to 1.	all questions is "No," then the proposed change d	then an unreviewed safety loes not involve an unrevie	question is involved wed safety question	d. If the answer n.
	increased? See attachment	evaluated in the SAR be	Y	es 🗌 No 🛛
2.	Will the consequences of an accident previous increased? See attachment	sly evaluated in the SAR be	e Yi	es 🗌 No 🖾
3.	Will the probability of a malfunction of equipme increased? See attachment	ent important to safety be	Ye	es 🔲 No 🛛
4.	Will the consequences of a malfunction of equip be increased? See attachment	pment important to safety	Ye	s 🗋 No 🖾
5.	Will the possibility of an accident of a different t evaluated in the SAR be created? See attachment	type than any previously	Ye:	s 🗍 No 🖾
6.	Will the possibility of a malfunction of equipmen different type than any previously evaluated in the See attachment	it important to safety of a he SAR be created?	Yes	5 🗌 No 🛛
7.	Will the margin of safety as defined in the bases specification be reduced? See attachment	for any technical	Yes	🗌 No 🖾

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FORM TITLE: 10CFR50.59 EVALUAT	TION	FORM NO. 1000.131B	REV. , 2
M/M	Nathan Berberich	, ib	5/97
Cértifiéd Reviewer's Signature	Printed Name	<del></del>	Date
Reviewer's certification expiration date:	1/15/98		0
Assistance provided by:	· ·	PAGE	<u>9</u> REV. O
Printed Name	Scope of Assistance		Date
PSC review by:	Date	-1/20/57_	

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# Attachment to 50.59 Evaluation LCP 963355L201

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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 96335L201 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.

PAGE

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

# Attachment to 50.59 Evaluation LCP 963355L201

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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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FO	RM TITLE:	ARRANSAS	NUCLEAR ONE	FORM NO.		
		10CFR50.59 DETERMINATION		FORM NO. 1000.131A	R	EV. 2 PC-2.3
				This Document co	ontains	3 Pages.
Doo	cument No.	LCP 963501L201	Rev./Change No.	0		
Title	е	UNIT 2 CIRCULATING WATER PUMP	MOTOR REPLACE	MENT		
Wil	I the propose	ed Activity:				
1.	Require a	change to the Operating License includi	ng:			
	Technical	Specifications (excluding the bases)?			Yes	] No⊠
	Operating	License?			Yes	
	Confirmat	ory Orders?			Yes	
2.	Result in i (a) no long	nformation in the following SAR docume ger true or accurate, or (b) violate a requi	nts (including drawing irement stated in the	gs and text) being document:		
	Core Oper	rating Limits Report			Yes[	No⊠
	SAR (mult	ti-volume set for each unit)?			Yes⊠	No 🗌
	QAMO?				Yes	No⊠
	E-Plan?				Yes□	No⊠
	FHA				Yes⊡	No
	Bases of the	ne Technical Specifications?			Yes□	No
	NRC Safet	ly Evaluation Reports?			Yes	No
3.	Involve a t	est or experiment not described in the SA	AR?		Yes	No
<b>4</b> .	Result in a Impact Che	potential impact to the environment? (Co ecklist of this form.)	omplete Environmen	tal	Yes	NoX
5.	Result in th	ne need for a Radiological Safety Evaluat	tion per section 6.2.4	.B?	Yes⊡	No
5.	Result in a utilized for	ny potential impact to the equipment or fa Ventilated Storage Cask activities per Se	acilities ection 6.2.4.B?		Yes□	No
3asis See a	s for Determi	ination:			- <b></b> -	

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PAGE 3 REV. 0

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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.

		ARKAN	SAS NUCLEAR ONE			
FORM TITLE: 10CFR50.59 I		0.59 DETERMINATIO	ETERMINATION		REV. 2 PC-2,3	
Document No.	LCP 963501	L201	Rev./Change	No. <u>0</u>		
References:	List sections r keyword search in parenthese searches such completed LD	eviewed in the Licensi ch was done on LRS, ' s. Controlled hard cop as LRS are not contr CR if LBD changes ar	ng Basis Documen 'all" may be entere- bies of the docume olled and search te e required.	its, specified in questions d under "Section" with th nts shall be reviewed as ext only, not figures or dra	s 1, 2 and 3. If a e keyword(s) used computer-based awings. Attach a	
<b>Document</b>		Section				
ANO-2 Tech Sp	Decs	All LRS (C	All LRS (Circulating Water, 2P3*, 6000)			
ANO-2 Op. Lice	ense	All LRS (C	All LRS (Circulating Water, 2P3*, 6000)			
ANO-2 Confirm	atory Orders	All LRS (C	All LRS (Circulating Water, 2P3*, 6000)			
QAMO		All LRS (C	All LRS (Circulating Water, 2P3*, 6000)			
E-Plan		All LRS (C	All LRS (Circulating Water, 2P3*, 6000)			
FHA		All LRS (C	All LRS (Circulating Water, 2P3*, 6000)			
ANO-2 Tech. S	pec. Basis	All LRS (C	All LRS (Circulating Water, 2P3*, 6000)			
NRC SER		All LRS (C	All LRS (Circulating Water, 2P3*, 6000)			
ANO-2 SAR		All LRS (C	All LRS (Circulating Water, 2P3*, 6000) Table 10 4-2 Figures 10 4-1			
4		•	10 4-4 8 3-3 8 3-1			
Pada	s Edgel	Dougl	as Edgell	4	7/17/97	
Certified Réviewer's Signature		Printed Name	) 	Date		
Reviewer's certi	ification expirat	ion date: <u>3/17/99</u>				
Assistance prov	ided by:					
Printed	d Name	Scope of Assista	nce	D	ate	
Brian Williams		Electrical Conside	rations	2/13	/97	

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PAGE REV. O

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		10CFR50.59 DETERMINATION	FORM NO. REV. 1000.131A 2 PC-2		
		ENVIRONMENTAL IMPAC (UNIT 1 and UNI	T CHECKLIST T 2)		
Docume	nt No	LCP 963501L201 Rev./Ch	nange No. 0		
Complete required.	e the . See	following checklist. If the answer to any checklist it Section 6.2.1.E for additional guidance.	em is "Yes", an Environmental Evaluation is		
Will the /	Activi	ty being evaluated:			
<u>Yes</u>	<u>No</u>				
	$\boxtimes$	Disturb land that is beyond that initially disturb buildings, creation or removal of ponds, or ot 2.5-17. This applies only to areas outside the	bed during construction (i.e., new constructior her terrestrial impact)? See Unit 2 SAR Figur protected area.		
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?			
		Increase concentration of chemicals to coolin tower?	g lake or atmosphere through discharge cana		
		Increase quantity of chemicals to cooling lake tower?	or atmosphere through discharge canal or		
	$\boxtimes$	Modify the design or operation of cooling towe	er which will change drift characteristics?		
	$\boxtimes$	Install any new transmission lines leading offs	ite?		
	$\boxtimes$	Change the design or operation of the intake of	or discharge structures?		
	$\boxtimes$	Discharges any chemicals new or different fro	m that previously discharged?		
	$\boxtimes$	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?			
	$\boxtimes$	Involve burying or placement of any solid was surface water or ground water?	tes in the site area which may effect runoff,		
	$\boxtimes$	Involve incineration or disposal of any potentia	ally hazardous materials on the ANO site?		
	$\boxtimes$	Result in a change to nonradiological effluents	or licensed reactor power level?		
D NO site.	$\boxtimes$	Potentially change the type or increase the amoun	t of non-radiological air emissions from the		

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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 NUMNBER 963501L201

PAGE

FORM TITLE

## ARKANSAS NUCLEAR ONE

10CFR50.59 EVALUATION

FORM NO. 1000.131B

10CFR50.59 Eval. No. FFN-97-100

(Assigned by PSC)

REV. 2

Page 1 of 3

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 <u>not</u> 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, this restriction will be added to the operating 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

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.



ARKANSAS NUCLEAR ONE						
FORM TITLE: FORM NO. REV.						
	1000.131B	, 2				
4. Will the consequences of a malfunction of equipment important to safety be increased? Yes 🗌 I						
The proposed modification will not involve any safety related equipmer related equipment to mitigate the consequences of a previously evaluated	ent or affect the abilit ted accident described	y of any safety d in the LBD's.				
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created?	Ye	s 🗌 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?	a Ye:	5 🗌 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	5 🗌 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	Dinal ElM					
Certified Reviewer's Signature Printed Name		Date				
Reviewer's certification expiration date: <u>3/17/99</u>						
Assistance provided by:						
Printed Name Scope of Assistance Brian Williams Electrical Considerations	D: 4/18/97	ate				
PSC review by: 22/97 Date: 5/2/97						



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	ARKANSAS NUCLEAR ONE						
FOR	M TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-04-0				
	This	Document contains	3 Pages.				
Doc	Document No. SAR, Unit 1 & Unit 2 Rev./Change No. Amendment No. 16						
Title	Conduct of Operations; Section 12, Unit 1 SAR & Section 13, Un	it 2 SAR					
Brie (and imp ''Re Will	Brief description of proposed change: <u>The current Operations Department title of "Shift Superintendent"</u> (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."						
1.	Require a change to the Operating License including:						
	Technical Specifications (excluding the bases)?	Y	s No X				
	Operating License?	Y					
	Confirmatory Orders?	Ye	es□ No⊠				
2.	Result in information in the following SAR documents (including drawing (a) no longer true or accurate, or (b) violate a requirement stated in the	ngs and text) being e document:					
	SAR (multi-volume set for each unit)?	Ye	s⊠ No□				
	Core Operating Limits Report	Ye	s⊡ No⊠				
	Fire Hazards Analysis?	Ye	es□ No⊠				
	Bases of the Technical Specifications?	Ye	es∏ No⊠				
	Technical Requirements Manual?	Ye	s□ No⊠				
	NRC Safety Evaluation Reports?	Ye	s⊡ No⊠				
3.	Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Ye	s⊡ No⊠				
4.	Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Ye	s□ No⊠				
5.	Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Ye	s□ No⊠				
6.	Result in any potential impact to the equipment or facilities utilized for Storage Cask activities per Section 6.1.6?	Ventilated Ye	s□ No⊠				
7. <sup>-</sup>	Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:						
	QAPM?	Ye	s∏ No⊠				
	E-Plan?	Ye	s⊠ 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)	··· Ye	s□ No⊠				

	ARKANSAS NUCLEAR ONE			
FORM TITLE:	10CFR50.59 DETERMINATION		FORM NO. 1000.131A	REV. 003-04-0
Document No.	SAR, Unit 1 & Unit 2	Rev./Change No.	Amendment No. 16	

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.

Document	Section				
50.59 - Common	<pre>All (shift super*, shift manager*, shift w/5 operat W/5 super*)</pre>	tion*, operation*			
MANUAL SECTION					
UNITISAR	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, 1 12.1.1.3.1.1.1.1.13.1.1	1.3.2, 12.1.1.3.1.1.1,			
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	Unit 1; 6.1, 6.2, 6.11.2 and Table 6.2-1, Unit 2; 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	10C, Definitions, and Sections A, B, E 1.0 & 1.1, F 1.0 & 3.0	, G 3.0, H 1.1, I 1.0 &			
SER	Unit 1 Amendment #70 & #198. Unit 2 Amendment #209				
NSE	Unit 1 and Unit 2: 13.1				
FIGURES:					
Unit 1 SAR	12-1 Inrougn 12-06, 13-1, 13-2				
E-Plan	B-1. B-2. B-3. B-8. B-10				
Louis Mr.	The T CLANNER	<b>.</b>			
Cartified Polyiowork	Signatura Jerry Storbakken	5-15-2000			
Certified Reviewers	Signature Filineu Name	Date			
Reviewer's certifica	tion expiration date: $01/04/2001$				
	1				
Assistance provideo	t by:				
Printed Na	ame Scope of Assistance	Date			
Larry W. Kilby	Performance phase for 50.59 qualification.	5/11/00			
		······			
Search Scope/Review Acceptability (NA, if performed by Technical Review per 1000.006)					
	15th Hillip Blin	5.18.00			
Certified Pavidworts	Signature	<u>J 10'00</u>			
Certified Reviewers	Signature 'Finited Name	Date			
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ARKANSAS NUCLEAR ONE							
FORM TI	ITLE:	10CFR50.59 DETERMINATION		FORM NO. 1000.131A	REV. 003-04-0		
	ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)						
Docume	Document No. SAR, Unit 1 & Unit 2 Rev./Change No. Amendment No. 16						
Comple is requir	te the foll red. See	owing Determination. If the answer Section 6.1.4 for additional guidance	to any checklist item is ' e.	"Yes", an Environmen	tal Evaluation		
Will the	Activity t	eing 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.						
	$\boxtimes$	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?					
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?					
	□						
	$\boxtimes$	Change the design or operation of the intake or discharge structures?					
	$\boxtimes$	Discharges any chemicals new or	different from that prev	iously discharged?			
		Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?					
		Involve burying or placement of a surface water or ground water?	ny solid wastes in the si	te area which may effe	ect runoff,		
	$\boxtimes$	Involve incineration or disposal of	any potentially hazardo	us materials on the Al	NO site?		
	$\boxtimes$	Result in a change to nonradiolog	ical effluents or licensed	reactor power level?			
	$\boxtimes$	Potentially change the type or incl ANO site.	ease the amount of non	-radiological air emiss	ions from the		

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FORM TITLE:

10CFR50.59 REVIEW CONTINUATION PAGE

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 primar 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".

#### ARKANSAS NUCLEAR ONE

10CFR50.59 EVALUATION

FORM NO. 1000.131B REV. 003-04-0

This Document contains 2 Pages.

10CFR50.59 Eval. No. <u>FFN # 00 -034</u> (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?

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?

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?

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?

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.

Yes 🗌 No 🖂

Yes 🗋 No 🖂

Yes 🗌 No 🕅

Yes 🗌 No 🖾

	ARKANSAS NUCLEAR ONE		
FORM TITLE: 1	0CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 003-04-0

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

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.

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

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.

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

1

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	<u>5-15-200)</u> Date
Reviewer's certification expiration	date: 1/4/2001	-
Assistance provided by:		
Printed Name Larry W. Kilby	Scope of Assistance Performance phase of 50.59 qualification	Date 5/11/00
PSC review by:	Date: 5/22	2000

Yes 🗌 No 🕅

Yes 🗌 No 🕅

Yes 🗌 No 🕅

FORM T	TTLE:	ARKANSAS NUCLEAR ONE	FORM NO. 1000.131A	Page 1 REV. 003-04-0
		10CFK50.59 DETERMINATION	This Document	contains 3 Pages.
Docume	nt No.	SAR 9.3.4.2.2 Rev./Cha	inge No0	
Title		Dilute the RCS During Heatup		
Brief de	scription	of proposed change:		
This S	SAR chan	ge will allow the RCS boron concentration to be reduced w	while heatup of the RCS is on	going.
Will the	e propose	d Activity:		
1. 1	Require	a change to the Operating License moleculary.		Yes No X
•	Technica	al Specifications (excluding the bucce).		Yes No X
	Operatin	g License?		Yes No X
	Confirma	atory Orders?	ng drawings and text) bein	g
2.	Result in (a) no lo	nger true or accurate, or (b) violate a requirement sta	ted in the document:	
	SAR (m	ulti-volume set for each unit)?		
	Core Op	perating Limits Report?		
	Fire Haz	zards Analysis?		
	Bases o	of the Technical Specifications?		
	Technic	al Requirements Manual?		
	NRC Sa	afety Evaluation Reports?		
3.	Invoive (See	a test or experiment not described in the SAR? Attachment 2 for guidance)		Yesi No A
4.	Result i	in a potential impact to the environment? (Complete E Determination of this form.)	Environmental	Yes No X
5.	Result	in the need for a Radiological Safety Evaluation per s	ection 6.1.5?	Yes 🗌 No 🗙
6.	Result utilized	in any potential impact to the equipment or facilities for Ventilated Storage Cask activities per Section 6.1	1.6?	Yes No X
7.	Involve per Sect	a change under 10CFR50.54 for the following SAR docun tion 6.1.7?	nents	
	QAPM	?		
	E-Plan	?		Yes∐ No X
8. '	Does t (NRC )	his review depend on future NRC approval of other ac SER, Relief, etc)? (forward change to PSC per 6.3.8 c	ctions? or 6.3.9)	Yes No X

		ARKANSAS	NUCLEAR ONE	FORM NO	REV.
RM TITLE:	10CFR50.59	DETERMINATION		1000.131A	003-04-0
ocument No.	SAR 9.3.4.2.2		Rev./Change No.	0	
asie for Deteri	nination (Question	s 1, 2, & 3):			
	the basis of the deter	rmination of the respon	ses to Questions 1, 2,	and 3.	
See page 4 Ior	the basis of the det				
		im 10CFR 50 59 Evalua	tion per Attachment	1, Item # (If check	ed, note appropriate
Proposed c item #, sen	d LDCR to Licensin	ng).	<b>X</b>		
Search Scope:					
List sections re the LRS search copies of the d	viewed in the Licen index should be en ocuments shall be re	sing Basis Documents s tered under "Section" w eviewed (LRS is not vert	pecified in questions with the search stateme ified and searches onl changes are require	1, 2 and 3. If search w ent(s) used in parenthes y text, not figures or dr ed.	as performed on LRS es. Controlled hard awings). Attach an
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#### Page 3

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

Document No. SAR 9.3.4.2.2 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	<u>No</u>	the stion of
	x	Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
	x	Increase thermal discharges to lake or atmosphere?
	x	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
	x	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
	x	Modify the design or operation of cooling tower which will change drift characteristics?
	x	Install any new transmission lines leading offsite?
	x	Change the design or operation of the intake or discharge structures?
	x	Discharges any chemicals new or different from that previously discharged?
	x	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
	x	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
	x	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
П	x	Result in a change to nonradiological effluents or licensed reactor power level?
	x	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

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		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.
- 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.

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Document No.	SAR 9.3.4.2.2	Rev./Change No	0	
	10CFR5	50.59 Review Continuation Page		
LRS SEARCH	: ALL ("dilu*"; "heatup"; "heat-up	p"; "heat up")		
	ANO-2 Tech Specs	3/4.1.1.3; 3.4.1.2; 3.4.1.3; 3.4.3	3; 3/4.4.9	
	ANO-2 OL	None		
	ANO-2 Confirmatory Orders	None		
	<u>ANO-2 SAR</u>	2.3.2.4; 2.3.4.2.3; 2.3.4.1; 2.3.4 2.2.2.1; 2.2.2.4; 3.9.1.1; 4.2.1.1 5.2.4.3; 5.2.4.3.1; 5.2.7.1.2; 5.3 6.3.3.2.3.5; 7.2.1.1.5; 7.2.2.1.1; 7.7.1.5; Table 7.2-6; Table 7.2- 9.3.4.2.2; 9.3.4.2.4; 9.3.4.2.5; 9 9.4.1.3; 9.5.1.2.2; 9.5.1.3.2; 9.5 10.4.5.2; 10.4.5.5; 11.2.1; 11.2. 11.2.7; 11.2.8; 11.2.9; 11.3.8; 1 11.2-1; Table 11.2-15A; Table 1 14.1.4.2; 14.1.4.3.1; Table 14.1- 15.1.0.5.2; 15.1.4; 15.1.7.1; 15. 15.1.14.2.4.2; 15.1.18.2.1; 15.1. Table 15.1.13-2	<ul> <li>4.2; 2.3.4.3; 2.3.4.4; 2.3.</li> <li>4.1; 4.2.1.2.4.1; 5.2.1.5</li> <li>5.2; 5.5.1.2; 5.5.10.2; 5.5</li> <li>5.7.2.2.2.2; 7.4.1.3.1; 7.6</li> <li>7; Table 7.2-8; Table 7.5</li> <li>5.3.4.3.5; 9.3.4.3.10; 9.3</li> <li>5.9.3; Table 9.3-6; Table</li> <li>2.1; 11.2.2.2; 11.2.6.4.1</li> <li>1.4.2.1.5; 11.4.2.2.4; 11</li> <li>11.2-15B; 12.1.2.1; 12.1</li> <li>-1; Table 14.1-2; Table 1</li> <li>1.13.4.1; 15.1.14.2.1; 15</li> <li>2.3.2.2; Table 15.1.0-5; 13</li> </ul>	5.1; 2.3.5.2; ; 5.2.2.4; .13.2; 5.6.1.4; .1.3; 7.7.1.1.6; i-1; 9.3.3.2.2; 6.3; 9.4.1.1.2; 9.3-7; 10.4.4.1; ; 11.2.6.4.2; .6.6; Table 3.1; 14.1.4; 14.1-3; .1.14.2.2.1; Table 15.1.4-1;
	ANO-2 COLR	None		
	<u>FHA</u>	5.5.2; 5.6.2; 6.2.5		
	Bases for ANO-2 Tech Specs	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	5; 133; 152; 153; 180; 19	90; 196

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FORMT			FORM NO. 1000-131B	REV. 003-04-0
	10CFR50.59 EVALUATION		1000.1012	
		This I 10CFR50 (/	Document contains FFN 体 .59 Eval. No. <u>00</u> Assigned by PSC)	5 & Pages. - Ruc \$/10/00 - 0 84
Docum	nent No. SAR 9.3.4.2.2	Rev./Change No.	Ø	
Title	Dilute the RCS During Heatup			
A WRI ATTAC CONC	ITTEN RESPONSE PROVIDING THE BASIS F CHED. EACH QUESTION MUST BE ANSWE CLUSION IS NOT SUFFICIENT. ATTACHMEN	FOR THE ANSWER TO RED SEPARATELY. A IT 2 PROVIDES GUIDA	EACH QUESTION MI SIMPLE STATEMEN NCE FOR RESPONS	JST BE F OF E.
if the all of	answer to any question on this form is "Yes," th questions is "No," then the proposed change do	nen an unreviewed safe pes not involve an unrev	ty question is involved. viewed safety question	If the answer
	Will the probability of an accident previously evincreased?	valuated in the SAR be	Y	es 🗌 No 🛛
2.	Will the consequences of an accident previous increased?	sly evaluated in the SAF	R be	/es 🗌 No 🕅
3.	Will the probability of a malfunction of equipm increased?	nent important to safety	be ,	Yes 🗌 No 🛛
4.	Will the consequences of a malfunction of eq be increased?	uipment important to sa	ifety	Yes 🗌 No 🕅
5.	Will the possibility of an accident of a different evaluated in the SAR be created?	nt type than any previou	ısly	Yes 🗋 No 🛛
6.	Will the possibility of a malfunction of equipr different type than any previously evaluated	nent important to safety in the SAR be created?	of a ?	Yes 🗌 No 🛛
7.	Will the margin of safety as defined in the b specification be reduced?	asis for any technical		Yes 🗌 No 🛛
See t	he attached pages for the resp	ponses to the at	poue questions	

		ARKANSAS NUCLEAR ONE		
	FORM TITLE: 10CFR50.59 EV	FORM NO. 1000.131B	REV. 003-04-0	
	Certified Reviewer's Signature Reviewer's certification expiration date:	Robert W Clark Printed Name 11/12/Ø1		/10/00 Date
	Assistance provided by:			
-	Printed Name	Scope of Assistance	C	Date
	PSC review by:	Date:_	8/12/00	

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#### 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?

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.

NO

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? <u>NO</u>

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?

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?

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 in 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? <u>NO</u>

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.

#### <u>NO</u>

NO

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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 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 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.

NO

- 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 ≤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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FOR	M TITLE:	10CFR50.59 DETERMINATION		FORM NO. 1000.131A	RE\	/. 003-04-0
			This	Document contai:	ns 3 E	Pages.
Doc	ument 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		
Title	e <u>Health</u> i	Physics, Nuclear Chemistry Laboratory	/ Facility (title for t	ooth Unit One and L	<u>Jnit Tw</u>	o SAR)
Brie	f descriptio	n of proposed change: The change to	the Unit 1 and Ur	nit 2 SAR is to remo	ve refe	rence to
<u>the</u>	"health ph	vsics laboratory".				
Will	the propos	ed Activity:				
1.	Require a	a change to the Operating License includi	ng:			
	Technica	I Specifications (excluding the bases)?			Yes□	No⊠
	Operating	g License?			Yes□	No⊠
	Confirma	tory Orders?			Yes□	No🖾
2.	Result in (a) no lor	information in the following SAR docume nger true or accurate, or (b) violate a requ	nts (including drawi irement stated in the	ngs and text) being e document:		
	SAR (mu	Iti-volume set for each unit)?			Yes⊠	No
	Core Ope	erating Limits Report			Yes⊡	No⊠
	Fire Haza	ards Analysis?			Yes□	No⊠
	Bases of	the Technical Specifications?			Yes	No🛛
	Technica	I Requirements Manual?			Yes□	No🛛
	NRC Safe	ety Evaluation Reports?			Yes[]	No⊠
3.	Involve a (Se	test or experiment not described in the S ee Attachment 2 for guidance)	AR?		Yes	No⊠
4.	Result in the Envir	a potential impact to the environment? (C onmental Impact Determination of this for	complete m.)		Yes	No⊠
5.	Result in per sectio	the need for a Radiological Safety Evaluation 6.1.5?	ation		Yes	No⊠
6.	Result in Storage 0	any potential impact to the equipment or Cask activities per Section 6.1.6?	facilities utilized for	Ventilated	Yes	No⊠
7.	Involve a per Sectio	change under 10CFR50.54 for the follow on 6.1.7:	ing SAR documents	5		
	QAPM?				Yes	No⊠
	E-Plan?				Yes⊡	No⊠
8.	Does this (NRC SE	review depend on future NRC approval on R, Relief, etc)? (forward change to PSC	f other actions per 6.3.8 or 6.3.9)		Yes	No⊠

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10CFR:	50.59 DETERMINATION	<u> </u>	FORM NO. 1000.131A	REV. • 003-04-0
Document No. <u>Unit One SAR</u> Unit Two SAR	<u>Section 11.2.6.2.2</u> Section 12.3.2.2	Rev./Change No.	Amendment 16 Amendment 15	
Basis for Determination (Que	stions 1, 2 & 3):			
See continuation page, form 10	00.131C.			
Proposed change does not note appropriate item #, send L	require 10 CFR 50.59 E DCR to Licensing).	Evaluation per Attach	ment 1, Item #,	(If checked,
Search Scope:				
performed on LRS, the LRS sea parentheses. Controlled hard ci text, not figures or drawings). A required.	ensing Basis Documen arch index should be en opies of the documents attach and distribute a	nts specified in Questi Itered under "Section" Is shall be reviewed (Li In completed LDCR p	on 1, 2 and 3. If a sea with the search state RS is not verified and er Section 6.1.2 if LE	arch was ment(s) used in searches only B <b>D changes a</b> re
LRS:	Section			
50.59 Common	50.59 Comm access w/5 spectrocopy sample-dete	non (health physic facilities, nuclear v, spectroscopy, la ctor, health physics	s, physics, laborat chemistry*, chemist boratories, count ro room)	ory, controllec r*, lab, gamma oom, counters
MANUAL SECTIONS: Unit 1 TS/Unit 2 TS Unit 1 SER/Unit 2 SER	Unit 1, 3.1.5,	6.12.2.5, 6.12.2.6, U	nit 2, 6.8.4	
Unit 1 SAR/Unit 2 SAR	<u> </u>	1.4.55, 2.8, 9.8, 11.1	, 11.2/12.3.2	
FIGURES: Unit 1 SAR Unit 2 SAR	SAR Figure Number M-0 M-004 SAR Figure	11-8, Drawing Numl 03, SAR Figure 9-13	per A-415, SAR Figu , SAR Figure A-2, D	re 1-3, Drawing rawing Number
	SAK Figure	12.1-11, Drawing Nu	mber M-2294	····
Ron Schumt		Ron Schwartz	9/	6010
Certified Reviewer's Signature		Printed Name	<u> </u>	Date
Reviewer's certification expiration	on date:/2/06/	61		
Assistance provided by:				
Printed Name Eddie Frix	Sco Performed for (	ope of Assistance DJT		Date 8/8/2000
Search Scope Review Accepta	ability (NA, if performe	d by Technical Revie	w per 1000.006)	

Certified	<b>Reviewer's</b>	Signature

Theavil corcon *. |*4. Printed Name

9-11-00 Date

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ARKANSAS NUCLEAR ONE

FORM TITLE:

10CFR50.59 DETERMINATION

FORM NO. 1000.131A REV.

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

Document No.	Unit One SAR, Section 11.2.6.2.2	Rev./Change No.	Amendment 16
	Unit Two SAR, Section 12.3.2.2		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:

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.
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?
	$\boxtimes$	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?
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?
	$\boxtimes$	Install any new transmission lines leading offsite?
	$\boxtimes$	Change the design or operation of the intake or discharge structures?
	$\boxtimes$	Discharges any chemicals new or different from that previously discharged?
	$\boxtimes$	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?
	$\boxtimes$	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	$\boxtimes$	Result in a change to nonradiological effluents or licensed reactor power level?
	$\boxtimes$	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

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

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. <u>Amendment 16</u> <u>Amendment 15</u>

## 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 affect 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 Manuel, 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:

**10CFR50.59 EVALUATION** 

FORM NO. 1000.1318

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 12.3.2.2

Rev./Change No. Amendment 16 Amendment 15

## Title 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.

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

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.

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

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.

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

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

Yes 🗌 No 🕅

Yes 🗌 No 🕅

Yes 🗌 No 🕅

	ARKANSA	S NUCLEAR ONE		
FORM	TITLE: 10CFR50.59 EVALUATION	N	FORM NO. 1000.131B	REV. <b>'003-04-0</b>
	important to safety. The RP equipment affect safety-related equipment,	that is described in the selated components, systematical systematics of the selated components	SAR is not safety re ems or the plant.	lated it couldn't
5.	Will the possibility of an accident of a differ evaluated in the SAR be created?	ent type than any previous	y ۱	/es 🗌 No 🛛
	The change will only affect only the des SAR. This equipment cannot affect t equipment and does not provide data of this, there is no possibility of creating a in the SAR.	scription and title of facili the operation of the pla or control information to c an accident of a different	ties and equipment ant. The equipment other plant compone type than any previ	described in the is stand-alone ents. Because of ously evaluated
6.	Will the possibility of a malfunction of equip different type than any previously evaluate	oment important to safety of d in the SAR be created?	fa	(es 🗌 No 🕅
	The "health physics laboratory" equip operation. The facilities and equipmen manner and are not connected to any p is directly imputed into plant system equipment that is used to operate the p	oment that is described it that is described in th plant systems. The equip ns. The malfunction of lant in a safe manner.	in the SAR does e SAR are utilized i ment does not provi this equipment ca	not affect plant n a stand-alone de any data that nnot affect any
7.	Will the margin of safety as defined in the t specification be reduced?	pasis for any technical	Ň	(es 🗍 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 Johnson - Certified Reviewer's Signature	Ron Schwartz Printed Name	8/16/00 Date
Reviewer's certification expiration dat	e:12/6/2001	
Assistance provided by:		
Printed Name Eddie Frix	Scope of Assistance Performed for OJT	Date <b>8/9/2000</b>
PSC review by: <u><u><u>R</u>UFuCC</u></u>	Date: 9-28-00	

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FORM TITLE	ARKANSAS	NUCLEAR ONE		Page 1
FORM IIILE:	10CFR50.59 DETERMINATION		FORM NO. 1000.131A	REV. 003-04-0
			This Document cont	tains 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?	Ves	No
	E-Plan?	Vec	
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

	A	RKANSAS NUCLEAR ONE		Page 2
FORM TITLE:	10CER50 59 DETERMI		FORM NO. 000.131A	REV. 003-04-0
			·	
Document No.	SAR 4.5.3.2 LDCR	Rev./Change No.	•	
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Please see atta	ached.			
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Proposed o	hange does not require 10Cl	FR50.59 Evaluation per Attac sing).	hasant 1, item #	(II CHECKER, IN
appropriate	nem #, send LDON to Lloon			
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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:

<u>Yes</u>	<u>No</u>	
		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.
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?
	$\boxtimes$	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?
	$\boxtimes$	Install any new transmission lines leading offsite?
	$\boxtimes$	Change the design or operation of the intake or discharge structures?
	$\boxtimes$	Discharges any chemicals new or different from that previously discharged?
	$\boxtimes$	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
	$\boxtimes$	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
	$\boxtimes$	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	$\boxtimes$	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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#### ARKANSAS NUCLEAR ONE

**10CFR50.59 REVIEW CONTINUATION PAGE** 

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.
- 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.

FARM-		ARKANSAS NUCLEAR ONE			Page
	10CFR50.59 SAF	FETY EVALUATION	FOR	M NO. 000.131B	REV. 003-04
			This	Document co	ntains 1 Page
Docume	nt No. SAR 4.5.3.2 LDCR	Rev./Change No.	10CFI	R50.59 Eval.	No. FFN#Q
Title <u>S</u>	AR 4.5.3.2 LDCR		(As	signed by P	SC)
A WRITI ATTACH CONCLL	TEN RESPONSE PROVIDIN IED. EACH QUESTION MU JSION IS NOT SUFFICIENT	IG THE BASIS FOR THE ANSWER IST BE ANSWERED SEPARATELY 1. ATTACHMENT 2 PROVIDES GU	R TO EACH ( Y. A SIMPLE JIDANCE FO	QUESTION N STATEMEN OR RESPONS	IUST BE IT OF SE.
if the ans to all que	swer to any question on this estions is "No," then the prop	form is "Yes," then an unreviewed s losed change does not involve an u	safety question nreviewed sa	on is involved afety questior	l. If the answe
1.	Will the probability of an ac increased?	ccident previous <b>ly</b> evaluated in the s	SAR be	Yes 🗌	No 🖾
2.	Will the consequences of a be increased?	an accident previously evaluated in t	the SAR	Yes 🗌	No 🛛
3.	Will the probability of a maincreased?	lfunction of equipment important to	safety be	Yes 🗌	No 🛛
4.	Will the consequences of a safety be increased?	a malfunction of equipment importar	nt to	Yes 🗌	No 🖾
5.	Will the possibility of an accevaluated in the SAR be cr	cident of a different type than any p reated?	reviously	Yes 🗌	No 🖾
0. 7	different type than any prev	function of equipment important to s viously evaluated in the SAR be cre	afety of a ated?	Yes 🗌 🛛	No 🖾
1.	specification be reduced?	defined in the basis for any technic	cal	Yes 🗌 🛛	No 🛛
Jour	+M. Rat	Jonathan M	Ralston		11/21/00
Cer	tified Reviewer's Signature	Printed N	ame		Date
Reviewer	's certification expiration date	e:3/16/02			
ssistanc	e provided by:				
Pr	rinted Name N/A	Scope of Assistance	· <u> </u>		Date
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22 1946		<u>~</u>		Date: \	1127/00

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Document No. SAR 4.5.3.2 LDCR

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#### 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	10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 3 PC-1		
······································					
		This Document cont	ains 3 Pages.		
Document No	MAI 13760 Rev./Change N	lo0			
<b>Fitle</b>	FLOW AND DP VERIFICATION FOR 2VUC-25A/B				
Brief descripti	on 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					
Vill the propo	sed Activity:				
. Require	a change to the Operating License including:				
Technic	al Specifications (excluding the bases)?		Yes No		
Operatii	ng License?		Yes□ No⊠		
Confirm	atory Orders?		Yes No		
2. Result in (a) no lo	n information in the following SAR documents (including draw nger true or accurate, or (b) violate a requirement stated in th	ings and text) being ne document:			
SAR (m	ulti-volume set for each unit)?		Yes 🛛 No 🗌		
Core Op	perating Limits Report?		Yes No		
Fire Haz	zards Analysis?		Yes No		
Bases o	f the Technical Specifications?		Yes No		
Technic	al Requirements Manual?		Yes No		
NRC Sa	fety Evaluation Reports?		Yes No		
. Involve (See	a test or experiment not described in the SAR? Attachment 2 for guidance)	· · · · · · · · · · · · · · · · · · ·	Yes No		
. Result ii Impact I	n a potential impact to the environment? (Complete Environm Determination of this form.)	ental	Yes No		
. Result i	the need for a Radiological Safety Evaluation per section 6.	1.5?	Yes No		
. Result in utilized f	n any potential impact to the equipment or facilities for Ventilated Storage Cask activities per Section 6.1.6?		Yes No 🛛		
. Involve per Sec	a change under 10CFR50.54 for the following SAR document ion 6.1.7?	ts			
QAMO?			Yes No		
E-Plan?			Yes No		

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#### 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

FIGURES: <u>9.4-2</u>

LRS: All "flow switch w/10 room", "cpc room"

MANUAL SECTIONS: SAR section 9.4

Certified Reviewer's Signature	Lindsley S. Bramlett Printed Name	9/13/99
eviewer's certification expiration date:	8/4/00	Date
Assistance provided by:		
Printed Name	Scope of Assistance	Date
		<u></u>
Search Scope Review Acceptability (N	A if performed by Technical Reviewer per 1000.00	6)
Search Scope Review Acceptability (N.	A, if performed by Technical Reviewer per 1000.00	6) al.l

Certified Reviewer's Signature

Printed Name

Date

ARKANSAS NUCLEAR ONE						
FORM TITLE: 10CFR50.59 DETERMINATION	N	FORM NO. 1000.131A	REV.			
ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)						
•						
Document No. MAI 13760	Rev./Change No.	0				
Document No. <u>MAI 13760</u> Complete the following Determination. If the answer required. See Section 6.1.4 for additional guidance.	_ Rev./Change No. to any item below is "Ye	0 es", an Environmental	Evaluation is			

<u>Yes</u>	<u>No</u>	
		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?
	$\boxtimes$	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?
	$\boxtimes$	Install any new transmission lines leading offsite?
	$\boxtimes$	Change the design or operation of the intake or discharge structures?
	$\boxtimes$	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?
	$\boxtimes$	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
	$\boxtimes$	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	$\boxtimes$	Result in a change to nonradiological effluents or licensed reactor power level?
	$\boxtimes$	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

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FORM TITL				FORM NO.	REV.		
	10CFR50.59 SAFETY	EVALUATION		1000.131B	3 PC-2		
			-	This Document conta	ains 2 Pages.		
					FFN#		
Document N	lo. MAI 13760	Rev./Change No	0	10CFR50.59 Eval. N	10. <u>99-081</u>		
Title Flow	and DP Check for 2VUC-25A	VB					
A WRITTEN ATTACHED CONCLUSIO	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 answe to all questic	r to any question on this form ons is "No," then the proposed	is "Yes," then an unrevie I change does not involve	wed safety an unrevie	question is involved wed safety question	. If the answer		
1. W in	/ill the probability of an accide creased?	ent previously evaluated i	n the SAR I	be Yes 🗌	No X		
2. W	/ill the consequences of an ac ∋ increased?	cident previously evaluat	ted in the S.	AR Yes 🗌	No X		
3. W	/ill the probability of a malfund > increased?	ction of equipment import	tant to safet	y Yes 🗌	No X		
4. W sa	/ill the consequences of a mal afety be increased?	Ifunction of equipment in	portant to	Yes 🗌	No X		
5. M ev	/ill the possibility of an accider valuated in the SAR be create	nt of a different type than d?	ı any previo	usly Yes 🗌	No X		
6. W _ a	/ill the possibility of a malfunc different type than any previo	tion of equipment import usly evaluated in the SA	ant to safety R be create	y of Yes 🗌 d?	No X		
7. W sp	/ill the margin of safety as def becification be reduced?	fined in the basis for any	technical	Yes 🗌	No X		
7		7					
Certifi	ed Reviewer's Signature	Lindsle	y S. Bramle ted Name	<u>ett</u>	<u>9/13/99</u>		
Reviewer's	certification expiration date:	8/4/2000	ICU NOTIC		Daic		
Assistance p	provided by:						
Print	ted Name	Scope of Assis	tance		Date		
PSC review	by: and and			Date: <u>_</u>	14/99		
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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.
- 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.
- 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.
| FOF   | RM TITLE:                                                                              | I I I I I I I I I I I I I I I I I I I                                       |                            |                  |
|-------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------|------------------|
|       | 10CFR50.59 DETERM                                                                      | NATION F                                                                    | ORM NO.<br>1000.131A       | REV.<br>003-04-0 |
| Doc   | cument No. 002239N201                                                                  | Rev./Change No. <u>0</u>                                                    |                            |                  |
| Title | e: Reactor Building Pressure and Oxyger                                                | Control (CAMS Upgrade)                                                      |                            |                  |
| Brie  | ef description of proposed change: <u>See p</u>                                        | age 4.                                                                      |                            |                  |
| Will  | I the proposed Activity:                                                               |                                                                             |                            |                  |
| 1.    | Require a change to the Operating Lic                                                  | ense including:                                                             |                            |                  |
|       | Technical Specifications (excluding the                                                | e bases)?                                                                   | ٢                          | ′es□ No⊠         |
|       | Operating License?                                                                     |                                                                             | Y                          | ′es∏ No⊠         |
|       | Confirmatory Orders?                                                                   |                                                                             | Ŷ                          | ′es□ No⊠         |
| 2.    | Result in information in the following S<br>(a) no longer true or accurate, or (b) vir | AR documents (including drawings a<br>plate a requirement stated in the doo | and text) being<br>cument: |                  |
|       | SAR (multi-volume set for each unit)?                                                  |                                                                             | Y                          | es⊠ No□          |
|       | Core Operating Limits Report                                                           |                                                                             | Y                          | es□ No⊠          |
|       | Fire Hazards Analysis?                                                                 |                                                                             | ·                          | es□ No⊠          |
|       | Bases of the Technical Specifications?                                                 |                                                                             | Y                          | es□ No⊠          |
|       | Technical Requirements Manual?                                                         |                                                                             | Y                          | es□ No⊠          |
|       | NRC Safety Evaluation Reports?                                                         |                                                                             | Ye                         | es□ No⊠          |
|       | Involve a test or experiment not describ<br>(See Attachment 2 for guidance)            | ed in the SAR?                                                              | Ye                         | es∏ No⊠          |
|       | Result in a potential impact to the environmental Impact Determination                 | onment? (Complete<br>n of this form.)                                       | Ye                         | es□ No⊠          |
|       | Result in the need for a Radiological Sa<br>per section 6.1.5?                         | fety Evaluation                                                             | Ye                         | s□ No⊠           |
|       | Result in any potential impact to the equ<br>Storage Cask activities per Section 6.1.  | ipment or facilities utilized for Venti<br>5?                               | lated<br>Ye                | s⊡ No⊠           |
|       | Involve a change under 10CFR50.54 for per Section 6.1.7:                               | the following SAR documents                                                 |                            |                  |
|       | QAPM?                                                                                  |                                                                             | Ye                         | s□ No⊠           |
|       | E-Plan?                                                                                |                                                                             | Ye                         | s□ No⊠           |
|       | Does this review depend on future NRC                                                  | approval of other actions                                                   |                            |                  |

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ER 102239N201. FARE 10 REV 0

FORM TITLE:		ARKANSAS NUCLEAR ONE	EOPM NO	
	10CFR50.59 DET	ERMINATION	1000.131/	۹ 003-
Document No 002	239NI201			
	23314201	Rev./Change	e No. <u>0</u>	
Basis for Determina	ation (Questions 1	I <u>, 2 &amp; 3):</u> See page 4.		
Proposed change appropriate item #, s	e does not require send LDCR to Licen	10 CFR 50.59 Evaluation per A sing).	ttachment 1, Item #	_, (If checked, r
Search Scope:				· ····
performed on LRS, the parentheses. Control text, not figures or dra required.	he LRS search inde filled hard copies of rawings). Attach ar	ex should be entered under "Se the documents shall be review nd distribute a completed LD	Ruestion 1, 2 and 3. If ction" with the search ed (LRS is not verified CR per Section 6.1.2	a search was statement(s) us and searches of if LBD change
Document		Section		
50.59 Unit 1&2, OE-10643		Purge, CAMS, Atmosphere,	Containment w/10 pr	essure, Contair
MANUAL SECTIONS SAR Ch 3, Ch 9, 9.4- FIGURES: 9.4-4 (M-2261 Sh 1	5: 4(M2261 sh1)	11.4.2.2.3, TS bases 3.4.6.1	and 3.4.6.2	
MANUAL SECTIONS SAR Ch 3, Ch 9, 9.4-4 FIGURES: 9.4-4 (M-2261 Sh 1	5: 4(M2261 sh1)	11.4.2.2.3, TS bases 3.4.6.1	and 3.4.6.2	
MANUAL SECTIONS SAR Ch 3, Ch 9, 9.4- FIGURES: 9.4-4 (M-2261 Sh 1	S: 4(M2261 sh1) K	11.4.2.2.3, TS bases 3.4.6.1	and 3.4.6.2	4/04/00
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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. 002239N201

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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.
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?
	$\boxtimes$	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?
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?
	$\boxtimes$	Install any new transmission lines leading offsite?
	$\boxtimes$	Change the design or operation of the intake or discharge structures?
	$\boxtimes$	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?
	$\boxtimes$	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
	$\boxtimes$	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	$\boxtimes$	Result in a change to nonradiological effluents or licensed reactor power level?
	$\boxtimes$	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. ER 002239N201

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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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10CFR50.59 Eval. No.<u>*FFN* # 0.0-068</u> (Assigned by PSC)

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Title: 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.

Certif	ied Reviewer's Signature	Keith Perkins Printed Name	04/04/00 Date
	M		
7.	Will the margin of safety as defined in a specification be reduced?	the basis for any technical	Yes 🗋 No 🖂
6.	Will the possibility of a malfunction of e different type than any previously evalu	equipment important to safety of a uated in the SAR be created?	Yes 🗌 No 🖾
5.	Will the possibility of an accident of a c evaluated in the SAR be created?	lifferent type than any previously	Yes 🗌 No 🛛
4.	Will the consequences of a malfunction be increased?	n of equipment important to safety	Yes 🗌 No 🖾
3.	Will the probability of a malfunction of increased?	equipment important to safety be	Yes 🗌 No 🖂
2.	Will the consequences of an accident increased?	previously evaluated in the SAR be	Yes 🗌 No 🛛
1.	Will the probability of an accident prev increased?	iously evaluated in the SAR be	Yes 🗋 No 🛛

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

Assistance provided by:

Printed Name	Scope of Assistance	Date
PSC review by:	Date:7	ER 00223 9 N201

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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).

#### <u>History</u>

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 02239N201 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 the Reactor Building area sampled ifference the Reactor Building area sampled ifference the Reactor Building area sampled.

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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  $3/32^n \times 1/32^n$ . 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  $3/32^n \times 1/32^n$  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 mode pation does not affect components outside of the CAMS unit in such a way that reduces the capability of the entry 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 Control 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 affects on any other safety related equipment.

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Question 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 continuos operation in order to change the RCB ER 002239 N201

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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 in	pact to the electrical d	istribution			
<u>syste</u>	m (EDS) from the Replacement Steam Generator Project and from all	other 2R14 modificatio	ns that affect			
the E Will f	DS					
1	Require a change to the Operating License including:					
•.	Technical Specifications (excluding the bases)?	Y	′es□ No⊠			
	Operating License?	Y				
	Confirmation Orders?	· •				
•	Committeering Orders?	inan and taxt) baing				
۷.	(a) no longer true or accurate, or (b) violate a requirement stated in th	e document:				
	SAR (multi-volume set for each unit)?	Y	′es⊠ No□			
	Core Operating Limits Report	Y	′es∏ No⊠			
	Fire Hazards Analysis?	Y	′es□ No⊠			
	Bases of the Technical Specifications?	Y	′es□ No⊠			
	Technical Requirements Manual?	Ŷ	′es∏ No⊠			
	NRC Safety Evaluation Reports?	Y	′es∏ No⊠			
3.	Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Y	′es∏ No⊠			
4.	Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Ŷ	′es□ No⊠			
5.	Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Y	′es□ No⊠			
6.	Result in any potential impact to the equipment or facilities utilized for Storage Cask activities per Section 6.1.6?	r Ventilated	′es□ No⊠			
7.	Involve a change under 10CFR50.54 for the following SAR document per Section 6.1.7:	S				
	QAPM?	٢	∕es□ No⊠			
	E-Plan?	N	res□ 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)	<b>Y</b>	∕es⊡ No⊠			

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	NOD 002270N/201	Boy (Change No	0	2 of 3
Document No.	NCP 002370N201	Rev./Change No.	1	
Basis for Dete	rmination (Questions 1, 2 & 3): See A	ttached C Form	PAGE	_REV. O
Proposed of appropriate iter	hange does not require 10 CFR 50.59 E n #, send LDCR to Licensing).	valuation per Attach	ment 1, Item #, (If	checked, note
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: Fault Current, "Short Circuit Current", Short Circuit, generator w/10 Unit 2 50.59 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

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)

Kobert

Date

Certified Reviewer's Signature

Printed Name

		ARKANSAS NUCLEAR ONE		
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		ENVIRONMENTAL IMPACT DETERM (UNIT 1 and UNIT 2)		3 of 3
Docume	ent No. N	CP 002370N201 Rev./Change No	PAGE	
Complet is requir	te the follo red. See S	owing Determination. If the answer to any checklist item Section 6.1.4 for additional guidance.	is "Yes", an Environmen	tal Evaluation
Will the	Activity b	eing evaluated:		
Yes	No			
		Disturb land that is beyond that initially disturbed durin buildings, creation or removal of ponds, or other terre 2.5-17. This applies only to areas outside the protect	ng construction (i.e., new strial impact)? See Unit 2 ed area.	construction of 2 SAR Figure
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?		
	$\boxtimes$	Increase concentration of chemicals to cooling lake of tower?	r atmosphere through dise	charge canal or
		Increase quantity of chemicals to cooling lake or atmotostic tower?	sphere through discharge	e canal or
	$\boxtimes$	Modify the design or operation of cooling tower which	will change drift characte	eristics?
	$\boxtimes$	Install any new transmission lines leading offsite?		
	$\boxtimes$	Change the design or operation of the intake or discha	arge structures?	
	$\boxtimes$	Discharges any chemicals new or different from that	previously discharged?	
	$\boxtimes$	Potentially cause a spill or unevaluated discharge whi water or ground water?	ch may effect neighborin	g soils, surface
	$\boxtimes$	Involve burying or placement of any solid wastes in the surface water or ground water?	ie site area which may ef	fect runoff,
	$\boxtimes$	Involve incineration or disposal of any potentially haz	ardous materials on the A	NO site?
		Result in a change to nonradiological effluents or lice	nsed reactor power level?	?
	$\boxtimes$	Potentially change the type or increase the amount of ANO site.	non-radiological air emis	sions from the

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<u></u>		ARKANSAS NUCLE	AR ONE		
FORM	I TITLE:	10CFR50.59 EVALUATION		FORM NO. 1000.131B	REV. 003-04-0
			10CFR50 (4	.59 Eval. No. <u>FFN</u> 払 Assigned by PSC)	1 of 2 200-095
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A WI ATTA CON	RITTEN R ACHED. E ICLUSION	EIECTRICAL OFFACE FOR 2R 14 ESPONSE PROVIDING THE BASIS FO EACH QUESTION MUST BE ANSWERE IS NOT SUFFICIENT. ATTACHMENT	R THE ANSWER TO D SEPARATELY. A 2 PROVIDES GUIDA	EACH QUESTION SIMPLE STATEME	MUST BE NT OF ISE.
lf the to all	answer to questions	any question on this form is "Yes," then is "No," then the proposed change does	an unreviewed safet not involve an unrev	y question is involve iewed safety questic	d. If the answer n.
1.	Will the princreased	probability of an accident previously eval d?	uated in the SAR be		Yes 🗌 No 🛛
	<u>See Atta</u>	ched C Form			
2.	Will the o	consequences of an accident previously d?	evaluated in the SAR	be	Yes 🗌 No 🛛
	<u>See Atta</u>	ched C Form			
3.	Will the increase	probability of a malfunction of equipmen d?	t important to safety t	be	Yes 🗌 No 🛛
	See Atta	iched C Form			
4.	Will the be increa	consequences of a malfunction of equip ased?	nent important to saf	ety	Yes 🗋 No 🛛
	<u>See Atta</u>	iched C Form			
5.	Will the evaluate	possibility of an accident of a different ty d in the SAR be created?	pe than any previous	ly	Yes 🗌 No 🛛
	<u>See Atta</u>	ached C Form			
6.	Will the different	possibility of a malfunction of equipment type than any previously evaluated in th	important to safety on SAR be created?	of a	Yes 🗌 No 🖾
	<u>See Atta</u>	ached C Form			
7.	Will the specification of the	margin of safety as defined in the basis ation be reduced?	for any technical		Yes 🗌 No 🛛
	See Atta	ached C Form			

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FORM TITLE: 10CFR50.59 EVALUATIO	FORM NO. 1000.131B	REV. 003-04-0		
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Certified Reviewer's Signature	David A Robinson Printed Name		<u>6/22/00</u> Date	
Reviewer's certification expiration date: 03	8/01/01			
Assistance provided by:				
Printed Name	Scope of Assistance	I	Date	
PSC review by:	Date:	9/7/00		

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## 10CFR50.59 Review Continuation Page

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 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

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calculations 85-S-0000 expected to increase, t	2-01 and 89-E-0144-01. And load is bounded by that	Although accident lo t already assumed i	ading for some compo n these calculations.	onents is
Basis For Determination	<u>n:</u>			
Question 1			Ν	10
NCP 002370N201: "U	nit 2 Electrical Uprate"			
The Technical Spec if any changes to th found no conflicting of these documents	ification, Operating Licen ese documents would be information regarding the	se, and Confirmator caused by this NCP se changes. There	y Orders were reviewe A search was made fore, no changes are r	ed to determine on LRS, which equired to any
NCP 980406N201: "A	NO Unit 2 Main Generato	r Hydrogen Cooler f	Replacement"	
No Operating Licen	se documents were chang	ed by this NCP.		
NCP 980397N201: "G	enerator Stator Rewind"			
No Operating Licen	se documents were chang	jed by this NCP.		
NCP 981000N201: "T	urbine / Exciter Heat Dete	ector Disconnects"		
No Operating Licen	se documents were chan	ged by this NCP.		
Question 2			Ň	/ES
NCP 002370N201: "U will be revised to ac In the process of ch ratings, a significan reported under Unit fault current was ap noted that the fault the discrepancy wit current and withsta the 6.9 KV penetra	Init 2 Electrical Uprate" L Idress changes to the 6.9 tecking new fault current l t difference in results was 2 SAR 8.3.1.2.4.A "Regu oproximately 37,000 Amps current at the 6.9 KV bus h the SAR value is not prind times listed in the SAR tions to those which more	Init 2 SAR Section 8 KV penetration ava evels (due to the 2F noted for the 6.9 K latory Guide 1.63". s versus 20,500 Am es is only increasing marily due to the 2F are approximate, it accurately reflect th	3.1.2.4 A "Regulatory ilable fault current value (14 changes) against fault V RCP penetration cirro The calculated value ps noted in the SAR. (about 1% due to 2R1 (14 changes.) Even the is prudent to update to the present engineering	Guide 1.63" ue discussion. EDS equipment cuits versus that for available (It should be 4 changes, so hough the he values for 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** 

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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Document No.	NCP 002370N201	Rev./Change No.	PAGE	
2. Will	the consequences of an accid	lent previously evaluated in the	SAR be increased?	NO
NCP 0	02370N201: "Unit 2 Electrical I	Uprate"		
No acc change created	idents were found in the SAR t in fault current values since t for the release of radioactive	that would have their radiation on he new value is less than the ra materials	lose consequences a ted value. No new pa	ltered by this athways are
NCP 9	80406N201: "ANO Unit 2 Main	n Generator Hydrogen Cooler Re	eplacement"	
The pr fission does n areas o	oposed change does not impac product barriers or introduce n ot create new or aggravate exi or otherwise impede mitigating	ct any equipment credited with a new pathways for fission product isting onsite dose consequences actions.	accident mitigation no t release. Furthermot s that might restrict ac	or does it affec re this activity ccess to vital
3. Wil	I the probability of a malfunction	on of equipment important to sa	fety be increased?	NO
NCP 0	02370N201: "Unit 2 Electrical	Uprate"		
Since t contain equipn	the newly calculated fault value nment building penetrations the nent important to safety.	e is less than the original desigr ere will not be any increase in th	n specifications for the ne probability of a ma	e 6.9 KV Ifunction of
NCP 9	80406N201: "ANO Unit 2 Mair	n Generator Hydrogen Cooler R	eplacement"	
The re	placement coolers meet the m	anufacturer's requirements of the spot increased. No impact on s	ne original hydrogen o	coolers and

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

NCP 002370N201: "Unit 2 Electrical Uprate"

identified.

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?

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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FOR		10CFR50.59 DETERMINATION		FORM NO. 1000.131A	REV. 003-04-0
Doc	ument No. NCF	° 002370N201	Rev./Change No. 2	FAGE _	1 of 3
Title	Unit 2 Electri	cal Uprate for 2R14			<u></u>
Brie	f description of p	proposed change: This NCP evaluation	ates the overall impa	act to the electrical	distribution
<u>syst</u>	em (EDS) from f	he Replacement Steam Generator Pr	oject and from all ot	her 2R14 modifica	tions that affect
will	the proposed A				
1.	Require a cha	nge to the Operating License including	<b>n</b> .		
	Technical Sne	cifications (excluding the bases)?	g.		V
		anco?			
					Yes No
~					Yes∐ No⊠
2.	(a) no longer t	rue or accurate, or (b) violate a requir	ts (including drawing ement stated in the o	is and text) being document:	
	SAR (multi-vo	lume set for each unit)?			Yes No
	Core Operatin	g Limits Report			Yes No
	Fire Hazards A	Analysis?			Yes No
	Bases of the T	echnical Specifications?			Yes No
	Technical Req	uirements Manual?			Yes No
	NRC Safety E	valuation Reports?			Yes No
3.	Involve a test (See Att	or experiment not described in the SA achment 2 for guidance)	R?		Yes No
4.	Result in a pot the Environme	ential impact to the environment? (Co ental Impact Determination of this form	mplete 1.)		Yes No
5.	Result in the n per section 6.1	eed for a Radiological Safety Evaluat .5?	ion		Yes No
ô.	Result in any p Storage Cask	potential impact to the equipment or fa activities per Section 6.1.6?	cilities utilized for V	entilated	Yes No
7.	Involve a chan per Section 6.1	ge under 10CFR50.54 for the followin 1.7:	g SAR documents		
	QAPM?				Yes No
	E-Plan?				Yes No
3.	Does this revie	w depend on future NRC approval of	other actions	•	Yes⊡ No⊠

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FORM TITLE: 10	10CFR50.59 DETERMINATION		FORM NO. 1000.131A		REV. 003-04-0
Document No. NCP 0023	<b>70N2</b> 01	Rev./Change No.	2	1	2 of 3
Basis for Determination (	Questions 1, 2 & 3): Se	e Attached C Form		PAGE	REV. Ø
Proposed change does note appropriate item #, se Search Scope:	not require 10 CFR 50.5 nd LDCR to Licensing).	59 Evaluation per Attach	ment 1,	ltem #	, (If checked,
List sections reviewed in th performed on LRS, the LRS parentheses. Controlled ha text, not figures or drawing required.	e Licensing Basis Docur S search index should be ard copies of the docume s). Attach and distribu	nents specified in Questi e entered under "Section" ents shall be reviewed (L ite a completed LDCR p	on 1, 2 ' with th RS is no e <b>r Sec</b> t	and 3. If a se e search state ot verified and tion 6.1.2 if L	earch was ement(s) used in d searches only . <b>BD changes are</b>

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** Scope of Assistance Date Brad Risner SAR searches, 9/13/00

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

Robert

9-*13-0*2 Date

Certified Reviewer's Signature

Printed Name

			ARKANSAS NUCLEAR ONE				
FORM TIT		10CFR50.59 DETE	RMINATION	FORM NO. 1000.131A	REV. 003-04-0		
3 of 3 ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)							
Document No. NCP 002370N201 Rev./Change No. 2							
Complet is require	e the fo ed. See	llowing Determination. I Section 6.1.4 for addition	f the answer to any checklist item is ' onal guidance.	"Yes", an Environment	tal Evaluation		
Will the	Activity	being evaluated:					
Yes	No						
	$\boxtimes$	Disturb land that is t buildings, creation o 2.5-17. This applies	beyond that initially disturbed during or r removal of ponds, or other terrestrians only to areas outside the protected a	construction (i.e., new al impact)? See Unit 2 area.	construction of 2 SAR Figure		
	Increase thermal discharges to lake or atmosphere?						
	□ □ Increase concentration of chemicals to cooling lake or atmosphere through discharge canal o 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?						
	$\boxtimes$	Change the design of	or operation of the intake or discharge	e structures?			
	$\boxtimes$	Discharges any cher	micals new or different from that prev	viously discharged?			
	$\boxtimes$	Potentially cause a s water or ground wate	spill or unevaluated discharge which a er?	may effect neighboring	g soils, surface		
	$\boxtimes$	Involve burying or pl surface water or gro	lacement of any solid wastes in the s und water?	ite area which may eff	ect runoff,		
	$\boxtimes$	Involve incineration	or disposal of any potentially hazardo	ous materials on the A	NO site?		
	$\boxtimes$	Result in a change to	o nonradiological effluents or license	d reactor power level?			
	$\boxtimes$	Potentially change the ANO site.	he type or increase the amount of no	n-radiological air emis	sions from the		



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Docu	ment No. NCP 002370N201	Rev./Change No.	2 PAGE	6REV. g
⊤itle_	Unit 2 Electrical Uprate for 2R14			·
A WF ATTA CON	RITTEN RESPONSE PROVIDING THE BASIS FOR ACHED. EACH QUESTION MUST BE ANSWERED CLUSION IS NOT SUFFICIENT. ATTACHMENT 2	THE ANSWER TO SEPARATELY. A PROVIDES GUIDA	EACH QUESTION SIMPLE STATEM	N MUST BE ENT OF NSE.
lf the to all	answer to any question on this form is "Yes," then a questions is "No," then the proposed change does r	an unreviewed safet ot involve an unrev	y question is involv iewed safety quest	red. If the answer ion.
1.	Will the probability of an accident previously evalu increased?	ated in the SAR be		
	See Attached C Form			
2.	Will the consequences of an accident previously en increased?	valuated in the SAR	be	Yes 🗌 No 🛛
	See Attached C Form			
3.	Will the probability of a malfunction of equipment i increased?	mportant to safety b	e	Yes 🗌 No 🖾
	See Attached C Form			
4.	Will the consequences of a malfunction of equipmed be increased?	ent important to safe	ety	Yes 🗌 No 🛛
	See Attached C Form			
5.	Will the possibility of an accident of a different type evaluated in the SAR be created?	e than any previousl	у	Yes 🗌 No 🛛
	See Attached C Form			
6.	Will the possibility of a malfunction of equipment in different type than any previously evaluated in the	mportant to safety o SAR be created?	fa	Yes 🗌 No 🛛
	See Attached C Form		· · · · · · · · · · · · · · · · · · ·	
7.	Will the margin of safety as defined in the basis fo specification be reduced?	r any technical		Yes 🗌 No 🛛
	See Attached C Form			

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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	Scope of Assistance		Date
PSC review by:	Date:	9 21/00	

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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.

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/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 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 assumptions.

## **Basis For Determination:**

Question 1

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

NO

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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

Jett

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

Nett

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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reduce will not nor will Therefe	r and 5" components with 6" di change, degrade, or prevent a l does it play a role in mitigating ore, accident radiation dose co	ameter pipe and compone actions described or assum g the consequences of an nsequences are not altere	ents in the Stator Cooling ned in any accident discu accident described in the d by this NCP.	Water System issed in the SAR, SAR.
3. Will	I the probability of a malfunctio	n of equipment important	to safety be increased?	NO NI
NCP 0	02370N201: "Unit 2 Electrical L	Jprate"		
Since t contain equipm	he newly calculated fault value ment building penetrations the nent important to safety.	e is less than the original d re will not be any increase	esign specifications for the in the probability of a m	ne 6.9 KV alfunction of
NCP 98	80406N201: "ANO Unit 2 Main	Generator Hydrogen Cool	ler Replacement"	
The rep therefo identifie	placement coolers meet the ma re the likelyhood of failure has ed.	anufacturer's requirements not increased. No impact	s of the original hydrogen on safety related compo	coolers and ments could be
NCP 98	80397N201: "Generator Stator	Rewind"		
The con equipm being re Therefo an affer	mputer point was mistakenly sh nent important to safety. Stator eplaced with a new valve that i pre, the new valve will not requ ct on the probability of a malfu	nown on the SAR figure ar Water Cooling system co s a 6" valve. The piping th ire a reducer as before. T nction of equipment impor	nd P&ID. Its removal will ontrol valve 2CV-9785 wa his valve was connected 'his is a non-Q system th tant to safety.	not affect any is a 5" valve. It is to is 6". at does not have
4. Will	the consequences of a malfun	ction of equipment import	ant to safety be increase	
NCP 00	02370N201: "Unit 2 Electrical U	Jprate"		
The new backup caused consequ	w fault current values are within protection breakers. Therefore by this NCP. Additionally, no uences.	n the rated values for the o e, there will not be any inc new SSC's are being insta	containment penetrations rease in offsite dose con illed that could increase (	and the primary sequences offsite dose
NCP 98	30406N201: "ANO Unit 2 Main	Generator Hydrogen Cool	er Replacement"	
The pro identifie consequ not safe	posed replacement does not a ed in the SAR. Additionally, no uences. The hydrogen coolers ety related.	dversely impact the conse new SSCs are being insta are not relied upon to red	equence of equipment ma alled that could increase luce offsite dose consequ	alfunctions offsite dose iences and are

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?



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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.

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 is 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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Docu	ment No. 003132N201 Rev./Change No.	<u>0</u>	-
Title	EDG Pnuematic Timer Replacement	-	
Brief	description of proposed change: Replace the ITE pneumatic timing	relay on the T2A and	T3A relays in
the E	DG 2K-4A and 2K-4B control circuits with Agastat E7012 pneumatic tin	ning relays. Additiona	lly, re-wire the
para	leled contacts from relays T3A and T3B in the circuit for the EDG low li	ube oil pressure trip to	place these
	acts in series. See Form C for additional information.	<u></u>	
4 V III	Boguire a change to the Operating License including:		
1.	Technical Specifications (evoluting the bases)?	,	
	Operating License?		
_	Contirmatory Orders?		res No
2.	(a) no longer true or accurate, or (b) violate a requirement stated in th	e document:	
	SAR (multi-volume set for each unit)?	Ň	Yes⊠ No□
	Core Operating Limits Report	Ň	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 Storage Cask activities per Section 6.1.6?	r Ventilated	Yes□ No⊠
7.	Involve a change under 10CFR50.54 for the following SAR document per Section 6.1.7:	S	
	QAPM? 3		Yes No
	E-Plan? PAGE		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		_
FORM TITLE:	10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-04-0
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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.

Document	Section				
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:	All				
FIGURES: Unit 2 SAR Chap 8 Figures	All				
Bical Jim Certified Reviewer's Signature	Brad Risner Printed Name	<b>10</b> - 29 - 0 0 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)					
Robert / Bury	Robert Buser	11-3-00			

Certified Reviewer's Signature

**Printed Name** 

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:

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.
	$\boxtimes$	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?
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?
	$\boxtimes$	Install any new transmission lines leading offsite?
	$\boxtimes$	Change the design or operation of the intake or discharge structures?
	$\boxtimes$	Discharges any chemicals new or different from that previously discharged?
	$\boxtimes$	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?
	$\boxtimes$	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	$\boxtimes$	Result in a change to nonradiological effluents or licensed reactor power level?
	$\boxtimes$	Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

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		10CFR50.59 EVALUATION		1000.131B	003-04-0
L			10CFR50 (/	Pa .59 Eval. No. <u>FFA#</u> Assigned by PSC)	age 4 of 8 00-121
Docu	ment No. 003132N	<u>1201</u>	Rev./Change No.	<u>0</u>	
Title_	EDG Pneumatic	Timer Replacement			<del>_</del> _
A WI ATTA CON	RITTEN RESPONSI ACHED. EACH QUI CLUSION IS NOT S	E PROVIDING THE BASIS FO ESTION MUST BE ANSWERI SUFFICIENT. ATTACHMENT	OR THE ANSWER TO ED SEPARATELY. A 2 PROVIDES GUIDA	EACH QUESTION N SIMPLE STATEMEN	NUST BE IT OF SE.
lf the to all	answer to any ques questions is "No," t	stion on this form is "Yes," ther hen the proposed change does	n an unreviewed safet s not involve an unrev	y question is involved iewed safety question	. If the answer
1.	Will the probability increased?	of an accident previously eva	luated in the SAR be	Y	es 🗌 No 🛛
	See Form C				
2.	Will the consequer increased?	nces of an accident previously	evaluated in the SAR	t be Y	es 🗌 No 🖾
	See Form C				
3.	Will the probability increased?	y of a malfunction of equipmen	nt important to safety l	be Y	es 🗌 No 🛛
	See Form C				
4.	Will the conseque be increased?	nces of a malfunction of equip	ment important to saf	ety Y	ïes 🗌 No 🛛
	See Form C				
5.	Will the possibility evaluated in the S	of an accident of a different ty CAR be created?	ype than any previous	i <b>ly</b>	″es 🗌 No 🛛
	See Form C				
6.	Will the possibility different type thar	y of a malfunction of equipmen any previously evaluated in t	it important to safety on the SAR be created?	of a	′es 🗌 No 🛛
	See Form C		PA	GE_6 REV	0
					•
7.	Will the margin of specification be re	f safety as defined in the basis educed?	for any technical	`	/es 🗌 No 🖾
	See Form C			•••	

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Document No. 003132N201	Rev./Change No.	<u>0</u>	
- mad roner	Brad Risner		10/29/00
Certified Reviewer's Signature	Printed Name		Date
Reviewer's certification expiration date:	5/2/02		
Assistance provided by:			
Printed Name	Scope of Assistance		Date
PSC review by: TBNA	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.

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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

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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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<u>Question # 1 & 2:</u> No change to any of the Operating License (Operating License, Technical Specifications including bases and Confirmatory Orders) <u>OR</u> 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.

Document Section

LRS : <u>All applicable Unit 2 sections (ECCS w/10 HPSI; 2DCB; 2GCD; 2P89A; 2P89B; 2P89C; 2P\*89\*;</u> 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		
ule man	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  $\gamma \mu \mu ||^{-12-\sigma v}$  Review of Unit 2 SAR and Technical Specification 11 / 20 / 2000

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

m. 16

Certified Reviewer's Signature

Keith Betler Printed Name

11/22/00

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 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>	
		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.
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?
		Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?
	$\boxtimes$	Install any new transmission lines leading offsite?
	$\boxtimes$	Change the design or operation of the intake or discharge structures?
	$\boxtimes$	Discharges any chemicals new or different from that previously discharged?
	$\boxtimes$	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
	$\boxtimes$	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
	$\boxtimes$	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	$\boxtimes$	Result in a change to nonradiological effluents or licensed reactor power level?
	$\boxtimes$	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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Docume	nt No. 003258N201	Rev./Change No.	10CFR5	0.59 Eval. N	No. <u>FFU# (</u>
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If the ans to all que	swer to any question on this f estions is "No," then the prop	form is "Yes," then an unreviewed osed change does not involve an u	safety questior inreviewed saf	is involved ety question	. If the answer
1.	Will the probability of an ac increased?	ccident previously evaluated in the	SAR be	Yes 🗌 🕴 N	No 🖂
2.	Will the consequences of a be increased?	an accident previously evaluated in	the SAR	Yes 🗌 🛛 🗎	10 🛛
3.	Will the probability of a ma be increased?	lfunction of equipment important to	o safety	Yes 🗌 🕴 N	10 🛛
4.	Will the consequences of a safety be increased?	a malfunction of equipment importation	ant to	Yes 🗌 🛛 N	10 🖾
5.	Will the possibility of an acceleration of an acceleration of the same of the	cident of a different type than any reated?	previously	Yes 🗌 🛛 N	10 🛛
6.	Will the possibility of a main a different type than any pro-	function of equipment important to reviously evaluated in the SAR be	safety of created?	Yes 🗌 🛛 N	10 🛛
7.	Will the margin of safety as specification be reduced?	s defined in the basis for any techn	ical	Yes 🗌 🛛 N	lo 🖂
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<u>A Mir</u> Cer	tified Reviewer's Signature	W. G. Dor	novan		11/21/2000
Reviewer	's certification expiration dat	10/10/2000	anc		Dale
	e continoution expiration dat				
Assistanc	e provided by:				
P Tim	rinted Name othy Woodson TPW II-ZZ-07 R	Scope of Assistance Review of Unit 2 SAR and Technic	al Specification	1	Date 1 / 20 / 2000

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	ARKANSAS NUCLEAR ONE W CONTINUATION PAGE Rev./Change No. 0	ARKANSAS NUCLEAR ONE FORM NO. 1000.131C Rev./Change No. 0 Page

# 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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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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## **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 localized area of the plant where the existing piping is still all within the same localized area of the plant where the existing piping is located.

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# 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 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, followingcompletion 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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	ARKANSAS NUCLEAR ONE							
FOF	RM TITLE: FORM N 10CFR50.59 DETERMINATION 10	O. REV. 100.131A 003-04-0						
_	PAGE 3 REV. #	0 1 of 3						
Doc	cument No. NCP 963089N201 Rev./Change No. 0							
Title	Title Removal of the 2A3 Current Limiting Reactor							
Brie <u>bet</u> <u>NCI</u> <u>cap</u> Will	Brief description of proposed change: <u>This NCP will remove the current limiting reactor (CLR) 2X31</u> 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⊡ No⊠						
	Operating License?	Yes□ No⊠						
	Confirmatory Orders?	Yes⊡ No⊠						
2.	Result in information in the following SAR documents (including drawings and te (a) no longer true or accurate, or (b) violate a requirement stated in the documer	xt) being nt:						
	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⊠						

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		2	of 3		
Document No. NCP 963089N201	Rev./Change No.	0			
Basis for Determination (Questions *	l <u>, 2 &amp; 3):</u> See attached form C PAG		<u>0</u>		
Proposed change does not require appropriate item #, send LDCR to Licer	10 CFR 50.59 Evaluation per Attachn sing).	nent 1, Item #, (If c	hecked, note		
Search Scope:					
List sections reviewed in the Licensing performed on LRS, the LRS search indeparentheses. Controlled hard copies of text, not figures or drawings). Attach a required.	Basis Documents specified in Questic ex should be entered under "Section" the documents shall be reviewed (LF nd distribute a completed LDCR pe	on 1, 2 and 3. If a sea with the search staten S is not verified and s ar Section 6.1.2 if LB	rch was nent(s) used in searches only <b>D changes are</b>		
Document	Section				
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"					
	Bue 5-14-00				
Unit 2 SAR Chapter 8	8.3.1.1.8.\$, 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 st	1. 1, 9.5-4		
Owen, Reviewer's Signature	David A Robinson Printed Name	03	5/ <b>13/00</b> Date		
Reviewer's certification expiration date:	03/01/2001				
Assistance provided by:					
Printed Name Brad Risner But	Scope of Assistance RS Search, SAR Search		Date 03/10/00		
Search Scope Review Acceptability	NA, if performed by Technical Review	w per 1000.006)			
Certified Reviewer's Signature	Printed Name		Date		

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FORM TI		10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-04-0					
Background to the second secon									
Complet is requir	te the follored. See	owing Determination. If the answer to any checklist item is Section 6.1.4 for additional guidance.	"Yes", an Environmen	tal Evaluation					
Will the	Activity b	eing evaluated:		• .					
Yes	No								
		Disturb land that is beyond that initially disturbed during buildings, creation or removal of ponds, or other terrestr 2.5-17. This applies only to areas outside the protected	construction (i.e., new ial impact)? See Unit area.	construction of 2 SAR Figure					
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?							
	$\boxtimes$	Increase concentration of chemicals to cooling lake or a tower?	tmosphere through dis	charge canal or					
	$\boxtimes$	Increase quantity of chemicals to cooling lake or atmost tower?	here through discharg	e canal or					
	$\boxtimes$	Modify the design or operation of cooling tower which with	ill change drift characte	eristics?					
	$\boxtimes$	Install any new transmission lines leading offsite?							
	$\boxtimes$	Change the design or operation of the intake or discharg	je structures?						
	$\boxtimes$	Discharges any chemicals new or different from that pre	viously discharged?						
		Potentially cause a spill or unevaluated discharge which water or ground water?	may effect neighborin	g soils, surface					
	$\boxtimes$	Involve burying or placement of any solid wastes in the sourface water or ground water?	site area which may ef	fect runoff,					
	$\boxtimes$	Involve incineration or disposal of any potentially hazard	lous materials on the A	NO site?					
	$\boxtimes$	Result in a change to nonradiological effluents or license	ed reactor power level?	?					
		Potentially change the type or increase the amount of no ANO site.	on-radiological air emis	ssions from the					

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FORM	A TITLE:	10CFR50.59 EVALUATION		FORM NO. 1000.131B	REV. 003-04-0
		PAGEREV.#	0 10CFR50 (/	.59 Eval. No. <u>Frv #</u> Assigned by PSC)	1 of 2 00-072
Docu	iment No.	NCP 963089N201 Rev./Cl	nange No.	0	
Title_	Remov	al of the 2A3 Current Limiting Reactor			
A WI ATT/ CON	RITTEN RE ACHED. E ICLUSION	ESPONSE PROVIDING THE BASIS FOR THE A ACH QUESTION MUST BE ANSWERED SEPAN IS NOT SUFFICIENT. ATTACHMENT 2 PROVI	NSWER TO RATELY. A DES G'JIDA	EACH QUESTION N SIMPLE STATEMEN	IUST BE T OF E.
lf the to all	e answer to questions	any question on this form is "Yes," then an unrev is "No," then the proposed change does not invol	iewed safet ve an unrev	y question is involved. iewed safety question.	If the answer
1.	Will the p increased	probability of an accident previously evaluated in t l?	he SAR be	Ye	es 🗌 No 🕅
	See attac	ched Form C			
2.	Will the c increased	onsequences of an accident previously evaluated	in the SAR	be Ye	es 🗌 No 🛛
	See attac	ched Form C			
3.	Will the p increased	robability of a malfunction of equipment importan	t to safety b	e Ye	es 🗌 No 🛛
	See attac	ched Form C			
4.	Will the c be increas	onsequences of a malfunction of equipment imposed?	rtant to safe	ety Ye	es 🗌 No 🛛
	See attac	ched Form C			
5.	Will the p evaluated	ossibility of an accident of a different type than and in the SAR be created?	ıy previousl	y Ye	es 🗌 No 🛛
	See attac	ched Form C			
6.	Will the p different t	ossibility of a malfunction of equipment important type than any previously evaluated in the SAR be	to safety of created?	fa Ye	es 🗌 No 🛛
	See attac	ched Form C			
7.	Will the n specificat	nargin of safety as defined in the basis for any tec ion be reduced?	hnical	Ye	es 🗌 No 🕅
	See attac	ched Form C			

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FORM TITLE: 10CFR50.59 EVALU	FORM NO. 1000.131B	REV. 003-04-0	
	PADE <b>7</b>	DEM.O O	2 of 2
David C. John	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	Scope of Assistance		Date
Brad Risner But	Initial Draft		3-13-00
PSC review by:	Date:	7/13/00	2

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FORM TITLE:	10CFR50.59 REVIEW CONTINUA	TION PAGE	FORM NO. 1000.131C	REV. 003-04-0
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# 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:		PAGE		HEV.#	

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.

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

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?

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 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.

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ARKANSAS NUCLEAR ONE						
FOR	M TITLE: FORM	NO. 1 <b>000.131A</b>	REV	3 PC-1		
			Page	<u> </u>		
Doc	ument No. 963197N201 Rev./Change No. 0					
Title	REPLACE SG BLOWDOWN SODIUM ANALYZERS					
Brie	f description of proposed change:SEE TITLE					
Will	the proposed Activity:					
1.	Require a change to the Operating License including: NC 9631	97N201				
	Technical Specifications (excluding the bases)? PAGE 7	REV D	Yes⊡	No⊠		
	Operating License?		Yes⊡	No⊠		
	Confirmatory Orders?		Yes	No⊠		
2.	Result in information in the following SAR documents (including drawings and t (a) no longer true or accurate, or (b) violate a requirement stated in the document	text) being ent:				
	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 Ventilate Storage Cask activities per Section 6.1.6?	эd	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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FORM TITLE: 10CFR50.59 DETE	ERMINATION	FORM NO. 1000.131A	REV. 3 PC-1,2			
Document No. <u>963197N201</u> Basis for Determination (Questions 1 The NC will disconnect the instrume	Rev./Change No. <u>, 2 &amp; 3):</u> nt air from 2AITS-5933/5935. This	NC 9631 O PAGE S change will be show	Page Z of 4 97N2O1 REV C wn on P&ID M-			
<ul> <li>Proposed change does not require anote appropriate item #, send LDCR to I</li> </ul>	I0 CFR 50.59 Evaluation per Attachr Licensing).	nent 1, Item #,	(If checked,			
Search Scope:						
List sections reviewed in the Licensing I performed on LRS, the LRS search indeparentheses. Controlled hard copies of text, not figures or drawings). Attach a required.	Basis Documents specified in Questic ex should be entered under "Section" the documents shall be reviewed (Li nd distribute a completed LDCR p	on 1, 2 and 3. If a sea with the search state RS is not verified and er Section 6.1.2 if LE	arch was ment(s) used in searches only BD changes are			
<u>Document</u> LRS: ALL	<u>Section</u> (Sodium Analyzer, SG Blowdo 2AITS-5933, 2AITS-5935, 2C377	own, Steam Genera	tor Blowdown,			
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)				
Sture Capelland	STEVE CAPEHART	9-	-11-99			
Certified Reviewer's Signature     Printed Name     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 Revie John HARvey	ew per 1000.006) /	9/12/99			

Certified Reviewer's Signature

Printed Name

Date

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FORM TITLE:	10CFR50.59 DETERMIN	IATION	FORM NO. 1000.131A	REV.
	ENVIRONME	NTAL IMPACT DETERMIN (UNIT 1 and UNIT 2)	NATION NC 963	Page $\underline{3}$ of 197N 201
Document No	<u>963197N201</u>	Rev./Change No.	• PAGE C	REVO
Complete the is required. S	following Determination. If the ee Section 6.1.4 for additional	answer to any checklist item is guidance.	"Yes", an Environmer	ntal Evaluatior
Will the Activi	ty being evaluated:			
Yes No				
	Disturb land that is beyon buildings, creation or ren 2.5-17. This applies only	nd that initially disturbed during noval of ponds, or other terrestri y to areas outside the protected	construction (i.e., new ial impact)? See Unit area.	construction ( 2 SAR Figure
	Increase thermal dischar	ges to lake or atmosphere?		
	Increase concentration o tower?	f chemicals to cooling lake or a	mosphere through dis	charge canal
	Increase quantity of cher tower?	nicals to cooling lake or atmosp	here through discharg	e canal or
	Modify the design or ope	ration of cooling tower which wi	II change drift charact	eristics?
	Install any new transmiss	sion lines leading offsite?		
	Change the design or op	eration of the intake or discharg	e structures?	
	Discharges any chemica	Is new or different from that pre	viously discharged?	
	Potentially cause a spill water or ground water?	or unevaluated discharge which	may effect neighborir	ng soils, surfac
	Involve burying or place surface water or ground	ment of any solid wastes in the swater?	site area which may e	ffect runoff,
	Involve incineration or d	isposal of any potentially hazard	lous materials on the	ANO site?
	Result in a change to no	nradiological effluents or license	ed reactor power level	?
	Potentially change the ty ANO site.	pe or increase the amount of no	on-radiological air emi	ssions from th

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			Page 4

Document	No.	NC	9631	97	'N201

### Rev./Change No. 0

NC 963197N201

#### PAGE 10 REV 0 10CFR50.59 Review Continuation Page

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 or 3/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.

		ARKANS	AS NUCLEAR ONE	· · · · · · · · · · · · · · · · · · ·			
FORM	I TITLE: 10C	FR50.59 EVALUATIO	N.		FORM NO. 1000.131B	REV. 3 PC-2	
		NC 96319 Page	97N201 REV 0	10CFR50 (4	.59 Eval. No 🖓	Page <u>1</u> of <u>2</u> FN-99-109	
Docu	ment No. 963197N101		Rev./C	hange No.	<u>0</u>		
Title_	REPLACE SG BLOW	DOWN SODIUM	ANALYZERS				
A WI ATTA CON	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.						
lf the to all	answer to any question of questions is "No," then the	on this form is "Ye he proposed chan	es," then an unre ge does not invo	viewed safet lve an unrev	y question is involved iewed safety question	. If the answer	
1.	Will the probability of an increased?	n accident previou	isly evaluated in	the SAR be	Y	es 🗌 No 🛛	
	The affected analyzers The analyzers do not Therefore, the probabili	are used to moni interface with an ty of an accident	itor sodium conc ny equipment, p previously evalua	entration in t iping etc tha ated in the S/	the steam generator l at are considered ac AR is not increased.	blowdown water. cident initiators.	
2.	Will the consequences increased?	of an accident pre	viously evaluate	d in the SAR	be Y	es 🗌 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 increased?	malfunction of eq	uipment importa	nt to safety b	e Y	es 🗌 No 🛛	
	The analyzers are not interface with any equip of a malfunction of equi	considered equipment that is considered in the considered equipment important to the construction of the c	ipment importan sidered equipme to safety is not ir	t to safety and important increased.	and do not physicall to safety. Therefore	y or electrically , the probability	
4.	Will the consequences be increased?	of a malfunction o	of equipment imp	ortant to safe	ety Y	es 🗌 No 🛛	
	The analyzers do not in equipment important to consequences of a main	terface with any e safety are not a function of equipn	equipment that is affected by the i nent important to	important to installation o safety are n	safety. The critical of the new analyzers. ot increased.	characteristics of Therefore, the	
5.	Will the possibility of ar evaluated in the SAR b	accident of a difier	ferent type than a	any previous	iy Y	es 🗌 No 🛛	

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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.

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

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 analyzers are not considered equipment important to safety and do not interface with any equipment that are 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?

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

Certified Reviewer's Signature

\_\_\_\_STEVE CAPEHART\_\_ Printed Name

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

Assistance provided by:

PSC review by: \_\_\_\_

Printed Name

Scope of Assistance \_\_\_\_ Date:\_\_\_ Mal

Date

NC 963197N201 PAGE /2 REV 0

Yes 🗌 No 🕅

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г <del>.</del>		10CFR50.59 DETER			FORM I	NO. 000.131/	4	RE	V 3 PC-1
									Page⊥o
Doci	ument No. 963197	7N202	Rev./Char	nge No.	<u>0</u>				
Title	REPLACE STA	RTUP BLOWDOW	N DEMINERALIZER SOI	DIUM AN	ALYZER	2AIT-	<u>456</u>	2	
Briet Will	f description of prop the proposed Activ	posed change: <u> </u>							
1.	Require a change	e to the Operating Li	cense including:	NC	96319	) 7 N 2 (	) 2		
	Technical Specifi	cations (excluding t	he bases)?	PAGE	5	REV	0	Yes⊡	No⊠
	Operating License	e?						Yes	No⊠
	Confirmatory Ord	ers?						Yes□	No⊠
2.	Result in informat (a) no longer true	tion in the following or accurate, or (b) v	SAR documents (includir /iolate a requirement stat	ng drawing ed in the	gs and te docume	ext) bei nt:	ng		
	SAR (multi-volum	e set for each unit)?	,					Yes⊠	No
	Core Operating Li	imits Report						Yes	No⊠
	Fire Hazards Anal	lysis?						Yes□	No⊠
	Bases of the Tech	inical Specifications	?					Yes	No⊠
	Technical Require	ements Manual?						Yes	No⊠
	NRC Safety Evalu	ation Reports?						Yes	No⊠
3.	Involve a test or e (See Attachr	xperiment not descr ment 2 for guidance	ibed in the SAR? )					Yes	No⊠
•	Result in a potentian the Environmental	al impact to the env Impact Determinat	ironment? (Complete on of this form.)					Yes	No⊠
•	Result in the need per section 6.1.5?	for a Radiological S	afety Evaluation					Yes	No⊠
•	Result in any poter Storage Cask activ	ntial impact to the environmentation of the section	quipment or facilities utili. 1.6?	zed for Ve	entilated			Yes	No⊠
	Involve a change upper Section 6.1.7:	under 10CFR50.54 f	or the following SAR doc	uments				_	_
	QAMO?							Yes	No⊠
	E-Plan?						•	Yes	 No⊠

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	ARKANSAS NUCLEAR ONE	
FORM HILE:	10CFR50.59 DETERMINATION	FORM NO. REV. 1000.131A '3 PC-1,2
Document No. <u>963197N</u> <u>Basis for Determination</u> The NC will delete 2FIC changes will be shown	Rev./Chan (Questions 1, 2 & 3): -4562 & 2SV-4563 and abandon 2IA-184 On P&ID M-2229 sbt 1 which is SAB Fire	Page <u>Z</u> of NC 963197N202 Mge No. 0 PAGE (O REV 0 R, 2PCV-3000, 2BD-86 and 2AR-4562. These
Proposed change doe appropriate item #, send I	es not require 10 CFR 50.59 Evaluation per LDCR to Licensing).	r Attachment 1, Item #, (If checked, note
Search Scope:		
List sections reviewed in t performed on LRS, the LF parentheses. Controlled t text, not figures or drawing <b>required.</b>	the Licensing Basis Documents specified in RS search index should be entered under "S hard copies of the documents shall be revie gs). Attach and distribute a completed L	a Question 1, 2 and 3. If a search was Section" with the search statement(s) used in ewed (LRS is not verified and searches only _DCR per Section 6.1.2 if LBD changes are
Document	Section	
ALL	(Sodium Analyzer, Start 2C311)	up Blowdown, Demineralizer, 2AIT-4562,
MANUAL SECTIONS: 10.4	Water Chemistry	
MANUAL SECTIONS: 10.4 FIGURES: Figure 10.4-7	Water Chemistry P&ID StartUp and Blowdo	own Demineralizer System
MANUAL SECTIONS: 10.4 FIGURES: Figure 10.4-7 Certified Reviewer's Signa	Water Chemistry P&ID StartUp and Blowdo Mathematics STEVE CAPEH ature Printed Nar	own Demineralizer System
MANUAL SECTIONS: 10.4 FIGURES: Figure 10.4-7 Certified Reviewer's Signal Reviewer's certification ex	Water Chemistry P&ID StartUp and Blowdo Mathematical STEVE CAPEH ature Printed Nar piration date: 5/4/01	own Demineralizer System IART <u>5-18-00</u> ne Date
MANUAL SECTIONS: 10.4 FIGURES: Figure 10.4-7 Certified Reviewer's Signal Reviewer's certification ex Assistance provided by:	Water Chemistry P&ID StartUp and Blowdo	own Demineralizer System HART <u>5-/8-00</u> ne Date
MANUAL SECTIONS: 10.4 FIGURES: Figure 10.4-7 Certified Reviewer's Signal Reviewer's certification ex Assistance provided by: Printed Name	Water Chemistry P&ID StartUp and Blowdo Muter STEVE CAPEH Printed Nar piration date: 5/4/01 Scope of Assistant	Demineralizer System          HART       5-18-00         me       Date
MANUAL SECTIONS: 10.4 FIGURES: Figure 10.4-7 Certified Reviewer's Signal Reviewer's certification ex Assistance provided by: Printed Name Search Scope Review Ac	Water Chemistry         P&ID StartUp and Blowdo         Mathematical Streve caper         Ature         Printed Nar         piration date:         5/4/01         Scope of Assistant         Scope and Assistant	Demineralizer System         HART       518-00         me       Date         nce       Date         Nce       Date         Nce       Date         Nce       Date
MANUAL SECTIONS: 10.4 FIGURES: Figure 10.4-7 Certified Reviewer's Signal Reviewer's certification ex Assistance provided by: Printed Name Search Scope Review Ac	Water Chemistry P&ID StartUp and Blowdo  Mathematic STEVE CAPEH Printed Nar piration date: 5/4/01 Scope of Assistant ceptability (NA, if performed by Technical Tohn Harvey	Demineralizer System   HART   me   Date   Ince Date Date Ince Date Date Date Date Date Date

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	+LE.	10CFR50.59 DETERMINA		FORM NO. 1000.131A	REV.
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Docume	ent No. 🧕	963197N202	Rev./Change No.	$^{\circ}$ PAGE $7$	REV (
Complet is requir	te the fol ed. See	lowing Determination. If the a Section 6.1.4 for additional g	nswer to any checklist item is uidance.	"Yes", an Environmen	tal Evaluati
Will the	Activity I	peing evaluated:			
Yes	No				
		Disturb land that is beyond buildings, creation or remo 2.5-17. This applies only t	I that initially disturbed during o oval of ponds, or other terrestria o areas outside the protected a	construction (i.e., new a limpact)? See Unit 2 area.	construction SAR Figur
	$\boxtimes$	Increase thermal discharge	es to lake or atmosphere?		
	$\boxtimes$	Increase concentration of o tower?	chemicals to cooling lake or atr	mosphere through disc	harge cana
		Increase quantity of chemi tower?	cals to cooling lake or atmosph	nere through discharge	canal or
	$\boxtimes$	Modify the design or opera	tion of cooling tower which will	change drift character	ristics?
	$\boxtimes$	Install any new transmissio	n lines leading offsite?		
	$\boxtimes$	Change the design or oper	ation of the intake or discharge	structures?	
	$\boxtimes$	Discharges any chemicals	new or different from that prev	iously discharged?	
		Potentially cause a spill or water or ground water?	unevaluated discharge which r	nay effect neighboring	soils, surfa
	$\boxtimes$	Involve burying or placeme surface water or ground wa	ent of any solid wastes in the si- ter?	te area which may effe	ect runoff,
	$\boxtimes$	Involve incineration or disp	osal of any potentially hazardo	us materials on the AN	NO site?
	$\boxtimes$	Result in a change to nonra	diological effluents or licensed	l reactor power level?	
	$\boxtimes$	Potentially change the type ANO site.	or increase the amount of non	-radiological air emiss	ions from tl

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FORM TITLE: 10CFR50.59 REVIEW CONTINUATION PAGE			FORM NO. 1000.131C	REV. 3
Document No.	NC 963197N202	Rev./Change No.	<u>0</u> Nr 96	Page <u>4</u> of <u>4</u>
	<u>10CFR50.59</u>	Review Continuation P	<u>age</u> PAGE	8 REV 0
This Nuclear Cl not change the	nange will replace Startup and B original design functions provide	lowdown Demineralizer sodiu ed by this analyzer.	m analyzer 2AIT4562.	This NC does

## 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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FOR	M TITLE:	10CFR50.59 EVALUA				FORM NO. 1000.131B	REV. 3 PC-2
		NC 96 Page	3197N <b>0</b> Ri	1202 FV 0	10CFR50. (A	59 Eval. No ssigned by PSC)	Page <u>1</u> of <u>2</u> F <u>FN# 00-05</u> 4
Doc	ument No. 973197	<u>'N202</u>	<b>,</b> ,	Rev./C	hange No.	<u>0</u>	
Title	REPLACE STA	RTUP AND BLOWD	OWN DEM	MINERALI	ZER SODIUN	ANALYZER 2AIT	-4562
A W ATT CON	RITTEN RESPON ACHED. EACH QI NCLUSION IS NOT	SE PROVIDING THE JESTION MUST BE , SUFFICIENT. ATTA	BASIS F ANSWER CHMEN	OR THE A RED SEPA T 2 PROVI	NSWER TO RATELY. A S DES GUIDAN	EACH QUESTION SIMPLE STATEME NCE FOR RESPON	MUST BE NT OF ISE.
if the to ai	e answer to any que l questions is "No,"	estion on this form is ' then the proposed ch	'Yes," the ange doe	en an unrev es not invol	viewed safety ve an unrevie	question is involve ewed safety questio	d. If the answer n.
1.	Will the probabilit increased?	y of an accident prev	iously eva	aluated in t	he SAR be	Ň	Yes 🗌 No 🛛
	The affected ana water. The ana initiators. Therefo	lyzer is used to moni lyzer does not interf ore, the probability of	tor sodiur ace with an accide	n concenti any equip ent previou	ation in the soment, piping sly evaluated	startup and blowdo g_etc_that_are_con l ir-the SAR is not i	wn demineralizer sidered accident ncreased.
2.	Will the conseque increased?	nces of an accident p	previously	evaluated	in the SAR b	be Y	res 🗌 No 🛛
	The sodium analy and components a accident previous	zer does not interface equired to mitigate th ly evaluated in the SA	e with or a le conseq AR are no	affect the o juences of t increased	operating per an accident. I.	formance of the sy: Therefore, the con	stems, structures sequences of an
3.	Will the probability increased?	y of a malfunction of e	equipmen	t important	to safety be	Y	es 🗌 No 🛛
	The sodium analy interface with any of a malfunction o	zer is not considered equipment that is co f equipment importan	equipmen nsidered t to safety	nt importar equipment y is not inc	nt to safety ar i important to reased.	nd does not physica safety. Therefore	Ily or electrically the probability
4.	Will the conseque be increased?	nces of a malfunction	of equipr	ment impoi	tant to safety	, Y	es 🗌 No 🖾
	The sodium analy characteristics of Therefore, the con	vzer does not interfa equipment important sequences of a malfu	ice with to safety inction of	any equip / are not a equipment	ment that is iffected by th t important to	important to safe the installation of th safety are not incre	ty. The critical e new analyzer. eased.
5.	Will the possibility evaluated in the S	of an accident of a di AR be created?	fferent ty	pe than an	y previously	Y	es 🗌 No 🛛
	The sodium analy considered an acc the startup and blo of an accident of a	zer is not considered ident initiator. The fu wdown demineralizer different type than ar	an accid unction of water is ny previou	lent initiato f the sodiu unchangeo usly evalua	r and does n m analyzer to d by this moo ted in the SA	not interface with ea o monitor sodium c lification. Thereford R is not created.	quipment that is oncentrations in e, the possibility
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ARKANSAS NUCLEAR ONE				
FOR	10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2	
		NC 9631	97N202	
6.	Will the possibility of a malfunction of equipment important to safety of different type than any previously evaluated in the SAR be created?	ofa PAGE IC	) REV 0 Yes □ No ⊠	
	The sodium analyzer is not considered equipment important to sa equipment that is considered important to safety. Therefore, the po important to safety of a different type previously evaluated in the SAF	fety and does not ssibility of a malfu R will not be created	t interface with any nction of equipment	
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 water is not discussed in the basis of any technical specifications analyzer is equivalent to the existing sodium analyzer. Therefore, t basis for any technical specification is not reduced.	startup and blow . The measuring he margin of safet	down demineralizer range of the new y as defined in the	
	$01$ $\Lambda$ $($			

Certified Reviewer's Signature	STEVE CAPEHART Printed Name	<u> </u>
Reviewer's certification expiration date:	5/4/01	
Assistance provided by:		
Printed Name	Scope of Assistance	Date
PSC review by:	Date:	6/15/2000

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	ARKANSAS NUCLEAR ONE		
FOR	M TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-04-0
	This D	ocument contains	3 Pages.
Doci	ument No. <u>NCP 963474N201 IP</u> Rev./Change No.	<u>o</u>	-
Title	480 V MCC Cubicle Replacement		
Briet	description of proposed change: Unit 2 480 VAC MCC cubicles 2B3	2C7, 2B53K5, 2B53H	<u>(6, 2B53L1,</u>
<u>285</u>	3L2 and 2B54A4 will be replaced with new cubicles containing Sieme	ens components. ITE	type EH
Will	the proposed Activity:	ILE type HE breaker:	s
1.	Require a change to the Operating License including:		
	Technical Specifications (excluding the bases)?	Y	es□ No⊠
	Operating License?	Y	es□ No⊠
	Confirmatory Orders?	Y	es□ No⊠
2.	Result in information in the following SAR documents (including drawing (a) no longer true or accurate, or (b) violate a requirement stated in the c	is and text) being document:	
	SAR (multi-volume set for each unit)?	Y	es□ No⊠
	Core Operating Limits Report	Y	es□ No⊠
	Fire Hazards Analysis?	Ye	es□ No⊠
	Bases of the Technical Specifications?	Ye	es□ No⊠
	Technical Requirements Manual?	Ye	es□ No⊠
	NRC Safety Evaluation Reports?	Ye	es No
3.	Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Ye	es□ No⊠
4.	Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Ye	es□ No⊠
5.	Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Ye	es No
6.	Result in any potential impact to the equipment or facilities utilized for Ve Storage Cask activities per Section 6.1.6?	entilated Ye	es□ No⊠
7.	Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:		
	QAMO?	Ye	s□ No⊠
	E-Plan?	Ye	es□ 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)	··· Ye	es□ No⊠

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

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*, overioad*, 2B12*, 2B32*, 2B5 breaker")	53*, 2B54*, and "circuit
MANUAL SECTIONS: Unit 2 SAR Unit 2 Technical Specifications Unit 2 Tech. Spec. Bases Unit 2 SER	SAR Chapter 8, and Sections 3.10.2.2.3, 3.11. Tech. Specs. 3.8.2.2, 3.8.2.5, 4.8.2.5, 3.1.2.3, a Tech. Spec. Bases 3 / 4.8 SER Amend 35, 69, and 208.	1, and 7.4.1.1. nd 3.1.2.4.
FIGURES:	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 N/A	Scope of Assistance	Date
Search Scope Review Acceptability (N	IA, if performed by Technical Review per 1000 006	3)

JOHN PRZYBYS

Certified Reviewer's Signature

Printed Name

FORM TITLE:		ARKANSAS	S NUCLEAR ONE		
		10CFR50.59 DETERMINATION		FORM NO. 1000.131A	REV. 003-04-0
		ENVIRONMENTA (UN	L IMPACT DETERMIN	NATION	
Docume	nt No. I	NCP 963474N201 IP	Rev./Change No.	<u>0</u>	
Completer required.	e the foll See Se	owing Determination. If the answertion 6.1.4 for additional guidant	ver to any checklist item is " ce.	Yes", an Environmenta	al Evaluation is
Will the A	Activity b	eing evaluated:			
Yes	No				
		Disturb land that is beyond th buildings, creation or remova 2.5-17. This applies only to a	at initially disturbed during of ponds, or other terrestrian of ponds, or other terrestrian outside the protected at the prot	construction (i.e., new c al impact)? See Unit 2 area.	construction of SAR Figure
	$\boxtimes$	Increase thermal discharges	to lake or atmosphere?		
	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal o tower?				harge canal or
		Increase quantity of chemical tower?	s to cooling lake or atmospl	nere through discharge	canal or
	$\boxtimes$	Modify the design or operation	n of cooling tower which will	change drift character	istics?
	$\boxtimes$	Install any new transmission I	ines leading offsite?		
	$\boxtimes$	Change the design or operation	on of the intake or discharge	e structures?	
	$\boxtimes$	Discharges any chemicals ne	w or different from that prev	iously discharged?	
	$\boxtimes$	Potentially cause a spill or un water or ground water?	evaluated discharge which i	nay effect neighboring	soils, surface

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	$\boxtimes$	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
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$\boxtimes$	Result in a change to nonradiological effluents or licensed reactor power level?
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Potentially change the type or increase the amount of non-radiological air emissions from the ANO site.

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ARKANSAS NUCLEAR ONE FORM TITLE: FORM NO. REV. **10CFR50.59 EVALUATION** 1000.131B 003-04-0 This Document contains 1 Page. 10CFR50.59 Eval. No. FFN# 00-074 (Assigned by PSC) Document No. NCP 963474N201 Rev./Change No. \_00 Title 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 🕅 Will the consequences of a malfunction of equipment important to safety 4. be increased? Yes 🗌 No 🖾 Will the possibility of an accident of a different type than any previously 5. 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 Ø **Robert Buser** 6/27/2000 Certified Reviéwer's Signature Printed Name Date Reviewer's certification expiration date: 04/07/2001 Assistance provided by: **Printed Name** Scope of Assistance Date σ  $\mathfrak{O}$ PSC review by: Date:

	ARI	KANSAS NUCLEAR ONE		Page 1
FORM TITLE: 1	0CFR50.59 REVIEW CONTINU	ATION PAGE	FORM NO. 1000.131C	REV. 003-04-0
				Page 1 of 2
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50.59 Evaluation Continuation

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. The 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.

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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.

5. 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?

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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.

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FOR	M TITLE: 1	0CFR50.59 DETERMINATI	ON	FORM NO. 1000.131A	REV. <b>'003-03-0</b>
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Doc	ument No. <u>NC 97409</u>	<u>4N201</u>	Rev./Change No.	<u>0</u>	
Title	Upgrade of the Re	fueling Machine Cor	ntrol Console Computer		
Brie <u>on t</u> <u>scre</u> <u>oper</u> Will	f description of propos he control console for en monitor. In addition rations. These change the proposed Activity:	ed change: <u>This ch</u> <u>the Refueling Machir</u> n, other software char s will, in no way, affec	nange will replace the existing the hardware will incluing the safety features built-in	ng outdated and antic ide, among others, ne se the efficiency and the computer softwar	uated hardware ew design touch mprove ease of e.
1.	Require a change to	the Operating License	e including:		
	Technical Specificat	ions (excluding the ba	ses)?	٢	′es□ No⊠
	Operating License?			١	′es□ No⊠
	Confirmatory Orders	?		١	′es□ No⊠
2.	Result in information (a) no longer true or	i in the following SAR accurate, or (b) violate	documents (including drawir e a requirement stated in the	ngs and text) being document:	
	SAR (multi-volume s	set for each unit)?		٢	′es⊠ No□
	Core Operating Limi	ts Report		٢	′es□ No⊠
	Fire Hazards Analys	is?		٢	′es□ No⊠
	Bases of the Technic	cal Specifications?		Ŷ	′es□ No⊠
	Technical Requirem	ents Manual?		Y	′es□ No⊠
	NRC Safety Evaluat	ion Reports?		Y	′es□ No⊠
3.	Involve a test or exp (See Attachme	eriment not described ent 2 for guidance)	in the SAR?	Y	′es□ No⊠
4.	Result in a potential the Environmental In	impact to the environn npact Determination o	nent? (Complete f this form.)	Y	′es□ No⊠
5.	Result in the need fo per section 6.1.5?	r a Radiological Safet	y Evaluation	Y	′es□ No⊠
6.	Result in any potenti Storage Cask activiti	al impact to the equipr es per Section 6.1.6?	nent or facilities utilized for	Ventilated Y	es□ No⊠
7.	Involve a change un per Section 6.1.7:	der 10CFR50.54 for th	e following SAR documents		
	QAMO?			Y	′es□ No⊠
	E-Plan?			Y	es□ No⊠
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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

Saif U. Khan Printed Name 7/15/00

Certified Reviewer's Signature

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

1-2000 Date

ARKANSAS NUCLEAR ONE

**10CFR50.59 DETERMINATION** 

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

Document No. <u>NC 974094N201</u>

FORM TITLE:

Rev./Change No. 0

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

Will the Activity being evaluated:

Yes	No	
		Disturb land that is beyond that initially disturbed during construction (i.e., new construction of buildings, creation or removal of ponds, or other terrestrial impact)? See Unit 2 SAR Figure 2.5-17. This applies only to areas outside the protected area.
	$\boxtimes$	Increase thermal discharges to lake or atmosphere?
	$\boxtimes$	Increase concentration of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Increase quantity of chemicals to cooling lake or atmosphere through discharge canal or tower?
	$\boxtimes$	Modify the design or operation of cooling tower which will change drift characteristics?
	$\boxtimes$	Install any new transmission lines leading offsite?
	$\boxtimes$	Change the design or operation of the intake or discharge structures?
	$\boxtimes$	Discharges any chemicals new or different from that previously discharged?
	$\boxtimes$	Potentially cause a spill or unevaluated discharge which may effect neighboring soils, surface water or ground water?
	$\boxtimes$	Involve burying or placement of any solid wastes in the site area which may effect runoff, surface water or ground water?
	$\boxtimes$	Involve incineration or disposal of any potentially hazardous materials on the ANO site?
	$\boxtimes$	Result in a change to nonradiological effluents or licensed reactor power level?
	$\boxtimes$	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. <u>FFN # 00-088</u> (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?

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?

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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Yes 🗌 No 🖂

Yes 🗌 No 🖾

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				Page <u>2</u> of <u>2</u>
3.	Will the probability of a malfunction of equipment important to increased?	o safety b	e Ye	es 🗌 No 🖾
	No. The addition of hoist fast speed feature will provide oper of refueling equipment. This new feature only affects the system. Therefore, the probability of malfunction of equipme	ational fle refueling nt importa	exibility without reducin machine, which is no ant to safety will not be	ng the reliability n-safety-related e increased.
4.	Will the consequences of a malfunction of equipment importate be increased?	ant to safe	ty Ye	s 🗌 No 🖾
	No. The addition of hoist fast speed feature will provide oper of refueling equipment. This new feature only affects the system. Therefore, the consequences of a malfunction of increased.	ational fle refueling of equipm	xibility without reducir machine, which is no lient important to saf	ng the reliability n-safety-related ety will not be
5.	Will the possibility of an accident of a different type than any evaluated in the SAR be created?	previously	/ Ye	s 🗌 No 🖾
	No. The intended design function of the refueling machine changed following the implementation of hoist fast speed feat of a new type will not be created.	with respe ature. The	ect to refueling operat erefore, the possibility	ions will not be of an accident
6.	Will the possibility of a malfunction of equipment important to different type than any previously evaluated in the SAR be critically evaluated in the SAR be critically evaluated in the same set of the same	safety of eated?	a Ye	s 🗌 No 🖾
	No. The refueling machine is not required to mitigate the d proposed that would have any impact on the reliability of any the new feature only affects the refueling machine, which is n equipment malfunctions of a different type than any evaluated	esign bas existing on-safety d previous	is events and no cha equipment important t -related. Therefore, the sly will not be created.	nges are being o safety. Also, ne possibility of
7.	Will the margin of safety as defined in the basis for any techn specification be reduced?	ical	Ye	s 🗌 No 🖾
	No Technical Specification bases are impacted by the addec the margin of safety as defined in the bases for any technical	l feature t specificat	o the refueling machi ions will not be affecte	ne. Therefore, ed.
Certi	Sail Saif U. Khan			//15/00
Revi	ewer's certification expiration date: 05/03/01	e		Date
Assis	stance provided by:			
	Printed Name Scope of Assis	tance	۵	Date
PSC	review by:	Date:	2/10/03	
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STATES STREET

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			This Document con	tains 3 Pages.
Document No.	974342N201	Rev./Change No	). <u>0</u>	
⊤itle	2PSV-5653 AND 2PSV-5654 FLANG	EADDITION		
Brief descriptio	n of proposed change:	ide of Operationment Or		
2PSV-5654. function or op systems have	This will allow the valves to be easily re- peration of the system as a result of this been qualified for the seismic category	noved for maintenand Nuclear Change. The I and other applicable	e loads.	thange to the signal to the signal to the piping
Will the propos	ed Activity:			
1. Require a	a change to the Operating License inclu	ding:		
Technica	I Specifications (excluding the bases)?			Yes No
Operating	g License?			Yes No
Confirma	tory Orders?			Yes No
2. Result in (a) no lor	information in the following SAR docum nger true or accurate, or (b) violate a req	ents (including drawin uirement stated in the	ngs and text) being document:	
SAR (mu	lti-volume set for each unit)?			Yes No
Core Ope	erating Limits Report?			Yes□ No⊠
Fire Haza	ards Analysis?			Yes∏ No⊠
Bases of	the Technical Specifications?			Yes No
Technica	Requirements Manual?			Yes□ No⊠
NRC Saf	ety Evaluation Reports?			Yes No
3. Involve a (See A	test or experiment not described in the Attachment 2 for guidance)	SAR?		Yes No
4. Result in Impact D	a potential impact to the environment? (	Complete Environme	ntal	
5. Result in	the need for a Radiological Safety Evalu	uation per section 6.1	52	
6. Result in utilized fo	any potential impact to the equipment o	r facilities		
7. Invoive a per Section	change under 10CFR50.54 for the follo	wing SAR documents		
QAMO?				
E-Plan?				
			ER9743	3 4 2 N 2 D 1
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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.
- 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.

<u>Document</u>

Section

LRS: <u>2 50.59 (2PSV\*5653, 2PSV\*5654, "containment spray", "relief valve", flange\*, ESF w/50 leak\*, ECCS w/50 leak\*</u>)

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

FIGURES: 2SAR Fig. 6.2-17

M. Reno But

Certified Reviewer's Signature

Keith Butler Printed Name

<u>12/14/99</u> Date

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

Assistance provided by:

Printed Name

Scope of Assistance

Date

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

Certified Reviewer's Signature Printed Name

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

Document No. 974342N201

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

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Document No.	974342N201	Rev./Change No.	0	10CFR50.59 Ev (Assigned by	al. No. PSC)	00-05
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A WRITTEN RI ATTACHED. E CONCLUSION	ESPONSE PROVIDING ACH QUESTION MUS IS NOT SUFFICIENT.	G THE BASIS FOR THE AI ST BE ANSWERED SEPAF ATTACHMENT 2 PROVI	NSWER TO RATELY. A DES GUIDAI	EACH QUESTIO SIMPLE STATEM NCE FOR RESPO	N MUST IENT OF DNSE.	BE
to all questions	is "No," then the prope	orm is "Yes," then an unrev osed change does not invol	viewed safety Ive an unrevi	y question is invol lewed safety ques	ved. If th tion.	ie answer
1. Will t incre	he probability of an ac ased?	cident previously evaluated	l in the SAR	be Yes 🗌	No 🛛	۵
No. The t the functi qualified seismic C affect any	flanges being added an ion or operation of the in accordance with the Category I and other an y of the initiators of any	re passive components and system. The piping system ASME Section III, Class 2 oplicable loads. This modifi y of the events evaluated in	do not chan will remain Code for the ication does the SAR.	nge e not		
2. Will t be in	he consequences of a creased?	n accident previously evalu	ated in the S	SAR Yes 🗌	No 🗵	3
This mod paths in t in determ 01. The SAR Tab SAR sect Accident. Design w flanges is Based on LOCA as	lification will add flange the Containment Spray ining the ECCS leakage calculated leakage from le 15.1.13-5 and affect tion 15.1.13.4. Section ER 9743421201 has I thich concludes that the still less than the leak this response, it is con- discussed in SAR sec	e pairs which introduces two System. The number of flage as determined in Calcula m Calculation 97-R-2002-01 is the dose calculations as on 15.1.13 discusses the Lange been issued from Nuclear E total leakage with the incluse age estimated in chapter 13 included that the dose consist tion 15.1.13.4 will not be in	o potential lea anges is a fa ation 97-R-20 1 is shown in discussed in ge Break LO Engineering usion of the 5 of the SAR equences of creased.	ak loctor D02- DCA R. a		
3. Will ti increa	he probability of a malf ased?	function of equipment impo	rtant to safet	y be Yes 🗌	No 🖂	]
The flang function of upstream Section II class 2H0 accordan flanges. flanges m will not ca safety to	es being added by this or operation of the syste side of the valve are of I, Class 2 Code of the CB in Specification ANE Ce with the ASME Sec Since the system funct neet all the design require ause the probability of a be increased.	s modification package will a em. The flanges on the sat constructed in accordance w material as specified for the O-M-2555. The piping syst tion III, Class 2 Code for the tion and operation will not c irrements of the system, this a malfunction of equipment	not change the fety related with the ASM e applicable he em is qualified e addition of change, and the s modificatio important to	he IE line ed in the the n		
4. Will the safety	he consequences of a y be increased?	malfunction of equipment ir	mportant to	Yes 🗌	No 🛛	1
The flang compone important	es being added by this nts that do not change to safety. The additio	Nuclear Change are passi the function or operation of n of the flanges will not cha	ive piping f any equipm inge the met	hod	<b>D</b> 07 / /	
UT TAILUTE	or nave any affect on t	ne consequences of a malf	unction of ar	iy E	R 9/43	SAZNZI
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FORM TITLE:	ARKANSAS NUCLEAR ONE	Topu vo	Page 2
10CFR50.59 SAFETY	EVALUATION	FORM NO. 1000.131B	REV. 3 PC-2
equipment important to safety.			
<ol> <li>Will the possibility of an accider evaluated in the SAR be created</li> </ol>	nt of a different type than any previo ed?	ously Yes 🗌	No 🖂
The flanges being added by this Nu components that do not change the The addition of the flanges meets th The addition of the flanges does no than the existing system such that a previously evaluated in the SAR co	uclear Change are passive piping e function or operation of any system he design requirements for the syste of cause any condition that is different an accident of a different type than uld be created.	n. em. nt	
<ol><li>Will the possibility of a malfunct different type than any previous</li></ol>	tion of equipment important to safety	y of a Yes 🗌	Νο 🖂
This Nuclear Change does not cons as evaluated in the SAR. The flang components which do not have any important to safety in any way that i configuration. There are no new po equipment important to safety as a	stitute a functional change in any system les being added are passive piping interaction with any equipment is different than the existing pstulated failure modes for any result of this modification.	stem	
<ol><li>Will the margin of safety as defi specification be reduced?</li></ol>	ned in the basis for any technical	Yes 🗌	No 🖂
There are no margins of safety as d specification that are related in any installed by this Nuclear Change.	lefined in the bases for any technica way to the addition of flanges as	1	
M. Mard Bath	Keith Butler		12 15 00
Certified Reviewer's Signature	Printed Name		12-15-99 
Reviewer's certification expiration date:	3/25/01		Duit
Assistance provided by:			
Printed Name N/A	Scope of Assistance		Date
PSC review by:			
			190 9000

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