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10CFR50.59(d)(2)

0CAN120202

December 4, 2002

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Arkansas Nuclear One - Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
10CFR50.59 Summary Report

Dear Sir or Madam:

In accordance with 10CFR50.59(d)(2), enclosed is the Arkansas Nuclear One (ANO), Unit 2 10CFR50.59 report for the time period ending November 4, 2002. This report contains a brief description of changes in procedures, changes in the facility as described in the Safety Analysis Report (SAR), and changes in the Technical Requirements Manual (TRM). The report also contains a description of tests and experiments conducted which were not described in the SAR, and other changes to the SAR for which a safety analysis was conducted. A copy of the completed safety evaluation for each change is also included. This summary report also includes evaluations that were common to both Unit 1 and Unit 2. The enclosed documents are provided on CD-ROM.

Should you have any questions, please contact Stephenie Pyle at 479-858-4704.

Sincerely,

Sherrie R. Cotton

Sherrie R. Cotton
Director, Nuclear Safety Assurance

SRC/slp
Enclosure

cc: Mr. Ellis W. Merschoff
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
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NRC Senior Resident Inspector
Arkansas Nuclear One
P.O. Box 310
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U. S. Nuclear Regulatory Commission
Attn: Mr. William Reckley
Washington, DC 20555-0001

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Attn: Mr. Thomas Alexion
Washington, DC 20555-0001

Arkansas Nuclear One – Unit 2 and Common
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6

10CFR50.59 Report

This report contains a brief description of changes in procedures and in the facility as described in the Safety Analysis Report (SAR), tests and experiments conducted which were not described in the SAR, and other changes to the SAR for which a safety analysis was conducted. This report also contains the safety evaluation for each change. Included with this summary report are evaluations that were common to both ANO Unit 1 and Unit 2. This report is applicable for the period from July 11, 2001 to November 4, 2002.

The safety evaluations included in this report were performed in accordance with 10CFR50.59 and determined that none of the changes required prior NRC approval.

50.59 Summary Report

50.59 Number	Initiating Document	Summary
1999 - 50	PROC 1000.043	Unit 2 Steam Generator Water Chemistry Monitoring
2000 - 2	DCP 974991N204	Installed Injection Lines from Molar Ratio Skid to 2E-1A/B Outlet
2000 - 22	TAP 00-2-02	Vacuum Gauge for Steam Trap Discharge Monitoring
2000 - 23	ER 002387E201	Vacuum System Copper Instrument Tubing Replacement
2000 - 24	PROC 1000.152	Unit 1 and 2 Fire Protection System Specifications
2000 - 26	DCP 980642D208	Unit 2 Steam Generator Replacement Project - Main Steam and Feedwater Piping
2001 - 9	TAP 1-2-001	2P-89B Recirculation Line Orifice Bypass Test Heade
2001 - 20	NCP 003266N201	Main Feedwater Hydrazine Analyzer Replacements
2001 - 26	ER 963230D201	2E11A/B Condenser Tube Bundle Replacement
2001 - 27	ER 980507E201	Changed 2DW-214 and 2DW-215 to Normally Closed
2001 - 35	ER 002546E201	Incorporated the Use of Earthquake and Seismic Testing Experience into the ANO-2 Licensing Basis
2001 - 39	ER 010705E201	Clarifies the stop valve testing duration as defined in TRM 4.3.4.1.2
2001 - 40	ER 991659E201	Addresses Implied Leakage Criteria
2001 - 42	TRM Revision	Removed Shutdown Actions for Charging Pumps
2001 - 44	ER-ANO-1998-0547-058	Incorporated New Setpoints for the Unit 2 PPS for Cycle 16 Power Uprate
2001 - 45	ER-ANO-2001-0377-002	Added a Manual Gate Valve into the 2DBC-3 Piping Upstream of 2CV-0798-1 (EFW test/flush line)
2001 - 47	LIR 01-0066	Power Uprate Evaluation
2001 - 51	ER002528E202	Evaluation to Provide Limitations on Entry into the Reactor Building
2001 - 53	ER 991909E303 / TAP 01-0-002	Temporary Installation of Mechanical Jumpers on the Screen Wash Piping System
2002 - 1	TAP 02-2-001	Installation of ESFAS Auxiliary Relay Cabinet Temporary Power Supply

50.59 Number	Initiating Document	Summary
2002 - 2	ER 93-R-0007-01	Supplement to the 1995 50.59 Review of ER 93-R-0007-01
2002 - 3	ER-ANO-2000-2796-008	Installation of the Second Generation Mechanical Nozzle Seal Assemblies
2002 - 4	Danger Tag A2-00-3237	Danger Tag Clearance to Isolate PASS and Maintain Configuration Control during Installation of ER003264E201
2002 - 5	ER-ANO-2002-0226-000	Deferral of Turbine Valve Testing
2002 - 6	ER-ANO-2002-0017-000 / TAP 02-2-002	Temporary Installation of a Spent Fuel Pool Reverse Osmosis Unit
2002 - 7	ER-ANO-2002-0141-000	Removed the Autostart Portion of the Control Circuits Associated with 2VEF-56A and 2VEF-56B
2002 - 8	TRM Change	Allowed for Movement of Fuel Based Upon Heat Load in the Spent Fuel Pool
2002 - 9	ER 01-R-2008-03	ANO-2 Cycle 16 Reload Analysis Report
2002 - 10	ER-002344-E201	Power Uprate Roll-up
2002 - 11	TAP-02-0-001	Temporary Installation of a Pump to the Fire Water System Test Header
2002 - 12	TAP-02-2-004	Temporary Installation of a Cooling Water Connection Between the Plant Fire Water System and the Control Room Chiller
2002 - 13	TAP-02-2-005	Temporary Installation of a Cooling Water Connection Between the Plant Fire Water System and the Auxiliary Building Extension Chiller
2002 - 14	OP-2409.738	Action for Uncoupling CEA 65
2002 - 15	TAP-02-2-003	Installation of a Temporary Equivalent Capacity Fire Hose
2002 - 16	TAP-02-2-009	Temporary Installation of Temporary Chiller
2002 - 17	ER 01-R-2008-04	ANO-2 Cycle 16 COLR
2002 - 18	OP-2202.010, 2202.003, and 2202.009	Standard Attachments, LOCA, and Functional Recovery
2002 - 20	ER-ANO-2000-3151-003	Breathing Air Compressor C29 Abandoned in Place
2002 - 21	ER-ANO-2002-0053-000	Removed Switch 2FIS-1216 from the 2K427 Window #11 Alarm Circuit
2002 - 25	ER-ANO-2002-0897-000	Deferral of Turbine Valve Testing

50.59 Number	Initiating Document	Summary
2002 - 29	ER-2002-0780-000, TAP 02-2-002	Temporary Installation of a Mechanical Jumper Between the Fire System Test Header and Yard Hydrant H-1
2002 - 36	TAP 02-1-004, MAI 72719	Temporary Alteration to Install a Blind Flange/Spool Piece Configuration for SW-8C so SFP Cooling Can be Maintained

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FFN 1999-0050

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

Document No. 1000.043 Rev./Change No. **016-02-0**

Title **Steam Generator Water Chemistry Monitoring Unit II**

Brief description of proposed change: **PC to incorporate specifications for high pH operation.**

Will the proposed Activity:

1. Require a change to the Operating License including:

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

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

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

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

   Core Operating Limits Report Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

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

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

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

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

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

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

Document No. Rev./Change No. **016-02-1**

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

See page 4.

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

Search Scope:

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

Document	Section
LRS:	
50.59-Unit 2	**All Key words- (feedwater w/30 ph, condens* w/30 ph, ammonia, hydrazine, ETA, ethanolamine, copper, iron, secondary w/30 ph, polisher, start* w/30 blowdown, demineralizer, DI, amine*, NH3, N2H4, Cu, Fe)**
MANUAL SECTIONS:	
	Unit 2 SAR 10.3,10.4
FIGURES:	
	Unit 2 SAR 10.4.5

Philip C. Robbins — Printed Name

7-22-99 — Date

Certified Reviewer's Signature

Reviewer's certification expiration date: **11-10-00**

Assistance provided by:

Printed Name	Scope of Assistance	Date

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

N/A — Certified Reviewer's Signature

N/A — Printed Name

N/A — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **1000.043** Rev./Change No. **016-02-0**

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

Will the Activity being evaluated:

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

Procedure 1000.043 Rev. 16-02-1
CFR 50.59 Determination

This procedure change provides specifications for operating the Unit 2 secondary system with elevated pH. Higher pH will result in lower feedwater iron corrosion and transport. The pH could not be increased in the past because of potential copper corrosion. The copper condenser tube bundles have been changed to titanium. The only significant copper components remaining are the steam generator blowdown heat exchangers. System Engineering evaluated the effect of operating the heat exchangers under high pH conditions. The report concluded that the heat exchangers can be operated with high pH for the interim (until replacement in 2R14).

The bases for questions 1-3 are listed below.

1. No –The license-based documents do not contain specifications for secondary pH. They also do not address modes of operation for the secondary demineralizer.

2. Yes – The SAR documents contain tables that list secondary pH specifications. A LDCR (2-10.3-0011) has been turned in based on a previous evaluation. This LDCR (not yet in place) removes the SAR tables. This change also states that the condensate demineralizer may be bypassed. Operating without a demineralizer causes some discrepancy with the SAR. Design Engineering performed a 50.59 evaluation, which addresses these SAR discrepancies.

3. No – Increasing secondary pH is not a test or experiment.

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

10CFR50.59 Eval. No. EFN 99-050
(Assigned by PSC)

Document No. **1000.043** Rev./Change No. **016-02-0**

Title **Steam Generator Water Chemistry Monitoring Unit II**

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

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

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

   See attached.

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

   See attached

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

   See attached.

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

   See attached

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

   See attached.

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

   See attached

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

See attached.

Philip C. Robbins — Philip C. Robbins — 7-21-99
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 11-10-00

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 8/9/99

Discussion

This procedure change involves revising specifications for high pH operation on the Unit 2 secondary system. In the past high pH has not been possible due to the copper tubes in the condenser. In 2R13 the tube bundles were changed out. The new tubes are made of titanium. Increasing pH will result in lower corrosion of carbon steel surfaces. As a result iron transport to the steam generators will be reduced.

The only significant copper components remaining in the system are the steam generator blowdown heat exchangers. These heat exchangers are scheduled to be replaced in 2R14. System Engineering and Design Engineering evaluated operating with high pH in the interim and concluded that the heat exchangers should not fail. The evaluation is attached.

The Unit 2 SAR contains some specifications that would be affected by this procedure change. The specifications are being removed by a previous LDCR (2-10.3-0011).

The startup-blowdown demineralizers are being modified to allow condensate to bypass them. This causes some discrepancy with the SAR. The 50.59 performed by Design Engineering identified these discrepancies. An LDCR was written to correct the SAR wording.

Answers to the seven questions on pages one and two are listed below.

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

No. The chemistry of the secondary system affects only one accident scenario. That accident is Steam generator tube rupture with or without a concurrent loss of AC power. This accident could result from failure of steam generator tubes due to secondary side corrosion. The changes to elevate pH will result in lower feedwater corrosion and hence lower amounts of iron being transported to the steam generators. Reducing iron deposits will mean fewer crevices to concentrate impurities next to tube surfaces. A standby demineralizer will be available if needed in the case of a condenser tube leak. Therefore the probability of a previously evaluated accident will not be increased.

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

No. Increasing secondary pH does not play a role in changing or preventing actions described in any accident previously evaluated in the SAR. This activity does not affect any barriers to mitigate dose to the public or to release radioactive materials.

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

No. The procedure changes will not be detrimental to the steam generators. The high pH and corresponding lower deposition rates will serve to prevent corrosion of tubes. The ability of the steam generators to provide a mitigating function for accidents will be maintained. The probability of a malfunction of this equipment will not be increased.

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

No. The change maintains secondary chemistry controls. In the case of a primary to secondary leak the higher secondary pH will help keep iodine in solution. It will not result in increased radiological release or an increase in dose if failures occur in components related to safety.

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

No. This procedure change does not negatively affect secondary chemistry controls. It does not degrade steam generator chemistry or increase secondary corrosion. The change will actually reduce corrosion. Therefore, the possibility of an accident different than previously indicated will not be created.

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

No. The procedure change does not introduce a potential detrimental affect on any equipment important to safety. The change maintains or reduces the potential for corrosion, and does not introduce any type of failure mode not previously recognized or evaluated.

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

No. Section 3/4.4.5 of the Unit Two Technical Specifications Bases states " The plant is expected to be operated in a manner that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained with those limits, localized corrosion may result in stress corrosion cracking. The extent of the cracking during plant operation would be limited by the limitation of steam generator

tube leakage between the primary coolant and the secondary coolant system (primary – secondary leakage = 150 gallons per day per steam generator)." This procedure change will not result in increased steam generator corrosion, and therefore will not cause steam generator tube leakage to be affected. Therefore the margin to safety defined in Tech Spec Bases is not reduced.

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FFN 2000-0002

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

Document No. 974991N204 Rev./Change No. 0 Page 4

Title **Install Injection Lines from Molar Ratio Skid to 2E1A/B Outlet.**

Brief description of proposed change:

Currently, chemicals are being injected into the Unit 2 Main Feedwater System (MFW) from the existing Molar Ratio Skid via existing 1/2" stainless steel tubing to the existing MFW vents containing valves 2FW-1037A/B and 2FW-1015A/B. This modification package will route new stainless steel tubing, branching from the existing stainless steel tubing just upstream of these vents, to some existing local drains on the MFW system just downstream of the last MFW system heaters, 2E1A and 2E1B. This will allow chemical injection into the MFW system downstream of the last stage reheat, rather than to a location upstream of these heaters, where it is believed that better chemical dispersion will occur due to the elevated temperature of the MFW system. Additionally, a calibrated metering tube is being added between the 2T-25 storage tank and pumps 2P-85A/B/C to assist in properly calibrating the pump outputs. No other system or functional changes are being performed under this modification package. (See continuation page.)

Will the proposed Activity:

1. Require a change to the Operating License including:

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

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

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

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

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

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

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

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

QAMO?	Yes☐	No☒
E-Plan?	Yes☐	No☒

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

Document No. 974991N204 Rev./Change No. 0 Page 5

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

See continuation page.

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

Search Scope:

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

Document	Section
LRS:	Unit 2 50.59 ("feedwater w/10 injection", "PC-93-8024", "corrosion w/5 injection", "2T-25", "chem* w/5 injection")
MANUAL SECTIONS:	Unit 2 SAR Sections 3, 6, 9, 10 and 14
FIGURES:	10.4-2, 10.4-5 and all figures in section 10

W G Donovan — Certified Reviewer's Signature
William G. Donovan — Printed Name
1/5/2000 — Date

Reviewer's certification expiration date: 10/05/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

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

Stephen J. Lynn — Certified Reviewer's Signature
Stephen J. Lynn — Printed Name
1-6-00 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. 974991N204 Rev./Change No. 0 Page 6

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

Will the Activity being evaluated:

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

Document No. 974991N204 Rev./Change No. 0 Page 7

10CFR50.59 Review Continuation Page

Brief description of proposed change: Continued

Note here that in a parallel effort, ER 992226E201 by ANO Engineering Programs, the type of injection chemical is being changed at the same time of the implementation of this modification package. A separate 10CFR50.59 Determination, and subsequent 10CFR50.59 Evaluation if deemed necessary, is being performed for the qualification/justification of the chemicals which are to be injected into the Unit 2 Main Feedwater System under ER 992226E201.

The 10CRF50.59 Determination and Evaluation for this package, 974991N204, is only for the scope of the piping/tubing re-routing. All other aspects are contained within the 10CFR50.59 Determination / Evaluation for ER 992226E201.

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

Question 1 :

A review of the Technical Specifications, Operating License and Confirmatory Orders, using LRS and a HARD copy of these documents, did not uncover anything that would be affected by moving the existing chemical injection points, for the Molar Ratio skid, from a location upstream of the final stage MFW heaters 2E-1A and 2E-1B to a location downstream of these heaters. The actual new injection location downstream of these heaters is in the Boric Acid addition system that ties directly into the MFW system downstream of these heaters. This chemical injection system, along with the affected portions of the Boric Acid addition system, are non-Q, non-Safety Related, non-Seismic and do not have any Safety Related items located below them. The change identified in this modification package is below the level of detail contained in these documents.

Document No. 974991N204 Rev./Change No. 0 Page 8

10CFR50.59 Review Continuation Page

Question 2 :

A review of all the documents listed in question number 2 was performed using LRS and a HARD copy of the Unit 2 SAR. This review did not uncover any sections in these documents that would be affected by moving the existing chemical injection points, for the Molar Ratio skid, from a location upstream of the final stage MFW heaters 2E-1A and 2E-1B to a location downstream of these heaters, except for some SAR figures 10.4-2 and 10.4-5 that would be required to be updated. These SAR figures are the P&ID's for the affected portions of the Main Feedwater system and require modification to show the new injection points into the piping system at the appropriate location with respect to other system components. The basic function of the chemical injection system with respect to the Main Feedwater system remains unchanged by this modification package.

Question 3 :

The re-location of some chemical injection points to the Main Feedwater system, as depicted on ANO P&IDs M-2204 Sheet 2 and M-2240 Sheet 1, SAR Figures 10.4-2 and 10.4-5, does not involve a test or experiment not already discussed in the SAR. The qualification of the chemicals being injected via this modified system are being addressed under a separate evaluation contained in ER 992226E201. This modification package, 974991N204, only addresses the relocation of the injection points into the MFW system via piping and tubing routing modifications.

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

Page 9

Document No. 974991N204 Rev./Change No. 0 10CFR50.59 Eval. No. FFN # 00-002
(Assigned by PSC)

Title **Install Injection Lines from Molar Ratio Skid to 2E1A/B Outlet.**

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

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

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

Certified Reviewer's Signature	W. G. Donovan Printed Name	1/5/2000 Date

Reviewer's certification expiration date: 10/5/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 1/11/00

Document No. 974991N204 Rev./Change No. 0 Page 10

10CFR50.59 Review Continuation Page

Background Information :

This package NC 974991N204 only addresses the issues related to the relocation of existing chemical injection points into the Unit 2 Main Feedwater System from a location upstream of the final stage reheaters 2E-1A and 2E-1B to a location downstream of these heaters; and the installation of a calibrated metering tube between the storage tank 2T-25 and pumps 2P-85A/B/C in the chemical addition system. All other issues, such as chemical compatibility with pipe/component/system materials or interactions with devices, must be addressed in other evaluations prior to utilizing these new injection points, reference ER 992226E201 and ER 974991I203. Additionally, use of the injection flow path to the Main Feedwater System through the Boric Acid addition system will also be evaluated, and addressed, via the above reference ER's and is considered outside the scope of this evaluation.

The only reason that a full 10CFR50.59 Evaluation is being performed is that two Unit 2 SAR figures are affected by the above change, Figures 10.4-2 and 10.4-5. These figures are copies of the Main Feedwater system P&ID's and reflect a schematic representation of the physical locations of the injection points into the system. The old and new injection points are within the same general areas, not separated by any flood, fire, radiation, missile, pipe whip, or other structurally active barriers. The addition or location of the new metering device does not affect any SAR figures or any Licensing Basis Documents. No other figures or sections of any Licensing Basis Documents are affected by this modification package.

The section of the piping where this new injection will occur is in the Boric Acid addition system which ties directly into the Main Feedwater System headers, "A" and "B" trains. The Boric Acid addition system is non-Q, non-Seismic, non Safety-Related and is qualified under the ANSI B31.1 Power Piping Code. The old injection points were also in sections of piping which tied directly into the Main Feedwater System and were non-Q, non-Seismic, non Safety-Related and were qualified under the ANSI B31.1 Power Piping Code.

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10CFR50.59 Review Continuation Page

Question 1 :

The change in the physical location of the chemical injection points into the Main Feedwater System, from a location upstream of the final stage reheaters 2E-1A and 2E-1B to a location downstream of these heaters, will not increase the probability of an accident previously evaluated in the SAR. As noted above, the modified piping/tubing system is still qualified to the same Codes and Standards. Additionally, this modification does not increase, or decrease, the probability of a Main Feedwater System, or any other system, failure.

Question 2 :

The consequences of an accident previously evaluated in the SAR will not be increased by the relocation of the chemical injection points into the Main Feedwater System. Section 10.3.5 of the Unit 2 SAR does discuss Water Chemistry control on the secondary system side, however, the physical locations of the chemical injection points into the secondary side systems, such as the Main Feedwater system, are not used to prevent or mitigate any analyzed accident described in the SAR.

Question 3 :

Relocating the chemical injection points on the Main Feedwater System will not increase the probability of a malfunction of equipment important to safety. The new injection points are within the same boundary areas as old injection points, i.e., no new areas or rooms are effected. As noted above, the modified piping/tubing system is still qualified to the same Codes and Standards. Thus, in case of a line break no new potential impact targets are created.

10CFR50.59 Review Continuation Page

Question 4 :

The consequences of a malfunction of equipment important to safety will not be increased by the relocation of the chemical injection points into the Main Feedwater System. The new injection points into the Boric Acid system, which in turn feeds into the Main Feedwater System, has adequate existing isolation capability should a failure of the chemical addition system occur. This is no different than potential failures on existing drains and vents on the Main Feedwater System.

Question 5 :

The possibility of an accident of a different type than any previously evaluated in the SAR will not be created by the relocation of existing chemical injection points on the Main Feedwater System. The same potential for a pipe break exists in the new configuration as in the old. However, as noted above, the modified piping/tubing system is still qualified to the same Codes and Standards as was the old piping/tubing.

Question 6 :

The possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR will not be created by the relocation of existing chemical injection points on the Main Feedwater System. This relocation modification incorporates the same standard piping/tubing installation practices as did the existing design. The new injection points are within the same boundary areas as old injection points, i.e., no new areas or rooms are effected. As noted above, the modified piping/tubing system is still qualified to the same Codes and Standards. Thus, in case of a line break no new potential impact targets are created.

Question 7 :

The margin of safety as defined in the basis for any technical specification will not be reduced. The basis for any technical specification does not contain this level of detail with respect to chemical injection into the Main Feedwater System or other secondary systems.

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FFN 2000-0022

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-03-0

Document No. TAP-00-2-02 Rev./Change No. 0

Title Vacuum gauge for steam trap discharge monitoring

Brief description of proposed change: Installs a vacuum gauge on vent line downstream of 2F-273 and 2F-41.

Will the proposed Activity:

1. Require a change to the Operating License including:

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

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

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

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

   Core Operating Limits Report Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

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

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

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

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

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

   QAMO? Yes☐ No☒

   E-Plan? Yes☐ No☒

FORM TITLE: ARKANSAS NUCLEAR ONE 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-03-0

Document No. TAP-00-2-02 Rev./Change No. 0

Basis for Determination (Questions 1, 2 & 3): The Temp Alt installs a vacuum gauge on vent line downstream of four traps. The vacuum gauge is not depicted on SAR Figure 10.4-2 (M2202 Sheet 3) which would if the gauge were permanent. Therefore, the Temp Alt does affect the Unit 2 SAR. The Temp Alt has no affect on the Operating License or any other LBD's. The gauge installation is not a test or experiment, but will be used to provide information for Operations. The systems involved will remain intact and have no affect on the environment. The systems are considered non-contaminated and the equipment used will be from the Controlled Access tool room. The equipment will remain in CA for the duration of the Temp Alt

☐ 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	**("vacuum gauge", 2AS-1006, 2AS-1007, "steam trap")**
MANUAL SECTIONS:	
Unit 2 SAR	**10.3, 10.4.1, 10.4.9**
FIGURES:	
Unit 2 SAR	**10.4-2 (M2202 Sheet 3)**

Certified Reviewer's Signature | **Steve Bonner** Printed Name | **2/21/00** Date

Reviewer's certification expiration date: **7/9/2000**

Assistance provided by:

Printed Name	Scope of Assistance	Date

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

NA

Certified Reviewer's Signature | Printed Name | Date

FORM TITLE: ARKANSAS NUCLEAR ONE — 10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-03-0

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **TAP-00-2-02** Rev./Change No. **0**

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

Will the Activity being evaluated:

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

ARKANSAS NUCLEAR ONE		
FORM TITLE: 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 003-03-0

10CFR50.59 Eval. No. 00-022
(Assigned by PSC)

Document No. TAP-00-2-02 Rev./Change No. 0

Title Vacuum gauge to monitor discharge of 2F-273 and 2F-41

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 vacuum gauge will be installed on a vent line. The vent line is normally isolated with a pipe cap installed. The vacuum gauge will prevent any air in-leakage into the system. Therefore, the system function will not be affected by the installation of the gauge. The gauge and adapter will be rated for the system conditions and the possibility of damage to the gauge that would cause a loss of condenser vacuum is remote. The gauge mounts into a 3/8" pipe thread connection. If the gauge came off the connection, the 3/8" hole would not be able to pass more air than the capacity of the condenser vacuum pumps and the condition would immediately be known in the Control Room by the increase of condensate O2 levels. The probability of the gauge coming off the line are remote. The gauge will be located out of normal traffic areas approximately eight feet high. The chance of the gauge being damaged by being accidentally struck is very low. Because the chance of the gauge causing a breach in the vacuum system are very low and the result of such a breech would not cause air in-leakage greater that the capacity of the vacuum pumps, the installation of the gauge will not cause an increase in probability of an accident previously evaluated.

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

   The installation of the gauge and adapter will have no affect on any postulated off-site dose projections. The system that the gauge will be installed on will remain within its design criteria and isolated from the atmosphere. If the gauge should fail, the condenser vacuum would draw air into the condenser. That air would be removed by the condenser vacuum pumps and sent through radiation monitors and filters prior to release to atmosphere. Therefore, the Temp Alt will have no affect on the consequence of any accidents evaluated in the SAR.

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

   The Temp Alt will install a vacuum gauge on the discharge line of two traps that are required to maintain operability of the Unit 2 EFW Steam Turbine. One of the traps has been proven to rely on adequate vacuum in the line to remain operable. Installation of the gauge, while having no direct affect on the system, will allow monitoring of the vacuum in the line. Because the gauge and adapter will be rated for system conditions and will be passive in the system, the Temp Alt does not increase the probability of a malfunction of any equipment important to safety.

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

   The Temp Alt will not affect any system functions. The systems involved are condenser vacuum, main steam and emergency feedwater. The vacuum gauge will not have any effect on the consequences of a failure of any equipment in these systems. The inoperability of the steam driven emergency feedwater

pump has a large effect on the calculations for potential core damage and could have offsite dose consequences. This Temp Alt, however, will not have any affect on the equipment or the offsite dose projections for any accident scenario. Therefore, there is no increase in any consequence of a malfunction of equipment important to safety.

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

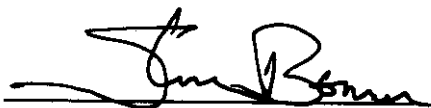
The vacuum gauge interfaces directly only with the Condenser Vacuum System. In the highly unlikely event of the vent line falling off, the only possible accident scenario is a loss of condenser vacuum, which is already analyzed. It is unlikely that the 3/4" pipe would pass enough air to cause the condenser vacuum to be lost. Without an adequate vacuum in the line, the steam traps would loose their ability to remove water which would eventually cause the "A" EFW Pump to become Inoperable. The loss of one train of EFW is addressed by Tech Specs. The only safety related equipment in the vicinity of the vent line is the steam admission valve for the EFW turbine, 2CV-0340-2. The vent line is a Seismic II and the II/I concerns have been addressed in ER002383E201. The additional weight of the gauge is too small to affect the seismic analysis. If both of the steam traps on the line fail open while the turbine is running and the gauge falls off. Steam could escape into the area through the vent line. However, the steam would be throttled greatly through the steam traps and the only safety related equipment in the area is the steam admission valves for the EFW Turbine. Once again the loss of the one train of the EFW is addressed in the Tech Specs. Therefore, the Temp Alt does not create a possibility of a different accident than previously evaluated.

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

The vacuum gauge is downstream of two steam traps on the Main Steam supply for the EFW Steam Turbine, 2K-3. The traps are required to maintain the Operability of the turbine when in standby. If the traps fail, procedurally controlled Operator action will maintain the Operability of the EFW Pump by manually removing the condensate in the steam line. Because the gauge will be rated for the system and the gauge function is passive, the possibility of a malfunction of any equipment of a different type than previously evaluated will not be created.

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

The vacuum gauge will have no affect on any of the margins of safety in the Tech Specs. The condenser vacuum line that the gauge will be installed on is not part of the Emergency Core Cooling System or subsystem. The Reactor Protective System and its setpoints are unaffected. The specific activity in the secondary will not be increased or its limit in Tech Spec affected. The gauge is located downstream of the steam traps and will not affect the Main Steam Safety Valves. Gas Storage Tank radioactivity will not be affected. Therefore, the Temp Alt will not affect any margins of safety as defined in Tech Spec's.



Certified Reviewer's Signature — Steve Bonner (Printed Name) — 2/21/00 (Date)

Reviewer's certification expiration date: 7/9/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by:  Date: 3/9/00

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FFN 2000-0023

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Document No. ER002387E201 Rev./Change No. 0

Title **Vucuum System Copper Instrument Tubing Replacement**

Brief description of proposed change: Due to a recent elevation of pH in the S/G's, the high ammonia concentration in the piping of the Condenser Vacuum Pumps (2C-5A/B) results in a rapid attack of the copper instrument tubing. To reduce the chance of instrument tubing failure, the copper tubing associated with 2C-5A/B will be changed to 316 SS (this does not include the Instrument Air lines). Reference to the type of instrument tubing used for these components will be removed from Unit 2 SAR Figure 10.4-2 and M-2204 Sheet 5.

Will the proposed Activity:

1. Require a change to the Operating License including:

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

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

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

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

   Core Operating Limits Report Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

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

4. Result in a potential impact to the environment? (Complete 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☒

FORM TITLE: ARKANSAS NUCLEAR ONE		
10CFR50.59 DETERMINATION	FORM NO. 1000.131A	REV. 003-03-0

E-Plan? Yes☐ No☒

Document No. **ER002387E201** Rev./Change No. **0**

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

1. A review of Technical Specifications,. Operating License and Confirmatory Orders will not be affected by changing the vacuum system instrument tubing from copper to 316 stainless steel.
2. A review of the SAR, COLR, Tech Spec Bases, Technical Manual Requirements, and NRC SER's revealed that the only item affected by this change is SAR Figure 10.4-2. The figure specifically list 3/8" copper tubing for the vacuum system instrumentation. The reference to type of material will be removed from the figure and associated P&ID. This change will not result in any required text changes to the above documents.
3. This change does not meet the requirement of a test or experiment as described in Attachment 2 of 1000.131.

☐ 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: LRS 50.59 Unit 2	All ("copper", "condenser w/10 vacuum", "evacuation system")

MANUAL SECTIONS: Unit 2 SAR Sections 10.4.2, 11.4.2.2.1, 15.1.7, 15.1.28, 15.1.29.

FIGURES:
Unit 2 SAR Figure 10.4-2

Certified Reviewer's Signature — Steve Bonner (Printed Name) — 3/3/00 (Date)

Reviewer's certification expiration date: 7/9/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date

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

Certified Reviewer's Signature — John Harvey (Printed Name) — 3/3/00 (Date)

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ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. **ER002387E201** Rev./Change No. **0**

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

Will the Activity being evaluated:

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

Rev. 0

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FORM TITLE: ARKANSAS NUCLEAR ONE 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 003-03-0

10CFR50.59 Eval. No. 00-023
(Assigned by PSC)

Document No. **ER002387E201** Rev./Change No. **0**

Title **Vacuum System Copper Instrument Tubing 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.

Brief Description of Change:
This change will result in replacing the 3/8" copper tubing for instrumentation associated with the Condenser Vacuum Pumps (2C-5A/B) with 3/8" 316 Stainless Steel tubing. This change will provide a higher resistance to chemical attack of the tubing and reduce the chance of mechanical tube damage. Reference to the type of tubing used for these components will be removed from SAR Figure 10.4-2 and M-2204 Sheet 5.

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

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

Yes ☐ No ☒

A review of the SAR accidents was performed and it was determined that a Loss of Condenser Vacuum, Loss of External Load and Turbine Trip, and Turbine Trip with Coincident Failure of Turbine Bypass System were remotely plausible for consideration.

The proposed change will provide a higher resistance to chemical attack and a higher structural strength of the tubing. The stainless steel tubing is less affected by high ammonia concentrations than the existing copper tubing. The increased structural strength of the stainless steel tubing will minimize the possibility of damage due to mechanical forces. Although a failure of the existing tubing should not lead to a Loss of Condenser Vacuum, the proposed change will further decrease the chance of this event.

A loss of condenser vacuum will result in a Turbine Trip that is analyzed in Section 15.1.7 of the SAR. The proposed change will decrease the chance of loss of condenser vacuum due to instrument tubing failure at 2C-5A/B, because of the improved tubing integrity.

A loss of condenser vacuum will prevent the Turbine Bypass Valves from opening. This event is also analyzed in Section 15.1.7 of the SAR. Since the tubing integrity is improved, the proposed change will decrease the chance of loss of condenser vacuum due to instrument tubing failure at 2C-5A/B.

Based on these observations, the proposed change will not cause the probability of an accident previously evaluated to increase from one category to the next higher category nor will it cause significant movement within a category.

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

A review of the SAR reveals that the Turbine Trip bounds the off-site dose analysis for a loss of Condenser Vacuum. While maintaining condenser vacuum will reduce the off-site dose, the analysis includes the loss of condenser vacuum. The proposed change will only increase the reliability of the instrument tubing and not affect the operation of the condenser vacuum system or change the mechanisms that lead to a loss of vacuum.

The change presents no hazard to the integrity of the RCS or the Main Steam System. The off-site and on-site dose previously analyzed for a Loss of Condenser Vacuum will remain unchanged by this tubing change. Based on these findings, the dose analysis is bounded by the Loss of Condenser Vacuum section of the SAR.

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

The replacement of the existing copper tubing with stainless steel tubing will increase the reliability of the Condenser Vacuum pumps (2C-5A/B). The chance of a turbine trip and the associated analysis will not be adversely impacted by the proposed change.

The vacuum system performs no safety function nor does it affect any equipment that performs a safety function. The proposed change does not impact any seismically qualified equipment.

Based on these facts, the probability of a malfunction of equipment important to safety will not be increased.

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

The Vacuum Pumps (2C-5A/B) do provide a mitigation function but the proposed change will only increase the reliability of the pumps. A review of the SAR shows that the off-site dose related to accidents is less when condenser vacuum is maintained but the analysis also shows that the off-site dose is acceptable with a loss of condenser vacuum. The 316 Stainless Steel will provide a higher resistance to chemical attack and make the tubing less susceptible to mechanical failure.

2C-5A/B are not considered important to safety nor do they impact any equipment that is considered important to safety. Based on these findings, it is concluded that the proposed change will not increase the consequences of a malfunction of equipment important to safety.

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

The proposed change will only impact the Vacuum Pumps, a complete Loss of Condenser Vacuum is the only accident that can result. The proposed change actually increases the reliability of the pumps by providing more durable instrument tubing.

Since a Loss of Condenser Vacuum has been evaluated and is bounding, it is concluded that an accident of a different type than previously evaluated in the SAR will not be created.

FORM TITLE: ARKANSAS NUCLEAR ONE 10CFR50.59 EVALUATION	FORM NO. 1000.131B	REV. 003-03-0

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 Condenser Vacuum System is not considered important to safety nor does it impact any equipment that is considered important to safety. The proposed tubing change from copper to stainless steel will provide a more reliable system. There are no adverse effects possible for this change.

The worst case evaluated in the SAR is a complete Loss of Condenser Vacuum. Should the tubing (existing copper or proposed stainless) fail and cause a loss of vacuum pumps, the current analysis bounds the event.

No malfunction of equipment important to safety of a different type than previously evaluated will be created.

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

A review of Technical Specification Bases revealed that there is not a defined margin to safety for the Condenser Vacuum System. Therefore a reduction in the margin to safety will not be created as a result of this change.

Certified Reviewer's Signature — Steve Bonner (Printed Name) — 3/3/00 (Date)

Reviewer's certification expiration date: 7/9/2000

Assistance provided by:

Printed Name	Scope of Assistance	Date
John Harvey	Research and answer writing	2/28/2000

PSC review by: _____ Date: 3/9/00

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FFN 2000-0024

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

This Document contains 3 Pages.

Document No. PROCEDURE 1000.152 Rev./Change No. 002-04-0

Title UNIT 1 & 2 FIRE PROTECTION SYSTEM SPECIFICATIONS

Brief description of proposed change:

CR-C-1999-0302 was written to address a concern with inspection requirements and compensatory measures for Aux Bldg elevator doors located in regulatory required fire barriers. This was a result of a NRC finding at Callaway Nuclear Station. It has been determined that the door should be inspected and compensatory measures should be in place to address degradations. The Aux Bldg elevator doors to be upgraded are: U-1 el. 335 and U-2 el. 386, 354 and 335. This determination will address the compensatory measures required by 1000.152. The inspection procedure revisions for units 1 & 2 will be covered by action items 4 and 5. The 50.59 evaluation for this procedure revision should be adequate for procedure 1306.05 & 2306.025 fire door inspection procedures.

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☒

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. PROCEDURE 1000.152 Rev./Change No. 002-04-0

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

Will the Activity being evaluated:

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

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

This Document contains 1 Page.

Document No. PROC. 1000.152 Rev./Change No. 002-04-0 10CFR50.59 Eval. No. 00-024 (Assigned by PSC)

Title Unit 1 & 2 Fire Protection System Specifications

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

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

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

Thomas D. Robinson — Certified Reviewer's Signature

Thomas D. Robinson — Printed Name

2/17/00 — Date

Reviewer's certification expiration date: 3/23/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 3/9/00

Document No. Proc. 1000.152 Rev./Change No. 002-04-0

10CFR50.59 Review Continuation Page

Background: Appendix R requires those redundant trains of safety related equipment be separated by three hour rated fire barriers. This requirement also applies to components of the rated fire barrier such as fire doors, dampers, penetration seals, etc. In the past Fire Protection personnel did not inspect nor apply the compensatory measures of 1000.152 to elevator doors since they were not viewed to be a viable path for smoke, fire, etc. to propagate from one fire area to another. However, Callaway Nuclear Station was sighted with a violation by the NRC for not having compensatory measures in place for elevator doors that are part of a fire area boundary. As a result, 1000.152 as well as the fire door inspection procedures will be revised to include elevator doors. The Aux Bldg elevator doors to be upgraded are: U-1 el. 335 and U-2 el. 386, 354 and 335. The upgrade does not include all the Aux Bldg elevator doors since one door is adequate to provide separation. It should be noted that the doors are not currently three (3) hour rated as the fire barriers are but are one and one-half hour rated. They have been evaluated for use in a three (3) hour rated fire barrier by calculation 85-E-0053-04. All elevator doors in the turbine building are in the same fire area.

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

   A fire is not a design bases accident that has been evaluated in the SAR. The purpose of this revision is to provide compensatory measures and inspection criteria for elevator doors that are located in a regulatory required fire area boundary. The upgrade of the elevator doors will not result in a change from one frequency class to a more frequent class or a change in one frequency class. Thus, the probability of an accident previously evaluated in the SAR will not be increased.

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

   As stated, a fire is not an accident that has been evaluated in the SAR. The upgrade of the elevator doors will insure that the elevator doors are inspected and compensatory measures in place if they are degraded. The offsite dose consequences of a previously evaluated accident will not be increased beyond the licensed limit. Thus, the consequences of an accident previously evaluated in the SAR will not be increased.

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

   The elevator doors will have no impact on the ability of safety related equipment to perform their safety function. The purpose of this revision is to inspect the elevator doors and provide compensatory measures for degraded conditions. Thus, the probability of a malfunction of equipment important to safety will not be increased.

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

   As stated, this revision will have no impact on any equipment important to safety. The upgrade of the elevator doors will not impact have an on equipment important to safety but merely provide compensatory measures and inspection instructions. This upgrade will not have an impact on the radiation dose to the public associated with the plant's response to an accident. Thus, the consequences of a malfunction of equipment important to safety will not be increased.

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

   As stated, a fire is not an accident that has been evaluated in the SAR. The upgrade of the elevator doors will not have an impact on any accident evaluated in the SAR or an accident of any type. Thus, the possibility of an accident of a different type than any previously evaluated in the SAR will not be created.

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

   The upgrade of the elevator doors will not have an impact on any equipment important to safety either evaluated in the SAR or any not evaluated in the SAR. The upgrade will insure that the doors are maintained

in good condition and provide compensatory measures if they are not in good condition. Thus, the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR will not be created.

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

   The elevator doors are not address in the margin of safety as defined in the basis of any technical specification. Thus, the margin of safety as defined in the basis for any technical specification will not be reduced.

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

Document No. PROCEDURE 1000.152 Rev./Change No. 002-04-0

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

Q. 1 & 3 The use of elevator doors in a regulatory required three hour fire barrier is not addressed in the Tech Specs, OL, CO nor involve any test nor experiments.
Q. 2 The only place that the elevator doors are addressed as components in a regulatory required fire barrier is in the Fire Hazards Analysis which is Appendix 9B to the SAR.

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

Search Scope:

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

Document	Section
LRS: 50.59 Common	All ("Elevator doors", "elevator w/20 door*" and "fire Barrier")
MANUAL SECTIONS:	SAR Appendix 9B (both units)
FIGURES:	Fire Protection dwg for both units

Thomas D. Robinson — Certified Reviewer's Signature
Thomas D. Robinson — Printed Name
2/28/00 — Date

Reviewer's certification expiration date: 3/23/2001

Assistance provided by:

Printed Name	Scope of Assistance	Date

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

Randall D. Hawley — Certified Reviewer's Signature
Ronald D. Hendrix — Printed Name
2/29/00 — Date

6

FFN 2000-0026

PAGE 1 REV. 0 This Document Contains 3 Page(s)

Document No. DCP 980642D208 Rev./Change No. 0

Title ANO-2 SGR Project - Main Steam and Feedwater Piping

Brief description of proposed change:

See attached Form 1000.131C.

Will the proposed Activity:

1.	Require a change to the Operating License including:	
	Technical Specifications (excluding the bases)?	Yes☐ No☒
	Operating License?	Yes☐ No☒
	Confirmatory Orders?	Yes☐ No☒
2.	Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:	
	SAR (multi-volume set for each unit)?	Yes☒ No☐
	Core Operating Limits Report?	Yes☐ No☒
	Fire Hazards Analysis?	Yes☐ No☒
	Bases of the Technical Specifications?	Yes☐ No☒
	Technical Requirements Manual?	Yes☐ No☒
	NRC Safety Evaluation Reports?	Yes☐ No☒
3.	Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance)	Yes☐ No☒
4.	Result in a potential impact to the environment? (Complete the Environmental Impact Determination of this form.)	Yes☐ No☒
5.	Result in the need for a Radiological Safety Evaluation per section 6.1.5?	Yes☐ No☒
6.	Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6?	Yes☐ No☒
7.	Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7:	
	QAMO?	Yes☐ No☒
	E-Plan?	Yes☐ No☒

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

Question 1:

See attached Form 1000.131C.

Question 2:

See attached Form 1000.131C.

Question 3:

See attached Form 1000.131C.

Document No. DCP 980642D208 Rev./Change No. 0 PAGE 8 REV. 0

☐ Proposed change does not require 10 CFR 50.59 Evaluation per Attachment 1, Item #_____, (If checked, note appropriate item number and 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: ANO 50.59 – Unit 2	All ("feedwater" ,"main steam", "whip restraint", "ASME Section III", "ASME Section XI", "in-service inspection", "ISI", "non-destructive examination", "NDE", "pipe breaks", "pipe stress", "seismic category I", "seismic II/I", "containment isolation", "water hammer", "thermal stratification", "ASME Code Case N-416-1", "RG 1.46", "2dbb", "2ebb","main steam w/10 restrain*", "feedwater w/10 contain*")

MANUAL SECTIONS: 3.2.1, 3.2.2, 3.5.1.1, 3.6.1, 3.6.2, 3.6.3.2, 3.6.4, 3.6.4.2.2, 3.6.4.2.3, 3.7.1.3.1, 3.7.1.3.2, 3.7.2.1.3, 3.7.2.9.1, 3.7.2.14.1, 3.7.3.4.2, 3.7.5.1, 3.9.2, 5.5.5, 6.2.1, 10.3, 10.4.7, 15.1.12, 15.1.13, 15.1.14

FIGURES: 3.6-1, 3.6-7, 3.6-8, 3.6-32, 3.6-33, 3.6-34, 3.6-35, 3.6-36, 3.6-37, 3.6-38, 3.6-39, 3.6-40, 3.6-44, 3.6-45, 7.3-2, 10.2-3, 10.2-4, 10.4-2

TABLES: 3.6-9, 3.6-10, 3.6-11, 3.6-12, 3.6-15, 3.6-16, 6.2-9

Joseph C King Jr — Joseph C. King Jr. — 2-9-00
Certified Reviewer's Signature / Printed Name / Date

Reviewer's certification expiration date: 11-23-01

Assistance provided by:

Printed Name	Scope of Assistance	Date
Steven W. Kline (Bechtel)	DCP research and preparation	ONGOING
Ram Yelamanchi (Bechtel)	DCP research and preparation	
Paul Butler	DCP Preparation and 50.59 development	
Steve Bennett	Licensing review	

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

William Douglas Barborek — WILLIAM DOUGLAS BARBOREK — 2/10/00
Certified Reviewer's Signature / Printed Name / Date

ENVIRONMENTAL IMPACT DETERMINATION PAGE 9 REV. 0

(UNIT 1 and UNIT 2)

Document No. DCP 980642D208 Rev./Change No. 0

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

Will the Activity being evaluated:

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

This Document Contains 1 Page(s)

PAGE 10 REV. 0 10CFR50.59 Eval. No. 00-026

(Assigned by PSC)

Document No. DCP 980642D208 Rev./Change No. 0

Title ANO-2 SGR Project - Main Steam and Feedwater Piping

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

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

1. Will the probability of an accident previously evaluated in the SAR be increased? (See Form 1000.131C, page 7) Yes ☐ No ☒
2. Will the consequences of an accident previously evaluated in the SAR be increased? (See Form 1000.131C, page 8) Yes ☐ No ☒
3. Will the probability of a malfunction of equipment important to safety be increased? (See Form 1000.131C, page 8) Yes ☐ No ☒
4. Will the consequences of a malfunction of equipment important to safety be increased? (See Form 1000.131C, page 9) Yes ☐ No ☒
5. Will the possibility of an accident of a different type than any previously evaluated in the SAR be created? (See Form 1000.131C, page 9) Yes ☐ No ☒
6. Will the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR be created? (See Form 1000.131C, page 9) Yes ☐ No ☒
7. Will the margin of safety as defined in the basis for any technical specification be reduced? (See Form 1000.131C, page 10) Yes ☐ No ☒

Joseph C King Jr. | Joseph C King Jr. | 2-9-00

Certified Reviewer's Signature | Printed Name | Date

Reviewer's certification expiration date: 11/23/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
Steven W. Kline (Bechtel)	DCP research and preparation	ONGOING
Ram Yelamanchi (Bechtel)	DCP research and preparation	↓
PAUL BUTLER	DCP PREPARATION AND 50.59 DEVELOPMENT	↓

PSC review by: T Bean Date: 3/27/00

This Document Contains 11 Page(s)

Document No. DCP 98064D208 Rev./Change No. 0

10CFR50.59 Review Continuation Page

Continued from Form 1000.131A

Brief description of proposed change:

As a result of the removal of the Original Steam Generators (OSGs) and installation of the Replacement Steam Generators (RSGs) during the Steam Generator Replacement Outage (SGRO), permanent and temporary modifications to the Feedwater (FW) system, Main Steam (MS) system, instrument tubing, nitrogen tubing, and Main Steam Whip Restraints (MSWRs) will be required inside containment. The scope of this DCP includes:

- Cutting, removing, and reinstalling MS and FW piping sections that interfere with other Steam Generator Replacement (SGR) activities.
- Cutting, removing, and reinstalling the nitrogen line connections to MS piping and the nitrogen line attached to the MSWR that interferes with other SGR activities.
- Removing and reinstalling MS instrument tubing near the MSWR to avoid damaging the tubing during other SGR activities.
- Cutting, removing and reinstalling the MSWRs that interfere with other SGR activities.
- Modifying the MSWRs to accommodate the RSGs dome dimensions.
- Replacing the first reducing elbow outside the bioshield wall on each FW line with a new elbow and upstream spool pieces between the elbow and RSG. The existing piece of schedule 160 pipe that is welded to the 'A' OSG nozzle will be replaced with schedule 80 pipe.
- Removing MS system snubber supports 2EBB-1A-H6 and 2EBB-2A-H6.
- Removing EFW system snubber supports 2DBB-4-H2, 2DBB-4-H3 and 2DBB-4-H5.
- Modifying FW and EFW system supports 2DBB-4-H4, 2DBB-2-H17, and 2DBB-1-H4.
- Adding Radiographic Test (RT) access ports on MS piping for testing of the welds.

Arbitrary intermediate break points have been eliminated from the MS and MFW piping inside containment, reference NRC Generic Letter 87-11 and the piping calculations for the associated systems. No intermediate points have calculated stresses that force a postulated break at that location. Terminal end breaks are still postulated. Thus, the total number of postulated break points has been reduced for MS and MFW systems inside containment.

Note: Steam generator operability is referred to several times in the following description of changes from this DCP. For clarity, the steam generator secondary side is not considered operable after the pressurizer steam bubble has collapsed and the reactor coolant pumps for the steam generator are secured. However, structural integrity of the RCS is not impacted by this package and is addressed in ER 980642D207.

MS, FW, Nitrogen, and MS Instrumentation Systems Temporary Removal

The MS, FW, nitrogen and MS flow transmitter instrumentation tubing are safety-related, seismic category I systems which form a portion of the secondary system pressure boundary and containment boundary. The MS and FW piping systems, instrumentation tubing, nitrogen lines and affected supports will be removed to allow clearance for the removal of the OSGs and installation of the RSGs. There are no new pipe supports added nor is there any rerouting of any systems as a result of these modifications.

These piping systems 1) may be cut from the OSGs and associated supports removed and 2) may be rewelded to the RSGs and permanent supports installed during Mode 5 or 6 or the defueled condition with the corresponding steam generator declared out-of-service, the piping system declared out-of-service, and the corresponding secondary side containment isolation valves closed. These mode restrictions and valve position requirements ensure that in the event of a postulated fuel handling accident inside containment during defueling/refueling activities, there are no new radiological release paths through the containment to

the environment. Severing of these piping systems during Modes 5 or 6 will not affect the structural integrity of the Reactor Coolant System (RCS) (Reference Calculation 86E-0036-105 and Bechtel Calculations 23636-C-014 and 23636-C-015).

Foreign material exclusion, system cleanliness and housekeeping shall meet the requirements of Procedures 1000.060, Foreign Material Exclusion Program, 1025.019, System Cleanliness Controls During Modification and Maintenance, and 1000.18, Housekeeping.

After the RSGs are installed inside containment and the MS and FW weld-end preparation is completed, 1) the MS and FW piping will be welded to the RSGs, 2) the nitrogen and instrumentation lines will be welded to the MS piping, and 3) the pipe supports installed. The operation of these systems will not be altered after the RSGs are installed. All pipe/tubing machining, welding, and non-destructive examination (NDE) will be performed to approved procedures and will satisfy the requirements of ASME Sections III and XI, and ANSI B31.1. The piping, tubing, and supports will be reinstalled to satisfy the existing Design Basis such that MS and FW operation is not affected. Weld metal used in the restoration of the piping systems will be in accordance with the Bechtel Special Processes Manual which satisfies the original ASME code requirements. In lieu of hydrostatic testing of the affected piping systems, ASME Code Case N-416-1 will be invoked. The NRC approved the use of this code case for ANO in a letter dated February 27, 1995 (0CNA029520). Pre-service examination of the piping sections will be performed per the requirements of the Bechtel Special Processes Manual. The system leak test of the modified piping sections will be performed to ensure the weld joints, welded connections, and mechanical connections in the modified portions of the piping do not exhibit leakage at normal service conditions. Bechtel will perform the pipe weld surface preparations (PSI prep) and the surface (PT and/or MT) pre-service inspections only. All other pre-service inspections (UT for the pipe welds) will be performed by EOI. Return to service testing and gap measurements will be performed. The modifications made to these systems do not change the function or the safety-related operational characteristics of the systems and do not affect plant operation.

Prior to cutting any of these systems, temporary pipe supports or restraints will be installed, as required, to support the remaining pipe/tubing sections. Settings and/or gaps of applicable supports will be recorded prior to removing or disabling permanent supports where necessary. The temporary supports will be removed when the MS and FW piping is reinstalled and the permanent supports are restored. These supports ensure that no adverse effects will result from the temporarily reconfigured systems. A P-129 walkdown of the affected portion of these systems will be performed to verify that there are no potential obstructions to thermal growth and the cold gaps and/or settings at affected supports are restored to pre-SGRO measurements.

There are no new failure modes added by these modifications nor are there any changes to existing failure modes. Piping analyses are unaffected by the activities associated with these piping systems with the exception of the temporary removal of the piping sections. (Note: Piping analyses are affected as a result of the 1) RSG seismic response spectra, 2) RSG loss of coolant accident (LOCA) conditions, 3) seismic anchor movements, and 4) future power uprate conditions, and are addressed under the *Permanent MS and FW Supports* Section, below.) Piping has been evaluated to address the temporary configurations (Reference Bechtel Calculation 23636-C-014). Loads to be considered for pipe stress evaluations in the interim configuration include deadweight and seismic loads and will meet the requirements for seismic II/I design. The piping analyses have evaluated the applicable load cases and it has been verified that the piping stresses satisfy the allowable stresses during the interim configuration. The structural integrity of the remaining piping system, beyond the pipe cut locations, has been demonstrated for the temporary piping configurations. Support and penetration loading has been evaluated for the temporary conditions and found to be acceptable. Permanent supports have been qualified for the temporary configurations (Reference Bechtel Calculations 23636-C-014 and 23636-C-015).

The design locations of the RSG MS and FW nozzles do not change. However, taking into account RSG manufacturing tolerances and field conditions, the possibility exists for minor changes to the piping configurations to allow proper fit-up of the MS and FW piping to the RSGs. Any required changes will be performed in accordance with the applicable criteria contained in this DCP and reconciled with the design analyses, as required.

FW Piping Modification

In addition to temporarily removing a portion of the FW system that is an interference, a section of the FW piping will be replaced. The first reducing elbow and an upstream spool piece outside the bioshield wall on each FW line will be replaced with SA-234 Grade WPC material. Additionally, the piece of existing schedule 160 pipe on the 'A' steam generator will be replaced with schedule 80 pipe. This material is identical to the existing material and is in accordance with ANO Specification ANO-M-2555 and SES-27 (ANO Critical Pipe Engineering Standard). This modification does not alter the safety function of the FW system. In fact, the modification results in returning the FW system to meet the original pipe specification criteria.

The FW piping system being modified is listed on Form 6010.001V and is contained within the flow accelerated corrosion (FAC) program. This modification involved a change in piping configuration, but not a change in piping material; fluid flow, temperature, or pressure; chemistry; valves; or the addition of any drain lines. However, FW piping and support analyses considered future Uprate conditions for the structural analysis. This modification does not result in a change in piping material since the system is being restored per ANO Specification ANO-M-2555. Form 6010.001V has been reviewed by Engineering Programs and it has been determined that the modification does not result in an adverse impact to the secondary pipe wall thinning program.

The FW pipe machining, welding, and NDE will be performed to approved procedures and will satisfy the requirements of ASME Sections III and XI, and ANSI B31.1. The piping will be reinstalled to satisfy the existing Design Basis. Weld metal used in the restoration of the piping system will be in accordance with the Bechtel Special Processes Manual which satisfies the original ASME code requirements. In lieu of hydrostatic testing of the affected piping systems, ASME Code Case N-416-1 will be invoked. Pre-service examination of the piping sections will be performed per the requirements of the Bechtel Special Processes Manual. The pre-service leak test of the modified piping sections will be performed to ensure the weld joints, welded connections, and mechanical connections in the modified portions of the piping do not exhibit leakage at normal service conditions. Bechtel will perform the pipe weld surface preparations (PSI prep) and the surface (PT and/or MT) pre-service inspections only. All other pre-service inspections (UT for the pipe welds) will be performed by EOI. Return to service testing and gap measurements will be performed. A P-129 walkdown of the reinstalled portion of the FW piping and the insulation will be performed to verify that there are no potential obstructions to thermal growth of the piping and travel stops are removed from the spring hangers. The walkdown shall also verify the cold gaps at whip restraints and the cold setting of snubbers and springs in the affected portion of FW system. After the RSGs reach their operating temperature (feed water may be at any temperature), the hot settings at the springs and snubbers listed in Section F of Form 6010.001D for DCP 980642D208 will be measured and recorded to assure that the system thermal growth is within predicted ranges. The hot gaps at the pipe whip restraints will also be verified, where applicable. The modifications made to the FW system do not change the function or the operational characteristics of the system and do not affect plant operation.

MS Piping Modification

The only modification to the MS piping is the addition of Radiographic access ports (RT ports) adjacent to the new welds on the MS line for post welding radiography examinations. The RT access ports and plugs will meet the requirements of DRN Nos. 99-01914 (ANO Drawing No. 2EBB-1-1) and 99-01915 (ANO Drawing No. 2EBB-2-1). The RT access ports will be sealed using socket weld half coupling and round head plugs that conform to the requirements of ASME Section III, ASME B16.11, and ANSI B31.1. The half coupling will be attached to the outside of the MS line with a full penetration weld and a fillet weld reinforcement. The round head plug will be attached to the half coupling with an all around fillet weld. The welding will be performed in accordance with the Bechtel Special Processes Manual, ASME Section IX, and ANSI B31.1. The weld will be subjected to post weld heat treatment (PWHT) and NDE in accordance with the requirements of the Bechtel Special Processes Manual and ASME Section III. The pressure integrity of the connection is assured by meeting the Code and Bechtel Special Processes Manual requirements.

The MS pipe machining, welding, and NDE will be performed to approved procedures and will satisfy the requirements of ASME Sections III and XI, and ANSI B31.1 where applicable. The piping will be reinstalled to satisfy the existing Design Basis. Weld metal used in the restoration of the piping system will be in accordance with the Bechtel Special Processes Manual, which satisfies the original ASME code requirements. In lieu of hydrostatic testing of the affected piping systems, ASME Code Case N-416-1 will be invoked. Pre-service examination of the piping sections will be performed per the requirements of the Bechtel Special Processes Manual. The pre-service leak test of the modified piping sections will be performed to ensure the weld joints, welded connections, and mechanical connections in the modified portions of the piping do not exhibit leakage at normal service conditions. Bechtel will perform the pipe weld surface preparations (PSI prep) and the surface (PT and/or MT) pre-service inspections only. All other pre-service inspections (UT for the pipe welds) will be performed by EOI. Return to service testing and gap measurements will be performed. A P-129 walkdown of the reinstalled portion of the MS piping and the insulation will be performed to verify that there are no potential obstructions to thermal growth of the piping and travel stops are removed from the spring hangers. The walkdown shall also verify the cold gaps at whip restraints and the cold setting of snubbers and springs in the affected portion of MS systems. After the RSGs and MS lines reach their operating temperature, the hot settings at the springs and snubbers listed in Section F of Form 6010.001D for DCP 980642D208 will be measured and recorded to assure that the system thermal growth is within predicted ranges. The hot gaps at the pipe whip restraints will also be verified, where applicable. The modifications made to the MS system do not change the function or the operational characteristics of the system and do not affect plant operation.

MSWR Temporary & Permanent Modifications

The MSWRs are safety-related, seismic category I components. Sections of the MSWRs will be cut and removed to allow clearance for the movement of the OSGs and RSGs. Portions of these sections will be modified and then the MSWRs will be reinstalled after the RSGs have been moved into position inside containment. The MSWRs may be removed prior to the reactor vessel being defueled. These activities performed in Modes 5 or 6 may consist of partial cutting of the MSWR. However, partial cutting of the MSWRs will only be performed on the OSG declared out-of-service in Modes 5 and 6. No MSWR work will be performed on an operable steam generator.

The MSWR sections 1) may be cut and removed and 2) may be rewelded during Modes 5 or 6 or the defueled condition with the corresponding steam generator declared out-of-service, those portions of the corresponding secondary side systems attached to the steam generator declared out-of-service. The MSWRs will be reinstalled prior to the steam generators and those attached portions of secondary side piping being declared operable. Severing the MSWRs during Modes 5 or 6 will not affect the structural integrity of the RCS since there is no potential for a MS line break during these modes.

Removal of the MSWR components may be performed in the above stated modes since the MSWRs do not perform a whip restraint function during these modes. This interim piping configuration will meet seismic category II/I conditions (Reference Bechtel Calculation 23636-C-014). In addition, the structural integrity of the remaining sections of the restraint will not be adversely affected during a seismic event. Further, no MSWR steel sections with attachments for safety-related SSCs required to be in service during Modes 5 or 6 will be removed without adequate temporary seismic II/I supports being provided. This ensures that the activities are performed without adversely impacting safety-related components required for safe shutdown or normal plant operation. There will be no adverse effect on the function of existing SSCs and no new equipment failure modes will be added.

As a result of the change in the steam generator design (i.e., steam dome dimensions) the MSWRs will be modified. The permanent modifications may be performed during Mode 5 or 6 or the defueled condition with the corresponding steam generator declared out-of-service and the corresponding secondary side containment isolation valves closed.

The MSWRs (MK44) will be cut and removed to facilitate removal of OSGs and MS piping. The MSWRs have been redesigned to accommodate dimensional differences between the OSG and RSG. Adequate

clearance has been provided to accommodate the insulation, and thermal and seismic movements of the RSG. The stress levels are within the acceptable limits specified in the existing design basis documents and AISC Manual for Steel Construction (Calculation No. 1.3.5.3). Welding and NDE associated with the permanent plant structures will be performed in accordance with the Bechtel Special Processes Manual and AWS D1.1-1992. (Reference DRN Nos.99-01364 and 01365)

Modification to the MSWRs may be performed in Modes 5 or 6 or the defueled condition after the affected MSWR component has been removed. The modified MSWRs will be reinstalled, in the new configuration, to meet the original Design Basis(Reference Calculation 1.3.5.3, Revision 5). Prior to entering Mode 4. If the modified MSWRs are not completely reinstalled prior to fuel movement into the containment, the interim configuration will be ensured to meet seismic category II/I conditions.

An estimate of the approximate change in the quantity of steel inside the containment as a result of the MSWR modification has been performed. As a result of the modification, the overall amount of steel surface area inside containment increases by less than 1 ft^2. This change in surface area is minor compared to the 700 ft^2 of surface area for the MSWR specified in SAR Table 6.2-9 and, therefore, was judged to have no effect on the containment net free volume or the amount of heat sink surface area inside containment assumed in the accident analyses. Therefore, this change to the MSWR will not adversely affect the containment pressure/temperature or ECCS backpressure responses post-accident. The cumulative effect of steam generator replacement related changes in heat sink surface area and containment free volume is addressed in ER 980642I261. This analysis will be contained and discussed regarding the net impact in DCP 980642D205.

Modified portions of the MSWR will be painted by EOI in accordance with ANO Specification ANO-A-2437. Given the small increase in MSWR surface area resulting from the modification, the increase in the amount of painted surface area is judged to be negligible and will not have any impact on containment sump analyses.

Permanent MS and FW Supports

As a result of the reanalysis of the MS/FW systems based on the 1) RSG seismic response spectra, 2) RSG loss of coolant accident (LOCA) conditions, 3) seismic anchor movements, and 4) power uprate conditions:

- MS snubber supports 2EBB-2A-H6 and 2EBB-1A-H6 will be removed
- EFW snubber supports 2DBB-4-H2, 2DBB-4-H3 and 2DBB-4-H5 will be removed
- FW and EFW supports 2DBB-4-H4, 2DBB-2-H17, and 2DBB-1-H4 will be modified

These supports may be removed/modified during Mode 5 or 6 or the defueled condition with the corresponding steam generator declared out-of-service, the piping system declared out-of-service, and the corresponding secondary side containment isolation valves closed. Prior to performing work on these supports, temporary pipe supports or restraints will be installed, as required, to support the remaining pipe sections until the OSGs are removed.

As a result of this modification, 1) the level of protection of equipment with regard to high energy line break (HELB) will not change, and 2) the probability or consequences of a MS line break or a loss of normal FW, as demonstrated in the SAR will not increase. To demonstrate that these conditions are satisfied, the following concerns are addressed in this safety evaluation: stress analyses, transient analyses, containment pressure/temperature (P/T) analyses, hydrogen generation, HELB and jet impingement.

The engineering design and qualification of the piping resulting from the support removal/modification have been performed in accordance with the plant Design Basis. Analyses performed for the revised pipe supporting configuration utilize the existing design basis criteria. The results of these analyses verify that the modified MS, FW, and emergency feedwater (EFW) systems, with the supports removed/modified, meet the applicable Code and specification requirements that are consistent with the original plant design. These modifications do not alter the safety function of the MS and EFW systems.

Piping analyses have been performed for the MS and EFW systems based on the revised seismic response spectra, LOCA conditions, seismic anchor movements, and as a result of the power uprate conditions. The piping was analyzed for the loading conditions as specified in ANO Specifications ANO-M-2514 and ANO-M-2529. No new HELB break points are created due to the modifications of the MS and MFW lines or their supports. In fact, arbitrary intermediate break points have been eliminated, reducing the total number of postulated for MS and MFW. Piping/Structural analyses verify that the system piping stresses satisfy ASME Code allowable stresses (Reference Calculations 6600-2-1059, 6600-2-1060, 6600-2-1018, and 6600-2-1019). The effects of the removal and modification of the snubbers on the remaining supports has been evaluated (Reference calculations listed in DCP 980642D208, Form 6010.001D, Section C.4) and modifications have been issued (Reference DRNs listed in DCP 980642D208, Form 6010.001D, Section C.1.a) where necessary.

The conditions which result in a loss of normal FW and require operation of the EFW remain the same as the existing failure modes specified in SAR Section 10.4.9. The conditions which result in a MS line break remain the same as the existing failure modes specified in SAR Section 10.3. There are no new failure modes introduced as a result of the pipe support removal/modifications. The EFW system will remain capable of providing adequate EFW to the steam generators.

Pipe support welding and non-destructive examination (NDE) will be performed to approved procedures and will satisfy the requirements of ASME Sections III, XI, AWS D1.1, and ANSI B31.1. The modified supports will be reinstalled to satisfy the Design Basis. Weld metal used in the restoration of the supports satisfies the original ASME and AWS code requirements.

As a result of the removal and modification of some of the existing pipe supports, the amount of steel surface area (including snubbers) inside containment is expected to decrease by approximately 60 ft^2. This correlates to an increase in containment free volume of approximately 6 ft^3. This minor change in heat sink surface area and containment free volume was judged to have a negligible effect on the containment net free volume or the amount of heat sinks inside containment assumed in accident analyses. Therefore, these support modifications will not adversely affect the containment pressure/temperature or ECCS backpressure responses post-accident. The cumulative effect of steam generator replacement related changes in heat sink surface area and containment free volume is addressed in ER 980642I261. This analysis will be contained and discussed regarding the net impact in DCP 980642D205.

There is no impact to the SG subcompartment pressurization and venting capability post-accident as a result of the removal/modification of the pipe supports since these pipe supports are not located within the SG subcompartments.

Modified portions of the MS and FW supports will be painted, as required, by EOI in accordance with ANO Specification ANO-A-2437. Given the small decrease in support steel surface area resulting from the support modifications, the decrease in the amount of painted surface area was judged to be negligible and will not have any impact on containment sump analyses.

Construction Activities to Support the DCP Modifications

The construction activities conducted during the SGRO will be planned in a manner that ensures compliance with the current licensing basis. Restrictions will be put in place on when certain activities may be performed during the SGRO and under what conditions these activities may be performed. In addition, construction activities will be planned in a manner that optimizes safety system availability. The construction activities will be performed to meet the technical requirements of the ANO Unit 2 Outage Risk Management Guidelines (ORMG).

The construction activities performed to support the modification specified in this DCP may be performed in Modes 5, 6 or the defueled condition as indicated. Construction activities associated with the modifications may include pipe and steel torching/cutting and welding. All welding and NDE will be performed to meet the requirements of ASME III, V, and XI,AWS D1.1 Codes, and ANSI B31.1.

Load handling and rigging activities associated with the piping sections and MSWR sections will be performed in DCP 980642D203 and is outside the scope of this safety evaluation.

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

Question 1

The following Technical Specifications sections and associated Bases are directly associated with the MS and FW system modifications.

3/4.3.1 – Reactor Protective Instrumentation
3/4.4.1 – Reactor Coolant Loops and Coolant Circulation
3/4.4.5 – Steam Generators
3/4.4.10 – Structural Integrity
3/4.6.3 – Containment Isolation Valves
3/4.6.4 – Combustible Gas Control
3/4.7.1.1 – Turbine Cycle – Safety Valves
3/4.7.1.2 – Emergency Feedwater System
3/4.7.1.5 – Main Steam Isolation Valves
3/4.7.8 – Shock Suppressors (Snubbers)
3/4.9.2 – Instrumentation
3/4.9.4 – Containment Building Penetrations
3/4.9.8 – Shutdown Cooling and Coolant Circulation

The piping system modifications associated with this DCP will not affect the Operating License or the Technical Specifications requirements for those Technical Specification sections directly associated with this DCP during the modes specified in the Technical Specifications.

Changes associated with this package (ER 980642D208) result in a minor reduction in inside containment steel surface area and a corresponding increase in containment free volume that will not adversely affect the internal containment pressure or temperature (Modes 1-4) nor the operation of the hydrogen analyzers or recombiners (Modes 1 and 2) during the modes specified in the Technical Specifications. It has been demonstrated that the post-accident containment pressure, temperature, hydrogen generation, and steam generator (SG) subcompartment analyses (with the decrease in the amount of steel inside containment) remain bounded by the existing acceptance criteria. The cumulative effect of all steam generator replacement related changes in heat sink surface area and containment free volume is addressed in ER 980642I261. This analysis will be contained and discussed regarding the net impact in DCP 980642D205.

In addition, these DCP activities will not adversely impact outage risk management since the technical requirements of the ANO Unit 2 ORMGs shall be implemented, as required, to ensure those systems relied on for continued plant operation are not adversely affected during the modes in which they are required to be operable.

Question 2

The documents listed in question 2 (Form 1000.131A, Sheet 1) were reviewed and it has been determined that only the SAR has been affected by the modification. The piping and MSWR modifications and reanalyses of the piping systems due to the changes associated with the 1) RSG seismic response spectra, 2) RSG loss of coolant accident (LOCA) conditions, 3) seismic anchor movements, and 4) power uprate conditions results in the need to revise SAR Tables 3.6-9, 3.6-10, 3.6-11, 3.6-12, and 6.2.9 and Figures 3.6-33, 3.6-34, 3.6-39, and 3.6-40.

There are no changes to the fire hazards analysis since there are no electrical modifications, no permanent increases in combustible materials, increases or changes in oil storage or transport or modifications of fire barriers associated with this DCP. The modifications will not affect the Core Operating Limits Report nor

affect continued compliance with the requirements of the Bases for the above mentioned Technical Specifications.

Question 3

Post modification testing, if required, will be performed to meet the technical requirements of plant procedures. There are no tests or experiments specified for this modification, within the scope of this evaluation, that are not described in the SAR.

Unreviewed Safety Questions from Form 1000.131B (Cont.)

Bases for Unreviewed Safety Question Conclusions

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

The applicable accidents from the SAR evaluated in this safety evaluation are1) steam system pipe break and 2) Feedwater system pipe break.

Pipe breaks can be initiated by a variety of conditions, including overstressing due to thermal cycling, overstressing due to improper support, or undetected piping or welding material flaws. However, control of these conditions for the piping system has been ensured by design, quality control, and quality assurance measures. The design, procurement, and construction provisions for these modifications are at least as stringent as those applied to the original plant design. Piping and supports have been evaluated in accordance with ANO Specification ANO-M-2514. The same measures that applied to the original plant design to minimize the probability of a pipe break accident have not changed, and the probability of a pipe break will not be increased as a result of the SGR activities. Intermediate break points have been eliminated from both the MS and FW systems, reducing the total number of postulated break locations for those systems.

The pipe supports and MSWR serve no pressure retention or fission product retention function and have been designed as seismic category I components. Furthermore, these components are not considered initiators to an applicable accident. Therefore, the MSWR and pipe support modifications do not increase the probability of a occurrence of an accident.

The construction activities anticipated by implementation of this DCP will include welding during Modes 5, 6 and the defueled condition. All welding will meet the applicable ASME Section III and XI,, B31.1 and AWS D1.1 codes. For those plant conditions defined by these modes and for the locations in which the activities will be performed, the construction activities will not initiate a LOCA. Therefore, the construction activities associated with modifications do not increase the probability of an accident previously evaluated in the SAR.

Therefore, these modifications to the MS and FW systems do not increase the probability of occurrence of an accident previously evaluated in the SAR. The SAR, including Sections 3.2.1, 3.2.2, 3.6.1, 3.6.2, 3.6.3, 3.6.4, 3.7.1, 3.7.2, 3.7.3, 3.7.5, 3.9.2, 10.3, 10.4.7, 15.1.8, 15.1.10, 15.1.12, 15.1.13, and 15.1.14, was reviewed for this conclusion.

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

All piping and components modified or affected as a result of the SGR have been analyzed for seismic events, both in the interim and final configurations, with the piping stresses meeting the applicable Code requirements for ASME III. Equipment, supports, and penetrations have been evaluated for the removal of the pipe supports and are acceptable. Furthermore, it has been demonstrated that severing the piping systems included in this package does not affect the Reactor Coolant System structural integrity. The response of the piping systems to postulated accident conditions is not adversely affected by the modifications. No new pipe break locations were created; in fact the arbitrary intermediate break points were eliminated, reducing the total number of break locations on MS and MFW. The jet impingement loads or

spray from the remaining break points is unchanged due to these modifications and no new release paths are introduced. When the modification is completed, the piping will meet the original design bases.

The minor reduction in steel surface area will not adversely affect the percentages of sprayed or unsprayed regions inside containment assumed in accident analyses. The reduction in steel surface area will not affect the amount of heat sinks assumed in the accident analyses. The slight reduction in the amount of heat sink surface area and corresponding increase in containment free volume inside containment is small compared to the total amount of heat sink surface area and containment free volume utilized in the containment analysis and will not adversely affect the accident analysis. The cumulative effect of steam generator replacement related changes in heat sink surface area and containment free volume is addressed in ER 980642I261. This analysis will be contained and discussed regarding the net impact in DCP 980642D205.

Therefore, the modifications to the MS and FW systems do not increase the consequences of an accident previously evaluated in the SAR. The SAR, including Sections 3.2.1, 3.2.2, 3.6.1, 3.6.2, 3.6.3, 3.6.4, 3.7.1, 3.7.2, 3.7.3, 3.7.5, 3.9.2, 10.3, 10.4.7, 15.1.8, 15.1.10, 15.1.12, 15.1.13, and 15.1.14, was reviewed for this conclusion.

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

The piping will be installed to maintain the original piping function and to satisfy existing Design Basis requirements in accordance with ASME Sections III and XI, and ANSI B31.1. Piping has been evaluated to address temporary piping configurations, where applicable. The modified MSWRs and new piping sections have been evaluated for the applicable design basis loading conditions. All components within the modified piping systems have been evaluated and are qualified for the RSG seismic response. The results of the evaluations demonstrate that the piping stresses satisfy ASME Section III Code allowable stresses. The pressure integrity of the RT access ports is assured by meeting the Code and Bechtel Special Processes Manual requirements. The proposed method of sealing the RT access port does not introduce a new failure mode. No new pipe break locations were created; in fact the arbitrary intermediate break points were eliminated, reducing the total number of break locations on MS and MFW. The jet impingement loads or spray from the remaining break points is unchanged due to these modifications.

The modifications to the FW system have been reviewed for impact resulting from FAC. This modification includes restoring portions of the piping system to schedule 80 piping per ANO Specification ANO-M-2555. This modification does not result in an adverse impact to the secondary pipe wall thinning program.

While the piping systems and MSWRs will be cut, modified, and welded as a result of the SGR activities, the basic design criteria of the systems, including piping design classification and in-service inspection criteria have been maintained. There are no new pipe break locations added as a result of the modifications, therefore, the protection of plant equipment used to ensure the safe shutdown of the plant and to mitigate the consequences of a pipe break are not affected by the changes associated with the SGRO.

The removal of the pipe supports and modification to the piping and MSWRs will not adversely affect any equipment important to safety. The modifications will not adversely affect the spray flow from the containment spray nozzles, the post accident flood level, or the containment post-accident response.

Therefore, the modifications to the MS and FW systems do not increase the probability of a malfunction of equipment important to safety. The SAR, including Sections 3.2.1, 3.2.2, 3.6.1, 3.6.2, 3.6.3, 3.6.4, 3.7.1, 3.7.2, 3.7.3, 3.7.5, 3.9.2, 10.3, 10.4.7, 15.1.8, 15.1.10, 15.1.12, 15.1.13, and 15.1.14 was reviewed for this conclusion.

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

The piping will be reinstalled to maintain its' original function and to satisfy existing Design Basis requirements in accordance with ASME Sections III and XI, and ANSI B31.1. The MSWRs have been evaluated and redesigned in accordance with the original design basis requirements. The piping, supports and MSWRs will be installed in accordance with the design and applicable Code requirements under a

Quality Assurance Program that complies with 10CFR50 Appendix B requirements. The modified piping systems will continue to operate within design limits. There is no affect on the piping systems which result in a change to the dose mitigating functions of the piping system. The modifications will not adversely affect the assumptions previously made in evaluating the consequences of a malfunction of equipment important to safety. Intermediate break points have been eliminated from both the MS and FW systems, reducing the postulated break locations for those systems. The minor changes in steel surface area and containment free volume inside containment will not adversely affect the assumptions previously made in evaluating post accident radiological consequences. The cumulative effect of steam generator replacement related changes in heat sink surface area and containment free volume is addressed in ER 980642I261. This analysis will be contained and discussed regarding the net impact in DCP 980642D205.

The proposed activity does not change or prevent actions described or assumed or alter assumptions previously made in evaluating the consequences of a malfunction of equipment important to safety. Therefore, the modifications to the MS and FW systems do not increase the consequences of a malfunction of equipment important to safety. The SAR, including Sections 3.2.1, 3.2.2, 3.6.1, 3.6.2, 3.6.3, 3.6.4, 3.7.1, 3.7.2, 3.7.3, 3.7.5, 3.9.2, 10.3, 10.4.7, 15.1.8, 15.1.10, 15.1.12, 15.1.13, and 15.1.14 was reviewed for this conclusion.

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

The modifications do not involve the addition of any new accident initiators. The modifications do not add new operational interfaces with existing SSCs important to safety. The change in heat sink inventory does not adversely affect the post-accident containment response.

Prior to entering Mode 4, NDE will be performed to meet the Code requirements. Administrative controls (mode restrictions/system isolation requirements) contained in this DCP ensure that activities associated with the modifications will be performed without impacting systems required to be operable. No new radiological release paths will be created as a result of these modifications. Therefore, the possibility of an accident of a different type than any previously evaluated in the SAR is not created. The SAR, including Sections 3.2.1, 3.2.2, 3.6.1, 3.6.2, 3.6.3, 3.6.4, 3.7.1, 3.7.2, 3.7.3, 3.7.5, 3.9.2, 10.3, 10.4.7, 15.1.8, 15.1.10, 15.1.12, 15.1.13, and 15.1.14 was reviewed for this conclusion.

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 systems are designed and installed as seismic category I systems. The components will not fail and impact any equipment important to safety during the interim configurations. The modifications do not result in a change to any post-accident dose mitigating functions. The reduction in steel surface area and corresponding increase in containment free volume inside containment will not adversely affect the post-accident containment response. The cumulative effect of steam generator replacement related changes in heat sink surface area and containment free volume is addressed in ER 980642I261. This analysis will be contained and discussed regarding the net impact in DCP 980642D205. The modified systems have been evaluated for the applicable loading combinations with all the stresses meeting the requirements of the applicable Code. Therefore, the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR is not created. The SAR, including Sections 3.2.1, 3.2.2, 3.6.1, 3.6.2, 3.6.3, 3.6.4, 3.7.1, 3.7.2, 3.7.3, 3.7.5, 3.9.2, 10.3, 10.4.7, 15.1.8, 15.1.10, 15.1.12, 15.1.13, and 15.1.14 was reviewed for this conclusion.

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

The activities and modifications are performed in the vicinity of SSCs which are described in the Technical Specifications. These SSCs perform functions which ensure that reliability, redundancy, and diversity are available for the protection and mitigation of accident and transient conditions (3/4.3.1); ensure the operability of the equipment and systems required for the detection and control of hydrogen gas post-LOCA (3/4.6.4); ensure that systems are available for continued plant operation (3/4.4.5, 3/4.4.10, 3/4.6.3, 3/4.7.1.1, 3/4.7.1.2, 3/4.7.1.5,

3/4.7.8); ensure visual and audible indication in the control room and containment is available to detect changes in the reactivity condition of the core (3/4.9.2); and ensure the containment is isolated during fuel movement (3/4.9.4). The reactor coolant loop(s) and the associated steam generator(s) may be required to be Operable as a backup to the Shutdown Cooling Loops during Modes 4, 5, and 6 in accordance with requirements of Technical Specifications 3.4.1.3 and 3.9.8.2, and 2CAN098911. 2CAN098991 discusses the commitments EOI (Then AP&L) made with regards to maintaining one SG operable during certain reduced inventory evolutions. Technical Specification 3.9.4 requires that each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be closed during Core Alterations or movement of irradiated fuel within the containment. Technical Specification 3.9.8.1 requires that the containment penetrations providing direct access from the containment atmosphere to the outside atmosphere be closed within 4 hours when less than one shutdown cooling loop is in operation in Mode 6. Neither the integrity nor the function of plant SSCs associated with these systems will be adversely impacted as a result of the modifications. Action statements specified in Technical Specification 3.3.1,Table 3.3-1, and Technical Specification 3.9 provide the necessary compensatory actions if an instrumentation channel becomes inoperable during Modes 5 and 6.

Work will not progress on any piping, pipe support or component until the associated SG and piping are declared inoperable and Containment Closure requirements are met. These construction activities will not adversely affect the components addressed in the following Technical Specification sections which ensure shutdown cooling operability in Modes 5 and 6 (3/4.4.1.3, 3/4.9.8.1, & 3/4.9.8.2) and ensure that the structural integrity of the ASME Code Class 1, 2, and 3 components are maintained (3/4.4.10). These activities will not adversely impact outage risk management since the technical requirements of the ANO Unit 2 ORMGs shall be implemented, as required, to ensure those systems relied on for risk management are not adversely affected during the modes in which they are required to be operable. Therefore, the modifications to the MS and FW systems do not reduce the margin of safety as defined in the basis for any Technical Specification.

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FFN 2001-0009

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

This Document contains 3 Pages.

Document No. TAP 01-2-001 Rev./Change No. 0

Title 2P-89B Recirc Line Orifice Bypass Test Header

Brief description of proposed change:

The proposed alteration is the addition of a 2" NPS bypass loop (mechanical jumper) around the mini-recirc line flow orifice, 2FO-5121. The jumper will also bypass the adjacent check valve, 2SI-23B, downstream of 2FO-5121. The alteration also includes the addition of a pressure point to collect pump discharge pressure as part of the pump hydraulic performance data. The bypass loop will contain a 2" NPS Y-pattern globe valve and a 2" NPS gate valve. The globe valve will be used to throttle 2P-89B discharge flow as desired during collection of flow, head and vibration data at various test points. The gate valve will be full open during 2P-89B testing and is provided as added assurance of leak tightness through the bypass loop when any HPSI pump is in operation. The pressure point will consist of two ¾" globe valves and connecting piping to allow installation of a pressure test gauge during 2P-89B testing.

Will the proposed Activity:

1. Require a change to the Operating License including:
   - Technical Specifications (excluding the bases)? Yes☐ No☒
   - Operating License? Yes☐ No☒
   - Confirmatory Orders? Yes☐ No☒
2. Result in information in the following SAR documents (including drawings and text) being (a) no longer true or accurate, or (b) violate a requirement stated in the document:
   - SAR (multi-volume set for each unit)? Yes☒ No☐
   - Core Operating Limits Report? Yes☐ No☒
   - Fire Hazards Analysis? Yes☐ No☒
   - Bases of the Technical Specifications? Yes☐ No☒
   - Technical Requirements Manual? Yes☐ No☒
   - NRC Safety Evaluation Reports? Yes☐ No☒
3. Involve a test or experiment not described in the SAR? (See Attachment 2 for guidance) Yes☒ No☐
4. Result in a potential impact to the environment? (Complete Environmental Impact Determination of this form.) Yes☐ No☒
5. Result in the need for a Radiological Safety Evaluation per section 6.1.5? Yes☐ No☒
6. Result in any potential impact to the equipment or facilities utilized for Ventilated Storage Cask activities per Section 6.1.6? Yes☐ No☒
7. Involve a change under 10CFR50.54 for the following SAR documents per Section 6.1.7?
   - QAPM? Yes☐ No☒
   - E-Plan? Yes☐ No☒
8. Does this review depend on future NRC approval of other actions? (NRC SER, Relief, etc)? (forward change to PSC per 6.3.8 or 6.3.9) Yes☐ No☒

Document No. TAP 01-2-001 Rev./Change No. 0

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

Question 1 – No change to the Operating License is required. No information contained in the Operating License is impacted by this temporary alteration.

Question 2 – This temporary alteration will cause information contained in ANO-2 SAR Figure 6.3-2 (P&ID M-2232) to be inaccurate (Reference T-ALT DRN 01-00119). The affected information is the configuration of the mini-recirc line associated with 2P-89B. Text in the ANO-2 SAR identifies a test path for use during operation and that minimum flow protection is provided for the HPSI pumps, but no information is invalidated by introducing an alternate path for testing only which does not affect the normal operation minimum flow rate.. No other SAR documents will be invalidated by this change.

Question 3 – This alteration is considered to allow performance of a test not described in the SAR in that it allows recirculation flow rates greater than those possible with flow through the recirc orifice only.

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

Search Scope:

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

Document	Section
LRS: All	(Keywords 2P*89B, 2P89B, HPSI, recirc*, 5128, 5628, orifice, 2FO*5121, 2FO5121, "high pressure safety injection", 2DCB, 2SI*23B, 2SI23B, RWST, 2HCB, RAS, 2T3, 2T*3, "refueling water tank" w/25 HPSI, RWT w/25 recirc*)

MANUAL SECTIONS: 3.1, 3.2, 3.5, 3.6 4, 6.2, 6.3, 7.3.1.11.5/6, 15.1.13.4, FHA 5.8
FIGURES: 6.3-2, 6.3-4, Table 6.3-3, Table 6.3-22, Table 15.1.13-5

Stephen J. Lynn — Stephen J. Lynn — 2/12/01
Certified Reviewer's Signature — Printed Name — Date

Reviewer's certification expiration date: 5/26/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
Randall S. Smith	LRS	1/23/01

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

M. Keith Butler — M. Keith Butler — 2-12-01
Certified Reviewer's Signature — Printed Name — Date

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. TAP 01-2-001 Rev./Change No. 0

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

Will the Activity being evaluated:

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

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

This Document contains 1 Page.

Document No. TAP 01-2-001 Rev./Change No. 0 10CFR50.59 Eval. No. FFN#01-009 (Assigned by PSC)

Title 2P-89B Recirc Line Orifice Bypass Test Header

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

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

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

A review of the ANO-2 SAR accident analysis reveals that the affected portion of the HPSI system is not an accident initiator for any accident previously evaluated in the SAR. Therefore, the probability of an accident previously evaluated in the SAR will not be increased.

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

Testing of an inoperable HPSI pump, 2P-89B in this instance, during power operation causes the auto-start feature of the standby pump, 2P-89C, to be overridden by protective logic that does not allow 2P-89C to auto-start if the 2P-89A or 2P-89B handswitch is not in pull-to-lock (PTL). Due to load sequencing concerns, no immediate actions will be taken in response to an ESF actuation, with or without a loss of offsite power. Workplan 2409.711 will contain specific instruction to not change the status of 2P-89B for at least two minutes following any such actuation to allow all automatic sequencing actions to occur without intervention or disruption. Immediate actions per Workplan 2409.711 include isolating the test header bypass (temporary valves 2SI-32 and 2SI-33), opening the mini-mini-recirc isolation valve (2SI-65) and opening 2P-89B discharge stop valve (2SI-10B). These manual actions restore injection flowpath capability to 2P-89B. After two minutes, operations may configure the HPSI system as desired. Physically opening the test header valves has no impact on 2P-89C or other ESF pump operability (Reference ER002804I202 hydraulic model results), however, controls are in place to restore the test header to an isolated state in the event of an ESF actuation. RAS operation is unaffected because, in addition to the above, operation of the 2P-89B recirc line isolation valve, 2CV-5128-1, is unaffected and will isolate regardless of test header valve status. Based on these controls, the conditions are the same as any post-

maintenance test of an inoperable HPSI pump with respect to train and equipment operability. Therefore, the consequences of an accident previously evaluated in the SAR will not be increased.

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

When the recirc bypass test header is in service HPSI pump 2P-89B is considered inoperable and when it is not in service its presence is transparent to 2P-89B and the remainder of the HPSI system. The alteration is to be designed, constructed, supported, installed and tested to meet all the quality requirements attendant to a permanent modification in the Code Class 2, safety related system in which it is installed.

Although considered inoperable during utilization of the test header, test configurations and immediate actions in response to a safeguards actuation serve to protect 2P-89B from damage due to pump runout.

The safety injection system is designed for automatic actuation with no manual actions required both with and without a loss of offsite power. (Reference SAR Section 6.3.1). Immediate actions are imposed to restore the "B" train of HPSI to an injection capable status in response to a safeguards actuation. In any event the applicable Tech Spec LCO will be entered any time the test header is in use

When in service and with substantial flow rates, the pressure in certain portions of the recirc piping system is raised above that associated with operation without the flow restricting orifice bypassed. That condition has been evaluated and determined to be acceptable with respect to piping system design (Reference ER002804I202).

Recirculation system piping will be monitored for temperature rise during use of the orifice bypass test header to ensure design values are not exceeded (Reference CR-ANO-2001-0032).

The 2P-89B recirculation isolation valve, 2CV-5128-1 has been confirmed to be capable of closing against maximum HPSI pump head. This capability was required without consideration of this alteration (Reference Calculation V-2CV-5128-10).

Operation of 2P-89B with flow only through the recirculation line back to the pump suction (I.e., 2CV-5128-1 or 2CV-5628-2 isolated) is restricted to provide overheating protection to the pump and piping system. The use of the test header does not introduce any potential or reason to operate in that mode and the test workplan does not provide for doing so.

Higher than typical flow velocities will be encountered in certain portions of the 2P-89B recirculation piping during use of the test header. Piping system response to the resultant hydraulic forces will be monitored during initial use of the test header and testing halted for evaluation if needed.

The potential for a change in orifice flow during normal operation due to test header installation has been evaluated. No detectable change in nominal recirculation flow will occur during normal operation.

Double valve isolation of the orifice bypass and of the pressure point connection provides substantial assurance that flow through the bypass will not occur when the bypass is not in service and there is therefore no appreciable increase in the potential for flow diversion from the RCS in accident conditions. Additionally, if an SIAS were to occur during use of the test header, not only are there administrative controls to isolate the bypass, flow diversion from other pumps is not a concern because each pump has its own individual flow limiting orifice in the recirculation flowpath.

When placed in service, the test header allows 2P-89B to be tested in flow regimes normally only achieved during outage testing. The enhanced test capability provides added assurance of confirming 2P-89B acceptable operation over the full range of potential accident flow requirements and as such provides a reduction in the probability of malfunction of equipment important to safety as compared to operability based on more restricted post maintenance testing.

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

This alteration does not introduce a significant potential for any increase in the consequences associated with the malfunction of 2P-89B or any other affected equipment. Missile generation from the added pressure point installation was considered and the design of the installation adapted to minimize any potential for damage to equipment important to safety to be affected in the unlikely event of an instantaneous and complete circumferential weld failure in the pressure point assembly in conjunction with a safeguards actuation. The valves utilized in this alteration are ASME Section III with a 1500 psig ANSI rating. As such they have certain design features (pressure seal bonnets, backseats, etc.) which cause bonnet or stem ejection to not be a credible failure (Reference SAR Section 3.5.2.3.2). Furthermore, valve orientation is such that none of the valve bonnets or stems represent a missile hazard to any SSC other than the 2P-89B pump with which they are associated. (Reference SAR Section 3.5,

Table 3.5-5 and ULD-0-TOP-08, ANO Missiles Topical)

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

The HPSI System is not evaluated in the SAR as an accident initiator and this alteration does not introduce the potential for it to become one. The alteration is limited to the recirculation piping of 2P-89B and is confined to the local area at 2P-89B. Alteration piping size is bounded by existing piping and the materials and construction of all components added are consistent with those already in use in this type of application. The bypass will normally be isolated and its use administratively controlled. 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? Yes ☐ No ☒

The added piping and components are consistent with existing plant design. Failure scenarios (piping breaks, missiles, pipe whip, flooding, pump runout, pump deadheading, etc.) are all bounded by existing analyses. 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.

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

This alteration is confined to the recirculation line associated with 2P-89B and when isolated in no way affects the flow capability of the associated HPSI train or flow distribution via the injection lines to the RCS.

The very small volume (less than 1gallon) of the added piping is inconsequential with respect to HPSI System or RCS volumes and adds no potential for dilution of the RCS.

The alteration does not create any new path for release of radioactive effluent offsite. All added piping is in the same room as existing piping utilized in 2P-89B and HPSI System operation. The orifice bypass will be isolated except for the actual performance of testing. The alteration does not bypass or affect the operation or function of the 2P-89B mini-recirc isolation valve, 2CV-5128-1 or the master recirc isolation valve, 2CV-5628-1 to the RWST. This alteration introduces additional valves with the potential for valve stem leakage during post-LOCA recirculation operation of the HPSI system. SAR Table 15.1.13-5 limits the amount of system

leakage into the auxiliary building atmosphere to prevent excessive radioactive releases following an accident. Based on a review of CALC-97-R-2002-01, "ECCS Leakage Quantities to the Auxiliary Building" and ER003258I202 response from NED (associated with the now to be unused test connection valves installed in 2R14), the subject alteration will not cause the safety analysis assumption of 2060 cc/hr to be exceeded. Therefore, HPSI leakage limit and the total leakage limit listed in SAR Table 15.1.13-5 will not change as a result of this alteration.

Stephen J. Lynn — Certified Reviewer's Signature

Stephen J. Lynn — Printed Name

2/13/01 — Date

Reviewer's certification expiration date: 5/26/01

Assistance provided by:

Printed Name	Scope of Assistance	Date
Randall S. Smith	LRS	2/13/01

PSC review by: [signature] Date: 2/13/01

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FFN 2001-0020

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

This Document contains 3 Pages.

Document No. 003266N201 Rev./Change No. 0

Title **Replace Hydrazine Analyzers 2HYTS-4009 and 2HYTS-4014**

Brief description of proposed change: **See title.**

NC 003266N201
Page 5 Rev. 0

Will the proposed Activity:

1. Require a change to the Operating License including:

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

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

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

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

   Core Operating Limits Report Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

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

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

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

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

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

   QAPM? Yes☐ No☒

   E-Plan? Yes☐ No☒

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

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

Document No. **003266N201** Rev./Change No. **0** NC 003266N201

Basis for Determination (Questions 1, 2 & 3): Page 10 Rev. 0
ANO-2 SAR Figure 9.3-3 (P&ID M-2223 sht 1) is being revised per this ER.

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

Search Scope:

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

Document	Section
LRS:	
ANO-2 Tech Specs	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
ANO-2 Operating License	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
ANO-2 Confirmatory Orders	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
ANO-2 SAR	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
QAMO	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
E-Plan	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
FHA	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
ANO-2 Tech Spec Bases	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
ANO-2 NRC SERs	**ALL (2HYTS-4009, 2HYTS-4014, hydrazine, oxygen scavenging)**
MANUAL SECTIONS:	
ANO-2 SAR	**9.2.6, 9.3.2, 10.3.5, 10.4.7, Table 9.3-2**
FIGURES:	
ANO-2 SAR	**9.3-3, 10.4-5**

Steve Capehart — Certified Reviewer's Signature
Steve Capehart — Printed Name
2-27-01 — Date

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

Assistance provided by:

Printed Name	Scope of Assistance	Date

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

Certified Reviewer's Signature
John Harvey — Printed Name
2/27/01 — Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. **003266N201** Rev./Change No. **0**

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

Will the Activity being evaluated:

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

This Document contains 1 Page.

Document No. **003266N201** Rev./Change No. **0** NC 003266N201

10CFR50.59 Review Continuation Page

This Nuclear Change will replace Main Feedwater (MFW) hydrazine analyzers 2HYTS-4009 and 2HYTS-4014. This NC does not change the original design functions provided by these analyzers.

QUESTION 1 – Operating License

The type of MFW hydrazine analyzers used at ANO are not discussed in the level of detail present in the ANO-2 Technical Specifications, Operating License or any Confirmatory Orders.

QUESTION 2 – SAR Documents

The type of MFW hydrazine analyzers used at ANO are not discussed in any of the SAR documents. However, ANO-2 SAR Figure 9.3-3 is being revised given P&ID M-2223 sht 1is being revised to reflect configuration changes.

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 MFW hydrazine analyzers are not associated with the VSC project.

QUESTION 7 – QAMO or E-PLAN

The type of MFW hydrazine analyzers used at ANO is not referenced in the QAMO or E-PLAN.

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

NC 003266N201

This Document contains 2 Pages.

Page 9 Rev. 0

10CFR50.59 Eval. No. FFN#01-020
(Assigned by PSC)

Document No. **003266N201** Rev./Change No. **0**

Title **Replace ANO-2 Hydrazine Analyzers**

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

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

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

   The affected analyzers are used to monitor hydrazine concentration in the Main Feedwater system. The analyzers do not directly interface with any equipment, piping etc that are considered accident initiators. Therefore, the probability of an accident previously evaluated in the SAR is not increased.

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

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

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

   The analyzers are not considered equipment important to safety and do not directly physically or electrically interface with any equipment that is considered equipment important to safety. Therefore, the probability of a malfunction of equipment important to safety is not increased.

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

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

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

   The analyzers are not considered an accident initiator and do not directly interface with equipment that are considered an accident initiator. Albeit the analyzers are indirectly associated with the MFW system, the failure of an analyzer(s) will not create any new failure mechanisms for the MFW system. The function of the analyzers to monitor the hydrazine concentration in the MFW system 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.

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 is considered important to safety. Therefore, the possibility of a malfunction of equipment important to safety of a different type previously evaluated in the SAR will not be created.

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

The type of analyzer used to monitor the hydrazine concentration level in the MFW system is not discussed in the basis of any technical specifications. Therefore, the margin of safety as defined in the basis for any technical specification is not reduced.

Steve Capehart — Steve Capehart — 2-28-01

Certified Reviewer's Signature — Printed Name — Date

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

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: [signature] Date: 3/15/01

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FFN 2001-0026

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

This Document contains 3 Pages.

Document No. ER 963230D201 Rev./Change No. 0

Title 2E-11A / B Main Condenser Tube Bundle Replacement

Brief description of proposed change:

Temporary power system installed for the Unit 1 condenser project (DCP 951018D101) is to be extended tfrom the Southwest corner of the Unit 1 Transformer yard to the Unit 2 Tube Pull Pit area per this Modification (ER 963230D201). This temporary power system is being made a permanent installation for future temporary power needs per this NCPR (11). The temporary system is NON-Q and connects only to B8 480V MCC(offsite power source). It has no connection to any plant systems and does not cross over any.

Will the proposed Activity:

1. Require a change to the Operating License including:

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

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

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

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

   Core Operating Limits Report? Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

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

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

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

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

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

   QAPM? Yes☐ No☒

   E-Plan? Yes☐ No☒

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

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

Document No. ER 963230D201 Rev./Change No. 0

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

1) This 50.59 determination evaluates the permanent installation of the temporary power system as outlined in ER 963230D201. No changes to the Operating License will be required since installation activities are structured to comply with Operating License documents. There are no activities that could impact Tech Spec requirements.
2) The final system configuration upon completion of this modification will result in revision to a SAR Figure (8.3-53). However, the permanent temporary power system is NON-Q and has no connection to any plant systems. No other LBD information will be untrue or inaccurate as a result of this installation.
3) There is no testing involved with this installation.This system only consists of power cables running through cable trays and 2 terminal boxes. Any testing would be according to plant procedures and done when temporary power would be utilized. The cables, cable trays, and terminal boxes are labeled and entered in PDMS.
4) As documented on the Environmental Impact checklist, this installation does not involve activities that could have a negative impact on the environment.
5) This installation is between the turbine building and the startup transformer and is not associated with any radiological areas.
6) This installation does not impact the equipment or facilities or path utilized for Ventilated Storage Cask activities.
7) This installation does not impact the QAMP or E-Plan.
8) This installation does not depend on future NRC approval.

☒ Proposed change does not require 10CFR50.59 Evaluation per Attachment 1, Item # ~~F2;~~ 4-9-01 4-9-01 (If checked, note appropriate item #, send LDCR to Licensing).

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

Document Section

LRS: 50.59 – Unit C (transformer yard)

MANUAL SECTIONS: 1.2, 8

FIGURES: SAR Figures 8.3-53

John Przybys — JOHN PRZYBYS — 4/2/01
Certified Reviewer's Signature | Printed Name | Date

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

Assistance provided by:

Printed Name	Scope of Assistance	Date
Leland Loyd	Searched zyfind, manual	3/30/01

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

N/A — — —
Certified Reviewer's Signature | Printed Name | Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. ER 963230D201 Rev./Change No. 0

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

Will the Activity being evaluated:

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

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

This Document contains 2 Pages.

Document No. ER 963230D201 Rev./Change No. 0 10CFR50.59 Eval. No. FFN# 01-026 (Assigned by PSC)

Title 2E-11 A / B Main Condenser Tube Bundle Replacement

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

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

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

John Przybys — Certified Reviewer's Signature
John Przybys — Printed Name
4/9/01 — Date

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

Assistance provided by:

Printed Name	Scope of Assistance	Date
LELAND LOYD	RESEARCH & PROVIDED DRAFT	4/9/01

PSC review by: [signature] Date: 4/12/01

Document No. ER 963230D201 Rev./Change No. 0

10CFR50.59 Review Continuation Page

1.) This modification does not contain any equipment that performs a Safety-Related control function, nor does it contain any equipment that is credited for automatic action. This modification does not interface with any Safety Related equipment that is not isolated, nor will it add any Safety Related equipment. The operation or failure of this Permanent Temporary Power System is not an accident initiator to any of the accidents listed in the SSAR, nor does it interface with any equipment that is an initiator. Therefore, the probability of previously evaluated LBD accidents is not increased.

2.) The consequences of accidents discussed in the LBD's will not change as a result of this modification. The equipment and actions required to mitigate each accident will be unaffected by this modification. Since the modification has been designed with proper electrical isolation/separation, the Permanent Temporary Power System will not fail in a mode that will adversely affect any safety function. The dose consequences associated with previously evaluated accidents will not be affected as a result of this modification. Therefore, the consequences of accidents previously evaluated in the SAR will not increase.

3.) This modification does not interface (i.e.) control) with equipment that is considered important to safety. This modification does not affect any equipment or cabling that performs any control or interlock functions with safety or non-safety related systems. The Permanent Temporary Power System is in accordance with ANO standards and has no interface with any Safety-Related systems. Based on this, it is determined that this modification will not increase the probability of a malfunction of equipment important to safety.

4.) This Permanent Temporary Power System installed by this modification does not increase reliance on equipment important to safety. Because this system does not interface with any plant systems this ensures that the probability of a malfunction of equipment important to safety has not been increased. Therefore, the offsite dose consequences associated with a malfunction of equipment important to safety is not increased as a result of this modification.

5.) This Permanent Temporary Power System is not required for shutdown of the unit, mitigating radioactive releases or maintaining reactor coolant pressure integrity. It has been demonstrated that this modification will have no negative impact on a Safety-Related system or component. This modification will also not change the way Operations will respond to an accident. Failure of this system will not create any accident initiators. Therefore, it can be concluded that the possibility of an accident different from any previously analyzed in the SAR will not be created.

6.) All system designs for equipment important to safety will remain the same. Nothing added by this modification will be routed in such a manner to cause propagation of a failure in a Class 1E circuit. This is an NON-Q system with the criteria for electrical separation has been maintained to insure compliance. Also this system does not electrically/mechanically interface with equipment important to safety. Therefore, the possibility of a malfunction of equipment important to safety that involves an initiator or failure of a different type than any previously evaluated in the SAR has not been created.

7.) The Technical Specification bases do not establish a margin of safety for the NON-Q Permanent Temporary System. This modification will not affect or alter the existing Tech. Spec. requirements nor be included in any new requirements. Based on the above statements, this modification will not reduce the margin of safety as defined in the bases.

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FFN 2001-0027

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

This Document contains 3 Pages.

Document No. ER980507E201 Rev./Change No. 0

Title 2DW-214 and 2DW-215 Changed to Normally Closed

Brief description of proposed change:

Change the P&ID M-2212 Sheet 5 (SAR Fig 9.2-7) to indicate that valves 2DW-214, 2DW-215 and 2DW-100 are Normally Closed.

Will the proposed Activity:

1. Require a change to the Operating License including:

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

   Operating License? Yes☐ No☒

   Confirmatory Orders? Yes☐ No☒

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

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

   Core Operating Limits Report? Yes☐ No☒

   Fire Hazards Analysis? Yes☐ No☒

   Bases of the Technical Specifications? Yes☐ No☒

   Technical Requirements Manual? Yes☐ No☒

   NRC Safety Evaluation Reports? Yes☐ No☒

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

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

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

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

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

   QAPM? Yes☐ No☒

   E-Plan? Yes☐ No☒

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

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

Document No. ER980507E201 Rev./Change No. 0

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

Question 1: The valves are part of the Domestic Water System. They are not safety related and are not referenced in the Tech Specs, Confirmatory Orders or Operating License.
Question 2: The proposed change will affect SAR Figure 9.2-7. The change will show the valves as Normally Closed as opposed to Normally Open as now depicted. The shower and sink will still be available and all other sections and figures in the SAR will remain true and accurate. The change will have no affect on any other LBD.
Question 3: The drawing change does not meet the definitions of test or experiment as defined in OP-1000.131.

☐ 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: U2 50.59	"decon", "shower", "sink w/10 decon", 2DW-214, 2DW-215, 2DW-100
MANUAL SECTIONS: U2 SAR 12.3 Radiation Protection, 9.2.4 Potable and Sanitary Water System	
FIGURES: U2 SAR Figures 1.2-3, 9.2-7, 12.1-3, and 12.1-9	

Certified Reviewer's Signature	Printed Name	Date
	Steve Bonner	4/11/01

Reviewer's certification expiration date: 8/3/02

Assistance provided by:

Printed Name	Scope of Assistance	Date

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

Certified Reviewer's Signature	Printed Name	Date
	John Harvey	4/17/01

ENVIRONMENTAL IMPACT DETERMINATION (UNIT 1 and UNIT 2)

Document No. ER980507E201 Rev./Change No. 0

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

Will the Activity being evaluated:

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

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

This Document contains 2 Pages.

Document No. ER980507E201 Rev./Change No. 0 10CFR50.59 Eval. No. (Assigned by PSC) FFN#01-027

Title 2DW-214 and 2DW-215 Change to Normally Closed

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 ☒

Neither, the decontamination showers and sinks or the water fountains in the Domestic Water System are considered accident initiators in the SAR. The position of the subject valves is not addressed in the Accident Analysis for Unit 2. Changing the position of these valves does not affect the out come of the Accident Analysis

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

The water fountains and decontamination showers and sinks in the Domestic Water System are not considered as accident mitigation components in the SAR. The subject manual valves only isolate the single shower, sink or downstream connection. The shower and sink solenoid valves are closed unless the shower or sink is in use. Closing the manual isolation valves will not affect the system's function. Therefore, the offsite dose consequences of the accidents in the SAR will remain unchanged.

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

The decontamination showers and sinks in the Domestic Water System do not interface with any equipment important to safety. The water fountain does not exist. None of the subject valves are near any equipment important to safety. Closing the manual isolation valves will not affect the system's function.

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

The sink and shower will still be available for use for decontamination, but will require the manual valves to be opened. The water fountain does not exist. If any equipment important to safety malfunctions, the added time to unisolate the shower and sink water supplies will have no affect on any offsite dose projections.

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

None of the subject manual isolation valves or the shower and sink are in proximity of any safety equipment. The area drains are turbine building drains. The areas are open and well ventilated. The position of these manual valves in the Domestic Water System does not affect the system function. Because the solenoid valves are normally closed, closing the manual isolation has no affect on the system. The water fountain does not exist. The complete failure of these components would have the same affect as a failure would prior to the change and therefore, is covered by the present analysis.

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 ☒

None of the manual isolation valves or the shower and sink are in proximity of any safety equipment. The area drains are turbine building drains. The areas are open and well ventilated. The water flow through the ½" pipes can easily be handled by the turbine building drain system, therefore no flooding is possible. There are no electrical MCC's, Switchgear or breakers in the areas. The complete failure of these components would have the same affect as a failure would prior to the change and therefore, is covered by the present analysis.

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

The proposed change will not change the function of the system and therefore, can have no change on any margin of safety. The Domestic Water System and especially the subject manual valves and the shower and sink have no interface or affect on fuel cladding , RCS Boundary or Containment Building.

Certified Reviewer's Signature	Steve Bonner Printed Name	4/11/01 Date

Reviewer's certification expiration date: 8/3/02

Assistance provided by:

Printed Name	Scope of Assistance	Date
N/A		

PSC review by: _____ Date: 4/23/01

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FFN 2001-0035

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

This Document contains 4 Pages.

Document No. –ER #002546E201 Rev./Change No. 0

Title Incorporate SQUG/GIP/USI A-46 Seismic Qualification Methods into the ANO-2 SAR

Brief description of proposed change: This ER Evaluation/50.59 demonstrates that it is acceptable to use earthquake and seismic testing experience as an alternative method for seismic design and verification of new, modified and replacement equipment (e.g., seismic equipment qualification) at ANO-2. This methodology was approved and endorsed by the NRC for use in resolving Generic Letter (GL) 87-02, "Verification of Seismic Adequacy of Electrical and Mechanical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46". The NRC approved this methodology in their SSER No.2 to the Generic Implementation Procedures (GIP). ANO-2 has successfully completed the requirements of the GL and has received its Safety Evaluation Report (SER) from the NRC (Licensing Letter #0CNA020003, dated 2/7/00). In the SER, the NRC notes that ANO-2 may revise its licensing basis in accordance with 10 CFR 50.59 to incorporate the GIP methodology. This ER/50.59 Evaluation implements the change to the ANO-2 licensing basis (i.e., SAR). NOTE: This ER/50.59 Evaluation makes NO PHYSICAL CHANGES to the plant. It DOES NOT replace or supercede EXISTING licensing basis methods for the seismic qualification of equipment at ANO-2. It recognizes that earthquake and seismic testing experience is an ADDITIONAL/ALTERNATIVE method of seismic qualification of equipment at ANO-2.

Will the proposed Activity:

1. Require a change to the Operating License including:

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

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

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

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

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

Document No. **ER #002546E201** Rev./Change No. **0**

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☒

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

Document No. ER #002546E201 Rev./Change No. 0

Basis for Determination (Questions 1, 2 & 3):
ZYFIND Search on LRS system was performed as indicated in the Search Scope section. The ANO-2 SAR is being changed to permit the use of earthquake and seismic testing experience as an acceptable and alternative method of seismic qualification of equipment at ANO-2. The change only involves the ANO-2 SAR. Neither the ANO-2 Tech Specs, the Operating License, nor any Confirmatory Orders are impacted by this change because they do not address seismic design basis issues. In addition, and with the exception of the ANO-2 SAR, none of the other documents listed in question 2 are impacted by the change, because they too do not address seismic design basis issues. Lastly, this change does not involve a test or experiment not described in the SAR, nor does it impact the environment since no physical changes to the plant/plant site are involved.

☐ 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: Keyword Search Strings: Scope of Search = 50.59 ANO-2; Key words searched include "Seismic", "Seismic Qualification", "IEEE344-1971", "IEEE344-1975", "Design Basis Earthquake", "equipment w/10 seismic qualification", "seismically", "seismic qualification w/10 equipment", "Seismic Category 1", "raceway systems", "Class 1E", "electrical equipment", mechanical equipment", "conduit", "anchorage", "relays" and "anchor".	
MANUAL SECTIONS: Tech Specs/Tech Spec Bases, Operating License and COLR. The Technical Requierements Manual and SAR Sections 2.5, 3.2.1, 3.7, 3.8.1, 3.8.3, 3.8.4, 3.8.5, 3.9.1, 3.9.2.1,3.9.3.3, 3.10, 3.11.2, 7.2.1.1.2.5.1.2, 7.2.1.1.2.5.1.8, 7.5.2.5.3, 8.1.4, 8.3.1.2.6 & 15.1.12.4	
FIGURES: SAR Figures 2.5-15 & 16, 2.5-23 – 2.5.28, 3.7-1 – 3.7-29 & 3.10-1 – 3.10-10	

Certified Reviewer's Signature	David J. Lach Printed Name	4/17/01 Date

Reviewer's certification expiration date: 2/05/2003

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	Doyle G. Adams Printed Name	5/16/01 Date

ENVIRONMENTAL IMPACT DETERMINATION
(UNIT 1 and UNIT 2)

Document No. **ER #002546E201** Rev./Change No. **0**

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

Will the Activity being evaluated:

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

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

This Document contains 3 Pages.

10CFR50.59 Eval. No. FFN#01-035
(Assigned by PSC)

Document No. **ER #002546E201** Rev./Change No. **0**

Title **Incorporate SQUG/USI A-46 Seismic Qualification Methods into the ANO-2 SAR**

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

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

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

Yes ☐ No ☒

The response to this question addresses the impact of the proposed change on a seismic event both as a potential accident initiator, and as an occurrence considered in equipment design. The proposed change involves allowance of the GIP method as an alternative method for demonstration of seismic adequacy of equipment.

The only accidents in the SAR that could potentially be affected by the use of the GIP method are the Operating Basis Earthquake (OBE) and the Safe Shutdown Earthquake (SSE) (a.k.a. "Design Basis Earthquake" in the ANO-2 SAR). Earthquakes are considered to be acts of nature (or natural phenomena) and are not controllable. Consequently, the use of earthquake and seismic testing experience as a method of seismic equipment qualification cannot have any bearing on the probability of an earthquake occurring. Therefore, the use of this methodology does not, in any manner, increase the probability of occurrence of either of the ANO-2 design basis earthquakes.

Relative to the current ANO-2 licensing basis, it is demonstrated that the GIP method provides an equivalent or superior level of assurance that equipment will perform required safety functions during and after a seismic event. As such, the proposed change has no impact on a seismic event as an occurrence considered in equipment design. The use of the GIP methodology specifically considers and includes the seismic event as a design basis occurrence.

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

Yes ☐ No ☒

The proposed change involves allowance of the GIP method as an alternative method for demonstration of seismic adequacy of equipment. Relative to the current ANO-2 licensing basis, it has been demonstrated that the GIP method provides an equivalent or superior level of assurance that equipment will perform required safety functions during and after a seismic event. As such, assumptions in previously analyzed accidents in the SAR regarding availability and performance of equipment to mitigate an accident following a seismic event are unchanged. Therefore, the proposed change does not increase the consequences of an accident previously evaluated in the SAR.

The only accidents in the SAR that could potentially have radiological release consequences affected by the use of the GIP method are those accidents analyzed in the SAR associated with the Operating Basis Earthquake and the Safe Shutdown Earthquake. The use of a new method for demonstrating equipment seismic adequacy could *potentially* affect the ability of safety-related equipment or equipment important to safety to perform required safety functions during or after a seismic event, thus affecting radiological release consequences. However, because the use of the GIP methodology provides equivalent or superior

assurance of equipment seismic adequacy to that provided by the current ANO-2licensing basis, the proposed change will have no effect on and will change no accident consequences. For that same reason, the use of earthquake and seismic testing experience for seismic equipment qualification will have no effect on radiological release consequences.

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

The proposed change recognizes the GIP method as an alternative method for demonstration of seismic adequacy of equipment. Relative to the current ANO-2 licensing basis, it has been demonstrated that the GIP method provides an equivalent or superior level of assurance that equipment will perform required safety functions during and after a seismic event. As such, there is no decrease in the seismic adequacy of equipment.

Because the GIP method provides an equivalent or superior level of assurance that equipment will perform required safety functions during and after a seismic event, no equipment important to safety is affected by the proposed change. In addition, as noted above, because there is no decrease in the seismic adequacy of equipment, any such equipment item will continue to perform required safety functions during and after the earthquake. The result is no increase in the probability of a malfunction of equipment important to safety as a result of a seismic event. Therefore, the proposed change will not increase the probability of occurrence of a malfunction of equipment important to safety.

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

The proposed change involves allowance of the GIP method as an alternative method for demonstration of seismic adequacy of equipment. Relative to the current ANO-2 licensing basis, the GIP method provides an equivalent or superior level of assurance that equipment will perform required safety functions during and after a seismic event. As such, there is no decrease in the seismic adequacy of equipment.

Therefore, since there are no adverse effects on the seismic adequacy of equipment as a result of this change, the proposed change will not increase the consequences of a malfunction of equipment important to safety.

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

The proposed change recognizes the GIP method as an alternative method for demonstration of seismic adequacy of equipment. Relative to the current ANO-2 licensing basis, the GIP method provides an equivalent or superior level of assurance that equipment will perform required safety functions during and after a seismic event.

The ANO-2 SAR requirements regarding seismic adequacy of equipment include definition of the subset of equipment which must meet seismic adequacy requirements (via the Q-List) and definition of the method for demonstrating seismic adequacy (various sections of Chapters 3.0, 7.0 & 8.0 of the ANO-2 SAR). The proposed change provides an alternative method for demonstrating seismic adequacy and does not change the subset of equipment which must meet seismic adequacy requirements. Since the GIP method provides an equivalent or superior level of assurance of seismic adequacy relative to the current licensing basis, the proposed change will continue to assure regulatory requirements regarding seismic adequacy of equipment are met.

Since the proposed change does not affect the set of equipment which must meet seismic adequacy requirements or the level of seismic adequacy as defined in the SAR, the proposed change does not create the possibility of an accident of a different type than previously evaluated in the SAR.

Document No. ER #002546E201 Rev./Change No. 0

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 proposed change involves allowance of the GIP method as an alternative method for demonstration of seismic adequacy of equipment. Relative to the current ANO-2 licensing basis, the GIP method provides an equivalent or superior level of assurance that equipment will perform required safety functions during and after a seismic event.

The GIP method addresses specific seismic failure modes identified during real earthquakes, that are not specifically addressed in the current ANO-2 licensing basis method. However, in identifying the potential seismic failure modes, the GIP method also provides guidelines, caveats and criteria that provide equivalent or superior levels of assurance that the equipment will withstand the various potential seismic failure modes. Consideration of these specific seismic failure modes does not create the possibility of a malfunction of equipment important to safety of a different type than previously evaluated in the SAR. Rather, it actually reduces the possibility of equipment malfunctions resulting from seismic events because the GIP method provides the guidelines to prevent the malfunction (due to identified seismic failure modes) from ever occurring in the first place. Therefore, the proposed change will not introduce any new equipment failure modes and thus does 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? Yes ☐ No ☒

The proposed change recognizes the GIP method as an alternative method for demonstration of seismic adequacy of equipment. Relative to the current ANO-2 licensing basis, the GIP method results in an equivalent or superior level of assurance that equipment will perform required safety functions during and after a seismic event. As such, there is no decrease in the seismic adequacy of equipment. With no reduction in the ability of equipment to withstand a seismic event, there is no reduction in the margin of safety for the equipment item. This is true literally; (i.e., its seismic design margin is not impacted and therefore there are no impacts to the physical parameters of equipment that define its performance of safety limits or protective boundaries during a seismic event). This is also true for any upper level design margins as defined in the bases for any Tech Spec (i.e., any equipment item, specified in the Tech Spec bases to safely shut the plant down, or relied upon in Tech Spec bases to perform required safety functions, will remain fully functional during and after the seismic event).

Furthermore, to demonstrate that the GIP method does not result in a reduction of safety margin relative to the ANO-2 licensing basis, a comparison between the GIP method and the ANO-2 licensing basis was made. This comparison is documented in Table 1 of the ER Evaluation. Differences between the GIP method and the ANO-2 licensing basis were identified and the effect of the differences on the overall cumulative relative safety margin was determined. The results demonstrate that the use of the GIP method will not reduce the plant margin of safety

Certified Reviewer's Signature	David J. Lach Printed Name	4/17/01 Date

Reviewer's certification expiration date: 2/05/2003

Assistance provided by:

Printed Name	Scope of Assistance	Date

PSC review by: _____ Date: 6/14/01

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FFN 2001-0039

NUCLEAR MANAGEMENT MANUAL		Page 1
E-DOC TITLE: 50.59 REVIEW FORM	E-DOC NO. LI-101 Att 9.1	CHANGE NO. 1

Facility: ANO - Unit 2 **This Document Contains** _____ **Pages**

Document Reviewed: ER010705E201

System Designator(s): TG, (Components: 2K-1, Control Valve 2CV-0242, -0252, -0204, -0208, Stop Valves 2CV-0240, -0250, -0202, -0206, Combined Intermediate Valves 0441, -0442, -0500, -0501, -447, -0448, -0450, -0451)

Check the applicable review(s):

☒	**SCREENING**	**Sections I, II, and III required**
☒	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** Evaluation #: FFN# 01-039	**Sections I, II, III, and V required**

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: Douglas Edgell / Douglas Edgell / EOI / SYE-2 / 8/23/01
Signature / Name (print) / Company / Department / Date

Reviewer: Steve Bonner / Steve Bonner / EOI / SYE-2 / 8/23/01
Signature / Name (print) / Company / Department / Date

(PSRC): Randall V. Fuller R V Fuller 8/23/01
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

Description of Proposed Change

The requirement defined in TRM 4.3.4.1.2 states that the turbine overspeed protection system shall be demonstrated OPERABLE once per 92 days by directly observing the movement of the turbine valves through at least one complete cycle from the running position. However, to ensure continued summer operations, it is desirable to postpone the Turbine Valve Stroke Test until September 30, 2001. The ER justifies deviating from the requirements of TRM 4.3.4.1.2, clarifing Note 1 in the TRM to include the main turbine stop valves and CIVs and revising SAR Section 3.5.2.2.3.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☒	☐		SAR Section 3.5.2.2.3
TS Bases	☐	☒		
Technical Requirements Manual	☒	☐		TRM 4.3.4.1.2
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☒	☐	
Inservice Testing Program[4]	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

E-DOC TITLE: 50.59 REVIEW FORM	E-DOC NO. LI-101 Att 9.1	CHANGE NO. 1

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

Section II.A - The testing of the Main Turbine overspeed protection system is discussed only in the SAR and the TRM. The deferral of this testing will therefore not affect any other LBD. The SAR states in Section 3.5.2.2.3 that quarterly cycling of the steam stop valves will be performed. The TRM 4.3.4.1.2.a requires cycling the turbine valves at least once per 92 days. The proposed change justifies a one time extension of this testing interval beyond the 92 days. A revision to the TRM and SAR will be required to as a result of this change.

Section II.B - The change will affect the frequency of the Main Turbine overspeed protection system test, but will not affect the test methodology. The test will be performed exactly as described in the SAR.

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

n/a

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:	Keywords:
LRS Search 50.59-Common	Turbine w/10 Valve, Turbine w/10 Quarterly, Turbine w/10 Overspeed, Missil* w/10 turbine, Turbine w/10 Stok*, "Stop Valve", CIV, " Turbine Control Valve"
FSAR Sections Reviewed:	FSAR Figures Reviewed:
3.5.2.2, 10.2	Table 3.5-2, 3.5-3

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

Testing of the main turbine overspeed trip system requires stroking each of the stop valves, control valves and intercept valves independently. Based on industry experience, this activity has an increased risk of a turbine trip associated with it. Deferring the turbine valve stroke test effectively decreasing the test frequency and therefore, the frequency of occurrence of any of the evaluated accidents involving a turbine trip will be decreased. The stroke test deferral does result in a small increase in the risk of turbine overspeed due to a stuck open valve. However, this increased risk is very small based the short duration of this deferral and the fact that ANO-2 has never experienced a stuck open turbine valve. Also, the fact the either the turbine control valve and stop valve can perform this isolation function and that both valves would have to stick open simultaniously , makes this condition even more unlikely.

The increased testing interval has no affect on the possibility of a turbine missile generation. Per Section 3.5.2.2.2, the turbine can not reach an overspeed condition that would fail the new mono-block LP rotors installed during 2R6 and 2R7.

Based on the above discussion, the deferral of the turbine valve stoke test will not result in more than an minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The deferral of testing of the Main Turbine overspeed trip system will have no affect on a SSC important to safety. The purpose of stroking the turbine valves is to verify that the valves will close if an overspeed condition occurs. The initial requirement for the testing in the SAR was due to the "shrunk wheel" design of the original LP rotors. These rotors were capable of missile generation if the turbine experienced a failure of a stop valve and had a sustained overspeed event. The new mono-block rotors have less stress and will not fail at the maximum overspeed speed that the turbine can achieve per SAR Section 3.5.2.2.2. Because there is no potential for missile generation and the turbine itself is not a component important to safety, the likelihood of a malfunction of a SSC important to safety is not increased.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

This change involves the deferral of turbine valve testing. The turbine valves are not critical in preventing or mitigating radiological exposure to the public. The stop valves are not designed to actuate to prevent radioactive material from spreading to other areas of the plant and potentially to the public. The stop valves are assumed in some accidents to close during the transient, but the reliability of the stop valves is not significantly impacted by this change. Even if the stop valves failed to close, the control valves would perform this isolation function.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

This change involves the deferral of turbine valve testing. The turbine valves are not critical in preventing or mitigating radiological exposure to the public. The stop valves are not designed to actuate to prevent radioactive material from spreading to other areas of the plant and potentially to the public. For example, the Steam Generator Tube Rupture Accident assumes that some radioactive material travels from the Steam Generators to the Condenser. The stop valves are assumed in some accidents to close during the transient, but the reliability of the stop valves is not significantly impacted by this change. Even if the stop valves failed to close, the control valve would perform this isolation function.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The change being implemented is simply a change in test interval. This is not a physical change to the equipment and no change in the manner that it is operated. It is not plausible that another accident scenario would result. The current accidents consider that the turbine trips and missile generation is discussed in Section 3.5.2 of the SAR. The only possibility of a new accident is the possibility of a control valve and stop valve sticking open causing excessive steam to be removed from the Steam Generators, but this event has always been a possibility and is enveloped by consideration of secondary steam line breaks.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

This change does not modify the plant. The function of the system will not be changed. There will be no changes in any interfaces with other systems. Because system function and performance will remain the same, an alternate malfunction is not plausible.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The deferral of turbine valve testing will have no affect on any fission product barrier. The system will be operated and tested in the same manner as before. Even a malfunction of the system during testing would not result in a design basis limit being exceeded.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The deferral of the turbine test will not affect the method of evaluation in the SAR. The SAR has a discussion for determining the probability of missile genesis (P1). As explained by notes found in the section, the discussion was for the original LP rotor design. Deferral of testing would have an affect on the probability of missile genesis as discussed for the original LP rotors. The P1 value is derived from the average probability of a valve failure. Testing frequency will affect the calculation for average probability of a valve failure. However, the new design LP rotors have been evaluated and, as discussed in Section 3.5.2.2.2; "The amount of steam entering the turbine from the time of full load loss to stop valve closure is insufficent to drive the turbine to the overspeed required to fail the monblock. Should the stop valves fail to close, other turbine parts such as the last stage buckets, generator wedges, and bearings (if high vibrations occur) would fail, stopping the turbine, at speeds below that required to burst the monoblock rotor." Deferral of the test will have no affect on the design basis of the new monoblock burst evaluation and therefore, no affect on missile barrier analysis.

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FFN 2001-0040

Facility: ANO – Unit 2

Document Reviewed: LRS Search Unit 2 50.59

System Designator(s): RCS

Check the applicable review(s):

☒	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FFN#01-040	**Sections I, II, III, and V required**

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: / Keith Perkins / Entergy / U2 Systems / 8-30-01
Signature / Name (print) / Company / Department / Date

Reviewer: Fred Ivy / Entergy / Unit 2 SYE / 8/30/01
Signature / Name (print) / Company / Department / Date

(PSRC): 8/30/01
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
Bryan Daiber	Verified the PZR spray block valves are not credited in the accident analysis.

Description of Proposed Change

This change clarifies the SAR. The SAR has wording that implies the PZR spray block valves have leakage criteria. In section 5.5.10.2 the SAR states that the block valves isolate flow, which implies leakage criteria across the seats of the valves. The valves have no safety related design function to isolate, reduce or throttle flow. The accident analysis does not credit the valves for any spray flow restriction or isolation. The plant was designed and licensed without the valves, and there is no commitment that requires installation or operation of the valves. The SAR and appropriate drawings were changed when the block valves were installed, no other license bases documents required changing. The valves were installed provide OPS with an opportunity to reduce spray flow should a spray valve fail open. The installation was purely an operational contingency for a failed spray valve. There is no requirement for a block valve to be capable of isolating flow past the seat, to be capable of throttling flow or be capable of stroking closed. The wording in the SAR has caused confusion regarding required maintenance of the valves. Since the valves are not required to have leakage criteria, the level of maintenance for the operation of these valves is at the discretion of plant management. However, the bodies of these valves are part of the RCS boundary and must be maintained as such.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☒	☐		SAR 5.5.10.2
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☐	☒	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

This change clarifies the SAR. The SAR has wording that implies the PZR spray block valves have leakage criteria. In section 5.5.10.2 the SAR states that the block valves isolate flow, which implies leakage criteria across the seats of the valves. The valves have no safety related design function to isolate, reduce or throttle flow. The accident analysis does not credit the valves for any spray flow restriction or isolation. The plant was designed and licensed without the valves, and there is no commitment that requires installation or operation of the valves. The SAR and appropriate drawings were changed when the block valves were installed, no other license bases documents required changing. The valves were installed to provide OPS with an opportunity to reduce spray flow should a spray valve fail open. The installation was purely an operational contingency for a failed spray valve. There is no requirement for a block valve to be capable of isolating flow past the seat, to be capable of throttling flow or be capable of stroking closed. The wording in the SAR has caused confusion regarding required maintenance of the valves. Since the valves are not required to have leakage criteria, the level of maintenance for the operation of these valves is at the discretion of plant management. However, the bodies of these valves are part of the RCS boundary and must be maintained as such.

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:	Keywords:
LRS Search Unit 2 50.59	Pressurizer; Pressurizer w/10 spray; Block w/10 valve; isolation w/10 pressurizer; isolation w/a0 spray; 2CV4651, 2CV4652, 2CV4653, 2CV4654, 2CV4655, 2CV4656
FSAR Sections Reviewed:	FSAR Figures Reviewed:
ALL	ALL

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in either Section II.A or II.B, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

☐ The proposed activity is editorial/typographical as defined in Section 5.4.1.

☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.4.2._____. (Insert item # from Section 5.4.2).

☐ The proposed activity impacts design function as described in Section 5.4.3 as follows:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect an evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ The proposed activity or portions thereof, is controlled by another regulation instead of 50.59 per Section 5.4.4. (Portions of the change not controlled under the other program must be evaluated under 50.59.)

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.4.5. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The proposed activity, in its entirety, has been approved by the NRC per Section 5.4.6. Reference:

B. Basis

(Provide an adequate basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions.)

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
X No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
X No

BASIS:

The block valves are not credited as an accident initiator in the analysis. The analysis does not credit the valves with reduction of frequency of occurrence and are not credited as a mitigator of any event. The change to the wording in the SAR does not create a condition that can increase the frequency of any accident. The valves were installed to provide OPS with an opportunity to reduce spray flow should a spray valve fail open. The installation was purely an operational contingency for a failed spray valve. There is no requirement for a block valve to be capable of isolating flow past the seat, to be capable of throttling flow or be capable of stroking closed. Any change in PMs, either increases or decreases in PMs, does not impact the frequency or consequences of occurrence since the accident analysis assumed the valves did not exist. Therefore, there is no increase in accident frequency associated with this change.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
X No

BASIS:

The block valves are not credited as an accident initiator in the analysis. The analysis does not credit the valves with reduction of frequency of occurrence, or likelihood of occurrence and are not credited as a mitigator of any event. The change to the wording in the SAR does not create a condition that can increase the frequency of any accident. The valves were installed to provide OPS with an opportunity to reduce spray flow should a spray valve fail open. The installation was purely an operational contingency for a failed spray valve. There is no requirement for a block valve to be capable of isolating flow past the seat, to be capable of throttling flow or be capable of stroking closed. Any change in PMs, either increases or decreases in PMs, does not impact the likelihood of occurrence since the accident analysis assumed the valves did not exist. Therefore, there is no increase in malfunction likelihood associated with this change.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes X No

BASIS:

The block valves are not credited as an accident initiator in the analysis. The analysis does not credit the valves with reduction of frequency of occurrence and are not credited as a mitigator of any event. The change to the wording in the SAR does not create a condition that can increase the frequency of any accident. Any change in PMs, either increases or decreases in PMs, does not impact the frequency or consequences of occurrence since the accident analysis assumed the valves did not exist. The valves were installed to provide OPS with an opportunity to reduce spray flow should a spray valve fail open. The installation was purely an operational contingency for a failed spray valve. There is no requirement for a block valve to be capable of isolating flow past the seat, to be capable of throttling flow or be capable of stroking closed. Therefore, there is no increase in accident consequences associated with this change.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes X No

BASIS:

The block valves are not credited as an accident initiator in the analysis. The analysis does not credit the valves with reduction of frequency of occurrence and are not credited as a mitigator of any event including events associated with failure of equipment or structures. The change to the wording in the SAR or changes in PMs does not create a condition that can increase the frequency of any accident. The valves were installed to provide OPS with an opportunity to reduce spray flow should a spray valve fail open. The installation was purely an operational contingency for a failed spray valve. There is no requirement for a block valve to be capable of isolating flow past the seat, to be capable of throttling flow or be capable of stroking closed. Therefore, there is no increase in malfunction consequences associated with this change.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes X No

BASIS:

No new physical configuration is being created such that a new accident scenario has been created. These valves failure to close would not have an adverse impact on any other safety related equipment and would not result in the initiation of any new accidents. No administrative changes have been made that could result in a new accident scenario.

The change clarifies a statement in the SAR such that the SAR will be consistent with existing analysis.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes X No

BASIS

No new physical configuration is being created such that a new accident scenario has been created. No administrative changes have been made that could result in a new accident scenario. This administrative change will not create a possibility of configuration such that components or structures important to safety can be adversely impacted. The change clarifies a statement in the SAR such that the SAR will be consistent with existing analysis.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes X No

BASIS:

The block valves are not credited as an accident initiator in the analysis. The analysis does not credit the valves with reduction of frequency of occurrence and are not credited as a mitigator of any event. The change to the wording in the SAR does not create a condition that can increase the frequency of any accident. The valves were installed to provide OPS with an opportunity to reduce spray flow should a spray valve fail open. The installation was purely an operational contingency for a failed spray valve. There is no requirement for a block valve to be capable of isolating flow past the seat, to be capable of throttling flow or be capable of stroking closed. Since the block valves are not credited in anyway, this clarification will not impact or cause challenge to any design bases limit or fission barrier.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes X No

BASIS:

The change does not impact any method or design bases. The block valves are not credited in any design bases or safety analyses.

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FFN 2001-0042

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

Facility: ANO - Unit 2 **This Document Contains** 7 **Pages**

Document Reviewed: TRM Change to Remove Shutdown Actions for Charging Pumps

System Designator(s):

Check the applicable review(s):

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** 01-042	**Sections I, II, III, and V required**

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: /Steve A. Bennett/ EOI/ LIC/ Sept 28, 01
Signature / Name (print) / Company / Department / Date

Reviewer: /STEPHENIE KYLE/ EOI/ NC/ SEPTEMBER 28, 2001
Signature / Name (print) / Company / Department / Date

(PSRC): 9/28/01 9/28/01
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

Description of Proposed Change

This change will modify the current shutdown action statements in ANO-2 TRM sections 3.1.2.2, 3.1.2.4, 3.1.2.6 and 3.1.2.8 to only require that a condition report be written and appropriate actions taken within 72 hours when only one charging pump is available or there is only a single injection lineup for the boric acid makeup system. TRM 3.1.2.8 also has a statement to enter the appropriate action of TS 3.5.4 if the RWT is inoperable.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☐	☒		
TS Bases	☐	☒		
Technical Requirements Manual	☒	☐		TRM 3.1.2.2, 3.1.2.4, 3.1.2.6, and 3.1.2.8
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

E-DOC TITLE: 50.59 REVIEW FORM	E-DOC NO. LI-101 Att 9.1	CHANGE NO. 1

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

The ANO-2 technical specifications are not impacted. The actions for these systems were relocated to the TRM in amendment 229.

The discussion in the SAR do not consider shutdown actions associated with either the charging pumps or boric acid systems.

This change does not involve a test or experiment as defined in 10CFR50.59

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:	Keywords:
50.59 ANO-2	"charging w/10 shutdown", "boric w/10 shutdown", charging w/10 *operable", boric w/10 *operable"
FSAR Sections Reviewed:	FSAR Figures Reviewed:
ANO-2 SAR 7.1.4, TRM	No physical changes are being made by this change

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The boric acid makeup tanks, boric acid makeup pumps, and charging pumps are part of the Chemical and Volume Control System. The CVCS functions to maintain RCS inventory and control RCS chemistry. The BAMTs and the RWT provide sources of boric acid solution for injection into the RCS. The BAMTs also supply a source of boric acid makeup to the spent fuel pool and the RWT. These components would not be initiators to any accident credited in the SAR. Therefore, there is no change in the frequency of occurrence of any accident evaluated in the SAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The design or operation of the boration systems are not impacted by this change. The failure modes of any of these systems are not changed and there is not impact on their ability to accomplish its intended design function.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The above boration systems, which are part of the chemical and volume control system, are designed to maintain and control the chemical neutron absorber (boron) concentration in the reactor coolant system to ensure adequate shutdown margin. The TRM actions for these boration systems have requirements for sources of borated water, flow paths to inject this borated water into the RCS, and pumps to provide the necessary flow pressure. The SAR Chapter 15 events as well as long term boric acid buildup calculations and post -LOCA containment pH values reported in SAR Chapter 6 were evaluated for impact Although the boration systems provide a means of reactivity control through boron injection, none of these systems are taken credit for in any DBA or transient analysis. The RWT provides a sufficient boration source when refilling the RCS upon loss of RCS coolant. The injection of boron is via a HPSI pump taking suction from the RWT. The post LOCA containment pH analysis in SAR Chapter 6 are also not being impacted by this change.

The Boric Acid pumps, gravity feed valves and charging pumps receive a SIAS when RCS pressure drops or Containment Building pressure increases to a their specified TS values. Upon actuation of an SIAS, the charging pump suction is shifted from the volume control tank to the boric acid pump discharge for boric acid injection. The SIAS also unisolates a gravity feed line from the boric acid makeup tanks to the charging pump suction in case the boric acid pumps fail to start. However, a separate flow path is also available from the refueling water tank for ensuring a source of borated water.

These systems do not have installed instrumentation that is used to detect and indicate in the control room a significant abnormal degradation of the RCPB. In addition, they are not process variables, design features, or operating restrictions that are an initial condition of the type of DBAs or transient analyses. Shutdown margin is a process variable which is an initial condition of various DBAs and transient analyses; however, operability of the CVCS is not required for ensuring shutdown margin. Limitations on shutdown margin are established and maintained by other TSs not affected by these systems.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

These boration systems are not SSCs that are part of the primary success path that function or actuate to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Neither the charging nor the boric acid makeup pumps are considered "Q" components. Control and maintenance of boron concentration in the RCS is not part of the primary success path for mitigation of a DBA or transient. This function is provided by either the emergency core cooling system or through maintenance of shutdown margin, as established by TSs not affected by the proposed change, which is adequate for the required safety function.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The operation or failure of charging pumps and the boric acid makeup pumps and tanks cannot initiate an accident since their function is to provide a source of reactivity control during normal plant operation.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   The proposed action does not change the design or operation of either the changing pumps or the boric acid makup system components. These systems will continue to perform their normal required function as designed.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

   BASIS:

   The fission product barriers are the fuel barrier, RCS pressure boundary and the containment boundary. This change does not alter or impact any of these boundaries.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

   BASIS:

   The proposed change modifies the action for responding the charging pump and boric acid makeup components when they are inoperable. There is no change to any of the input parameters for dose assessment or design basis methodologies applied in the plant.

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FFN 2001-0044

Facility: ANO - Unit 2

Document Reviewed: ~~ER980547N207~~ER-ANO-1998-0547-058*

System Designator(s): PPS/CPC/RPS/ES

Check the applicable review(s):

☐	SCREENING	Sections I, II, and III required
☐	50.59 EVALUATION EXEMPTION	Sections I, II, III, and IV required
☒	50.59 EVALUATION Evaluation #: ~~——~~FFN#01-044	Sections I, II, III, and V required

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: Douglas A. Bruce /Douglas A. Bruce/EOI/EIC/~~06-18-01~~01-31-02
Signature / Name (print) / Company / Department / Date

Reviewer: Lee A. Puckett / Lee A. Puckett / EOI / Design Engineering / 2-14-02
Signature / Name (print) / Company / Department / Date

(PSRC): 3/14/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:

Description of Proposed Change

ER980547N207 incorporates new setpoints for the Unit 2 Plant Protection System (PPS) as part of the power uprate project. Steam Generator High Level Bistables, Steam Generator Low Differential Pressure Watchdog Alarm Bistables, and Pressurizer Low Pressure Bistables are modified. Calculations 90-E-0010-02 Rev. 3 and 93-EQ-2001-01 Rev. 5**(1)** provide the design basis for the PPS calibration data and setpoint changes. This modification only changes these setpoints by re-calibrating existing instrumentation for Power Uprate.
The Pressurizer Low Pressure setpoint modifications require changes to the FSAR and are dependent on Licensing changes to the Tech Specs under 2CAN120001. The Steam Generator High Level setpoint modifications require changes to the Technical Requirements Manual and FSAR. The Steam Generator Pressure Watchdog Alarm setpoints require no changes to the Operating Licensing or the License Basis Documents. The only tests required by this modification package are routine surveillances that accompany the performance of calibration procedures used in changing the setpoint values. An LDCR and LI-101 Section V evaluation are included to discuss the License Basis Document Changes. Tech Spec changes are addressed in Section II.D.
***ER-ANO-1998-0547-058* is the new ERD number assigned to AERD number ER980547N207. This revision is addressed as ERCN-1 to ER-ANO-1998-0547-058.**

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☒	☐		Tables 7.2-2, 7.2-4, 7.3-5, 7.3-6 and 7.5-3
TS Bases	☐	☒		
Technical Requirements Manual	☒	☐		Table 2.2-1
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

N/A

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☒ Yes ☐ No

If "Yes," list the required changes.

The modification to the PPS setpoints is contingent upon NRC approval of the application for amendment to Facility Operating License NPF-6 resulting from power uprate of Unit 2. The proposed changes to ANO Unit 2 Tech Specs is addressed in 2CAN120001, submitted December 19, 2000.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:
Unit 2 Technical Specifications
Unit 2 SAR
Unit 2 TRM
Unit 2 TS Bases
Unit 2 50.59

Keywords:
All – LRS Keyword Search "PPS", "Plant Protection System" "Steam Generator Level", "Steam Generator Pressure", "Pressurizer Pressure","RPS", "EFAS", "Trip Setpoint", "pre-trip", "delay time", "moisture carryover"

FSAR Sections Reviewed in IDEAS:
Unit 2 SAR Section 5.5.2, 5.5.10, 5.6, 6.3.5, 7, 15

FSAR Figures Reviewed in IDEAS:
Table 7.2-4*, 7.2-2*, 7.2-7, 7.3-5*, 7.3-6*, 15; TRM **Table 2.2-1***

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

ER980547N207 **(ER-ANO-1998-0547-058)** incorporates new setpoints for the Unit 2 Plant Protection System (PPS) as part of the power uprate project. Steam Generator High Level Bistables, Steam Generator Low Differential Pressure Watchdog Alarm Bistables, and Pressurizer Low Pressure Bistables are modified.

Reason for proposed Change:

Pressurizer Low Pressure setpoints are revised (TS change submittal per 2CAN120001) to minimize inadvertent SIAS actuation on low pressure after a reactor trip. SG High Level Trip setpoints are revised to provide equipment protection by mitigating excess moisture carryover. Steam Generator Low Differential Pressure Watch setpoint alarms are revised to eliminate nuisance alarms.

50.59 Evaluation summary and conclusions

ER980547N207 addresses only the Unit 2 PPS setpoints for Power Uprate. Other modifications and evaluations are being prepared in parallel with his modification by other disciplines which address the other sections of the FSAR. Only the FSAR Chapter 7 impacts are addressed in this evaluation. The roll-up power uprate evaluation ER002344E201 will address all other licensing issues impacted for Power Uprate.

Pressurizer PPS Setpoint FSAR and Tech Spec Changes

ER980547N207 incorporates new setpoints for Unit 2 Plant Protection System (PPS) as part of the ANO Cycle 16 power uprate. Calibration data will change for Steam Generator High Level trip Bistables, Steam Generator Low Pressure Setpoint alarm Bistables and Pressurizer Low Pressure trip and pre-trip alarm Bistables. Calculations 90-E-0010-02 Rev. 3 and 93-EQ-2001-01 Rev. 5 provide the design basis for the PPS setpoint changes. This modification only changes the setpoints by re-adjusting the bistable comparator and variable setpoint cards in the Plant Protection System.

Steam Generator High Water Level Changes to the TRM and FSAR

The steam generator high level bistables provide a reactor trip on high steam generator water level. The purpose of the high level protection is to prevent moisture carryover from the steam generators which could result in damage to the turbine. The high steam generator water level trip is not credited for any SAR Chapter 15 event. The high steam generator water level trip has been moved from the Tech Spec to the TRM. ANO Engineering has evaluated conservative steam generator high level trip setpoints that would ensure the moisture content of the steam at the turbine would not exceed 1% for Cycle 16 Power Uprate and beyond (Reference ~~ER002339I201~~**CALC-ANO-ER-02-001, R0**). This value is consistent with the original design intent for the high level trip to prevent excessive moisture carryover and is acceptable for the turbine and the balance of plant components. Westinghouse stated that the actual (uncorrected for 2% instrument error) steam generator level should be the following values on the RSG to ensure the moisture content of the steam at the turbine would not exceed 1%:
The Westinghouse specified setpoints are reduced with allowance for instrument error (approximately 2%). The high steam generator level trip will be set to ~~83.~~**885.8**% NR for Cycle 16 with an allowable value of ~~84.~~**586.5**%. The pre-trip setpoint will remain at 75% (Reference Calc 93-EQ-2001-01 Rev 5**(1)**). Evaluation continued in Part B of this section.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   PPS trip setpoints in this modification are not accident initiators. There are no physical changes required by this modification on any systems, structures, or components. The PPS setpoint changes provide functionally equivalent protection in an uprated power condition as the previous setpoint values provided prior to power uprate, and have little or no affect on the frequency of an accident. Therefore, the proposed changes will not increase in the frequency of occurrence of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The proposed modification changes only plant setpoints. No physical modifications are required as a result of the proposed changes. The new setpoints have been evaluated to be conservative with regard to analyzed events and will not challenge any structure, system or component important to safety, nor more frequently, nor beyond the bounding conditions. Therefore, the proposed changes will not increase the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   Although calculated offsite radiological doses increase slightly for some non-LOCA events documented in Chapter 15 of the ANO-2 SAR, the increases remain within the 10 CFR 100 acceptance criteria that were submitted and approved by the NRC. This criteria included consideration of power uprated conditions. The setpoint changes in this package are bounded by the analyzed dose consequences and there is no impact to those consequences by this modification. No other issues associated with this package have any adverse impact upon accident analysis, and all design functional requirements are met. Therefore, the proposed changes do not increase the consequences of any accident previously evaluated in the FSAR.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS: ER980547N207 Page 10

LOCA and non-LOCA safety analyses supporting the proposed changes have been performed and have demonstrated conformance within applicable acceptance criteria. With the increase of power for Cycle 16 and beyond, the bases for the PPS setpoints in the ANO-2 TSs are affected. However, based on the new analyses and evaluations conducted in support of proposed license amendments (2CAN120001), the new setpoints provide adequate margin to protect established safety and regulatory limits. These setpoint changes are within the already analyzed dose consequences and there is no impact to those consequences by this package. Offsite radiological doses remain within the 10 CFR 100 acceptance criteria and have been submitted to NRC for approval. No other issues associated with this package have any adverse impact upon accident or equipment malfunction consequenses. Therefore, in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR will not be increased.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The proposed changes are analytically based and require changing plant setpoints only. No physical modifications are required as a result of the proposed changes. The PPS setpoint changes provide functionally equivalent protection as the previous setpoint values. A review of both LOCA and non-LOCA events was performed which confirms that existing licensing basis methodologies have been considered and no new accident event has been created. Therefore, this change does <u>not</u> create the possibility for an accident of a different type than any previously evaluated in the FSAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The modification only changes plant PPS setpoints in support of uprated power conditions. No physical modifications are performed as a result of the changes. No new equipment or function has been added by this modification. The impacts of the new setpoint are the same as the existing setpoints, and the FSAR safety analyses are bounding for events triggering the setpoints. Therefore, this modification does not create the possibility of a malfunction of SSC important to safety with a different result than previously evaluated in the FSAR.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

This modification does not impact any Fuel Cladding, RCS Pressure Boundary or Containment fission barriers previously evaluated in the FSAR. The reduction of the PPS setpoints to minimize unnecessary safety injection actuation or SG level high water level excessive moisture carryover limit at the turbine inlet have no impact on the design basis limits for fission products barrier. The conclusion is that there is no affect by these changes on the design basis limits for fission product barriers as descibed in the FSAR.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The evaluation methodology used in the FSAR to demonstrate that intended SSC functions are accomplished are not changed by this modification. This modification simply revises PPS setpoints to accommodate the new uprated condition for Unit 2 Cycle 16. The evaluation performed on the proposed changes used to establish the design bases or for the safety analysis is not altered nor departed from in this modification.

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FFN 2001-0045

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

Facility: ANO - Unit 1 **This Document Contains** 6 **Pages**

Document Reviewed: 010377N201

System Designator(s): EFW

Check the applicable review(s):

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FFN #01-045	**Sections I, II, III, and V required**

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: John Richardson/John Richardson/Entergy/MCS design/9/26/01
Signature / Name (print) / Company / Department / Date

Reviewer: William D. Barbour / William D. Barbour / EOI DE / 10/4/01
Signature / Name (print) / Company / Department / Date

(PSRC): Tom Brown 10/11/01
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

Description of Proposed Change

This modification package adds a 4" manual gate valve into the 2DBC-3 piping upstream of 2CV-0798-1 (the EFW test/flush line). This new valve will provide train separation so that only the train of EFW undergoing surveillance testing would be affected if EFW is required to be put into service. The new valve, 2EFW-11C, will be locked closed except during surveillance of 2P-7B, at which time an operator will be stationed to close the valve in the event of an EFW actuation.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☒	☐		Table 15.1.34-1 will be revised to remove the credit for closing 2CV-0798-1 by EFAS; Section 10.4.9.2.1 will be revised to indicate that the 2DBC-3 flush line is isolated by gate valves 2EFW-11B and 2EFW-11C. Figure 10.4-2 will be revised to show the addition of 2EFW-11C.
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

Question II.A:

A search of the license basis documents as detailed below in II.E, reveal that the addition of 2EFW-11C has no effect on the Tech Specs, Operating License or Confirmatory Orders. Table 15.1.34-1 will be revised to remove the credit for closing 2CV-0798-1 by EFAS; Section 10.4.9.2.1 will be revised to indicate that the 2DBC-3 flush line is isolated by gate valves 2EFW-11B and 2EFW-11C. Figure 10.4-2 will be revised to show the addition of 2EFW-11C.

Question II.B:

Testing of the EFW pumps is allowed in the SAR. Adding 2EFW-11C will provide a new method of isolating the system from the test/flush line if EFW is needed but this modification does not involve a new or different test.

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:	Keywords:
LRS U250.59	EFW, "Emergency Feedwater" NOT EFW, Flush, 2CV-0798-1, EFAS, 2P7*, "Test Recirc"
FSAR Sections Reviewed:	FSAR Figures Reviewed:
10.4.9, 15.1.1.1, 15.1.2.1, 15.1.3.1,... 15.1.36.1 ("Identification of causes and accident description")	10.4-2

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. Executive Summary (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   Neitherthe configuration of the affected flush line nor the isolation valve status contribute to the initiation of any accident evaluated in the SAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The manual isolation valve being installed in the test/flush line will normally be locked closed and will provide more reliable assurance of isolation than the air operated valve 2CV-0798-1. Although operator action will be relied upon to close this valve if EFW is required during a 2P-7B surveillance test, this action would be as reliable as the existing action to open 2EFW-6. Furthermore, the addition of this valve will provide train separation during 2P-7A testing so that only that train would be affected if EFW is actuated.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The addition of the new valve will not have any effect on the performance of the EFW system, therefore the system's ability to mitigate an accident will not be impaired. In addition, by providing train separation, the addition of this valve will further assure the succesful operation of at least one train as assumed in the safety analysis. The consequences of an accident previously evaluated in the FSAR will therefore not be increased.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The flush line isolation valve is not credited in any way with mitigating the malfunction of any SSC important to safety. The consequences of a malfunction of equipment important to safety will not be changed by the addition of this valve, which is as reliable as any of the other isolation valves in the system. Failure of this valve to be closed would be equivalent to other single failures which may disable a train of EFW and has no mechanism for increasing dose consequences.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The failure of this valve to either open or close would not result in any new accident. If the EFW test/flush line is not isolated when EFW is required, then the affected train of EFW will not perform as well, however, this effect would not be the initiator of an accident and its effect would be no different from the failure to open 2EFW-6 when EFW is required.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The new valve under normal conditions will be a more reliable isolation valve than the existing air operated valve. The failure to isolate the open valve 2EFW-11C in the event of an EFAS could result in reduced performance of the "B" EFW train, but would not have any result different from the failure of the train for some other reason and would not be different from the failure to open 2EFW-6, the possibility of which presently exists but would be negated by the installation of this valve.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The addition of a new isolation valve in the test/flush line will not alter the performance of the EFW pumps or change the response time of the system. Other than a single failure to isolate the valve, which as discussed above would be equivalent to other single failures, there is no mechanism by which the addition of this valve could affect the pressure or temperature in the steam generators or alter any parameter which affects any fission product barrier.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The safety evaluation described in the SAR considers the loss of a train of EFW due to single failure. Having 2EFW-11C open during surveillance could represent a mechanism by which the evaluation assumption of a single failure could occur, but does not represent a departure from any fundamental assumptions or methods of evaluation.

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FFN 2001-0047

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

Facility: ANO - Unit 2 **This Document Contains** 6 **Pages**

Document Reviewed: LIR L01-0066

System Designator(s): FP

Check the applicable review(s):

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FEN#01-047	**Sections I, II, III, and V required**

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: Edward Blackard / Edward Blackard / EOI / Design Engineering / 11/5/01
Signature / Name (print) / Company / Department / Date

Reviewer: Danny C Hughes / Danny C Hughes / EOI / Design Engineering / 11-7-01
Signature / Name (print) / Company / Department / Date

(PSRC): R V Fuller / Randall V. Fuller 11-15-01
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

Description of Proposed Change

Several changes to SAR text are proposed as a result of ANO-2 Power Uprate. The maximum theoretical fuel pool heat load is increased to 38.1 MBTU/hr from its current value of 32.49 MBTU/hr. Table 9.1-6, "Spent Fuel Pool Cooling System Operating and Cooling Times" is deleted at the request of Reactor Engineering. Graphs of cooling system performance versus service water temperature are added in accordance with the commitment made to the NRC in 2CAN050105. Corrections of miscellaneous, minor errors are also proposed.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☒	☐		3.8.4.1.1, 9.1.3, Table 9.1-6, New figures 9.1-19 & 20.
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☒	☐		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

B. **Does the proposed activity involve a test or experiment not described in the FSAR?** ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. **Basis**

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

N/A

D. **Is the validity of this Review dependent on any other change?** (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. **References**

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:

LRS 50.59 - Unit 2

Keywords:

fuel pool and "BTU/hr" or heat load

FSAR Sections Reviewed:

3.8.4.1.1, 9.1.3, Table 9.1-6

FSAR Figures Reviewed:

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The proposed activity does not adversely affect SSCs whose failure or degradation is considered to be an initiator of an accident previously evaluated in the SAR. The increase in maximum theoretical fuel pool heat load has been demonstrated to be within the design capabilties of fuel pool storage and cooling equipment (ref. Calculations 91-E-0079-02 Rev. 3 and 94-E-0016-01 Rev. 4). Other changes are limited to enhancements to SAR text.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The proposed activity does not represent a change to the exisiting, basic design functions of the fuel pool storage and cooling systems, nor does it introduce new or different interactions with other SSCs that would increase the probability of a malfunction of equipment important to safety.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The proposed activity does not adversely affect fission product barriers or introduce new pathways for offsite release of radioactive material, nor does it create new or aggravate onsite dose cosequences that might restrict access to vital areas or otherwise impede mitigating actions.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The activity does not complicate or worsen the the consequences of malfunctions of existing equipment important to safety. The fundamental design functions and features of the fuel storage and cooling systems are unaffected.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The proposed activity is limited to a change in maximum theoretical fuel pool heat load and enhancements to SAR text. These changes do not represent new accident initiators that could lead to new and different accidents from those previously evaluated.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The increase in maximum theoretical fuel pool heat load has been demonstrated to be within the design capabilties of fuel pool storage and cooling equipment. Other changes are limited to enhancements to SAR text. Fundamental design functions and features of the fuel storage and cooling system are unaffected. As such, malfunctions of SSCs important to safety with a different result than those previously evaluated are not created.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The proposed change to maximum theoretical fuel pool heat load is accomodated within the existing design of the fuel pool storage and cooling systems. Peak fuel cladding temperatures following a loss of fuel pool cooling with heat removed by bulk boiling are well within the acceptance criterion at the higher heat load (ref. Calculation 91-E-0079-02 Rev. 3).

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The evaluation does not involve a departure from the method described in the SAR.

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FFN 2001-0051

NUCLEAR MANAGEMENT MANUAL		
E-DOC TITLE: 50.59 REVIEW FORM	E-DOC NO. LI-101 Att 9.1	CHANGE NO. 1

Facility: ANO - Unit 2

This Document Contains _____Pages

Document Reviewed: ER002528 E202

System Designator(s): ECCS

Check the applicable review(s):

☐	SCREENING	Sections I, II, and III required
☐	50.59 EVALUATION EXEMPTION	Sections I, II, III, and IV required
☒	50.59 EVALUATION Evaluation #: E202 FFN#01-051	Sections I, II, III, and V required

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: Edward R France / EDWARD R. FRANCE / EOI / DE / 10-10-01
Signature / Name (print) / Company / Department / Date

Reviewer: John Richardson / John Richardson / EOI / DE / 10/10/01
Signature / Name (print) / Company / Department / Date

(PSRC): R V Fuller / Randall V. Fuller / 10-18-01
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
John Richardson	Calculation for NPSH, 91E0116-01

Description of Proposed Change

This evaluation gives the limitations on making entry into the RB with foreign materials when the RCS temperature is above 200 F.

Based on the NED and Licensing review of Tech Specs it has been determined that the sump must be operable when the RCS temperature is above 200 F.

The operability of the sump is dependent on the ability to keep foreign material from collecting on the screen in the event of a LOCA (HELB).

For RCS temperature condition above 200 F it is assumed that any piping failure in containment would create adequate leakage warning for people to evacuate the building prior to the failure. The supervised material brought inside the building is assumed to exit the building with the person. Supervised material is that material in physical possession or that is in a bag attached to the person. In the case of a blanket used for contamination control, it is considered supervised if the blanket stays with the person for 100 % of his stay time although not necessarily attached to the person.

50 ft2 of the light (less dense than water) material may be unsupervised in the RB. All other light material must be supervised or secured. All supervised material must be with the person for 100% of stay time. The supervised material must exit with the person. Unsupervised material shall be removed from the RB prior to the final exit of the RB.

Heavy material shall be secured or supervised by a person. Any exceptions shall be evaluated by Engineering.

The current procedure, 1000.060, on foreign material control shall apply.

See ER002528 E202 for further discussion and justification.

Note: Reference calculation 91E0116-01 for the NPSHa for the HPSI and CSS pumps. Approximately 0.67' water margin is available with the addition of 50 ft2 of unsupervised material to the RB.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☒	☐		See Section II.C, Basis
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☐	☒	
Certificate of Compliance	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

During this condition of 50 ft2 of unsupervised material in the RB the NPSHa will be approximately 0.15' less than is shown in SAR Section 6.3.2.14 and Table 6.2-18 for the HPSI and CS systems. The reduction is due to the light material being allowed into the reactor building per ER 002528 E202.

Under LOCA conditions the NPSHa for the ECCS pumps will be reduced by approximately 0.15', when the RCS temperature is above 200 F, due to extra material allowed to be brought into the building. Since this is for a relatively short duration and with a large percentage of the margin left (0.67' wg), a revision to the SAR is not deemed required.

The values that are affected are shown on the attached pages from the SAR.

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:	Keywords:
LRS:	"ECCS", "NPSH"< "ECCS AND NPSH"
FSAR Sections Reviewed:	FSAR Figures Reviewed:
Chapters 6, 7 & 15 - (6.2.3.14)	Table 6.2-18

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. Executive Summary (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

No, there will not be an increase in the frequency of occurrence of an accident previously evaluated in the SAR, specifically, accidents discussed in Chapter 14. The 50 ft2 of extra material allowed in the reactor building will not cause the accidents evaluated.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

No, there will not be an increase in the likelihood of occurrence of a malfunction of equipment important to safety. The 50 ft2 of material does not affect any equipment other than the sump screen. The 50 ft2 of extra material in the building will not block the sump screen to prevent design water flow to be pumped by the ECCS pumps. Also, the system train has previously been evaluated against maximum screen opening size. The maximum particle size that could go through the screen will not exceed system component openings such as valve trim and spray nozzles. The reduction in NPSHA will not reduce to below the NPHSR and therefore will not change the operating characteristics of the pump or system and will not cause the accident to be different than evaluated in the SAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

No, there will not be an increase in the consequences of an accident previously evaluated in the SAR. The 50 ft2 of extra material allowed in the building will not change the accident parameters and accident evolution and therefore the consequences of the accidents. See (3.) below.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   No, there will not be an increase in the consequences of a malfunction of equipment important to safety. The 50 ft2 of material will not affect any consequences previously evaluated in Chapter 6.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   No, there will not be created the possibility of an accident of a different type than previously evaluated. The 50 ft2 of material will not result in a new accident. This material could potentially collect on the sump screen. See (6.) below.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   No, there will not be created the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the SAR. The 50 ft2 of material will only impact the sump screen. The NPSH calculation (91-E-0116-01) assumes minimum sump water level and pump runout flow. Even under these conditions, there is adequate NPSH available to provide the proper pump suction conditions. Pump performance is not affected by a smaller NPSH margin. Provided that the margin is positive, the pumps can be expected to perform as designed.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

   BASIS:

   No, there will not be a reduction of the fission product barrier as defined in the bases for any technical specification. The technical specifications require that the LPI and RBS systems be "operable". No margin of safety is defined which will be impaired by reduced NPSH margin, as long as NPSHA exceeds NPSHR.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

   BASIS:

   No, there is not a departure from the method of determining the NPSH available. That value is determined in calculation discussed in (6.) above.

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FFN 2001-0053

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	2

I. OVERVIEW / SIGNATURES

Facility: ANO - Common

Document Reviewed: ER 991909E303/ TA 01-0-002 **Change/Rev.:** 0

System Designator(s): KP

Description of Proposed Change

Mechanical jumpers are to be installed to connect the screen wash piping to the fire water system test header/temporary pump.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): *(Only sections indicated must be included in the Review)*

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** 01-053 Rev. 1	**Sections I, II, III, and V required**

Preparer: JACKIE L. JOHNSON / ENS-ANO/EP&C/8-14-02
Name (print) / Signature / Company / Department / Date

Reviewer: WOODY WALKER / ENS-ANO/EP&C/8-15-2
Name (print) / Signature / Company / Department / Date

OSRC: TOM BROWN / 8/22/02
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	2

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		M-209 Sh. 4 and M-219 Sh. 1 will be temporarly revised to indicate the connection and revised valve positions. No update to the FSAR.
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ YES ☒ NO

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ YES ☒ NO ☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. Basis

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

Question 1: The connection of a temporary fire pump to the fire water system is beyond the scope of the Unit 1 and Unit 2 operating license documents. This activity requires that SAR figure P&ID' M-219 Sh. 1 and M-209 Sh. 4 be temporary revised to depict the jumper connection. The temporary pump will meet the requirements of a backup suppression system as described in the text of the FSAR. Since the referenced FSAR figures are inaccurate with the temporary alteration installed a safety evaluation will be performed. All other LBD documents will not be affected by this activity.

Question 2: This temporary alteration activity does not constitute a test or experiment not described in the FSAR.

Question 3: This temporary alteration is to be installed in an area near Unit 1 Intake Structure that will not impact the storage of spent fuel.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:

Commitment tracking Zyindex was utilized to perform keyword searches 50.59 common

Manual search performed on the following:
LBD's FHA-Intake Structure, Unit 1 FSAR section 9.8 Unit 1 FSAR App. 9D, Unit 2 FSAR section 9.5, Unit 2 FSAR App. 9D.

Unit 1 FSAR figures 9-10 and 9-16

Unit 2 FSAR figure 9.5-1

Keywords:

Fire w/5 water, test w/5 header, screen wash, fire pump, temporary pump

D. Is the validity of this Review dependent on any other change? ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. **Executive Summary** *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

Reason for proposed Change:

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

50.59 Evaluation summary and conclusions

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   As evaluated in the FSAR the design of the firewater system is such that rupture or inadvertent operation will not jeopardize the capability of safety related eaquipment. This temporary alteration installs piping/hoses that connects a pump to the fire water system header outside of the Unit 1 Intake Stucture via a section of 'unused' screen wash piping. The temporary alteration piping to the test header can be isolated from the fire system main in the event of a break in the temporary piping. The temporay piping will be capable of being isolated from the remainder of the screen wash piping. Also, there is no safety related equipment in the area of the piping that can be affected by a break. Therefore, this activity will not result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The Fire Protection System is designed to minimize the affect of fires and the probability of pipe ruptures or inadvertent operation that has the potential to cause loss of function to components important to safety. All fire protection system components protecting safety related equipment will remain functional and available for fighting purposes. The capacity of the temporary pump is less than that of the primary pumps P-6A and P-6B. However, it is of sufficient capacity that the design of systems protecting safety related equipment are not affected. This activity does not alter safety related equipment or affect safety functions. The screen wash piping that is being utilized is outside of the Intake Structure and does not impact equipment important to safety. Therfore, this activity does not result in more than a minimal increase in the likelyhood of occurrence of a malfunction of a structure, system or component important to safety previously evaluated in the FSAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Unit 1 and Unit 2 FSAR's evaluate the Fire Protection System for line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. The temporary pump supplying an alternate water supply to the fire water system by this activity will not affect the fire water system's capability to perform in accordance with the design requirements as evaluated for the protection of safety related equipment. Also, the temporary piping is isolated from the remainder of the screen wash system and thus has no impact on safety system function. No accidents evaluated in the FSAR will have their radation dose consequences altered as result of the activities proposed by this temporary alteration. Thus, this activity wil not result in more than a minimal increase in the cosequences of an accident previously evaluated in the FSAR.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Fire Water System is designed such that any failure will not affect equipment important to safety. The test header, the temporary fire pump and connecting hoses to the screen wash system are all located outside of plant structures and in an area such that failure would not affect any safety related equipment. This termporary alteration does not alter the availibility or reliability of any associated safety realated equipment to perform its safety function. The activities proposed by this temporary alteration do not affect nor change the failure mode of any equipment important to safety. Therefore, activities proposed by this temporary alteration will not result in more than a minimal increase in the cosequences of a malfunction of a structure, system or component important to safety previously evaluated in the FSAR.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The FSAR's evaluate the fire protection system for line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. An alternate flow path of fire water being supplied by a temporary fire pump will not affect the fire protection system's capability of providing protection to those areas having safety related equipment as evaluated in the FSAR's. Therefore , this activity will not create a possibility for an acdcident of a different type than any previosly evaluated in the FSAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The equipment and connections associated with this temporary alteration are all located outside of plant structures and in an area such that failure would not affect any safety related equipment. The portion of the screen wash system that is utilized does not have an interface with any equipment that is important to safety. Connection and operation of a temporary fire pump to the firewater test header does not modify or affect the fire protection system's interface with other structres, systems or components. Therefore, this activity will not create a possibility for a malfunction of a structure, system or component important to safety with a different result than any previously evaluated in the FSAR.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

Installation of this temporary alteration is in the yard area near the Unit 1 Intake Structure. The fire water piping to both Containment Buildings will not be altered by this activity. Therefore, this change will not affect the fuel cladding, RCS boundary or containment for either Unit 1 or Unit 2.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

This activity provides a backup fire suppression system in the event of a failure of the primary system as required by the FSAR. The fire water system was designed and installed to meet NFPA requiremnets as required by the FSAR. The backup system will meet the requirements of NFPA for all regulatory required systems . Therefore, this activity does not result in a departure from a method of evaluation as described in the FSAR used in establishing the design bases or the safety analyses.

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FFN 2002-0001

NUCLEAR MANAGEMENT MANUAL		Page 1
E-DOC TITLE: 50.59 REVIEW FORM	**E-DOC NO.** LI-101 Att 9.1	**CHANGE NO.** 1

Facility: ANO - Unit 2 **This Document Contains** 6 **Pages**

Document Reviewed: TAP 02-2-001

System Designator(s): ESFAS, PPS

Check the applicable review(s):

☒	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FFN# 02-001	**Sections I, II, III, and V required**

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: N.R. Kennedy / N.R. Kennedy / EOI / System Engineering / 1-21-2002
Signature / Name (print) / Company / Department / Date

Reviewer: M. Shehorn / MARLIN SHEHORN / EOI / SYE2 / 1-23-2002
Signature / Name (print) / Company / Department / Date

(PSRC): Tom Brown 1/23/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
Roger Owings	SAR Chaper 7 figures reviewed.

Description of Proposed Change

A temporary power supply will be installed in ESFAS Auxiliary Relay Cabinet 2C40, bay 5 to replace the existing power supply, which has failed. The altered configuration will be electrically identical to the existing one, but the physical location and mounting of the power supply will be changed. There will be no changes to ESFAS logic or failure modes.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☐	☒		
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

N/A

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:

U2 TS 3/4.3.2 and BASIS.

U2 SAR

Keywords:

ESFAS w/10 "power supply" ; ESFAS w/10 "power supplies"; "auxiliary relay cabinet"

FSAR Sections Reviewed:

Table 7.2.5; 7.3; 7.3.1.1.2.4; 8.3.1.2.5

FSAR Figures Reviewed:

All figures in chaper 7.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. Executive Summary (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Temporary Alteration 02-2-001 will install a temporary power supply in place of a currently failed power supply in ESFAS Auxiliary Relay Cabinet 2C40. The installation will be electrically identical to the permanent configuration, but the physical location and mounting will not be in accordance with drawings. The temporary alteration will remain until replacement of the failed power supply can be performed during 2R15.

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

ESFAS is not considered to be an accident initiator in any FSAR evaluations.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The ESFAS is a system important to safety. In its current state, it is degraded but operable due to a power supply failure. The temporary alteration will restore the system function to its previous state with regard to its immunity to malfunctions. The logic of ESFAS will not be changed. The ability of the system to accept a single power supply (including inverter) failure without causing spurious actuations will be restored.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The ESFAS is designed to mitigate the consequences of accidents. Its ability to perform this function is not altered or reduced in any way by this modification.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The malfunction of interest in this context is the loss of an auxiliary relay cabinet power supply, or the loss of an inverter feeding that power supply. Per the SAR, such malfunctions can be tolerated without causing system actuations. In the current state of the system, certain malfunctions of this type can cause a partial actuation of ESFAS systems. This modification will restore the system's original fault tolerance.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The ESFAS system is not considered to be an accident initiator. The temporary alteration has been designed and evaluated to assure that it will not have undesired side effects. Specifically, the power supply being used is Q and approved for this use. The mounting of the power supply has been evaluated by design engineering—MCS for adequacy.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   The temporary modification is of a simple nature. The ratings of the power supply and the load it presents to the 2RS3 bus are identical to the permanent units. The seismic and structural aspects of the installation have been prescribed and evaluated by design engineering—MCS.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

   BASIS:

   Since this temporary modification only serves to restore normal system function, it will not have an effect on fission product barriers as described in the FASR.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

   BASIS:

   This temporary alteration does not change or deal with the methods of evaluation used in the FSAR in any way.

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FFN 2002-0002

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

Facility: ANO - Unit 2 **This Document Contains** 7 **Pages**

Document Reviewed: Eng. Rpt. 93-R-0007-01, Rev. 0

System Designator(s):

Check the applicable review(s):

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FFN #02-002	**Sections I, II, III, and V required**

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: Daniel H. Williams / Daniel H. Williams / EOI / NE / 1-21-02
Signature / Name (print) / Company / Department / Date

Reviewer: Daniel W. Fouts / Daniel W. Fouts / EOI / NE / 1-21-02
Signature / Name (print) / Company / Department / Date

(PSRC): R V Fuller 1-31-02 (Randall V. Fuller)
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

Description of Proposed Change

This is a supplement to the 3/28/95 50.59 review of the Engineering Report to provide an evaluation of the the addition of note 9 and the associated removal from SAR table 6.2-26 of valves involving 10 penetrations. This evaluation is provided to satisfy the NRC judgement that an evaluation should be done instead of the determination that was done for this portion of the SAR changes that were identified. The evaluation will be performed based on the configuration at the time of the previous review but using the current procedure and version of 10CFR50.59. This supplement to the previous 50.59 review addresses only the changes to the ANO-2 SAR table that are described above, i.e. the addition of note 9 and the removal from the SAR table of valves for penetrations 2P1, 2P2, 2P3, 2P4, 2P7(SGA), 2P7(SGB), 2P32, 2P35, 2P64 and 2P65. This involves a total of 38 valves, 10 of them relief valves, 8 of them check valves, 16 of them motor operated valves and 4 of them air operated valves. The Amendment 12 table (the version immediately preceding the change) lists 14 of these valves as receiving MSIS and 4 of those also receiving an EFAS. Two other valves (S/G sample lines) are listed as receiving a CIS. None of the other valves are shown as receiving an automatic signal though, of course, the 18 relief and check valves are self actuating. None of the 38 valves are shown as receiving an App. J leak test of any kind.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☒	☐		Table 6.2-26
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

Per the description provided this change is limited to changes to a SAR table. No physical plant changes are being made but a number of valves are being clearly designated as not being containment penetration barriers. Such a designation does not involve a test or experiment of any kind and the original 50.59 review of the Engineering report provided the full licensing basis document review..

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents: Keywords:

N/A

FSAR Sections Reviewed: FSAR Figures Reviewed:

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

The classification of these valves as not containment penetration barriers cannot cause an accident.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

The fact that these 38 valves are no longer listed as containment penetration barriers in the SAR might be interpreted to eliminate the restrictions placed on their configuration by the Technical Specifications as applied to containment isolation valves. For some of these valves, that could increase the likelihood that the valve might not be configured to promptly close following an accident that might lead to high containment pressure or massive radionuclide releases to the containment. However, even if failing to promptly close following such an accident was considered to be a malfunction, no malfunction of a containment isolation function of any of these valves has been previously evaluated in the SAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

None of these valves have a containment isolation function that is credited toward the mitigation of any accident previously evaluated in the SAR, although, several of the valves are credited for other post accident mitigating functions. The containment isolation function has no relevance to any accident consequences other than radiation dose. Of the 36 events listed in chapter 15 of the SAR, only ten involve a radiation dose evaluation. Of those, the malfunction of turbine gland sealing system dose is not estimated but simply stated to be bounded by the turbine trip. The waste gas decay tank rupture and the fuel handling accident cannot physically involve any of these valves. The remaining seven are loss of RCS forced flow, turbine trip, loss of AC power, excess heat removal, LOCA, main steam/feed line break, and steam generator tube rupture. For the turbine trip, loss of AC power, excess heat removal and main steam/feed line break, no post event RCS activity is involved in the dose estimate, therefore, containment isolation function is not a factor. For the loss of RCS forced flow, only the RCP shaft seizure has a dose estimate and that dose estimate is based on a normal cooldown to shutdown cooling with no secondary isolations assumed. For the LOCA, activity in the secondary is not considered in the dose estimate because of the massive radioisotope inventories that are conservatively and deterministically considered to come from the containment building. The fact that there is no effort to credit the closure of the MSIVs is evidence of this. For the steam generator tube rupture, none of these 38 valves are shown in the table to get an SIAS and no CIAS or MSIS would be generated so none of the valves would receive an automatic signal to close unless an EFAS was generated on low level and the EFW valves got a signal to close when the level was reestablished. This closure would have no relationship to any containment isolation function. Remote manual isolation of the affected steam generator is assumed to occur 30 minutes following a steam generator tube rupture but the effect on dose of this action is primarily a result of termination of steaming of that steam generator which can be maintained only by terminating the leak in that steam generator by reducing RCS pressure. With offsite power available, the normal shutdown flow path and functions of the secondary system related to the intact steam generator (and for the first 30 minutes for the affected steam generator) are assumed to be operating, e.g., blowdown continues and main steam goes to the condenser via the turbine bypass valves. With offsite power not available, both steam generators are assumed to steam to the atmosphere for the first 30 minutes and the intact one continues to steam to the atmosphere thereafter for another 3 hours until shutdown cooling is initiated. It is not possible to operate at power with the ADV block valves open and the one on the affected steam generator would not be opened following the plant trip. The main steam safety valves, main steam isolation valves, main steam isolation bypass valves, emergency feedwater flow path valves, main feedwater check valves and main feedwater isolation valves are required to be operable by non-containment isolation requirements. This leaves only the EFW steam supply valves, the steam generator sample valves and the steam generator blowdown valves that could be left disabled in the open position but for the desire to isolate an affected steam generator following a steam generator tube rupture. For the limiting SGTR case, which is with a loss of offsite power, about 86% of the calculated dose is from noble gases, 100% of which is assumed to go out with the steaming to atmosphere. If all three of the remaining valves on the affected steam generator were left open, i.e. not closed to isolate the affected steam generator, the roughly 100 gpm flow rate for the 3 hours cooldown time would be less than one fourth of that already assumed to be released. This postulated additional release could then result in no more than about a 10 mrem increase in the 64.1 mrem inhalation dose reported in the SAR for this accident. This very bounding deterministic increase is clearly no more than a minimal increase.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The fact that these 38 valves are no longer listed as containment penetration barriers in the SAR might be interpreted to eliminate the restrictions placed on their configuration by the Technical Specifications as applied to containment isolation valves. For some of these valves, that could increase the likelihood that the valve might not be configured to promptly close following an accident that might lead to massive radionuclide releases to the containment. If, under such conditions, these valves provide a redundant (to some other structure, system, or component important to safety) design basis barrier to containment leakage, then the consequences of a malfunction of that other structure, system, or component important to safety might be increased. If a malfunction of that other structure, system, or component imporant to safety has been previously evaluated in the SAR under these circumstances, this criteria would apply. No such malfunctions have been previously evaluated in the SAR.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The fact that these 38 valves are no longer listed as containment penetration barriers in the SAR cannot cause an accident. This fact can also not change an accident currently evaluated in the SAR to a different type of accident since, as discussed in response to #3 above, the failure of any of these valves to close promptly following such an accident would not produce a different result than any previously evaluated in the SAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The fact that these 38 valves are no longer listed as containment penetration barriers in the SAR might be interpreted to eliminate the restrictions placed on their configuration by the Technical Specifications as applied to containment isolation valves. For some of these valves, that could increase the likelihood that the valve might not be configured to promptly close following an accident that might lead to massive radionuclide releases to the containment. No malfunction of a containment isolation function of any of these valves has been previously evaluated in the SAR. However, as discussed in response to #3 above, the failure of any of these valves to close promptly following such an accident would not produce a different result than any previously evaluated in the SAR.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The classification of these 38 valves as not containment penetration barriers does not involve any fission product barriers and these valves themselves do not serve as fission product barriers since they are not part of the fuel cladding or the reactor coolant system pressure boundary and are beyond the containment boundary.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The classification of these 38 valves as not containment penetration barriers does not involve any methods of evaluation.

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FFN 2002-0003

NUCLEAR MANAGEMENT MANUAL		
E-DOC TITLE: 50.59 REVIEW FORM	E-DOC NO. LI-101 Att 9.1	CHANGE NO. 1

Facility: ANO - Unit 2

This Document Contains 5 Pages

Document Reviewed: ER-ANO-2000-2796-008

System Designator(s): RCS

Check the applicable review(s):

☐	SCREENING	Sections I, II, and III required
☐	50.59 EVALUATION EXEMPTION	Sections I, II, III, and IV required
☒	50.59 EVALUATION Evaluation #: FFN #02-003	Sections I, II, III, and V required

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: Joseph C King Jr / Joseph C. King Jr. / Design Engineering / 1-24-02
Signature / Name (print) / Company / Department / Date

Reviewer: David E Torgerson / David E. Torgerson / Design Engineering / 1/29/02
Signature / Name (print) / Company / Department / Date

(PSRC): R V Fuller / Randall V. Fuller 2-11-02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

Description of Proposed Change

This ER authorizes the installation of the Second Generation Mechanical Nozzle Seal Assemblies (MNSA-2) as a contingency repair on the side shell and heads of the pressurizer as an alternative to weld repair to restore the RCS pressure boundary as a result of potential instrument nozzle or heater sleeve leaks. The MNSA-2 clamps may also be installed proactively before leaks occur. The Rules in the ASME Code do not specifically address the use of these clamping devices for the replacement of Section III, Class 1 welded piping nozzle integrity. Therefore, the final approval for the use of the MNSA2 in temporary applications as an alternate repair for these small bore Pressurizer nozzles is contingent upon NRC approval. Unit heat up from the 2R15 Outage is not authorized until the pending NRC Relief Request for the use of the MNSA2 has been approved.

The repair will consist of counter boring a hole in the pressurizer base material to provide a flat, perpendicular surface and attaching a stainless steel mechanical restraining device over the leaking instrument nozzle or heater sleeve. Installation includes a grafoil seal arrangement for the gap between the nozzle and vessel penetration, similar to the concept of a valve stem packing arrangement. This restraining device is called the Second Generation Mechanical Nozzle Seal Assembly (MNSA-2) which replaces the pressure boundary function of the "J" weld between an Inconel 600 instrument nozzle and the pressurizer, to prevent leakage from cracks caused by Primary Water Stress Corrosion Cracking (PWSCC). The design of the MNSA-2 relocates the pressure boundary from the nozzle or heater sleeve attachment weld on the inside surface of the vessel to a Grafoil seal located in a new counterbore machined in the external surface of the pressurizer. It also acts to restrain the instrument nozzle or heater sleeve from ejecting if the "J" weld completely fails (360 degree circumferential crack). The MNSA-2 meets all applicable design requirements of the RCS and can be installed without offloading the core and with little or no outage critical path impact.

NUCLEAR MANAGEMENT MANUAL		
E-DOC TITLE: 50.59 REVIEW FORM	E-DOC NO. LI-101 Att 9.1	CHANGE NO. 1

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☐	☒		See "BASIS" in Section C
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

The FSAR states that the RCS piping and the pressurizer are designed to ASME Section III Class 1. The pressurizer nozzle details are not provided in the FSAR. Therefore, the installation of the MNSA-2 clamps is below the level of detail contained in the FSAR. Because the MNSA-2 clamps provide an alternate repair method which is not specifically addressed by the ASME Boiler and Pressure Vessel Code, a Safety Evaluation is being performed. A relief request is being submitted to the NRC for authorization to use the MNSA-2 clamp repair in temporary applications. In the past, Waterford-3 and other utilities have requested and received NRC approval for the use of the original MNSA to repair leaking RCS nozzles. The ANO-2 Technical Specifications, Operating License or Confirmatory Orders do not discuss the design details of the pressurizer heater nozzles, instrument nozzles or vent nozzle. The changes described in this contingency ER modification package will have no effect on the number or functionality of the pressurizer heaters, vents or instrumentation. Therefore, this modification will not cause information contained in the ANO-2 Technical Specifications, Operating License or Confirmatory Orders to be untrue or inaccurate. The changes provided by this ER will insure that these pressurizer nozzles will be in compliance with T.S. 3.4.6.2, "Reactor Coolant System Leakage" and TS 3/4.4.10, "Structural Integrity". The MNSA2 hardware is designed and fabricated to the ASME Code. The MNSA2 repairs will be qualified to the same design requirements as the original nozzles. The level of detail in the Core Operating Limits Report, Fire Hazards Analysis, Bases of the Technical Specifications, Technical Requirements Manual or NRC Safety Evaluation Reports does not describe the current configuration of these pressurizer nozzles. As such, no changes to these ANO-2 documents are required. The leak repair of any potential pressurizer nozzle by the installation of the MNSA2 repair does not involve a test or experiment, and therefore does not affect a test or experiment not described in the FSAR.

JCR 2.11.02

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☑ Yes ☒ ~~No~~

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:

ANO-2 50.59

Keywords:

(Pressurizer w/10 Nozzle*), (Pressurizer w/10 Pip*), (Pressurizer w/10 RTD*), (Pressurizer w/10 Instrument*), (Carbon w/10 Reactor), (corrosion w/10 carbon), (corrosion w/10 compatib*), (accident* /w10 small), (break w/10 nozzle), ("small break"), (break w/10 instrument), (ASME III w/10 Code)

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

The FSAR states that the RCS piping and the pressurizer are designed to ASME Section III Class 1. The pressurizer nozzle details are not provided in the FSAR. Therefore, the installation of the MNSA-2 clamps is below the level of detail contained in the FSAR. Because the MNSA-2 clamps provide an alternate repair method which is not specifically addressed by the ASME Boiler and Pressure Vessel Code, a Safety Evaluation is being performed. A relief request is being submitted to the NRC for authorization to use the MNSA-2 clamp repair in temporary applications. In the past, Waterford-3 and other utilities have requested and received NRC approval for the use of the original MNSA to repair leaking RCS nozzles. The ANO-2 Technical Specifications, Operating License or Confirmatory Orders do not discuss the design details of the pressurizer heater nozzles, instrument nozzles or vent nozzle. The changes described in this contingency ER modification package will have no effect on the number or functionality of the pressurizer heaters, vents or instrumentation. Therefore, this modification will not cause information contained in the ANO-2 Technical Specifications, Operating License or Confirmatory Orders to be untrue or inaccurate. The changes provided by this ER will insure that these pressurizer nozzles will be in compliance with T.S. 3.4.6.2, "Reactor Coolant System Leakage" and TS 3/4.4.10, "Structural Integrity". The MNSA2 hardware is designed and fabricated to the ASME Code. The MNSA2 repairs will be qualified to the same design requirements as the original nozzles. The level of detail in the Core Operating Limits Report, Fire Hazards Analysis, Bases of the Technical Specifications, Technical Requirements Manual or NRC Safety Evaluation Reports does not describe the current configuration of these pressurizer nozzles. As such, no changes to these ANO-2 documents are required. The leak repair of any potential pressurizer nozzle by the installation of the MNSA2 repair does not involve a test or experiment, and therefore does not affect a test or experiment not described in the FSAR.

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:

ANO-2 50.59

Keywords:

(Pressurizer w/10 Nozzle*), (Pressurizer w/10 Pip*), (Pressurizer w/10 RTD*), (Pressurizer w/10 Instrument*), (Carbon w/10 Reactor), (corrosion w/10 carbon), (corrosion w/10 compatib*), (accident* /w10 small), (break w/10 nozzle), ("small break"), (break w/10 instrument), (Cods)

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
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FSAR Sections Reviewed:

SAR 1.2.2.1.2, 3.7, 5.1, 5.2.1.4, 5.2.1.5, 5.5.10, 5.6.1.4, 5.6.2, 5.6.3, 6.3.3.2.3, 7.6, Tables 5.1-1, 5.2-1, 5.2-3, 5.5-6, 5.5-7, 6.3-17, 6.3-18, 6.3-19, 6.3-20, 6.3-21

FSAR Figures Reviewed:

5.1-1, 5.1-2, 5.1-3, 5.5-7, 5.5-8

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
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III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

V. 50.59 EVALUATION

A. Executive Summary (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

This ER authorizes the installation of the Second Generation Mechanical Nozzle Seal Assemblies (MNSA-2) on the ANO-2 pressurizer as a temporary alternative to weld repair for small bore nozzles. These RCS system piping components were designed and constructed to ASME Section III Code rules. The ASME Code Rules do not specifically address the use of these mechanical clamping devices for the replacement of Section III, Class 1 nozzle pressure boundary integrity. Therefore, the final approval for the use of the MNSA2 in temporary applications as an alternate repair for these small bore Pressurizer nozzles is contingent upon NRC approval. (See Section I of this form for details)

Reason for proposed Change:
Primary water stress corrosion cracks (PWSCC) of Inconel (Alloy 600) penetrations in the RCS has become a significant problem in PWRs over the last ten years. These penetrations involve nozzles which are inserted through an opening in the vessel wall and are welded to the inside of the vessel wall by a J-groove weld. PWSCC has been found in pressurizer heater sleeves, pressurizer instrument nozzles, hot leg nozzles and CEDM nozzles. Recently (2001), PWSCC has been found on the CEDM nozzles and attachment "J" welds at Oconee 1, 2 and 3 and at ANO-1.

Leaking instrument nozzles or heater sleeves on the bottom of the pressurizer are difficult to repair because of their location. Weld repair of these nozzles would require a long drain down window or core off load with an outage critical path impact of at least 6 days. Since they can be installed without drain down of the pressurizer, with significantly less dose than a welded repair, MNSA-2 clamps are more desirable for these repairs. The MNSA-2 is an improved design over the original MNSA clamps. NRC approval for the use of the MNSA-2 is required prior to unit heatup from the 2R15 Outage.

50.59 Evaluation summary and conclusions

This evaluation concludes that the proposed installation of the MNSA-2 will not degrade the integrity of the pressurizer or any other RCS pressure boundary. There will be no impact on instrumentation and system interface piping for all modes of operation with the MNSA-2 clamps installed. All changes are within the Reactor Containment Building, and there are no new system interactions created. There is no effect on nuclear safety and this change does not require any Technical Specification changes. As noted above, NRC approval for the use of the MNSA-2 is required prior to unit heatup from the 2R15 Outage.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. **Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?** ☐ Yes ☒ No

BASIS:
The only accidents that are affected by this modification is the small break LOCA and loss of shutdown cooling.

Installation

The MNSA-2 will be installed in mode 5 or 6 while on shutdown cooling. The MNSA-2 installation process is non-intrusive on the existing nozzle or heater sleeve pressure boundary integrity. Nozzle ejection during installation (mode 5 or 6) is not a concern recognizing that the only stresses that exist during this evolution are those created by pressurizer head pressure, insignificant loads associated with field machining, the dead weight of the nozzle and attached pipe, thermal loads, and potential seismic loads.

The MNSA-2s are attached to the pressurizer with the bolts threaded into four tapped holes, arranged in a circular pattern around the nozzle. The addition of the holes in the pressurizer is included in the qualification and will be documented in the Stress Report. The analysis is being performed to ASME Section III Code requirements. The Stress Report changes will be approved prior to returning the system to Operations (Controlled by RTS Action established in the ER Database).

The design, materials, fabrication, examination and testing of the mechanical nozzle seal assembly meet Class 1 requirements of ASME III, 1989 Edition, no addenda, in accordance with Design Specification DS-ME-01-1. Installation of the MNSA-2 will meet ASME XI requirements, consistent with the ANO-2 ASME XI program per 10CFR50.55a.

Final Design

The MNSA-2 clamps fit around the outside of the nozzles or sleeves and the configuration, instrumentation and circuits are not affected by this repair. As such, this repair will not impact obtaining of pressurizer temperatures and level readings or RCS performance. The change in insulation around the MNSA-2 and side shell RTD, if required, will not affect the accuracy or qualification of the RTD.

Installation of the MNSA-2s will place minimal additional loads on piping attached to the pressurizer that will be within the structural capability of the piping.

Therefore, the proposed activity will not increase the frequency of occurrence of an accident evaluated previously in the safety analysis report.

2. **Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?**

☐ Yes
☒ No

BASIS:

Installation

Operation of the pressurizer heaters, the side shell RTD or the level instrumentation is not required during modes 5 and 6. The temperature indication from the RTD is not safety-related.

As discussed in question 1, analysis shows that there is adequate reinforcement in the wall of the pressurizer for the bolt holes.

Final Design

The insulation configuration to maintain environmental qualification of the side shell RTD and heater sleeves will be modified for MNSA-2 installation. These insulation modifications will allow installation of MNSA-2 clamps and facilitate future visual inspections of the nozzles. These changes will only be minor and will not have a significant impact on these components.

This repair meets seismic category 1 requirements and will not impose unacceptable loads on the RCS. Installation of the MNSA-2 repairs will be qualified to ASME Section III Code requirements. The qualification will include an evaluation of the minimal additional loads being imposed on the piping attached to the pressurizer instrument nozzles.

This repair has no effect on system protection features, or the support systems for its equipment. Also, this repair will not increase the frequency of operation of system equipment or impose more severe testing requirements on systems or equipment.

Therefore, the proposed activity will not increase the likelihood of occurrence of a malfunction of structures, systems or components important to safety evaluated previously in the safety analysis report.

3. **Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?**

☐ Yes
☒ No

BASIS:

Installation

The pressurizer level instruments provide a means for monitoring and controlling pressurizer level during plant operation. The side shell RTD provides a means for measuring temperature and the heaters are used for control of RCS pressure during plant operations. These components can be readily isolated during modes 5 and 6 to support the installation of the MNSA-2 clamps, without affecting the consequences of an accident.

Final Design

Installation of the mechanical nozzle seal assemblies will restrain the nozzles in place. As such, instrumentation and electrical circuits would not be affected by this repair method. In the unlikely event that the seal (packing material) fails, RCS pressure boundary leakage would occur. This failure of a MNSA-2 repaired nozzle would result in the same consequences as a failure of an existing nozzle. Therefore, the existing FSAR Accident Analysis would bound this event. As discussed in question 1, this repair meets seismic category 1 requirements and the installation of the MNSA-2s will have minimal impact on the integrity of the pressurizer.

This repair has no affect on system protection features, or the support systems for its equipment. Redundancy will ensure an operational protection system should an instrument nozzle fail rendering an instrument inoperable.

Therefore, the proposed change will not adversely impact any of the consequences of an accident previously evaluated in the UFSAR.

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
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4. **Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?** ☐ Yes ☒ No

BASIS:
Systems and components important to safety that could be affected by this modification are the reactor coolant pressure boundary, pressurizer level and temperature instrumentation, and the heater sleeves.

Installation

Pressurizer heaters, the side shell RTD and the pressurizer level instruments are not required in the shutdown modes. Work on these nozzles will therefore not impact the consequences of a malfunction of a structure, system or component.

Final Design

As discussed in questions 1 and 3, there will be minimal additional loads imposed on the nozzles and attached system piping as a result of the installation of the MNSA-2s. The additional loads will be within the structural capability of the pressurizer. The consequences of failure of a nozzle with the MNSA-2 installed are the same as the failure of a nozzle without the MNSA-2, i.e., a small break LOCA. Evidence shows that a catastrophic failure of an Inconel nozzle is not expected to occur. However, in the event that this type of failure does occur, the consequences will not impact the safety of the plant. Specifically, this type of accident has been previously evaluated in the UFSAR and a postulated failure of one RCS instrument nozzle is bounded by this analysis.

Therefore, the proposed change does not increase the consequences of a malfunction of a system, structure, or component important to safety previously evaluated in the SAR.

5. **Create a possibility for an accident of a different type than any previously evaluated in the FSAR?** ☐ Yes ☒ No

BASIS:

Accidents considered for this repair method are a loss of coolant accident caused by failure of the instrument nozzle, heater sleeves, and failure of the mechanical nozzle seal assembly. These types of failures (i.e. instrument nozzle failures) have been previously considered and analyzed in the FSAR. There are no other known failures that could occur.

Therefore, the proposed activity will not create the possibility of an accident of a different type than any evaluated previously in the safety analysis report.

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	1

6. **Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR?** ☐ Yes ☒ No

BASIS

Installation

The drilled holes in the pressurizer have the potential for reducing the structural integrity of the RCS pressure boundary. As stated previously, a calculation is being prepared that analyzes the bolt holes in the pressurizer.

Final Design

The pressurizer configuration is not changed as a result of the addition of the MNSA-2 clamp, therefore, there will not be any impact due to flood, missile and wind. Since the MNSA-2s are designed and installed as a threaded/bolted fixture; it is considered a multiple bolt attachment similar to a valve bolted bonnet. Calculated stresses have been reviewed and compared to the ultimate strength of the material. The stresses resulting from failure of a single bolt or tie rod will not be greater than the ultimate strength of the remaining bolts/tie rods. Therefore, a single failure of a bolt or tie rod will not create a new missile hazard or any other hazard. The results of failure of a MNSA-2 will be the same as the failure results of an RCS nozzle.

Therefore, the proposed activity will not create the possibility of a malfunction of systems or components important to safety with a different result than any evaluated previously in the safety analysis report

7. **Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered?** ☐ Yes ☒ No

BASIS:

Installation

Drilling into the pressurizer base material is controlled by installation procedures and a stop is provided on the drilling apparatus to assure the bolt hole depths are within allowables. Torquing of the MNSA-2 bolts into the pressurizer will be performed at temperatures above the Reference Nil Ductility Temperature to ensure that the bolting stress does not create a potential for brittle failure.

Final Design

The limit for a fission product barrier, the reactor coolant pressure boundary, is not reduced because 1) the analysis will show that there is adequate reinforcement in the pressurizer wall for the bolt holes and that the stresses do not exceed the allowables as stated in the Code, 2) there is no impact to the pressurizer heaters or instrumentation, and 3) the loads on the attached instrument piping will change negligibly and will be within the structural capability of the piping.

Therefore, the proposed activity does not reduce or alter any fission product barrier as described in the FSAR

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
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8. **Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses?** ☐ Yes ☒ No

BASIS:

The MNSA-2 pressurizer nozzle repairs will be qualified in accordance with ASME Code requirements. This is consistent with existing analysis in the FSAR. Therefore, this ER does not involve a change in any methods of evaluation.

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FFN 2002-0004

Facility: ANO - Common

Document Reviewed: Danger Tag A2-00-3237

System Designator(s): PASS

Check the applicable review(s):

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** Evaluation #: FFN#02-004	**Sections I, II, III, and V required**

NOTE: Only the sections required as indicated above must be included in the Review.

I. SIGNATURES / OVERVIEW

Preparer: / Keith Perkins / Entergy / ANO-Sys-2 / 2-14-02
Signature / Name (print) / Company / Department / Date

Reviewer: per 2/14/02 / L.O. HOWARD / EOI / ANO-SYS-2 2/14/02
Signature / Name (print) / Company / Department / Date

(PSRC): 2/14/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
N/A	N/A

Description of Proposed Change

Discussion & General Approach

Introduction

The danger tag clearance will be used to isolate PASS and maintain configuration control until ER003264E201 is completed. The tag-out places the system in the configuration that PASS will be in following completion of the ER. This 50.59 documents the acceptability of maintaining this tag-out configuration. The NRC has already approved elimination of the requirement to maintain PASS available or operable. The NRC has approved ANO's approach to obtain POST ACCIDENT Samples via other procedural methods. Therefore, the NRC has accepted ANO's safety evaluation for not using PASS. The NRC conclusions are summarized in LIC-00-109.

Discussion & General Approach

The PASS will be abandoned. The ER will utilize existing configuration control tools to isolate PASS from the remainder of the plant. The evaluations associated with the NRC commitment will be used as justification for not using PASS. Components used to isolate the PASS will be maintained with appropriate PMs. Components within the PASS isolation boundary will not be maintained with PMs. Since PASS will remain part of the plant configuration management process PASS components will not removed from Licenses Basis Documents (LBD). The design bases of PASS have not changed. Should the PASS be put back into service, the PASS would perform its design functions.

The requirements for post accident sampling were addressed in ER003111E201 in order to comply with the NRC commitment 0CNA080005 P-16725. Procedure 2607.014 was changed to provide alternate methods of obtaining post accident samples and are documented in that ER. The safety evaluation associated with the ER addressed the impact of not using the PASS. The safety evaluation associated with isolating PASS; per ER003111E201 concluded that operation of the plant with the PASS permanently isolated does not challenge safe operation of the plant or threaten the health and safety of the public.

II. SCREENING

A. Licensing Basis Document Review

Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☐	☒	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
UFSAR	☒	☐		No documents require changing as discussed below
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Fire Hazard Analysis	☐	☒	☐	
Fire Protection Program	☐	☐	☒	
Offsite Dose Calculations Manual	☐	☒	☐	
Process Control Program	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under 72.48	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Cask UFSAR	☐	☒	☐	
Certificate of Compliance	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with 72.48				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Inservice Inspection Program[4]	☐	☐	☒	
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES", process the change in accordance with the 10CFR50.55a control program.

B. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No — If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

C. Basis

(Provide a basis for the "no" items checked in Sections II.A and II.B, above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis. If a 50.59 Evaluation is required, this section may be N/A'd.)

The Danger Tagging process is an approved process for controlling configuration of components taken out of service or used as a boundary for a system not in use. It is acceptable to tag a component in a position different than shown on the design drawings when using the Danger Tagging process. This danger tag clearance is being used to isolate the PASS and maintain configuration control until ER003264E201 is completed. Therefore, the design bases documents need not be changed while the danger tag is in place. The tag-out places the system in the configuration that PASS will be in following completion of the ER. This 50.59 documents the acceptability of maintaining this tag-out configuration. The NRC has already approved elimination of the required to maintain PASS available or operable. The NRC has approved ANO's approach to obtain POST ACCIDENT Samples via other procedural methods. Therefore, the NRC has accepted ANO's safety evaluation for not using PASS. The NRC conclusions are summarized in LIC-00-109. PASS will remain part of the plant configuration management process. PASS components will not removed from Licenses Basis Documents (LBD). The design bases of PASS have not changed. The 50.59 evaluation answers are applicable to both Unit 1 and Unit 2. Since the tag-out does not permanently change the plant no documents will require changing.

D. Is the validity of this Review dependent on any other change? (See Section 5.2.2.4 of the EOI 10CFR50.59 Program Review Guidelines) ☐ Yes ☒ No

If "Yes," list the required changes.

E. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.2.2.4 of LI-101.]

Documents:

LBD 50.59 Common

FSAR Sections Reviewed:

All

Keywords:

PASS, POST w/10 accident, sampl*, post w/10 accident

FSAR Figures Reviewed:

All

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations."

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in either Section II.A or II.B, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

☐ The proposed activity is editorial/typographical as defined in Section 5.4.1.

☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.4.2._____. (Insert item # from Section 5.4.2).

☐ The proposed activity impacts design function as described in Section 5.4.3 as follows:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect an evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ The proposed activity or portions thereof, is controlled by another regulation instead of 50.59 per Section 5.4.4. (Portions of the change not controlled under the other program must be evaluated under 50.59.)

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.4.5. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The proposed activity, in its entirety, has been approved by the NRC per Section 5.4.6. Reference:

B. Basis

(Provide an adequate basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions.)

N/A

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

Neither the Unit 1 or Unit 2 PASS are credited as accident intitators. Therefore, the frequency of any accident can not be impacted by either use or isloation of PASS.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

Isolating the PASS will not impact any component or equipment important to safety. Since none of those components will be impacted the probability of failure of those components will not be increased.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

Isolating the PASS will not impact any component or equipment important to safety. Since none of those components will be impacted the consequences of an accident can not be increased. Isolating PASS from accident conditions eliminates potential leakage paths and therefore reduces the consquences of accidents.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes ☒ No

BASIS:

Isolating the PASS will not impact any component or equipment important to safety. Since none of those components will be impacted the consequences of malfunction of those components will not be increased.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The PASS will be isolated and will not be used. The PASS will essentially be idle. The system is normally idle and when idle is incapable of creating any accident. Since the PASS will be permanently idled it will not create a new accident.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The isolation of PASS will be accomplished using installed valves. The basic function of these valves will not be changed. Therefore, there is no possibility of new type failure with these valves. This change will not introduce a configuration that will create new type of malfunctions.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The reviews conducted to determine what impact this change would have on design limits concluded that PASS isolation will not impact any design limit nor will it reduce design margin.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

This change has no impact on any method used to establish design bases or accident analyses. This change does not attempt to establish or modify any design bases, therefore this change can not deviate from any method used to evaluate design bases.

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FFN 2002-0005

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: ER-ANO-2002-0226-000 **Change/Rev.:** 0

System Designator(s)/Description: TG

Description of Proposed Change

Quarterly main turbine valve stroke testing is normally accomplished per Procedure 2106.009 Supplement # 3. However, due to the increased risk of an inadvertent turbine trip during the stroke test, it is desirable to defer this testing until the 2R15 Refueling Outage, scheduled to begin on April 12, 2002. The turbine valves were last stroked on November 1, 2001. Per the surveillance requirements defined in TRM 4.3.4.1.2, the turbine valve stoke test should be performed every 92 days. Including the allowable 25% tolerance, the next stroke test must be performed on or before February 23, 2002. The purpose of ER-ANO-2002-0226-000 is to evaluate the deferral of the ANO-2 main turbine quarterly valve stroke testing. This ER provides the necessary justification to defer quarterly testing of the main turbine stop valves, control valves and reheat stop/intercept valves until 2R15.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☒	**SCREENING**	**Sections I, II, and III required**
☒	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION (#: FFN#02-005)**	**Sections I, II, III, and V required**

Preparer: Douglas Edgell / Douglas Edgell / EOI / SYE / 2/21/02
Name (print) / Signature / Company / Department / Date

Reviewer: Morris E. Byrum, Jr. / Morris E. Byrum, Jr. / EOI / NE / 2/21/02
Name (print) / Signature / Company / Department / Date

OSRC 2/21/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☐	☒		
TS Bases	☐	☒		
Technical Requirements Manual	☒	☐		Although, no revision is required to TRM 4.3.4.1.2, ER-ANO-2002-0226-000 justifies deferral of the turbine valve testing until 2R15.
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program [4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation? ☐ Yes ☒ No ☐ N/A
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112.
(See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. Basis

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

Section II.A - The testing of the Main Turbine overspeed protection system is only discussed in the Unit 2 SAR and the TRM. The postponement of this testing will therefore not affect any other LBD. The SAR states in Section 3.5.2.2.3 that periodic cycling of the steam stop valves will be performed. The recommended frequency defined in TRM 4.3.4.1.2 for cycling the turbine valves at least once every 92 days. The proposed change will extend the interval of testing beyond the 92 day requirement.

Section II.B - The change will affect the frequency of the Main Turbine overspeed protection system test, but will not affect the test methodology. The test methodology is not described in detail in the SAR.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
LBD Search 50.59 Common	Turbine w/10 valve, Turbine w/10 Quarterly, Turbine w/10 overspeed, missil* w/10 turbine, turbine w/10 strok*, "Stop Valve", CIV, "Turbine Control Valve"
SAR Section 3.5.2.2, 10.2, Table 3.5-2, 3.5-3	
TRM 3 / 4.3.4	

D. Is the validity of this Review dependent on any other change? (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☐ Yes
☒ No

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

☐ The proposed activity meets all of the following criteria regarding design function per Section 5.5.1.1:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.5.1.2. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The NRC has approved the proposed activity or portions thereof per Section 5.5.1.3. Reference: _____

B. Basis

(Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions. See Section 5.5.6 of the EOI 10CFR50.59 Review Program Guidelines for guidance.)

N/A

V. 50.59 EVALUATION

A. Executive Summary (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form.

Reason for proposed Change:
Provided in Section I of this form.

50.59 Evaluation summary and conclusions

Contained in Part B of this Section.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

Testing of the main turbine overspeed trip system requires stroking each of the stop valves, control valves and intercept valves, independently. Based on industry experience, this activity has an increased risk of a turbine trip associated with it. Deferring the turbine valve stroke test effectively decreasing the test frequency and therefore, the frequency of occurrence of any of the evaluated accidents involving a turbine trip will be decreased. The stroke test deferral does result in a small increase in the risk of turbine overspeed due to a stuck open valve. However, this increased risk is very small based on the short duration of this deferral and the fact that ANO-2 has never experienced a stuck open turbine valve. Also, the fact that either the turbine control valve or the stop valve can perform this isolation function and that both valves would have to stick open simultaniously for an overspeed condition to occur, makes this condition even more unlikely.

The increased testing interval has no effect on the possibility of a turbine missile generation. Per Section 3.5.2.2.2, the turbine can not reach an overspeed condition high enough to fail the new mono-block LP rotors installed during 2R6 and 2R7.

Based on the above discussion, the deferral of the turbine valve stoke test will not result in more than an minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The deferral of testing of the Main Turbine overspeed trip system will have no effect on SSCs important to safety. The purpose of stroking the turbine valves is to verify that the valves will close if an overspeed condition occurs. The initial requirement for the valve stroke testing discussed in the SAR was due to the "shrunk-on wheel" design of the original LP rotors. These rotors were capable of missile generation if the turbine experienced a sustained overspeed event. The new mono-block rotors have lower stress levels and will not fail at the maximum overspeed that the turbine can achieve per SAR Section 3.5.2.2.2 and thus will not generate a turbine missile. Because there is no potential for missile generation and the turbine itself is not a component important to safety, the likelihood of a malfunction of a SSC important to safety is not increased.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This change involves the deferral of turbine valve testing. The turbine valves are not critical in preventing or mitigating radiological exposure to the public. The stop valves are not designed to actuate to prevent radioactive material from spreading to other areas of the plant and potentially to the public.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This change involves the deferral of turbine valve testing. The turbine valves are not critical in preventing or mitigating radiological exposure to the public. The stop valves are not designed to actuate to prevent radioactive material from spreading to other areas of the plant and potentially to the public. For example, the Steam Generator Tube Rupture Accident assumes that some radioactive material travels from the Steam Generators to the Condenser.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The change being implemented is simply a change in test interval. This is not a physical change to the equipment and no change in equipment operation. It is not plausible that another accident scenario would result. The only possibility of a new accident is the possibility of a control valve and stop valve sticking open simultaniously, causing excessive steam to be removed from the Steam Generators. This event has always been a possibility and is enveloped by consideration of secondary steam line breaks.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   This change does not modify the plant. The function of the system will not be changed. There will be no changes in any interfaces with other systems. Because system function and performance will remain the same, an different malfunction or result is not plausible.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The deferral of turbine valve testing will have no effect on any fission product barrier. The system will be operated and tested in the same manner as before. Even a malfunction of the system during testing would not result in a design basis limit being exceeded. The possibility of a missile ejection event was eliminated due to the installation of the monoblock rotors. Therefore, the increase interval between tubine valve testing does not affect the probability of a turbine missile ejection.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The deferral of the turbine test will not affect the method of evaluation in the SAR. The SAR has a discussion for determining the probability of missile genesis (P1). As explained by notes found in the applicable SAR section, the discussion was for the original LP rotor design. Deferral of testing would have an effect on the probability of missile genesis as discussed for the original LP rotors. The P1 value is derived from the average probability of a valve failure. Testing frequency will affect the calculation for average probability of a valve failure. However, the new design LP rotors have been evaluated and, as discussed in Section 3.5.2.2.2; "The amount of steam entering the turbine from the time of full load loss to stop valve closure is insufficent to drive the turbine to the overspeed required to fail the monblock. Should the stop valves fail to close, other turbine parts such as the last stage buckets, generator wedges, and bearings (if high vibrations occur) would fail, stopping the turbine, at speeds below that required to burst the monoblock rotor." Deferral of the test will have no effect on the design basis of the new monoblock burst evaluation and therefore, no effect on missile barrier analysis.

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FFN 2002-0006

Entergy	EN-S NUCLEAR MANAGEMENT MANUAL	QUALITY RELATED ADMINISTRATIVE	LI-101	Revision 2		
		INFORMATION USE				
ATTACHMENT 9.1		50.59 REVIEW FORM	Page	1	of	11

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: TALT 02-2-002 ER-ANO-2002-0017-000 **Change/Rev.:**

System Designator(s)/Description: Spent Fuel Pool Reverse Osmosis Unit

Description of Proposed Change

This Temporary Alteration provides instructions to install a reverse osmosis skid. The skid will clean silica and suspended solids from the spent fuel pool. This activity will be performed using a vendor supplied skid. Controls in workplan 2409.736 are in place to monitor boron levels and chemistry parameters. This TALT 50.59 addresses installation and plant interface connections.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

- ☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.
- ☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).
- ☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION (#: 02-006)**	**Sections I, II, III, and V required**

Preparer: KEITH PERKINS / Steven J. Smith for K. Perkins by TELECON / EOI / SYS ENGR / 2/26/02
Name (print) / Signature / Company / Department / Date

Reviewer: Linda Bragwell / Linda Bragwell / EOI ANO / Sys Eng - U-2 / 2/26/02
Name (print) / Signature / Company / Department / Date

OSRC _____ 2/28/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
N/A	N/A

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		Drawing 9.1-1 & 9.2-7 Only because valve position will be altered.
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ Yes
☒ No

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112.

☐ Yes
☒ No
☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

(See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

B. Basis

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

The TALT involves installing an RO unit for cleaning contaminants from the spent fuel pool. License based documents do not have limitations on using supplemental equipment to increase purification rate of the spent fuel pool. Information in all documents other than the SAR will not be invalidated. The SAR, however, shows drawing 9.1-1 which shows valves 2FP-4 and 2FP-19. These valves will be aligned in a position other than shown on the drawing. Using reverse osmosis to purify the spent fuel pool is not a test or experiment. SAR 9.2-7 shows 2CT-76 other than as shown on the drawing. This valve supplies DI water and has no safety function. The OSRC requested an Evaluation. The following discussion is valuable even though an evaluation follows. The temporary alteration installs a vendor skid reverse osmosis unit to remove silica from the spent fuel pool. The unit is generally self contained such that the unit has minimal interface with the plant. The LBD do not contain information about vendor skid and therefore specifics concerning the skid are exempt from 50.59 evaluation. The skid, however, interfaces with the plant by changing spent fuel pool water chemistry, creating wastewater, requiring make-up to the pool, by changing valve positions in the fuel pool cooling system and by using electrical power. These interfaces do not adversely impact any safety function of the plant as discussed below. Changing Spent Fuel Pool Chemistry: The spent fuel pool water is filtered and returned to the pool. The boron concentration of the returned water is slightly lower than the concentration in the pool. The controls for sampling in the T-ALT and work plan 2409.736 provide assurance that spent fuel pool boron concentration is maintained well above required limits. The only change in water chemistry other than a slight change in boron concentration is reduction of silica, which is the desired objective.

Creating Wastewater: Not all of the water is returned to the pool. Some water is sent to the liquid rad waste system for processing. The T-ALT evaluated the volume of wastewater and the rate at which it would be generated. It was determined that the Liquid rad waste system can easily process the water generated by the T-Alt with no impact on normal operations.

Make-up to the pool: Demineralized water will be added to the pool as necessary to maintain pool level. The controls for make-up and sampling in the T-ALT and work plan, 2409.736, provide assurance that spent fuel pool boron concentration is maintained well above required limits. The volume of make-up water is very small and will not challenge the DI water system. Use of the T-ALT will not impact plant operations. Valve position for 2CT-76 is in SAR 9.2-7 and will be operated and in different position than shown on drawing. There is no safety fuction associated with this valve and does not create any safety condition.

Valve positions in the Spent Fuel Pool Cooling System: The T-ALT allows two valves be placed in positions different than shown on SAR drawing 9.1-1. Valves 2FP-19 and 2FP-4 will be throttled as necessary to ensure the skid can operate properly. If it is necessary to throttle 2FP-4 the T-ALT instructions provide controls to ensure SFP cooling flow is not significantly reduced. This ensures that the cooling system is not degraded below its ability to maintain pool temperature. The impact to this system is minimal and will not impact system operation

Use of Electrical Power: The T-ALT provides power to operate the vendor skid. The T-ALT utilizes a spare breaker. An evaluation of electrical demand determined that the load created by the skid is well with in the limits of the breaker and will not impact the electrical distribution system.

C. **References**

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
50.59 COMMON	(spent fuel, RO, reverse osmosis, silica, boron, SiO2, filtration, 2FP-4, 2FP-19, Fuel w/10 Pool, pool w/10 cooling, Liquid w/10 cool*), Siphon

D. **Is the validity of this Review dependent on any other change?** (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☐ Yes
☒ No

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

☐ The proposed activity meets all of the following criteria regarding design function per Section 5.5.1.1:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.5.1.2. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The NRC has approved the proposed activity or portions thereof per Section 5.5.1.3. Reference:

B. Basis

(Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions. See Section 5.5.6 of the EOI 10CFR50.59 Review Program Guidelines for guidance.)

The OSRC requested a 50.59 evaluation.

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

This Temporary Alteration provides instructions to install a reverse osmosis skid. The skid will clean silica and suspended solids from the spent fuel pool. This activity will be performed using a vendor supplied skid. Controls in workplan 2409.736 are in place to monitor boron levels and chemistry parameters. This TALT 50.59 addresses installation and plant interface connections.

Reason for proposed Change:
Silica is higher than desired in the spent fuel pool. The reverse osmosis skid is the best approach for removing the silica.

50.59 Evaluation summary and conclusions

The evaluation determined that it is acceptable to install and operate the T-ALT.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The proposed change does not increase the frequency of occurrence of an accident previously evaluated in the FSAR because the Chapter 15 analysis is based on a Fuel Handling Accident resulting in a dropped fuel assembly and the proposed change does not impact fuel handling or the frequency of occurrence. The temporary alteration cannot initiate the Chapter 15 event.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This temporary alteration will not result in more than a minimal increase in the likelihood of occurrence of a malfunction of a SSC important to safety previously evaluated in the FSAR. This is because the design of the alteration is bounded by existing design requirements of the system. The potential impact of the talt to adverse system conditions are two fold. First the potential to reduce SFP level to adverse levels is prohibited by the design of using the SFP tilt pit fill line (via 2FP-19) which is ultimately attached to the existing siphon breaker. Other lines from the RO unit are prevented from siphoning the pool by controlling their elevation in the pool and are bounded by the existing siphon breaker elevations. Therefore the likelihood of a loss of SFP level remains unchanged. Second, the potential to have an uncontrolled leak via the alteration hose connections or pipe break is bounded by existing system design. The existing system includes the three inch purification recirculation line that is not a seismic rated piping line. A break in the discharge of this line would result in an uncontrolled leak greater than the postulated hose break. Since the amount of leakage in both cases will be limited to the SFP level at which the siphon breakers are located, the likelihood of occurrence of a malfunction of a SSC important to safety remains unchanged.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   There is no change in the consequences of any accident or to consequences due to failure of equipment important to safety. The spent fuel pool accident analyses bound any credable event associated with this T-ALT.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   There is no change in the consequences of any accident or to consequences due to failure of equipment important to safety. The spent fuel pool accident analyses bound any credable event associated with this T-ALT.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The SAR evaluates the spent fuel pool for loss of cooling and loss of inventory to the siphon breaker level. There are no other credable accidents associated with this T-ALT. Therefore, no new accidents are created.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The worst possible event would be T-ALT pipe rupture on the line supplying the RO unit. The maximum flow rate through this line is significantly below the flow rates experianced by the spent fuel pool cooling system which is non siesmic and is acceptable. Therefore, a malfunction of the spent fuel cool system bounds a similar failure on the T-ALT piping. The siphon breaker for the SFP cooling suction line is at the 401' elevation and will prevent loss of pool inventory as designed. The installed piping and the T-ALT piping do not create a new malfunction.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The reverse osmosis unit will not impact operating systems in such a way that could challenge a fission product barrier. Any break that occurs in T-ALT piping will result in flows rates that are less than the acceptable flow rate loss associated with the spent pool purification flow. The spent fuel pool purification pipe break flow rates bound the flow rates experianced if T-ALT piping ruptures.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

This T-ALT does not evaluate design bases or safety analyses, nor will this T-ALT impact design bases or safety analyses. .

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FFN 2002-0007

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: ER-ANO-2002-0141-000 **Change/Rev.:** 0

System Designator(s): HVAC

Description of Proposed Change

The function of switchgear room exhaust fans 2VEF56A and 2VEF56B is to provide additional heat removal from rooms 2100 and 2101 respectively in the event the room temperature exceeds 120 °F. The fans exhaust into the ANO-2 HP office area which borders the ANO-2 Control Room. The current configuration increases air inleakage rates into the control room which could negatively impact Control Room inleakage values above allowed inleakage values. To relieve the backpressure in CA-2 due to the exhaust from 2VEF56A/B, Operations will open door 287 (between CA-2 and the Turbine Builing) prior to starting the switchgear exhaust fans. In order for Operations to perform these actions in a timely manner during a Design Basis Accident, the operation of the exhaust fans will be changed from automatic control (i.e. upon reaching 120 °F) to manual control. The rooms contain the electrical equipment needed to power the safety related equipment utilized to mitigate the consequences of an accident. The safety related equipment in the rooms are as follows: Room 2100 contains 2B6, 2A4 and 2B64 and room 2101 contains 2B5, 2A3 and 2B54. The new circuit design will permit a manual start/stop only from the ANO-2 Control Room as part of an associated annuciator corrective action for each room that indicates high room temperature (120°F). Per calculation 91-E-0090-12, it has been shown that the qualification temperatures for the switchgear equipment under design basis conditions will not be exceeded with the exhaust fans not running coincident with a Design Basis Accident. The limiting time period is 14 days which will bound the time needed for Operations to respond to the ACA and to start the exhaust fans. The equipment located in rooms 2100 and 2101 remains operable during the 14-day time period the switchgear exhaust fans are not running.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review: *(Only sections indicated must be included in the Review)*

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FFN #02-007	**Sections I, II, III, and V required**

Preparer: Steve Capehart / Steve Capehart / EOI-ANS / MMods / 3/5/02
Name (print) / Signature / Company / Department / Date

Reviewer: Steven A. Bennett / [signature] / EOI / Lic / 3/5/02
Name (print) / Signature / Company / Department / Date

OSRC: [signature] 3/14/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:

II. SCREENING

A. Licensing Basis Document Review

1. **Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents?** *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☐	☒	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		Section 9.4.2.7, Figure 9.4-1
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☐	☒	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4]	☐	☐	☒	

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.

(includes the Fire Hazards Analysis)				
Inservice Testing Program[4]	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. **Does the proposed activity involve a test or experiment not described in the FSAR?**
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ YES
☒ NO

3. **Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation**
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ YES
☒X NO
N/A

[4] If "YES", process the change in accordance with the facility's Operating License Condition.

B. **Basis**

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

The exhaust fans for the switchgear rooms are not discussed in the ANO-2 TSs. The switchgear room cooling is considered support equipment only. Therefore, the TS are not impacted by this change.

FSAR section 9.4.2.7, Switchgear Rooms, states "In the event the switchgear room temperature rises above 120°F, the room thermostat will start the exhaust fan to ventilate the air from the switchgear room to the locker room."

This ER will revise the exhaust fan control circuit such that the exhaust fan will not autostart when room temperature rises above 120°F.

SAR Figure 9.4-1 will be revised based on P&ID, M2263 sht 2, being revised as part of this modification.

This change modifies the autostart circuitry for 2VEF56A/B and does not constitute a Test or experiment not described in the FSAR.

C. **References**

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
ANO-2 50.59 Index Electronic Search	(2VEF56A, 2VEF56B, Room 2100, Room 2101, Exhaust, 2A3, 2A4, switchgear)

D. **Is the validity of this Review dependent on any other change?** ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. **Executive Summary** *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The affected equipment in rooms 2100 and 2101, as well as the operation of ~~2VSF56A/B~~ 2VEF-56A/B are not considered accident initiators and are not rendered inoperable with the proposed change. Therefore, there will not be any increase in the frequency of occurrence of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The function of the 2VEF56 fans is to cool the north and south switchgear rooms to ensure long term safety related equipment operability. Removing the autostart feature for the fans upon reaching a preset temperature of 120°F does not directly impact the ability of the safety related equipment to perform its post accident safety function. The worst case temperature in the switchgear rooms would potentially reach 142°F under maximum btu loading. The equipment can with stand these temperatures however the effectiveness of the equipment (i.e. battery chargers and switchgear) becomes degraded at higher temperatures.

The affected equipment supply power to the components required to mitigate accidents and as such could be considered a 'malfunction' if rendered inoperable. Per analysis the affected equipment in rooms 2100 and 2101 are not impacted until approximately 14 days into a design basis event under worst case SW temperatures. An annunciator alarms in the control room at 120°F at which time the operator will be directed to prop open door 287 and start the 2VSF56 fans. This action to open the doors and to start the 2VEF-56 fans from within the control room can be taken easily within the first 12 hours of the time that the annunciator alarms. Therefore, it is concluded there is not a minimal increase in the likelihood of occurrence of a malfunction of a SSC important to safety previously evaluated in the FSAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

Even though the equipment in the switchgear rooms provide a mitigative function under accident conditions, the switchgear is fully able to function for the short time frame that would be required for an operator to prop door 287 open and start the 2VEF56 fans. The ability to utilize the equipment needed to mitigate the consequences of an accident will not be degraded during the period the exhaust fans are not running. The possible excessive room temperatures (i.e. >120°F) created by not autostarting the switchgear exhaust fans will not create any scenarios that will affect the amount of radiation released during an accident. Therefore, the proposed change will not result in any increase in the consequences of an accident previously evaluated in the FSAR.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The equipment in the switchgear rooms is required to operate for 30 days post accident. This equipment is not negatively impacted for a period of 14 days into the event. The control room annunciator alarms at 120°F whereby the operator will be procedurally directed to open door 287 and start the 2VEF56 fans. This action can be easily performed by the control room operator within the required equipment EQ timeframe. Therefore, the proposed change does not change the malfunction mechanisms of any SSC important to safety that could result in an increase in doses to the public above the licensing limit. Therefore, there will not be an increase in the consequences of a malfunction of a SSC previously evaluated in the FSAR.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The affected equipment are not considered accident initiators and are not rendered inoperable with the switchgear exhaust fan not running. The ability of the affected equipment to support the operation of any SSC important to safety to properly function is not degraded by not having an autostart function on the exhaust fans. Therefore, it is concluded the possiblity of creating an accident of a different type previously evaluated in the FSAR is not created.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The affected equipment remains operable and there is no equipment degradation caused by the proposed change. The proposed change will not create any new or affect existing malfunction mechanisms of SSC important to safety. Therefore, the possiblity of a malfunction of a SSC important to safety with a different result than any previously evaluated in the FSAR is not created.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The proposed change does not affect the ability of any SSC important to safety to perform its intended function in mitigating any accidents or Anticipated Operational Occurences (AOOs). The equipment needed to maintain the design basis limits for a fission product barrier remains operable with the installation of the proposed change. Therefore, the proposed change does not result in a design basis limit for a fission product barrier being exceeded or altered.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The proposed change does not affect any of the methods of evaluation described in the FSAR. The proposed change only revises the method of operation of equipment (i.e. exhaust fans).

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FFN 2002-0008

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: Technical Requirements Manual (TRM) **Change/Rev.:** 0

System Designator(s)/Description:

Description of Proposed Change

The proposed change to the TRM is to incorporate fuel pool heat load requirements based upon capacity of the spent fuel pool cooling system. In addition an editorial change is made to the SAR to account for moving TS 3.9.3.b to the TRM.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

- ☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.
- ☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).
- ☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION (#: FFN-) 02-008**	**Sections I, II, III, and V required**

Preparer: Stanley J. Haynes / Stan Haynes / EOI / Nuclear Engineering / 3/28/02
Name (print) / Signature / Company / Department / Date

Reviewer: Don Helm / Don Helm / EOI / NUCLEAR ENGINEERING / 3/28/02
Name (print) / Signature / Company / Department / Date

OSRC R V Fuller / Randall V. Fuller / 4-2-02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		9.1.3.2
TS Bases	☐	☒		
Technical Requirements Manual	☒	☐		3.9.3, and B 3.9.3
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ Yes
☒ No

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112.
(See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

☐ Yes
☒ No
☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. Basis

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

II.A Operating License Documents

The operation license documents are not impacted by the change to the TRM. The 175 hour limit imposed on movement of more than 70 bundles to the spent fuel pool was a conservative limit set to prevent exceeding the 150 F. The revision to the TRM will still ensure compliance with the 150 F limit on spent fuel pool temperature.

II.B LBDs controlled under 50.59

The TRM is being changed to allow movement of fuel based on decay heat load from the spent fuel. SAR section 9.1.3.2 is revised to reflect changes made to TS 3.9.3.b by moving it to the TRM. The change is editorial. The remaining documents are not impacted by this change.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:

LRS Unit 2 50.59

Manual Sections: SAR Sections 9.1.2, 9.1.3, 15.1.23, SAR Figure 9.1-3, SAR Table 9.1-6, SER for Ammendment 43

Keywords:

"Spent Fuel Pool", "SFP", "Decay w/20 pool", ' 175', "Shielding w/20 pool"

D. Is the validity of this Review dependent on any other change? (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☒ Yes
☐ No

If "Yes," list the required changes.

Technical Specification 3.9.3.b must be moved to the TRM prior to implementation of this change

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. Executive Summary (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section 1 of this form.

Reason for proposed Change:
Provided in Section 1 of this form.

50.59 Evaluation summary and conclusions

Contained in Part B this Section.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:
   The change to the TRM allows for moving fuel assemblies to the spent fuel pool (SFP) based upon the actual heat load present in the SFP and the capacity of the SFP cooling system. Thus, the heat load will remain within the design limits of the system. No changes are being made which will change the way fuel is moved over the spent fuel pool that would increase the possibility of a dropped fuel bundle or prevent the ability of the SW system to makeup water to the SFP in the event the cooling is lost.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:
   The changes to the allowable times for moving fuel assemblies to the SFP are based upon the design capabilities of the SFP cooling system. The ability to move fuel assemblies to the SFP earlier in an outage based on the actual heat load will not impose an increased load on the SFP cooling system since it is within its design capacity and therefore not increase the probability of malfunction. In addition the SFP cooling system is not required to mitigate any accidents described in the SAR and is not a safety related system.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:
   The consequences of accidents reported in the SAR do not consider the operability of the SFP cooling system. The allowable heat load in the pool is bounded by that used in the safety analysis. Therefore the consequences reported in the SAR will not change based upon revision of the TRM.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:
   The SFP cooling system is not credited for mitigation of any accidents reported in the SAR. Failure of this system will not increase the consequences of any accident. The allowable heat load in the SFP will be bounded by the ability of the SW system to makeup adequate water to maintain the level over the spent fuel as it is boiled off.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:
   The allowable heat load in the SFP will not exceed that previously evaluated in the SAR and is within the design limits of the SFP cooling system. No new accident can be postulated since the fuel will be moved as designed and heat load within the pool does not change.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS
   The design limits of the SFP and SFP cooling system will not be exceeded and are within the current operational limits established in the SAR. No different malfunctions is postulated based upon this change.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

   BASIS:
   No changes are being made to fission product barriers as described in the SAR. Therefore the design basis limits remain intact.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

   BASIS:
   No changes to methods described in the SAR for determining the heat removal capability of the SFP cooling or to the method for determining decay heat for irradiated fuel are being made.

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FFN 2002-0009

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: 01-R-2008-03 **Change/Rev.:** 0

System Designator(s)/Description: ANO-2 Cycle 16 Reload Analysis Report and Associated LBD Updates

Description of Proposed Change

The proposed engineering report documents the evaluation of the design and performance of the ANO-2 Cycle 16 core. The major considerations of this evaluation include operation at an increased rated thermal power level of 3026 MW, implementation of Erbia as an integral burnable absorber, and transition of vendor fuel manufacturing activities from Hematite, Missouri to Columbia, South Carolina. All analyses and assessments were performed using NRC approved methodologies. Relative to the previous cycle's core, there are no reload driven Technical Specification changes required and no methodology changes identified, other than those implemented through the power uprate project. The evaluation of the Cycle 16 core is dependent on approval of the power uprate package (ER-002344E201) and the power uprate submittal (2CAN120001).

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION (#: EEN) 02-009**	**Sections I, II, III, and V required**

Preparer: Todd A. Erskine / Todd Erskine / EOI / Nuclear Engineering / 3-28-02
Name (print) / Signature / Company / Department / Date

Reviewer: Robert W. Clark / Robert W. Clark / EOI / Nuclear Engineering / 04/01/02
Name (print) / Signature / Company / Department / Date

OSRC Randall V. Fuller / R V Fuller 4-4-02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
Frederick H. Smith	Nuclear Design Input
William B. Bird	Nuclear Design Input
Dennis E. Barr	Fuel Mechanical Design Input

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		Ch. 4 TOC, 4.1, 4.2, 4.3, 4.6, Ch. 4 Tables & Figures, 15.1.15
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☒	☐		Separate 50.59 evaluation.
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program [4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes ☒ No

If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation? (Check "N/A" if dry fuel storage is not applicable to the facility.) ☐ Yes ☒ No ☐ N/A

If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. Basis

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

General Reload Information

The purpose of the Cycle 16 Reload Analysis Report (RAR) is to document the analyses and assessments performed to demonstrate acceptable operation of the Cycle 16 core design. The Cycle 16 reload analyses were performed in conjunction with the analyses performed by the separate power uprate project. The power uprate project maintained primary responsibility for identifying and making changes to safety analyses and the licensing basis as they pertain to the increase in power level. ER002344E201 documents the work performed within the scope of the power uprate project. The reload process performed evaluations of Cycle 16 reload core characteristics with respect to the analyses of record and power uprate project analyses in order to determine the following:

1. Analysis of Record is bounding.
2. Analysis of Record has been evaluated by Power Uprate and remains applicable.
3. Analysis of Record was re-analyzed by Power Uprate and presented in the Power Uprate Submittal.
4. Cycle 16 specific analysis was required by the reload process and is presented in the RAR.

Operation of the Cycle 16 core was determined to be within the bounds of existing safety analyses for all Anticipated Operational Occurrences. With one exception, operation of the Cycle 16 core was also determined to be within the bounds of existing safety analyses for Postulated Accidents. The single exception was CEA Ejection initiated from 50% power. This event was analyzed within the reload project and the results are presented in the RAR.

The above describes the general relationship between the reload project and the power uprate project. The remaining discussion will focus on individual aspects of the reload analyses, particularly those aspects that have changed from previous reloads.

Nuclear Design & Performance

The Cycle 16 core consists of 80 fresh batch U assemblies and 97 previously irradiated assemblies from fuel batches M (1 twice burned assembly – reinsert from Cycle 11), S (28 twice burned assemblies) and T (68 once burned assemblies) which are used in a "very low leakage" fuel management scheme. The Cycle 16 reload fuel enrichment and batch size have been selected to achieve a nominal cycle length of 473 EFPD at 35 ppm boron based on a Cycle 15 endpoint of 458 EFPD. Depending on the actual Cycle 15 endpoint, the Cycle 16 core could deliver as much as 485 EFPD or as little as 460 EFPD at 35 ppm. Operation beyond full power capability (coastdown), up to the Safety Analysis Limit, is within the scope of reload analyses. See the table below for the operating limits.

Cycle 15 Endpoint (EFPD)	Expected Cycle 16 Endpoint (EFPD @ 35 ppmB)	Cycle 16 Safety Analysis Limit* (EFPD)
433 (Short)	485	510
458 (Nominal)	473	498
483 (Long)	460	485

*Limitation on Coastdown beyond full power capability

Cycle 16 is the first ANO-2 cycle to employ Erbia as an integral poison (Batch U assemblies). The design employs a fixed poison concentration for all bundles but varies the number of fuel pins that contain Erbia from 32 to 100 per bundle. The number of pins containing Erbia has been selected to provide sufficient reactivity hold down while maintaining power distribution controls. As in Cycle 15, the poison reduces the slope of the Boron letdown curve during the initial half of the cycle but maintains a negative slope over the entire cycle. This characteristic will ensure that Boron concentration can be reduced in a predictable manner over the cycle to offset the effects of fuel depletion.

Erbia has been widely used at other Combustion Engineering type reactors including Palo Verde and Waterford-3. Westinghouse has evaluated the neutronic performance of Erbia poisoned fuel rods. This evaluation is described in topical report CENPD-382-P-A and demonstrates that the accuracy of their physics analysis methods is not impacted by the introduction of Erbia. The NRC approved the application of these methods to CE 16x16 fuel bundles that contain less that 2.5 w/o Er_2O_3 in less than 60% of an assembly's fuel pins. The Batch U fuel assemblies meet these requirements.

The Westinghouse topical report also evaluates the fuel thermal/mechanical effects of rods containing Erbia. The evaluation showed a slight increase in fuel temperature and a corresponding increase in internal pressure relative to UO_2 rods. Additionally, a small reduction in the fuel melting temperature was identified. These consequences are acceptable due to the lower power level the Erbia poisoned rods will achieve due to the neutron absorption of Erbia and a lower Uranium enrichment in these pins. In order to ensure that the Erbia pins operate at a sufficiently lower power level, the NRC SER for the topical requires a separate evaluation of Erbia pins with each reload. A Cycle 16 specific evaluation of Erbia and UO_2 fuel rod thermal performance was compared to a bounding analysis performed for power uprate. This evaluation concluded that the uprate analysis is applicable to Cycle 16. Finally, additional fuel performance analyses were performed to show that Gadolinia rods present in Cycle 16 are bounded by the UO_2 rods with respect to internal pressure, fuel temperature and power-to-melt criteria. The evaluation of Gadolinia rods is in accordance with the NRC approved topical for core designs containing Gadolinia-Urania burnable absorbers, CENPD-275-P-A.

Certain Cycle 16 specific fuel performance parameters (minimum pin-to-box parameters and radial falloff curves) were bounded by existing analyses only after exercising analysis contingencies. The Cycle 16 specific minimum pin-to-box factors will require additional margin to be reserved in the form of a reduction in the COLR linear heat rate limit. The radial falloff curve associated with Gadolinia rods also requires a similar penalty be applied to the COLR linear heat rate limit. The radial falloff curve for non-Gadolinia rods was bounded by crediting additional margin available in other areas of the fuel performance analysis. The approach for handling these issues is within the scope of the Westinghouse reload methodology. Contingencies involving the COLR linear heat rate limits will be cleared when the COLSS and CPC setpoints process is completed.

The Cycle 16 core power peaking factors have been reduced in order to meet the power uprate safety analysis assumptions, maintain operating margins and reduce the steaming rate. The lowered peaking factors and steaming rate reduce the potential for an axial offset anomaly (AOA). The change in power peaking during life for the Cycle 16 core is consistent with other Erbia core designs and varies less than the previous Cycle 15 Gadolinia core. Critical Boron concentrations and reactivity parameters are similar to Cycle 15. The HZP MTC will be slightly positive at BOC but is predicted to be well within technical specification and COLR requirements with analysis uncertainties applied at worst case temperature and burnup levels. The peak pin burnup (projected to be $\leq$ 58,823 MWD/MTU) is well within the licensed limit (60,000 MWD/MTU) even with the most limiting Cycle 15 and 16 shutdown assumptions applied.

The impact of the Cycle 16 reload core on the fuel storage and criticality analysis has been assessed. The fuel design assumptions used in that analysis have been confirmed. The requirements of Technical Specification 3.9.12 are not impacted.

Operation of the Cycle 16 core design was modeled based on nominal full power operation with an inlet temperature of 551 °F and a primary loop flow 106 % of design (120.4E6 lbm/hr). Physics parameters were generated consistent with the TS LCO temperature range of 540 to 556.7 °F (includes uncertainty). Neutronic parameters important to safety were generated using appropriate NRC approved codes and methods.

The nuclear design of the Cycle 16 core impacts the SAR discussion of burnable poison rods in sections 4.3.2.3.2, Table 4.3-1 and numerous Chapter 4 figures detailing fuel management, core loading, assembly zone loading, burnup distributions and power distributions. With the exception of the COLR, the remaining LBDs are not sufficiently detailed to be impacted. Various inputs from the Cycle 16 core design will be assessed in the COLSS and CPC setpoints process in order to establish COLR limits. Appropriate COLR changes will be evaluated in a separate 50.59 when the final COLR is received. Those COLR changes specified in the Reload Analysis Report are preliminary.

Fuel Mechanical Design & Performance

The Batch U fuel design was evaluated against previous fuel designs and plant changes for Cycle 16. This evaluation was performed using plant and Westinghouse supplied documentation and observation of the manufacturing process in Columbia, SC. With the exceptions discussed below, the fuel mechanical design is unchanged between the previous reload fuel assemblies (Batch T) and the new reload fuel assemblies (Batch U). The mechanical design bases remain unchanged. There is acceptable mechanical design margin for the Cycle 16 core containing Batch U fuel assemblies and other resident fuel batches.

The fuel vendor closed the facility previously utilized to manufacture ANO-2 fuel assemblies (Hematite, Missouri). All bundle assembly and inspection operations have been moved to Columbia, South Carolina. Equivalent procedures were developed for Columbia activities. These were reviewed, audited and found to be acceptable. The rod loading and bundle assembly processes are now performed at the Columbia facility using the same equipment that had been used for the previous reload fuel batch (Batch T) at Hematite. Performance of the equipment at

Columbia and training of the new operators was evaluated through joint utility audits and found to be acceptable.

Previously, personnel at Hematite performed a final inspection of the empty assembly grid cage after receipt from Windsor, Connecticut (where they are manufactured) and prior to bundle loading for shipping damage. This inspection is now scheduled to be provided only in Windsor with a shipping damage review at Columbia and random full inspections to provide quality assurance. During the ANO campaign for Batch U, full inspections were performed at both locations. Additionally, upper end fittings were previously assembled in Hematite. The upper end fittings are now completely assembled in Windsor, and shipped complete to Columbia, SC.

The integral neutron absorber for Cycle 16 was changed from Gadolinia (used in Cycles 13 through 15) to Erbia. Erbia has been used at Waterford 3 and other CE style plants for several cycles and has no mechanical design issues. A new Erbia facility was constructed at Columbia as part of the transition from Hematite. The Erbia rods share all of the same mechanical characteristics as the other urania rods produced at Columbia. The new Erbia line has been evaluated by review and inspection and found to produce fuel rods that meet all functional requirements.

The power uprate for Cycle 16 has the potential to affect fuel reliability through increased susceptibility to Axial Offset Anomalies (AOA). As discussed in the Nuclear Design section, core design constraints were used to prevent the onset of an AOA.

The following discusses the Batch U reload fuel assembly mechanical design changes associated with the transition of manufacturing operations from Hematite, Missouri to Columbia, South Carolina:

- Fuel rod end caps will be Tungsten Inert Gas (TIG) welded rather than magnetic force (MF) welded.

  This is the most significant difference in the new rod fabrication process. This process has been employed at Columbia for many years with excellent reliability. The new TIG weld is accomplished by the cladding being pushed onto a reduced diameter pedestal section of the end plugs for a friction fit to hold the pieces in place for welding.

- Deflashing of the end cap weld is no longer required.

  New weld prep regions were machined into the end caps at the weld to accommodate the TIG weld process. The raised ridge of melt material and a narrow groove provides a smooth weld that does not require machining like the MF weld process.

- A slight crown (0.004 in. max radial) is produced in the end cap weld region.

  The crown is formed just below the end cap and is caused by the friction fit and heat of the weld. The crown is restricted to a slight tolerance of the cladding outer diameter to prevent interference with the grid springs during bundle assembly.

- The upper and lower end cap lengths and geometries have been changed.

  The upper end cap was lengthened to feed properly in the automated magazine-type feed equipment used at Columbia. The gripping acorn was modified to be slightly shorter but the gripping surface was unchanged. A stepped size hole was drilled into the upper end cap to accommodate the helium filling operation. No fuel performance impact exists.

  The lower end cap is slightly longer to provide the pedestal needed for the friction fit during TIG weld operations. The same weld prep features as in the upper end cap are machined into the lower end cap. Manufacturing restrictions limit the amount of bend or Total Integrated

Runout (TIR) in the lower end cap to prevent interference with grid springs during bundle assembly.

- The plenum spring design has changed.

  The plenum spring has been redesigned to properly contact the upper end cap pedestal and to compensate for the removal of the alumina spacer disk. The change has no impact on the quality, fit, or function of the component.

- The alumina spacer disk at the bottom of the fuel pellet stack has been removed.

  At Hematite, the fuel column was electrically isolated during the MF weld by an alumina spacer disk at the lower end and an insulated coating on the spring at the upper end. The TIG process does not require this isolation and the coating and spacer disk have therefore been eliminated. Evaluation and operational experience in the past with Westinghouse fuel with similar design features noted no issues with weld strains or pellet-end cap interactions.

- Fuel rod void volume has increased.

  The sum of the changes in plenum volume due to the end cap changes, the spring changes, and the spacer disk removal is a slight increase in plenum volume. The slight increase in plenum volume will result in a decrease in maximum gas pressure and maximum fuel temperature. The fuel performance analysis therefore remains bounding.

- The fuel pellet stack has been lowered.

  The fuel column length remains unchanged from Batch T. However, the fuel elevation is lowered by the removal of the alumina spacer disk. This elevation change is bounded by the changes made over several cycles as the lower end cap design evolved prior to the Guardian grid.

- The fuel rod is pressurized with Helium through a small hole in the upper end cap after the end cap is welded to the rod. The rod is not evacuated prior to pressurization, so air at approximately one atmosphere remains in the rod.

  At Hematite, the fuel rod was evacuated and pressurized with Helium prior to the final weld of the upper end cap. At Columbia, the upper end cap is welded to the cladding prior to the helium pressurization of the rod. The analysis of the fuel rod performance on the CE style fuel rods has always assumed that one atmosphere of air remained in the rod prior to pressurization so this change has no adverse impact.

- Pellet marking has been eliminated / pin stamped IDs missing.

  Pellets for Batch U will be produced at the Columbia facility instead of the Hematite facility. Pellets at Columbia are produced using Ammonium Di-Uranate (ADU-wet) process powder, versus the Hematite dry process. The Batch T urania pellets and the Batch U urania pellets are geometrically the same with the exception of markings in the dished ends. The Batch U urania pellets will not have markings in the dish area as did the Batch T urania pellets. The Columbia process and administrative procedures are designed to prevent enrichment mix-up. The fuel rod gamma scanner will still be able to detect off-spec and off-enrichment pellets.

  Some assembly fuel pin markings will be missing for Cycle 16 fuel. Individual bar codes are laser etched on the top of each fuel rod for process control during fabrication. For CE style fuel, this is accompanied by a pin stamped ID on the lower end cap. This pin stamped ID can be used for positive identification during reconstitution activities. For a large portion of the

non-Erbia fuel rod production run, the lower end cap stamping device was not installed at Columbia. The laser etching on the upper end may remain visible but may not be readable following fuel rod heat up and crud deposition. Columbia uses the laser etched barcodes to insure material control so the chance of fuel mis-loading during manufacturing is not increased.

- Dimensioning / tolerancing of the stack length and plenum have changed.

  Another manufacturing difference was a change from 100% pellet diameter inspection to a sampling plan that has a 95/99 (95% confidence that at least 99% of the pellets meet diameter) requirement. An evaluation determined that the limited number and diameter of undersized pellets that would not be identified by the gamma scanner would have no significant adverse impact on fuel rod design or safety analysis performance.

  In addition to the above, the fabrication process at Columbia no longer makes use of the stack length gauge described in SAR section 4.2.1.4.3 to ensure no axial gaps exist in the fuel column. Instead, the Columbia process uses a plug gauge to measure the stack length after the fuel rod is loaded. The rod gamma scanner described in SAR section 4.2.1.4.3 is still employed. The gamma scanner is qualified to find gaps greater than 0.030 inches in length (or a sum of detectable gaps greater than 0.12 inches) and to provide an accurate measurement of the plenum length. These tolerances are within the length of a single pellet (~0.5 inches). The rod is accepted if no gaps are detected, the plenum length measurement is correct and the plug gauge check is satisfied. These methods are considered to provide an equivalent verification to what was previously described in the SAR.

During review of the Columbia changes against the SAR, it was determined that the flow chart describing the QA process for fuel fabrication was out of date (Figure 4.2-9). The QA process is properly and adequately described in the SAR text, without this figure. The figure will therefore be deleted.

The following discusses the Batch U reload fuel assembly design changes that were not related to the transition of fuel fabrication operations. These changes are generic and being incorporated into all new batches of fuel and do not affect the functional requirements of the fuel:

- The fabrication process for Zircaloy coil material used to fabricate fuel assembly grids has been revised to eliminate the final buffing operation ("hyrdobuffing").

  An investigation into the margin to cracking during the forming operations for grid strips demonstrated that the hydrobuffing operation reduced the margin to cracking. The hydrobuffing was intended to create a visually uniform material surface by blending any staining or watermarks that may have occurred in the fabrication process. The elimination of the hydrobuffing operation did not change any of the design requirements (i.e., no drawings or specifications were revised). The hydrobuffed strips and the non-hydrobuffed strips are dimensionally and functionally equivalent. Therefore, the elimination of the hydrobuffing does not impact any design analyses or operational bases of the fuel.

- The lower end fitting drawing has been revised to reflect the use of a different technique for the inspection and positioning of the Guardian grid to ensure that the Guardian grid springs engage the groove on the lower end caps of the fuel rods.

  The Lower End Fitting (LEF) assembly consists of a Guardian grid welded to a Lower End Fitting. The vertical distance between the LEF's top surface and the grid's rod retention springs must be verified to assure proper engagement with the groove machined in the lower end cap. Previously, this had been done indirectly by inserting a GO/NOGO gauge through each of the grid's guide tube openings and measuring the distance between the LEF and the

lower edge of the interior strips surrounding those openings. A more robust dimensioning technique has been developed that includes measuring the distance between selected springs and the lower end fitting, instead of measuring between the bottom edge of interior grid strips and the top surface of the lower end fitting. This directly verifies compliance with the actual functional requirement. The nominal positioning of the Guardian grid has not changed and the possibility of fuel rod uplift from the grid has not increased.

- The grid cage assembly drawing has been revised to make the wording of the requirements for perpendicularity between spacer grids and guide tubes consistent across all fuel contracts.

  Slight inconsistencies in the specific wording of the requirements among various contracts had been identified. In the case of the Batch U drawing (E-FC1 00-Ak02), the reworded requirement clarifies that the inspection is to be done in two directions approximately 90 degrees apart and that the inspection may be performed on either side of the grid. The functional requirements of the grid-to-guide tube perpendicularity have not changed. Therefore, the change does not impact any design analyses or operational bases of the fuel.

Finally, there are no fuel mechanical issues that require operation with Cycle 16 water chemistry outside of industry established guidelines. A suspected fuel failure in Cycle 15 is not imposing any operational restraints on Cycle 16. ANO-2 has not experienced the kinds of fuel performance issues identified at Waterford-3 or Palo Verde and does not expect to in the upcoming Cycle. All of the fuel assemblies in the Cycle 16 core, with the exception of the center bundle, utilize debris resistant Guardian grids. The center assembly does make use of a long end cap feature that also provides protection against debris related fuel failures. This is consistent with the current Cycle 15 core.

The fuel mechanical design of the Cycle 16 reload assemblies impacts material discussions in SAR sections 4.1 and 4.2. Several of the changes made due to transition of manufacturing to Columbia (spacer removal, missing end cap markings, pellet inspection process, lack of rod evacuation prior to backfill, end cap weld technique) also impact the SAR. The remaining LBDs are not sufficiently detailed to be impacted by the changes to the Batch U fuel mechanical design.

Thermal Hydraulics Analysis

As is normally the case for each reload, a cycle specific thermal hydraulics analysis was performed to demonstrate that the reload core remains bounded by the analysis of record. Nearly all of the pertinent thermal hydraulic characteristics were affected either by the increase in rated thermal power or change in integral burnable absorber. The characteristics impacted include:

- Total core heat output, core average heat flux and heat transfer area
- Primary system flow rates, flow rates through the core, coolant mass velocities and pressure drops across the core and vessel
- Heat transfer coefficients
- Linear heat generation rate
- Core enthalpy rise
- Fuel clad surface temperature

In the case of the current reload, the cycle specific analysis demonstrates that Cycle 16 is bounded by the thermal hydraulic analysis performed as part of the power uprate project. Although the analysis of record remains bounding, pertinent cycle specific thermal-hydraulics parameters are typically provided in SAR Table 4.4-2. This table will be updated for Cycle 16. The remaining LBDs do not contain cycle specific thermal hydraulic details.

Transient Analyses

Design Basis Events currently presented in the ANO-2 SAR were evaluated as part of the power uprate project. The DBEs were evaluated with respect to Offsite Dose, RCS Pressure , Fuel Performance and Loss of Shutdown Margin. The reload process performed evaluations of Cycle 16 reload core characteristics and plant parameters with respect to the analyses of record and power uprate project analyses in order to determine the following:

1. Analysis of Record is bounding.

2. Bounded for Power Uprate. The Analysis of Record was performed at Power Uprate conditions, determined to be bounding and applicable to Cycle 16.

3. Analyzed for Power Uprate. Analysis of Record was re-analyzed at Power Uprate conditions. The Power Uprate analysis has been demonstrated to be applicable to Cycle 16. The Power Uprate analysis was presented as part of the Power Uprate submittal.

4. Cycle 16 specific analysis was required by the reload process and is presented in the RAR.

No Anticipated Operational Occurrences (AOOs) required cycle specific analysis through the reload project. All of the AOOs were determined to either have existing analyses that were bounding for Cycle 16 and Power Uprate conditions or the AOO was analyzed as part of the Power Uprate project and presented in the Power Uprate submittal. Some parameters did require the exercising of analysis contingencies to remain within the bounds of existing analysis, as discussed below.

The cycle specific values for critical boron concentration and inverse boron worth in Mode 6 exceeded the values used in the analysis of record for the boron dilution event. In accordance with Westinghouse reload methodology, conservatism in the cycle specific refueling boron concentration relative to that assumed in the analysis of record was credited to resolve the issue. No impacts to the boron dilution event exist.

Two parameters related to the single CEA withdrawal within CEAC deadband event were not bounded by existing analyses. These parameters concerned the required overpower margin (ROPM) reserved by default at 20% power. More than the default ROPM was required to cover the event. The single CEA withdrawal within CEAC deadband event is not included in the SAR as an AOO. The SAR presentation on CEA withdrawal considers only group withdrawals. The SAR discussion of CEA mis-operations is focused on the limiting event for this class, CEA drops. No impact to the SAR therefore exists due to this issue. The margin required to maintain this event within the bounds of existing analyses will be reserved via the COLSS and CPC setpoints process and implemented either through the COLR or the COLSS and CPC addressable constants. This approach is within the scope of the Westinghouse reload methodology. Additionally, the single CEA withdrawal event and its nature as a margin setting event (determining COLSS ROPM and CPC setpoints) has been recognized previously by the NRC. COLR and addressable constant impacts will be evaluated under a separate 50.59 when these deliverables are received. The remaining LBDs do not contain a sufficient level of detail on the CEA withdrawal within deadband event to be impacted by this issue.

With the single exception of the CEA Ejection event, all Postulated Accidents were determined to either have existing analyses that were bounding for Cycle 16 and Power Uprate conditions or the accident was analyzed as part of the Power Uprate project and presented in the Power Uprate submittal.

For the CEA Ejection accident, only the full power and zero power events are included in the SAR. Westinghouse however, also evaluates three intermediate power levels. For Cycle 16, the CEA Ejection accident initiated from 50% power was not bounded by an existing analysis. The Cycle 16 specific post-ejected 3-D peaking factors (Fq) versus ejected CEA worth exceeded those values used in the Power Uprate project analyses.

Acceptance criteria for the CEA Ejection accident ensure that Specified Acceptable Fuel Design Limits (SAFDLs) on average energy (tied to clad damage) of the hot pin and total centerline energy (tied to centerline melting) of the hot pin are not exceeded. In order to verify that these criteria remained satisfied, a traditional cycle specific analysis was performed using Cycle 16 specific physics data instead of the bounding data used in the Power Uprate analysis. The analytical methodology used was identical to that described in the Power Uprate submittal.

The Cycle 16 specific CEA Ejection analysis at 50% power resulted in a centerline fuel temperature of 4627 °F, which is below the acceptance criteria of 4849 °F (reference Westinghouse calculation A-AN-FE-0281, R2). The criteria on total centerline energy is the most restrictive. Since the centerline energy is well below the limit, it follows that the hot pin average energy is also well within acceptance criteria.

With the exception of the CEA withdrawal within CEAC deadband event, all transient analysis impacts were either dispositioned within the bounds of existing analyses or details of the impacts were not within the scope of the LBDs. The CEA withdrawal within CEAC deadband event does not require a cycle specific re-analysis but may impact the COLR. This impact will be evaluated under separate 50.59 when the final COLR is received.

ECCS Analysis

The Cycle 16 ECCS performance analysis demonstrated that the results of the Power Uprate Project analyses for Large Break LOCA, Small Break LOCA and Long Term Cooling remained applicable.

Notable changes in plant design data that had the potential to impact the ECCS analyses included:

- Fuel rod design changes resulting from the transition of fuel manufacturing to Columbia from Hematite. These changes resulted in a decrease in the bottom elevation of the active core and an increase in rod internal void volume. The changes were determined to be in a favorable direction, but insignificant in magnitude.
- The Cycle 16 specific fuel pin census for LOCA core wide oxidation was not bounded by existing analysis.

Evaluations of the above changes in plant design data successfully dispositioned these items with respect to the Power Uprate ECCS analyses.

The limiting break from the Power Uprate LBLOCA analysis is the 0.4 DEG/PD (Double Ended Guillotine/Pump Discharge) break. The limiting break from the Power Uprate SBLOCA analysis is the 0.04 ft^2/PD break. Comparison of these limiting breaks to acceptance criteria are as shown below.

Parameter	Criteria	LBLOCA	SBLOCA
Peak Clad Temperature, °F	≤ 2200	2154	2090
Maximum Cladding Oxidation, %	≤ 17	7.8	12.5
Maximum Core Wide Cladding Oxidation, %	≤ 1	< 0.99	< 0.67
Maintain Coolable Geometry	YES	YES	YES

All aspects of the Power Uprate project Long Term Cooling analysis remained bounding for Cycle 16. All aspects of ECCS performance are bounded by Power Uprate project analyses, therefore no LBD changes in this area are required through the reload.

Does the proposed activity involve a test or experiment not described in the SAR? NO

Implementation of the fuel fabrication changes and the Cycle 16 fuel assembly and core designs do not constitute testing or experimentation. All characteristics of the Cycle 16 core are determined using NRC approved methods. Tests will be performed to verify design characteristics of the Cycle 16 core, but these tests are fully described in Section 4.5 of the SAR.

Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an ISFSI? NO

The Cycle 16 reload does not change the design basis of the spent fuel pool or associated support systems. Operation of the reactor and any given cycle's core is beyond the scope of the equipment, procedures etc., used at an ISFSI. The dry fuel storage fuel selection procedures contain specific requirements that must be met in order for fuel assemblies to be stored in dry casks. Assemblies operating in Cycle 16 may or may not meet these criteria. The procedures however, are not impacted.

C. **References**

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
LRS 50.59 – Unit 2	(reload*, batch*, integral w/10 poison, integral w/10 absorber, fuel w/10 poison, Erbia, Erbium, boron w/10 curve, boron w/10 letdown, CENPD w/10 382, pin w/10 box, radial w/10 fall*, "linear heat rate", PLHGR, "peak linear heat", peaking factor*, Hematite, fuel w/10 manufactur*, fuel w/10 inspect*, grid w/10 inspect*, cage w/10 inspect*, "end fitting", "grid cage", end cap*, "magnetic force", "butt weld", "end cap" w/10 *flash*, deflashing, de-flashing, plenum w/10 spring, alumina w/10 disc, alumina w/10 spacer, spacer disc, plenum w/10 volume, fuel w/10 stack, pellet w/10 stack, rod w/10 evacuat*, fuel w/10 evacuat*, pellet w/10 mark*, pellet w/10 ident*, pin w/10 stamp*, pin w/10 ident*, pin w/10 mark*, diameter w/10 inspect*, pellet w/10 toleranc*, pellet w/10 inspect*, "hydrobuffing", grid w/10 *buff*, guardian w/10 position*, guardian w/10 inspect*, grid w/10 tube, CEA w/10 eject*, CEA w/10 withdrawal, boron dilution, moderator dilution, misload, IBW, CBC, "inverse boron worth", "critical boron concentration", "refueling outage", "decay time", gadoloinia, gadolinium, batch w/10 size, MTC w/5 negative, MTC w/5 positive)
Unit 2 TS (2.1.1.2, 3/4.1, 3/4.2, 3/4.9, 6.9.5)	
Unit 2 TS Bases (3/4.1, 3/4.2, 3/4.9)	
Unit 2 SAR (1.1, 1.2.2.1, 1.5.1 through 1.5.6, 1.6.1, 3.1.3, 3.1.6, Chapter 4, 5.1, 5.3, 6.3, 9.1, 7.7.1.3, Chapter 15)	
Unit 2 SERs (Amendment 33, 138, 164, 190, 205, 213, 238)	
Unit 2 COLR (All)	
Unit 2 TRM & TRM Bases (3.1)	

D. **Is the validity of this Review dependent on any other change?** (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☒ Yes
☐ No

If "Yes," list the required changes.

2CAN120001, "Application for License Amendment to Increase Authorized Power Level", dated December 19, 2000.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Reason for proposed Change:

50.59 Evaluation summary and conclusions:

Per LI-101 step 5.6.1, ANO does not perform 50.59 Evaluation Summaries and this section is not applicable.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

All SAR analyzed accidents have been reviewed through the power uprate project. The reload project has determined that implementation of the Cycle 16 core design is within the bounds of the uprate analyses. Impacts of uprated operation on plant structures, systems and components have been addressed through power uprate project evaluations. The nuclear design changes and fuel mechanical design changes implemented through the reload project have no appreciable impact on any plant system's performance or reliability and do not directly relate to any accident initiator. Beyond the impacts addressed through the uprate project, the Cycle 16 core design will not result in any system being operated outside of design limits.

The Chapter 15 accident most directly impacted by the proposed reload changes is the erroneous loading of fuel pellets or pins of a different enrichment. Pellet and end cap markings will not be exactly as stated in the SAR text. Extensive quality control and surveillance programs remain however, to preclude the possibility of a bundle being manufactured with the incorrect loading. Positive means of identifying each fuel pin during the manufacturing process remains through use of a laser etched bar code. A gamma scanner also remains in use to detect fuel pellet enrichment errors or misloadings. With these mechanisms in place, there is no appreciable increase in the frequency with which a misloading will occur.

Based on the above, the fuel fabrication process changes and Cycle 16 fuel assembly and core designs will not result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the SAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

Implementation of the Cycle 16 reload core does not negatively impact any structure, system or component (SSC) important to safety. All impacts to equipment of this type, due to operation at uprated power conditions, have been evaluated through the separate power uprate project. The Cycle 16 reload analyses have shown, taking into account cycle specific thermal hydraulic parameters and all nuclear and fuel mechanical changes, that the core design will function within design requirements imposed by the safety analyses.

Analysis of the single CEA withdrawal within CEAC deadband event at 20% power does require that additional margin be reserved via the COLSS and CPC setpoints process to satisfy safety analysis requirements, but this is within the scope of the reload methodology. The end result is no net change in the likelihood of malfunction of any SSC. Similar analysis margin trades were credited to satisfy requirements of the boron dilution analysis and the CEA ejection analysis, again with no impact on the likelihood of malfunction of any SSC.

Two parameters related to the fuel performance analysis, minimum pin-to-box parameters and radial falloff curves, were bounded by existing analyses assuming a reduction in the linear heat rate limit occurs. The necessary linear heat rate will be transmitted by the fuel vendor in the final COLR document. The COLR changes will be evaluated under a separate 50.59 evaluation. The resulting linear heat rate will be established such that the requirements of the fuel performance analysis remain satisfied and the likelihood of fuel failure is not increased.

The most significant fuel mechanical design change, the use of TIG welds to secure end caps, has been employed by the fuel vendor on other designs with excellent reliability. The conclusion, after vendor evaluation of all fuel mechanical changes, is that the impact on design and reload safety analyses is negligible.

Based on the above, the fuel fabrication changes and Cycle 16 fuel assembly and core designs will not result in more than a minimal increase in the likelihood of a SSC important to safety malfunctioning.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Cycle 16 reload evaluations have shown that all SAR accident consequences are bounded by existing analyses or those performed through the separate power uprate project and pending approval by the NRC. The dose consequences of these analyses will not be increased by the Cycle 16 reload thermal hydraulics, nuclear or fuel mechanical design changes.

The reload evaluations compared Cycle 16 core physics and plant parameters to input parameters important to each of the accident analyses. With few exceptions, these comparisons have shown that the existing or uprate project analysis input parameters are bounding for the Cycle 16 core design.

Two parameters related to the single CEA withdrawal within CEAC deadband at 20% power were not bounded by existing analyses. These parameters concerned the ROPM that is normally reserved at 20% power. More than the normally reserved ROPM was required to cover the event. The needed margin to cover this event and maintain the consequences of the event at or below those previously determined will be reserved via the COLSS and CPC setpoints process. This is within the scope of the reload methodology. A 50.59 covering the COLSS and CPC setpoints will be prepared separately when the setpoints are received.

Similarly, parameters related to the CEA ejection accident initiated from 50% power were not bounded by existing analyses. In order to maintain the consequences of this accident at or below those previously determined, the entire analysis was re-evaluated using all Cycle 16 specific parameters. The consequences of the cycle specific evaluation were less severe than the existing analyses.

The Cycle 16 critical boron concentration and inverse boron worth for Mode 6 exceeded those values assumed in the analysis of record for the boron dilution event. Conservatism in the cycle specific refueling boron concentration, relative to that assumed in the analysis of record, was credited to demonstrate that the consequences of the accident for Cycle 16 were not increased beyond those previously evaluated.

Cycle 16 minimum pin to box parameters and radial falloff curves used in the fuel performance analysis were not bound by existing analyses. The results of the power uprate project fuel performance analysis were shown to be bounding assuming the linear heat rate limit is reduced. The linear heat rate limit necessary to maintain the power uprate project analysis applicable will be transmitted by the fuel vendor in the final COLR document. This document will be evaluated under a separate 50.59.

Finally, the LOCA pin census related to the amount of core wide cladding oxidation was not bounded by the power uprate analysis assumptions. A cycle specific evaluation was performed to confirm that the results of the power uprate ECCS analysis were not impacted. Since the results of the power uprate project ECCS analysis were confirmed, there are no dose increases due to the Cycle 16 core design.

Fuel mechanical design changes were evaluated by the vendor and found to have negligible impacts on the design and reload safety evaluations. The net effect of all changes is a slight increase in fuel rod void volume, which reduces the predicted fuel rod pressure during a LOCA transient, delays fuel rod rupture and contributes to a lower predicted peak cladding temperature. These all act in the directions of reducing dose consequences.

Based on the above, the fuel fabrication process changes and Cycle 16 fuel assembly and core designs will not result in more than a minimal increase in the consequences of an accident previously evaluated in the SAR.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The nuclear, thermal hydraulic and fuel mechanical design changes do not place any greater reliance on a specific structure, system or component to perform a safety function than what has been previously evaluated or newly evaluated as part of the separate power uprate project. The specific changes associated with the Cycle 16 reload core design do not change the manner in which plant systems are operated, equipment availability or equipment failure modes.

As documented in the response to question 3 above, the results of analyses that assume malfunctions of specific SSCs remain bounding for the Cycle 16 core design.

Based on the above, the fuel fabrication changes and Cycle 16 fuel assembly and core designs will not result in more than a minimal increase in the consequences of a SAR evaluated malfunction of SSCs important to safety.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Cycle 16 core design does not introduce any new structures, systems or components that would introduce a new accident initiator or failure mechanism that has not already been considered in the SAR. There are no new system interactions or relationships that are created by the Cycle 16 core design.

The energy output of the core design and consequent energy of the primary system are significantly increased, which may change the relative severity of different accidents in the same category. These impacts however, are within the scope of the power uprate project analyses, not the reload project analyses. As previously discussed, the nuclear, thermal hydraulic and fuel mechanical design of the Cycle 16 core has been shown to be within the bounds of uprate analyses.

Based on the above, the fuel fabrication changes and Cycle 16 fuel assembly and core designs will not create the possibility for an accident of a different type than those already evaluated in the SAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Cycle 16 core design does not modify the design or operation of SSCs important to safety beyond the fuel itself. Any modifications to these SSCs to support Cycle 16 operation are being evaluated within the scope of the separate power uprate project.

The SAR considers the RCS activity that would result from a limited number of fuel failures existing at all times. Regardless of the fuel failure mechanisms, which are not explicitly addressed in the SAR, the nuclear, fuel mechanical and thermal hydraulic design changes can not lead to a malfunction that is not bounded by the existing assumptions on coolant activity. Fuel performance analyses of the Cycle 16 core design have indicated that UO_2, Gad and Erbia fuel rod performance (rod internal pressure, fuel temperature, power to melt criteria) are bounded by the results of uprate project analyses. These analyses did consider the impact of minimum pin-to-box parameters and radial falloff curves that were only bounded by uprate analyses after reducing the linear heat rate limit. The necessary linear heat rate will be transmitted by the fuel vendor in the final COLR document. The COLR changes will be evaluated under a separate 50.59 evaluation. The resulting linear heat rate will be established such that the results of the power uprate project fuel performance analyses remain applicable.

Based on the above, the fuel fabrication changes, Cycle 16 fuel assembly and core designs will not create the possibility for a malfunction of a SSC important to safety that has a different result than those already evaluated in the SAR.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

Safety analyses have been performed to demonstrate compliance with the design basis limits for the three fission product barriers. These analyses either existed previously or were performed within the scope of the separate power uprate project.

The reload evaluations compared Cycle 16 core physics and plant parameters to input parameters important to each of the safety analyses. With the exceptions noted in the response to question 3, these comparisons have shown that the existing or uprate project analysis input parameters are bounding for the Cycle 16 core design.

Analysis of the single CEA withdrawal within CEAC deadband at 20% power does require that additional margin be reserved via the setpoints process to satisfy safety analysis requirements but this is within the scope of the reload methodology. Reserving this margin ensures that the existing design limits for the fission product barriers (fuel cladding specifically) will not be exceeded. Similar margin trades were credited to satisfy requirements of the boron dilution analysis and the CEA ejection analysis. The results of the power uprate project ECCS analyses were also confirmed to be bounding for the Cycle 16 core.

The results of the power uprate project fuel performance analyses were confirmed applicable assuming the linear heat rate limit is reduced. The minimum pin-to-box parameters and radial falloff curves that required this change are not associated with the ECCS analyses. The linear heat rate limit necessary to maintain the applicability of the power uprate project fuel performance analysis results will be transmitted by the fuel vendor in the final COLR document. The final COLR document will be evaluated under a separate 50.59 evaluation.

In all cases, the results of the existing or uprate project analyses were not exceeded and did not require alteration. Based on these comparisons, the Cycle 16 core design is predicted to operate conservatively with respect to the design basis limits.

Based on the above, the fuel fabrication changes and Cycle 16 fuel assembly and core designs do not result in a SAR described design basis limit for a fission product barrier being altered or exceeded.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses?

☐ Yes
☒ No

BASIS:

The Cycle 16 reload evaluations utilized an additional methodology over previous reloads. Due to the implementation of Erbia as an integral burnable absorber, the Cycle 16 reload utilized CENPD-382-P-A, "Methodology for Core Designs Containing Erbium Burnable Absorbers," August 1993. All conditions of this topical and conditions for its use were satisfied. As this methodology has already been approved by the NRC, its use does not constitute a departure from a method of evaluation described in the FSAR.

The Cycle 16 reload evaluations continued to use existing SAR described methodologies for Gadolinia and UO_2 fuel performance evaluations, neutronics, thermal hydraulics, transient and accident analyses.

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FFN 2002-0010

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: ER 002344E201 **Change/Rev.:** _____

System Designator(s)/Description: AC, ACW, AS, BD, BMS, BS, CA, CAMS, CAPS, CCW, CEDM, CPC, CS, CT, CVCS, CW, DFAS, DSS, EC, EDG, EFW, EHC, ES, EX, FP, FW, FWCS, GERM, GG, GS, GSO, GZ, HPA, HPSI, HR, H2, IC, ICC, LO, LPSI, LRW, MS, MSAT, PA, PASS, PH, PPS, PS, RB, RBHV, RCP, RCS, RDACS, RMS, RRS, RS, RVMS, RX, SDBC, SDC, SGS, SPDS, SS, SW, SWC, TBV, TG, VLPM, VENT, 2A, 2B, 2D, 2H, 2HT, 2K, 2LA, 2Y, ABS, AB, BA, CEAC, CH, CO2, CP, CVH, DCH, DW, ED, EL, FD, FHS, FO, FS, GCH, HAL, IA, LLRW, LRBV, MET, NT, N2, PMU, RT, RZ, SA, SZ, TB, TBS, TS

Description of Proposed Change

ANO-2 Power Uprate

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☒	**SCREENING**	**Sections I, II, and III required**
☒	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION (#: 02-010**	**Sections I, II, III, and V required**

Preparer: Daniel H. Williams / Daniel H. Williams / EOI / NE / 4/11/02
Name (print) / Signature / Company / Department / Date

Reviewer: Bryan Daiboo, Wayne Cottingham, Jerry W. Howell, Don Graham, Jamie Gobill, Vincent Bond, Phil Stadler / 4-11-02 ET AL
Name (print) / Signature / Company / Department / Date

OSRC 4/11/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
Power Uprate Integrated SAR Review Team	Identification of SAR and TRM changes
Ryan Linebarger	Verfication of NRC prior approval or editorial status

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☒	☐		
TS	☒	☐		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		see attached list
TS Bases	☒	☐		see attached list
Technical Requirements Manual	☒	☐		see attached list
Core Operating Limits Report	☒	☐		
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ Yes
☒ No

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112.

☐ Yes
☒ No
☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

(See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

B. **Basis**

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

This 50.59 review evaluates the impacts of the PUR SAR changes.

Changes that were required to the ANO-2 Technical Specifications and the Operating License were submitted to the NRC in correspondence 2CAN120001. The changes to the SAR reviewed here do not require any changes to the ANO-2 Technical Specifications and the Operating License beyond those already identified and submitted in 2CAN120001. The NRC Orders do not require changes for SAR changes reviewed here.

Changes that were required to the ANO-2 Core Operating Limits Report and Technical Requirement Manual were submitted to the NRC in correspondence 2CAN120001. The changes to the SAR reviewed here do not require any changes to the ANO-2 Core Operating Limits Report and Technical Requirement Manual beyond those already identified and submitted in 2CAN120001. The COLR for Cycle 16 was prepared to support power uprate, and no additional changes are required by the SAR changes reviewed here.

ER010020E201 reviewed the conclusions of various system/topical evaluations related to Power Uprate for their relationship to the fire protection program. Each of these specific evaluations contained an individual 50.59 screening. The results of the overall review associated with ER010020E201 determined that there were no impacts to the Fire Protection and Appendix R programs. There are no physical modifications that affect the Fire Protection systems/components nor adversely affect the performance of Appendix R Safe Shutdown components. As noted in the topical ERs, specific values/parameters utilized in calculations that provide the basis for the Appendix R program are below the level of detail provided in the LBDs

Offsite Dose Calculations Manual was evaluated for PUR impacts and no additional changes are required by the SAR reviewed here.

NRC will issue a Safety Evaluation Report to support power uprate that will supplement the current safety evaluation reports and support power uprate operation.

For the LBDs controlled under 72.48, the assembly heat loading is already considered as a part of the VSC loading process. The number of assemblies being discharged per cycle will be increasing. That could possibly impact the VSC loading schedule, but per discussions with the project manager, a conservative number of assemblies has already been considered. There is no impact from power uprate to the fuel storage pool, the train bay, the storage pad and ventilated storage casks, or the ventilated storage casks licensing documents that would affect the ventilated storage casks.

The Quality Assurance Program Manual lists high level requirements that are not impacted by the SAR changes reviewed here.

The Emergency Plan was evaluated for PUR impacts and no additional changes are required by the SAR changes reviewed here.

The SAR changes reviewed here do not affect any security equipment or affect the Security Plan.

C. **References**

[Discuss the methodology for performing the LBD search. State the location of relevant licensing

document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
ANO-2 SAR	100% Manual
50.59-ANO-2 LRS	0.245, 0.3 w/5 sec*, 0.65 w/ 5 sec*, 0.90 PF, 047, 1.65, 1?047*, 1047, 10cfr50.62 , 13.5, 132 w/5 gpm, 1600, 2*k*, 22kV, 24.5%, 240 or 250 or 202 or 206, 27 w/5 amp, 27 w/5 kA, 2815, 2900, 2E*11*, 2M*30, 2P w/2 135, 2P-4A, 2P-4B, 2P-4C, 2P7, 2P-7, 2P-75, 2T w/2 92, 2T-13, 3 w/5 per*, 3%, 3.4, 4110, 44 w/5 gpm, 50.46, 7421 w/5 amp, ABHV, ABVS, AC w/5 instr*, accident, acid* w/5 instr*, ACW, ACW w/5 instr*, afw, afws, algorithm, amine, Annunciator or Annunciation or Annunciating w/10 indicator or indication or meter or switch or pressure or temperature or cpc or system, Appendix R w/100 Fire, AS, AS w/5 instr*, ASGT, assembly w/10 calcul*, ATWS , aux, Aux Steam* w/5 instr*, Auxiliary Building, Auxiliary Building 2w/20 ventilation, Auxiliary Building Drains, Auxiliary Building Sump, Auxiliary Building Sumps, Auxiliary Building Ventilation, Auxiliary Building w/10 of instrument or instruments instrumentation or control or controller, Auxiliary Cooling Water, Auxiliary Cooling Water * w/5 instr*, Auxiliary Steam, axial power distribution, BAM, BAMT, BD* w/5 instr*, blad*, Blowdown, Blowdown Demineralizer w/5 instr*, bms, BMS, Bor* w/5 mana*, boric acid, boron dilution, boron management system, boron w/3 management, Breathing Air, bucket*, Burnup, calculation w/20 computer, can deck drain, carbon dioxide, Carbon Dioxide, Cathodic Protection, ccw, CCW heat exchanger, CCW HX, ccw loop, ccw w/10 surge tanks, CCW w/5 instr*, cea, CEA w/15 deadband, cea w/5 eject*, cea w/5 withdrawal, CEA w/5 worth, CEAC, CEDM, CEDMCS &Control Element Drive, CENTS, CEPAN, cesec, charging flow, chem* add*, chem* w/5 volu*, chemical and volume control system, chemical w/3 volume, chilled water, Chilled Water * w/5 instr*, Chlorination, Chlorine, Circulating Water, Circulating Water w/5 instr*, cladding collapse., clean w/3 resin, CO2, coast, coastdown, cold reheat pressure, COLSS, component cooling water, Component Cooling Water * w/5 instr*, component w/3 water, computer, concentrator w/4 cooler, condensate, condensate pumps, condensate storage, condensate w/2 storage , condensate w/20 capacity, Condensate w/5 instr* , condensate w4 transfer, Condenser, Contain* w/10 Spray*, Contain* w/5 instr*, Containment Air., Containment Vent Header, Contr* w/10 system, control, Control Room Ventilation w/5 instr*, control system w/10 transient, control system w/10 trip, control w/10 simulation, Cool* w/5 instr*:, cooldown w/10 letdown, cooler or coolers not containment, coolers, Cooling Tower, core bypass flow., core operating limit, core pressure drop, CPC, CPC w/5 filter, crossover pressure, cross-over valves, CRV w/5 instr*, CS* w/5 instr*, CSS, CST, CT, curie, cvcs, CVCS , CW* w/5 instr, CWS, deadband, decay energy, decay heat, decay heat load, decay tanks, DEFAS , degas, Degas*, Demineraliz traveling screens, Demineralizer, diaphragms, Diesel fuel, Diesel Fuel, diverse w/5 feedwater., DNBR, Domestic Water, doppler, dose, Drain Collection, Drain Collection Header, DSS or diverse w/5 scram , dynamic w/10 steam, EAB, ECCS, ECCS performance, ECCS w/2 performance, EFW, efw w/10 instrumentation , EHC, ejection, electrohydraulic, electrohydraulic control, Emerg* w/5 cool*, emergency core cooling, Emergency Diesel Generator w/10 of instrument or instruments or instrumentation or transmitter or detector or switch or temperature or pressure or flow, emergency feedwater,

emergency feedwater w/10 instrumentation , Emergency Lighting, environmental qualification, environmental qualification , EQ, equipment qualification, ES, ESFAS, EX, EX* w/5 instr*, Excore, extraction steam, Extraction Steam w/5 instr*, FATES3B, feedwa* w/10 aux, feedwa* w/10 aux*, feedwater, Feedwater Control System* w/5 instr*, feedwater w/5 break, Feedwater* w/5 instr* , fh, Fire Detection , Fire Protection System, Fire Protection w/10 Indicator, Fire Protection w/10 Switch, first stage pressure, Forcing Functions, fp, FP* w/5 instr*, Fuel Handling System, Fuel Handling w/10 Indicator, Fuel Handling w/10 Instrumentation, Fuel Oil Storage, Fuel Oil Transfer, Fuel Oil w/10 indicator, Fuel Oil w/10 switch, Fuel Pool Cooling w/5 instr*, fuel temperature, fuel w/3 handling, FW w/5 instr*, FWCS, FWCS w/5 instr*, FWLB, Gas Collection Header, Gas Collection w/10 Indicator, gas w/10 radwaste, gas w/10 radwaste w/10 instrument, gas w/3 release, gaseous w/10 radwaste w/10 instrument, gaseous w/10 waste, GCH, GDC-4, gener* w/5 rupture, general design criterion, general design criterion 4, Generator Blowdown* w/5 instr*, generator seal oil, generator trip, generator w/5 gas, gland seal, gland seal system, gland w/5 steam, grab samples, GZ, Halon w/10 Indicator, HD* w/5 instr*, heat load, heat transfer coefficient, heater drain, Heater Drain w/5 instr* , heater vent, heater w/10 drain, Heating w/10 Indicator, HELB, high containment pre*, high pressure turbine, high pressurizer pre*, High* w/10 inject*, hot channel factor, HP w/10 turbine, HPSI, HPSI w/10 response time, HVAC, hydrazine, Hydrogen Recombiner, Hydrogen Supply, hydrogen w/5 cooling, ICC , inade* w/5 core cool*, Incore w/5 instr* , Inject* w/5 instr*, inlet plenum flow, Instrument Air, intermediate pressure, internal* w/5 instr*, iodine w/5 gap, ISLOCA, isophase, isophase bus coolers, KVA, KW, large break, LBLOCA, letdown heat exchanger, liquid w/10 radwaste, liquid w/10 radwaste w/10 instrument, liquid w/10 waste, lith*, load unbalance, LOCA, LOF, long term cooling, loos* w/5 mon*, loss w/5 flow, Low Level Rad Waste Building, Low Level Radwaste, Low Level Radwaste w/10 Ventilation, low pressure turbine, low pressurizer pre*, low steam generator pre*, low steam generator water, Low* w/10 inject*, LP w/10 turbine, LPSI, LPZ, LRW, LTC., lube oil, lube oil, Main Generator, Main Steam, Main Steam* w/5 instr*, main w/10 generator, main w/10 transformer, Makeup Demineralizer, margin w/5 satur*, ME-632 or ME632 or ME 632, Meteorological, missile w/10 turbine, missile*, moderator temperature coefficient, moisture separator, mon* w/5 satur*, MS w/5 instr*, MSAT, MTC, MVA, MVA, MW, N16., Neutralizing, nitrogen, Nitrogen Supply, Nitrogen w/10 Control, operating parameters, outside of containment, P/T, PA w/5 instr*, PASS , pct, peak cladding temperature, Penetration Room Ventilation, plant computer, Plant Heating, plant monitoring, Plant Protection System, PLCS, PMS, pool, Post Accident Sampling, power w/5 uncertain*, PPCS, PPS, pressure temperature w/20curve, pressuri* w/10 level* control*, pressuri* w/10 press* control*, Pressurizer Pressure, pressurizer pressure w/5 high, pressurizer pressure w/5 low, primary w/10 sampling, primary w/10 sampling, Purification w/5 instr*, radial peaking, radial power distribution, Radiation Monitoring., radiation w/25 containment, radiation w/25 'outside containment, ramp change, RBHV* w/5 instr*, RCP w/5 instr*, RCS Cold Leg, RCS Hot Leg, RCS w/10 volume, RCS w/5 instr*, RDACS., Reactor Building, Reactor Building Heating Ventilation w/5 instr*, Reactor Building Purge Air* w/5 instr*, Reactor Cool* w/5 instr*, reactor coolant w/2 temperature, reactor reg*, Reactor Vessel w/5 instr*, Reactor w/10 of instrument or indicator or switch or control, reactor w/10 volume, reactor w/4 coolers, refueling w/3 machine, regen w/3 waste, Regenerative Heat Exchanger, Regenerative w/10 control,

regenerative w/10 waste, regenerative w/5 tank, Regenerative Waste, reheat steam, Reheat Steam* w/5 instr*, Relief Valve w/5 mon*, rem*, residual heat, Resin Transfer , Resin w/10 of instrument or indicator or switch or control, resin w/3 transfer, RH, room coolers, ROPM, RPS, RRS , RS, RS w/5 instr*, run w/5 back, runback, RVLMS, RVMS, RWT, safe* w/5 inject*, safety injection w/10 response time, safety parameter, sample, sample coolers, sample panel, sampling, SBLOCA, SDBCS, SDC, SDC, seal oil, secondary w/10 sample, secondary w/5 uncertain*, seized w/5 rotor, Service Air, service air w/10 after cooler, Service Water, Service Water * w/5 instr*, sfp, SGBD, SGS w/5 instr*, SGTR, short w/5 circuit, Shut* w/10 cool*, Shut* w/5 instr*, Shutdown Cooling, Shutdown w/10 coolant, Shutdown w/10 Cooling, shutdown w/10 letdown, SIAS w/10 response time, SIS, SIT, SLB, Small Break, Sodium Hypoclorite, solid w/10 radwaste, solid w/10 radwaste w/10 instrument, solid w/3 waste, SPDS, spent fuel pool, spent fuel pool w/10 cooling, spent fuel pool w/2 cooling, spent fuel pool w/20 heat removal, spent fuel pool w/3 exchanger, Spent Fuel Storage, spent fuel w/10 cooling, spent fuel w/10 exchanger, spent fuel w/2 cooling, spent fuel w/3 exchanger, spent w/3 resin, spray, stator, stator cooling., steam, steam generator blowdown, Steam Generator Level, steam generator level w/5 low, steam generator pre* w/5 low, Steam Generator Pressure, steam generator w/ 10 activity, steam generator w/10 activity, steam generator w/10 volume, steam path, steam sample, steam sample, steam w/10 temperature, steam w/5 break, steamline break, step change, strain cycling, strain fatigue, surge tanks, SW, SW w/5 instr*, SZ, TBHV. ventilation w/20 cooling, TBV, TBV w/5 instr*, throttle pressure, thyroid, Transient w/10 turbine, Traveling Screen, Traveling Screens, Traveling w/10 Screens, TSAT, Turbine Building, Turbine Building 2w/20 ventilation, Turbine Building Drains, Turbine Building Sump, Turbine Building Sumps, Turbine Building Ventilation, Turbine Building Ventilation* w/5 instr*, turbine lube oil, turbine oil, Turbine Stop Valves, turbine trip, turbine w/5 generator, uncertainty w/20 curve, uncertainty w/20 limit, Vacuum System w/5 instr*, valve w/5 mon*, VCT, vct w/3 level, VENT w/5 instr*, Ventilation* w/5 instr*, vessel w/5 mon*, VLPM, volu w/5 contr, volume control tank, VOPT, VS* w/5 instr*, whole body, withdrawal w/5 subcritical.l, pip*, support*, stress, load*, structur*, qualif*

D. **Is the validity of this Review dependent on any other change?** (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☒ Yes
☐ No

If "Yes," list the required changes.

The validity of this review is dependent upon the issuance by the NRC of an SER approving the ANO-2 application for an increase the licensed power level. The following submittals must be listed in the SER as those upon which the approval is based.

INITIAL NRC SUBMITTAL

1. *12/19/00 (2CAN120001) Application for License Amendment to Increase Authorized Power Level*

SUBMITTED RESPONSES TO NRC REQUESTS FOR ADDITIONAL INFORMATION (RAI)

1. *05/30/01 (2CAN050105) Response to RAI from the Plant Systems Branch Regarding the Power Uprate License*

Application

2. *06/20/01 (2CAN060105)* — *Response to RAI from the Human Performance Branch Regarding the Power Uprate License Application*

3. *06/26/01 (2CAN060107)* — *Power Uprate License Application Response to RAI Regarding ANO-2's Instrument Setpoint Methodology*

4. *06/26/01 (2CAN060108)* — *Response to RAI on the Environmental Impact of the Power Uprate License Application*

5. *06/27/01 (2CAN060109)* — *Error in CEFLASH-4AS Computer Code*

6. *06/28/01 (2CAN060110)* — *PSA Information to Support the ANO-2 License Amendment Request for Power Uprate (partial response)*

7. *07/03/01 (2CAN070103)* — *Radiological Dose Consequence Calculations to Support ANO-2 Power Uprate*

8. *07/24/01 (2CAN070102)* — *ANO-2 Pressure/Temperature Curves*

9. *07/24/01 (2CAN070105)* — *Part 2 of the PSA Information to Support the ANO-2 License Amendment Request for Power Uprate*

10. *08/07/01 (2CAN080101)* — *Response to RAI from the Materials and Chemical Engineering Branch Regarding the Power Uprate License Application*

11. *08/13/01 (2CAN080103)* — *Non-Proprietary Version of Radiological Dose Consequence Calculation to Support ANO-2 Power Uprate*

12. *08/21/01 (0CAN080108)* — *Response to Request for Additional Information Regarding Radiological Dose Assessment Related to the ANO-2 Power Uprate License Application*

13. *08/23/01 (2CAN080104)* — *Response to RAI from the Mechanical & Civil Engineering Branch Regarding the ANO-2 Power Uprate License Application*

14. *08/30/01 (2CAN080108)* — *Response to RAI Regarding Post-Power Uprate Startup Testing*

15. *9/14/01 (2CAN090106)* — *Non-Proprietary Response to RAI from the Mechanical and Civil Engineering Branch Regarding the ANO-2 Power Uprate License Application*

16. *10/1/01 (2CAN100106)* — *Response to RAI on Meteorological Data Regarding the ANO-2 Power Uprate License Application*

17. *10/12/01 (2CAN100107)* — *Response to Second RAI from the Materials and Chemical Engineering and Plant Systems Branches Regarding the ANO-2 Power Uprate License Application*

18. *10/12/01 (2CAN100108)* — *Response to Request for Additional Information on Probabilistic Risk Assessment Regarding the ANO-2 Power Uprate License Application*

19. *10/17/01 (2CAN010110)* — *Response to First RAI from the Reactor Systems Branch Regarding the ANO-2*

Power Uprate License Application

20. *10/30/01 (2CAN100113)* — *Supplemental Information Regarding Main Transformer Cooling for Power Uprate*

21. *10/30/01 (2CAN100115)* — *Supplemental Information Regarding EQ Equipment Related to Power Uprate*

22. *10/31/01 (2CAN100102)* — *Response to Second and Third RAIs from the Reactor Systems Branch and Follow-up Information from Letter 2CAN100110 dated October 17, 2001, Regarding ANO-2 Power Uprate*

23. *11/09/01 (2CAN110104)* — *Response to Follow-up RAI on Mechanical and Civil Engineering Issues Regarding ANO-2 Power Uprate*

24. *11/16/01 (2CAN110107)* — *Response to Follow-up RAI on PSA Regarding the ANO-2 Power Uprate License Application*

25. *11/16/01 (2CAN110108)* — *Response to RAI Concerning Deferral of a Main Transformer Cooling Modification Associated with the ANO-2 Power Uprate License Application*

26. *11/16/01 (2CAN110109)* — *Response to Follow-up RAI Concerning Peak Rod Axial Average Burnup and Codes/Methodologies used to Support ANO-2 Power Uprate*

27. *11/17/01 (2CAN110106)* — *Response to Follow-up RAI on Mechanical and Civil Engineering Issues Regarding the Power Uprate License Application*

28. *12/05/01 (2CAN120103)* — *Response to Third Request for Additional Information on Probabilistic Safety Assessment Regarding the ANO-2 Power Uprate*

29. *12/06/01 (2CAN120105)* — *Response to Fourth Request for Additional Information from the Reactor Systems Branch Regarding the ANO-2 Power Uprate License Application*

30. *12/06/01 (2CAN120106)* — *Corrections to the ANO-2 Power Uprate License Application*

31. *12/10/01 (2CAN120107)* — *Supplemental Information Regarding the Environmental Impact of ANO-2 Power Uprate*

32. *12/20/01 (2CAN120108)* — *Miscellaneous Information in Response to NRC Requests for Additional Information Regarding the ANO-2 Power Uprate License Application*

33. *01/14/02 (2CAN010201))* — *Submittal of Tracer Gas Test Results and Action Plan for ANO-2 Control Room Habitability for Power Uprate*

34. *01/15/02 (2CAN010204)* — *Failed Fuel Percentage for Shaft Seizure Accident and Corrections to Environmental Information Regarding ANO-2 Power Uprate*

35. *01/31/02 (2CAN010205)* — *Response to Follow-up Request for Additional Information Concerning SGTR and MHA Calculations Supporting ANO-2 Power Uprate*

36. *02/07/02 (2CAN020203)* — *Response to Request for Additional Information on Vessel Head Penetration Nozzles Regarding the ANO-2 Power Uprate License Application*

37. 02/07/02 (2CAN020204) *Comments Regarding the Draft NRC Safety Evaluation for the Proposed ANO-2 Power Uprate*

38. 03/01/02 (2CAN030203) *Follow-up Questions Resulting from the ACRS Subcommittee's Review of ANO-2's Proposed Power Uprate*

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☒	☐	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☒	☐	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A, above.

A. **Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.**

☐ The proposed activity meets all of the following criteria regarding design function per Section 5.5.1.1:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.5.1.2. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☒ The NRC has approved the proposed activity or portions thereof per Section 5.5.1.3. Reference: Not yet issued. See section II.D

B. Basis

(Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions. See Section 5.5.6 of the EOI 10CFR50.59 Review Program Guidelines for guidance.)

See section II.D and the attached list of SAR changes that were submitted to support the approval.

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Reason for proposed Change:

50.59 Evaluation summary and conclusions

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

SAR Table 5.1-2

The specific calculated volume of the reactor vessel or RCS is unrelated to any accident precursor. Consequently, these changes have no impact on the frequency of occurrence of any previously evaluated accident

SAR Figures 6.2-30, 6.2-33 and 6.2-34

These changes reflect changes to accident input and results only. The changes simply show the theoretical response of the plant to an accident should one occur, but have no effect on the frequency of the event. No changes to the design or function of any structure, system or component are being made by this analytical information and thus the frequency of occurrence of an accident previously evaluated in the FSAR is not impacted.

SAR section 9.1.3 and Table 9.1-6

The proposed change only increases the maximum theoretical decay heat load to the spent fuel pool and adequate cooling capability has been demonstrated. A physical change to the spent fuel pool is not part of this change and the function of the spent fuel pool will not be altered. These changes have no impact on the frequency of occurrence of any previously evaluated accident.

SAR Section 9.3.4.2.4

The lithium production rate within the RCS is not part of any accident initiator scenario. Also, the plant operating chemistry controls/limits are not changed as a result of the increased lithium production rate. Consequently, the SAR change will have no impact on the frequency of occurrence of any previously evaluated accident.

SAR section 9.3.4.4

Neither the input assumptions to the revised cooldown without letdown analysis, nor the new BAMT limits resulting from the analysis are related to any precursors to an accident previously evaluated in the SAR. The RWT operating limits, expressed now only as level limits, similarly are unrelated to any accident precursor. Consequently, these changes have no impact on the frequency of occurrence of any previously evaluated accident.

SAR section 10.4.9.3

The nominal heat removal capacity of the EFW system is unrelated to any accident precursor. Consequently, these changes have no impact on the frequency of occurrence of any previously evaluated accident.

SAR 15.1.0.4.1

The deletion of Figure 15.1.0-5 (CPC Penalty vs Effective RTD Time Constant), references to the figure and references to exceeding the 8.0 second time constant concerns applying CPCS

penalties when the 8.0 second time constant is exceeded. This change will no longer allow exceeding the 8.0 second time constant. This time constant is not an accident initiator, therefore, the frequency of occurrence of an accident will not change.

SAR 15.1.23
Section 15.1.23 is being revised to delete reference to the VSC-24 dose assessment. The VSC-24 is regulated by 10 CFR72 and is discussed and evaluated in the FSAR issued under 10CFR72.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:
SAR Table 5.1-2
The change to the calculated reactor vessel volume does not create any change in plant operating conditions. Since the plant operation has not been affected, these changes do not affect the probability of occurrence of any equipment malfunction previously evaluated.

SAR Figures 6.2-30, 6.2-33 and 6.2-34
As stated above, these changes reflect changes to accident input and results only. No changes to the design, operation or maintenance of any structure, system or component (SSC) are being made by this information and thus the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR is not affected.

SAR section 9.1.3 and Table 9.1-6
The only change is an increase in the maximum theoretical decay heat load for the spent fuel pool which does not result in more than a minimal change to the criticality evaluation for new and spent fuel located within the spent fuel pool. The impact to the spent fuel pool cooling design basis evaluation is minimal and adequate cooling capacity has been demonstrated to be within design limits.

SAR Section 9.3.4.2.4
Equipment operation and chemistry environments will not be changed or adversely impacted by the proposed SAR change or slight increase in the production rate of lithium within the RCS. Since the plant operation has not been affected, these changes do not affect the probability of occurrence of any equipment malfunction previously evaluated

SAR section 9.3.4.4
Nothing in the revised cooldown without letdown analysis or in any of the revised BAMT or RWT operating limits results in any significant change in plant operation. The RWT limits are unchanged and the BAMT limits are a restriction of the previous limits; i.e., no new BAMT operating conditions have been created. Since the plant operation has not been affected, these changes do not affect the probability of occurrence of any equipment malfunction previously evaluated.

SAR section 10.4.9.3
These changes do not physically affect the plant. The change in the EFW nominal heat removal capacity relative to reactor rated power does not create any change in plant operating conditions. Since the plant operation has not been affected, these changes do not affect the probability of

occurrence of any equipment malfunction previously evaluated.

SAR 15.1.0.4.1
The changes made relating to the RTD time constant will no longer allow exceeding the 8.0-second time constant. This change does not affect the probability of a component failure to occur, therefore, does not increase the likelihood of an event. The change assures that the unit is operated within the assumptions used in the analyses.

SAR 15.1.23
Section 15.1.23 is being revised to delete reference to the VSC-24 dose assessment. The VSC-24 is regulated by 10 CFR72 and is discussed and evaluated in the FSAR issued under 10CFR72.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:
SAR Table 5.1-2
The change is less than 1% of the vessel volume and about one third of 1% of the total RCS volume which has no significant impact on transient analyses and will not affect any dose consequences. Note that this change is much smaller than the recent changes associated with the plugging and replacement of the old steam generators. These changes have no impact on the consequences of any previously evaluated accident.

SAR Figures 6.2-30, 6.2-33 and 6.2-34
By letter dated 12/19/2000, ANO-2 submitted the results of revised ECCS performance analyses to the NRC in support of a license amendment request to uprate the power level of the unit. Although the specific information being revised by these FSAR changes was not explicitly reviewed and approved by the NRC, it was created as an integral step in performing the ECCS performance analyses in accordance with the 1999 evaluation model (EM). The NRC has reviewed and approved that model as well as the ANO-specific analyses utilizing that model (to be confirmed upon receipt of the ANO-2 power uprate SER). Thus, the ultimate, "downstream" impact (consequences) of the changes being made here have been reviewed and approved by the NRC and these changes do not impact the consequences of an accident previously evaluated in the FSAR.

SAR section 9.1.3 and Table 9.1-6
The increase in the maximum theoretical decay heat load within the spent fuel pool does not result in more than a minimal increase the consequences of accidents previously evaluated in the SAR. The accidents associated with the spent fuel pool within this 50.59 evaluation scope are limited to the increase in the decay heat within the spent fuel pool and the impact of this increase on the accidents presented in Chapter 15 of the SAR. The only accident impacted by this increase is the Fuel Handling Accident which has been evaluated and submitted to the NRC for approval for power uprate.

SAR Section 9.3.4.2.4
The increase in the production rate of lithium does not have an adverse impact on the potential radiological consequences of an accident. The production rate of lithium is a concern during normal operations only and is not a factor under accident conditions. Therefore, this change has no impact on the consequences of any previously evaluated accident.

SAR section 9.3.4.4
Although not an evaluated accident, the cooldown without letdown analysis demonstrates that the required shutdown margin can be achieved anytime during core life. The revised analysis demonstrates that, with the new BAMT concentration and volume limits, this conclusion remains true for the power uprate fuel cycles. These changes have no impact on the consequences of any previously evaluated accident.

SAR section 10.4.9.3
These changes only affect the evaluation of the EFW system to support normal cooldown, which is not part of the accident analyses and has no definable consequences. Nevertheless, the proposed changes do not affect the conclusion that the EFW system can support a normal cooldown. The accident analyses for power uprate have shown the design basis minimum flow is acceptable (addressed by other 50.59 evaluations). These changes have no impact on the consequences of any previously evaluated accident.

SAR 15.1.0.4.1
The changes made relating to the RTD time constant will no longer allow exceeding the 8.0-second time constant. The change assures that the unit is operated within the assumptions used in the analyses. By not exceeding the time constant, and thus analyses assumptions, there will be no increase in the consequences of Chapter 15 events.

SAR 15.1.23
Section 15.1.23 is being revised to delete reference to the VSC-24 dose assessment. The VSC-24 is regulated by 10 CFR72 and is discussed and evaluated in the FSAR issued under 10CFR72.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:
SAR Table 5.1-2
The specific calculated value for the reactor vessel volume is not related to any equipment malfunction with radiological consequences. No new equipment operating conditions are created by the change in vessel volume. Consequently, there is no impact on the consequences of any equipment malfunction previously evaluated in the SAR.

SAR Figures 6.2-30, 6.2-33 and 6.2-34
As stated in response to question 3, the changes provide information that was developed as an integral step in performance of the ECCS performance analyses to support ANO-2 power uprate. Also integral to the analyses are assumptions with respect to malfunctions of SSCs important to safety. The results of the analyses have been provided to the NRC for review and approval and thus with NRC approval of the analyses, these changes will not represent <u>any</u> increase to the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR.

SAR section 9.1.3 and Table 9.1-6
The increase in the maximum theoretical decay heat load within the spent fuel pool does not have an adverse impact on the potential radiological consequences of equipment or structural

malfunctions. The failure modes remain unchanged from previous analyses. Consequently, there is no impact on the consequences of any equipment malfunction previously evaluated in the SAR.

SAR Section 9.3.4.2.4
The increase in the production rate of lithium does not have an adverse impact on the potential radiological consequences of equipment or structural malfunctions. The failure modes remain unchanged from previous analyses. Consequently, there is no impact on the consequences of any equipment malfunction previously evaluated in the SAR.

SAR section 9.3.4.4 and TRM sections 3.1.2.7
There are no equipment malfunctions with radiological consequences associated with the cooldown without letdown analysis. The revised BAMT concentrations and volumes, and the RWT level limits, which remain unchanged, are not related to any equipment malfunction with radiological consequences. No new equipment operating conditions are created. Consequently, there is no impact on the consequences of any equipment malfunction previously evaluated in the SAR.

SAR section 10.4.9.3
The EFW system heat removal capacity based on nominal rated flow is not related to any equipment malfunction with radiological consequences. No new equipment operating conditions are created by the relative change in nominal heat removal capacity. Consequently, there is no impact on the consequences of any equipment malfunction previously evaluated in the SAR.

SAR 15.1.0.4.1
The changes made relating to the RTD time constant will no longer allow exceeding the 8.0-second time constant. The change assures that the unit is operated within the assumptions used in the analyses. By not exceeding the time constant, and thus analyses assumptions, there will be no increase in the consequences of a malfunction of a structure, system or component.

SAR 15.1.23
Section 15.1.23 is being revised to delete reference to the VSC-24 dose assessment. The VSC-24 is regulated by 10 CFR72 and is discussed and evaluated in the FSAR issued under 10CFR72.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:
SAR Table 5.1-2
The reduced volume of the reactor vessel and RCS does not create any new operating configurations nor will it affect the predicted behavior of the plant in any manner. Since the plant operation has not changed from that previously allowed, the possibility of an accident of a different type is not created.

SAR Figures 6.2-30, 6.2-33 and 6.2-34
These changes represent "paper" changes only. There are no physical changes to plant design, operation or function being made and thus no possibility of an accident of a different type than any previously evaluated in the FSAR.

SAR section 9.1.3 and Table 9.1-6
Equipment operation and chemistry environments will not be changed or adversely impacted by the proposed SAR change or slight increase in the maximum theoretical decay heat load within the spent fuel pool. Since the plant operation has not changed from that previously allowed, the possibility of an accident of a different type is not created.

SAR Section 9.3.4.2.4
Equipment operation and chemistry environments will not be changed or adversely impacted by the proposed SAR change or slight increase in the production rate of lithium within the RCS. Since the plant operation has not changed from that previously allowed, the possibility of an accident of a different type is not created.

SAR section 9.3.4.4 and TRM sections 3.1.2.7
The changes to the cooldown without letdown analyses result in no changes to plant operation. The changes to the BAMT operating limits narrow the current range of operating conditions without creating any new operating configurations. The RWT limits are unchanged. Since the plant operation has not changed from that previously allowed, the possibility of an accident of a different type is not created.

SAR section 10.4.9.3
The change in EFW system relative heat removal capacity based on nominal rated flow does not create any new operating configurations nor will it affect the predicted behavior of the plant in any manner. Since the plant operation has not changed from that previously allowed, the possibility of an accident of a different type is not created.

SAR 15.1.0.4.1
By eliminating allowing the time constant to be exceeded by adding CPC penalties, the Chapter 15 accident analysis assumptions are assured and the possibility of incorrectly applying the penalties is eliminated. This reduces the possibility of an accident.

SAR 15.1.23
Section 15.1.23 is being revised to delete reference to the VSC-24 dose assessment. The VSC-24 is regulated by 10 CFR72 and is discussed and evaluated in the FSAR issued under 10CFR72.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

SAR Table 5.1-2
No new equipment operating conditions or configurations are created by the small change to the reactor vessel calculated volume. The change will not affect the predicted behavior of the plant equipment. Since no new equipment operating configurations exist, the possibility of an equipment malfunction with a different result is not created.

SAR Figures 6.2-30, 6.2-33 and 6.2-34
No physical changes to the design, operation, or maintenance of any SSC is being made by this change. Therefore, the types and failure modes of SSCs previously evaluated in the FSAR are not affected and the possibility for a malfunction of a SSC important to safety with a different result

than any previously evaluated in the FSAR is not created.

SAR section 9.1.3 and Table 9.1-6
The increase in the maximum theoretical decay heat load within the spent fuel pool will not cause plant equipment to be operated in a different manner than previously identified. Since no new equipment operating configurations exist, the possibility of an equipment malfunction with a different result is not created

SAR Section 9.3.4.2.4
The increase in the production rate of lithium will not cause plant equipment to be operated in a different manner than previously identified. Since no new equipment operating configurations exist, the possibility of an equipment malfunction with a different result is not created.

SAR section 9.3.4.4 and TRM sections 3.1.2.7
No new equipment operating conditions or configurations are created by the changes to the cooldown without letdown analysis. The RWT level limits are unchanged. The allowable combinations of BAMT concentration and level are less broad but not different from those previously allowed. Since no new equipment operating configurations exist, the possibility of an equipment malfunction with a different result is not created.

SAR section 10.4.9.3
No new equipment operating conditions or configurations are created by the small change to the EFW system heat removal capacity based on nominal rated flow. The change will not affect the predicted behavior of the plant equipment. Since no new equipment operating configurations exist, the possibility of an equipment malfunction with a different result is not created.

SAR 15.1.0.4.1
By eliminating allowing the time constant to be exceeded by adding CPC penalties, the Chapter 15 accident analysis assumptions are assured and the possibility of incorrectly applying the penalties is eliminated. This reduces the possibility of an accident. It also assures that analysis assumptions, thus the results of the Chapter 15 analyses will not be affected.

SAR 15.1.23
Section 15.1.23 is being revised to delete reference to the VSC-24 dose assessment. The VSC-24 is regulated by 10 CFR72 and is discussed and evaluated in the FSAR issued under 10CFR72.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:
SAR Table 5.1-2
The new ECCS performance analyses for the power uprate fuel cycles demonstrate that the revised value of RCS volume produces acceptable results with respect to the fuel cladding fission product barrier. And, since no new or different operating configurations are established, this change can have no effect on any fission product barrier.

SAR Figures 6.2-30, 6.2-33 and 6.2-34
The changes being made here do not themselves represent a design basis limit for any fission

product barrier. The information was created as an integral part of the ECCS performance analyses and thus the results are utilized subsequently in the overall analyses, the intent of which are to ensure that design basis limits for fission product barriers are not exceeded. The final results of the ECCS performance analyses were submitted to the NRC for review and approval as part of the license amendment request for power uprate. With NRC approval of the revised ECCS performance analyses, these changes will be consistent with the new "analyses of record," i.e., will not result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered.

SAR section 9.1.3 and Table 9.1-6
The existing chemistry controls and physical arrangement of the spent fuel will maintain the spent fuel pool cooling and reactivity parameters within previously established limits. Since the existing chemistry controls and physical arrangement of the spent fuel remain unaffected, and no new or different operating configurations are established, these changes can have no effect on any fission product barrier.

SAR Section 9.3.4.2.4
The existing chemistry controls will maintain the RCS parameters within previously established limits and will compensate for the slight increase in the production rate of lithium. Since the RCS chemistry controls remain unaffected, and no new or different operating configurations are established, these changes can have no effect on any fission product barrier.

SAR section 9.3.4.4 and TRM sections 3.1.2.7
The basic conclusions of the cooldown without letdown analysis remain unchanged from the previous analysis. The revised analysis for the power uprate fuel cycles demonstrates that the new limits on BAMT concentration and volume will assure the required shutdown margin can be achieved anytime in core life. Since the ability to achieve the required shutdown margin is unaffected, and no new or different operating configurations are established, these changes can have no effect on any fission product barrier.

SAR section 10.4.9.3
The EFW system heat removal capacity based on nominal rated flow is not related to the design basis limits for any fission product barrier. And, since no new or different operating configurations are established, this change can have no effect on any fission product barrier.

SAR 15.1.0.4.1
By eliminating allowing the time constant to be exceeded by adding CPC penalties, the Chapter 15 accident analysis assumptions are assured and the possibility of incorrectly applying the penalties is eliminated. This reduces the possibility of an accident and the consequences of an accident. This change does not alter the affect of an accident with respect to a fission product barrier.

SAR 15.1.23
Section 15.1.23 is being revised to delete reference to the VSC-24 dose assessment. The VSC-24 is regulated by 10 CFR72 and is discussed and evaluated in the FSAR issued under 10CFR72.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

SAR Table 5.1-2
The slight reduction in reactor vessel volume represents a minor change to an analysis parameter but does not change any analysis methodology. No evaluation methodology described in the SAR is affected by this minor change.

SAR Figures 6.2-30, 6.2-33 and 6.2-34
These changes were created during performance of the ECCS performance analyses for ANO-2 power uprate in accordance with the 1999 evaluation model (EM). The NRC has reviewed and approved that model as well as the ANO-specific analyses utilizing that model (to be confirmed upon receipt of the ANO-2 power uprate SER). Therefore, these changes will not result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses.

SAR section 9.1.3 and Table 9.1-6
The slight increase in the maximum theoretical decay heat load within the spent fuel pool does not involve a methodology change used in the SAR to establish design bases or perform safety analyses. The current design bases methodologies described in the SAR associated with the maximum theoretical heat load within the spent fuel pool will remain unaffected for power uprate conditions.

SAR Section 9.3.4.2.4
The slight increase in the production rate of lithium does not involve a methodology change used in the SAR to establish design bases or perform safety analyses. The current design bases and accident initiator/consequences methodologies remain unaffected.

SAR section 9.3.4.4 and TRM sections 3.1.2.7
The methodology used in the revised analysis of the cooldown without letdown transient is consistent with the previous analysis methodology. The use of more conservative input assumptions and the application of additional conservatisms in the conversion of BAMT volume requirements to level limits are consistent with the existing methodology.

SAR section 10.4.9.3
The EFW system heat removal capacity based on nominal rated flow is not related to any design bases and is not used in any accident anaysis. No evaluation methodology described in the SAR is affected by this minor change.

SAR 15.1.0.4.1
A different method of evaluation was not used for any of the Chapter 15 events that are affected by the elimination of the CPC penalties on exceeding the RTD time constant. Not allowing the time constant to be exceeded is more conservative in that it assures that the safety analysis assumptions remain valid.

SAR 15.1.23
Section 15.1.23 is being revised to delete reference to the VSC-24 dose assessment. The VSC-24 is regulated by 10 CFR72 and is discussed and evaluated in the FSAR issued under 10CFR72.

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LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
U2 SAR	1.1	BOP	2CAN120001 pg1	3026MWt
			2CAN120001 PULR pg1-1	1023MWe
U2 SAR	1.2.2.1.1	BOP	2CAN120001 pg1	3026MWt
			5.2.2.1	
U2 SAR	1.5.2	NED	5.2.2.1	
U2 SAR	2.4.11.5	BOP	5.2.2.2.a	SW+CW flows
U2 SAR	3.1.6	NED	2CAN120107 pg 20	SFP dose time 100 hrs
U2 SAR	3.6.4.2.5.1	BOP	5.2.2.1	
U2 SAR	3.6.4.2.5.2	Pipe / Civil	5.2.2.2.e	deleted no Q electrical
			5.2.2.2.a	loss of channel effect/ break effect
U2 SAR	3.8.4.1.1	NSSS	5.2.2.2.a	cause of 212F
U2 SAR	3.9.2.5	BOP	5.2.2.2.d	pressure drop consideration
			5.2.2.1	
U2 SAR	4.2.1.1.1.2	NED	2CAN120001 PULR pg10-6	peak rob average
U2 SAR	4.2.1.1.4	NED	5.2.2.1	
U2 SAR	4.2.1.2.3	NED	2CAN120001 PULR pg8-1	0.6% rod bow @ 33k
U2 SAR	4.2.1.3.12	NED	5.2.2.2.a	LOCA consideration
U2 SAR	4.2.1.3.13	NED	2CAN120001 PULR pg8-8	EOL maximum pressure
U2 SAR	4.3.2.2.3	NED	5.2.2.2.a	LOCA consideration
U2 SAR	4.4.2.1	NED	5.2.2.1	add ref
U2 SAR	4.4.2.3.1	NED	5.2.2.2.a	CE-1 > W-3
U2 SAR	4.4.2.3.4	NED	5.2.2.1	renumbering
			2CAN120001 PULR pg8-3	heat flux
			2CAN120001 PULR pg8-3	enthapy rise factor
			2CAN120001 PULR pg8-3	rod pich/bow/diam factor
U2 SAR	4.4.2.7.3	NED	5.2.2.1	
U2 SAR	4.4.2.10.2	NED	2CAN120001 PULR pg8-1	0.6% rod bow @ 33k
U2 SAR	4.4.3.1.1	NED	5.2.2.1	
U2 SAR	4.4.3.4.1	NED	5.2.2.1	renumbering
U2 SAR	4.4.3.6.B	NED	5.2.2.2.a	fuel rod pressure
			2CAN120001 PULR pg8-8	fuel rod pressure < NCLO
U2 SAR	4.5.2.3	NED	2CAN120001 pg11	MTC
U2 SAR	4.5.3.5	NED	2CAN120001 pg11	MTC
U2 SAR	5.1	BOP	2CAN120001 PULR pg3-2	T_{cold}
U2 SAR	5.2.1.1	BOP	2CAN120001 pg1	3026MWt
U2 SAR	5.2.2	BOP	5.2.2.2.d	DSS
			2CAN120001 pg1	PUR
U2 SAR	5.2.2.2	Pipe / Civil	5.2.2.1	safety valves discharge
U2 SAR	5.2.2.3	BOP	2CAN120001 PULR pg5-28	Report on Overpressure Protection
U2 SAR	5.2.2.3.1	BOP	2CAN120001 PULR pg5-28	Report on Overpressure Protection
U2 SAR	5.2.2.3.2.2.1	BOP	5.2.2.1	

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U2 SAR	5.2.2.3.2.2.2	BOP	5.2.2.1	
U2 SAR	5.2.8.8	NSSS	5.2.2.2.a	loose parts monitoring easy interface
			5.2.2.2.a	loose parts computer interface
U2 SAR	5.5.13.1	BOP	5.2.2.2.a	RCS relief @ design pressure
U2 SAR	6.2.1.1.3	NED	5.2.2.1	ref number
U2 SAR	6.2.1.1.3.4.1	NED	5.2.2.1	add Lg. Break LOCA
U2 SAR	6.2.1.1.3.4.2	NED	2CAN120001 Att 1 pg4	changed ref
U2 SAR	6.2.1.1.3.4.3	NED	5.2.2.1	add Lg. Break LOCA
U2 SAR	6.2.1.1.3.4.4	NED	2CAN120001 PULR pg7-3	0.4 DEG/PD limiting
U2 SAR	6.2.1.1.3.4.7	NED	2CAN120001 PULR pg7-14	Flow Rate & Temperature
U2 SAR	6.2.1.1.3.4.9	NED	5.2.2.1	
U2 SAR	6.2.1.1.3.4.11	NED	2CAN120001 PULR pg7-3	0.4 DEG/PD limiting
			5.2.2.1	
U2 SAR	6.2.2.2.1.B.4	NSSS	2CAN120001 pg10	384,000gal min
			5.2.2.1 (typo)	505,000gal max
U2 SAR	6.2.3.3.1.1	NED	2CAN120001 PULR pg7-132	iodine spray removal
U2 SAR	6.3.2.2.1	NSSS	2CAN120001 pg10	384,000gal min
U2 SAR	6.3.3.1	NED	5.2.2.1	changed doc refed
U2 SAR	6.3.3.2	NED	5.2.2.1	added SBLOCA
U2 SAR	6.3.3.2.1	NED	2CAN120001 PULR pg7-4	Cladding Temperature
			2CAN120001 PULR pg7-8	cladding oxidation / hydrogen generation
			5.2.2.1	changed doc refed
U2 SAR	6.3.3.2.2.1	NED	2CAN120001 PULR pg7-2	LBLOCA ECCS analysis
U2 SAR	6.3.3.2.2.2	NED	5.2.2.1	
			2CAN120001 PULR pg7-3	LBLOCA ECCS cases
U2 SAR	6.3.3.2.2.3	NED	2CAN120001 PULR pg7-3	initial fuel rod conditions
			2CAN120001 PULR pg8-8	UO_2 and erbia fuel rods
U2 SAR	6.3.3.2.2.5	NED	2CAN120001 PULR pg7-3	5 study cases
			5.2.2.1	
U2 SAR	6.3.3.2.2.6	NED	5.2.2.1	
			2CAN120001 PULR pg7-3	limiting case
U2 SAR	6.3.3.2.2.7	NED	2CAN120001 PULR pg7-3	Subsequent Analyses removed
U2 SAR	6.3.3.2.3.1	NED	2CAN120001 PULR pg7-5	SBLOCA ECCS analysis
U2 SAR	6.3.3.2.3.2	NED	5.2.2.1	
			2CAN120001 PULR pg7-5	LPSI pumps / SITs
U2 SAR	6.3.3.2.3.3	NED	5.2.2.2.e	core and system parameters
			2CAN120001 PULR pg8-8	UO_2 and erbia fuel rods
U2 SAR	6.3.3.2.3.5	NED	2CAN120001 PULR pg7-5	SBLOCA ECCS cases
			5.2.2.1	

LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
U2 SAR	6.3.3.2.3.6	NED	5.2.2.1	
U2 SAR	6.3.3.2.3.7	NED	2CAN120001 PULR pg7-5	Subsequent Analyses removed
U2 SAR	6.3.3.15	NED	5.2.2.1	
			2CAN120001 PULR pg7-6	boric acid precipitation analysis
			2CAN120001 PULR pg7-7	boric acid concentration / analysis results
U2 SAR	6.6	NED	5.2.2.1	add ref
U2 SAR	7.2.1.1.2.4	NED	5.2.2.1	increases number of cases
U2 SAR	7.3.1.2.C.9.a	I&C	5.2.2.1	added description
			5.2.2.2.e	ESFAS response times
U2 SAR	8.3.1.1.1	Elec	2CAN120001 PULR pg2-6	Main Generator Output, MVA
			5.2.2.1	X"d
U2 SAR	8.3.1.1.13.D	Elec	5.2.2.1	chaged ref
			5.2.2.2.a	all motors runing / molded case
U2 SAR	9.1.2.2	NED	2CAN120107 pg 20	SFP dose time 100 hrs
			5.2.2.2.a	SFP suraface rate
U2 SAR	9.1.3.1	NED	5.2.2.1	
U2 SAR	9.1.3.2	NED	5.2.2.1	
U2 SAR	9.2.1.1	BOP	5.2.2.1	
U2 SAR	9.2.2.1	BOP	5.2.2.1	
U2 SAR	9.3.4.2.4	NED	5.2.2.2.a	production rate of lithium
U2 SAR	9.3.4.3	NSSS	5.2.2.1	made historical
U2 SAR	9.3.4.4.1	NED		RCS shrinkage
			2CAN120001 Attachment 4	BAMT concentration
			2CAN120001 Attachment 4	BAMT volume
U2 SAR	9.3.6.3	NED	5.2.2.2.a	containment entry
U2 SAR	9.4.1.1.2	NED	2CAN010205 pg 2	Control room air inleakage to 61 cfm
U2 SAR	10.2.1	I&C	2CAN120001 PULR pg2-13	removed SDBS claim
U2 SAR	10.2.1	BOP	2CAN120001 pg1	3026MWt
			5.2.2.1	
U2 SAR	10.2.2	BOP	2CAN120001 PULR pg2-14	Turbine gland flow rates
U2 SAR	10.2.2	Elec	2CAN120001 PULR pg2-5	Main Generator Output
U2 SAR	10.3.2.1	BOP	5.2.2.2.a	critical pipe segments
			5.2.2.1	
U2 SAR	10.3.3	BOP	2CAN120001 PULR pg2-16	SDBS at 49%
U2 SAR	10.4.1.3	BOP	5.2.2.1	condenser load rejection 27%
U2 SAR	10.4.3.1	BOP	5.2.2.2.a	Turbine gland flow rates
U2 SAR	10.4.4	BOP	5.2.2.1	add system discription
U2 SAR	10.4.4.1	BOP	5.2.2.1	add SDBS operational objectives

LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
			2CAN120001 PULR pg2-16	SDBS at 49%
			5.2.2.1	
U2 SAR	10.4.4.2	BOP	2CAN120001 PULR pg2-16	SDBS at 49%
U2 SAR	10.4.7.1	BOP	5.2.2.2.a	delete 80% power / LIR Number L01-0007
			5.2.2.2.a	Section VIII
U2 SAR	10.4.7.2	BOP	2CAN120001 PULR pg2-20	delete % capacity / LIR Number L01-0007
			5.2.2.1	
			5.2.2.1	add full power description
			5.2.2.1	pump out of service description
U2 SAR	10.4.7.3	BOP	5.2.2.2.a	delete 80% power / LIR Number L01-0007
U2 SAR	10.4.8.1	BOP	5.2.2.2.a	SGBD flow rates
U2 SAR	10.4.8.2.2	BOP	5.2.2.2.a	SGBD flow rates
U2 SAR	10.4.9.2.1	BOP	5.2.2.1	AFW supply 4% rx power
U2 SAR	10.4.9.3	NED		2.74% full power
				decay energy generation time
U2 SAR	12.1.2.7	NED	2CAN120001 PULR pg7-151	delete TID-14844
U2 SAR	14.1.6	Testing	2CAN120001 PULR pg9-9	general RSG and PUR testing overview
			2CAN120001 PULR pg9-9	specific RSG and PUR testing description
U2 SAR	15.1.0.4.1	NED	2CAN120001 PULR pg7-159	cold leg effective time constant
			5.2.2.1	figure number
U2 SAR	15.1.0.5.1	NED	5.2.2.1	added cycle 1 note
U2 SAR	15.1.0.5.2	NED	5.2.2.1	changed table tumber
U2 SAR	15.1.0.5.5	NED	5.2.2.1	added details about SGTR event
U2 SAR	15.1.0.6.11	NED	2CAN120001 PULR pg7-132, 151	added ARCON96
U2 SAR	15.1.0.6.12	NED	2CAN120001 PULR pg8-13	added ORIGEN2
U2 SAR	15.1.1.4.3	NED	2CAN120001 PULR pg7-110	Cyc 16 CEA Withdrawal Subcritical
U2 SAR	15.1.2.4.1.2	NED	2CAN120001 PULR pg7-114	Cyc 16 CEA Withdrawal Hot Zero Power
			2CAN120001 PULR pg7-115	Cyc 16 CEA Withdrawal HZP results
U2 SAR	15.1.2.4.2.4	NED	2CAN120001 PULR pg7-113	Cyc 16 CEA Withdrawal Full Power
			2CAN120001 PULR pg7-114	Cyc 16 CEA Withdrawal Full Power results
U2 SAR	15.1.3.1	NED	5.2.2.1	reworded
U2 SAR	15.1.3.2	NED	5.2.2.1	insert title
U2 SAR	15.1.3.2	NED	5.2.2.1	title changes for all sections

LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
U2 SAR	15.1.3.2.2	NED	5.2.2.1	table number
U2 SAR	15.1.3.3	NED	2CAN120001 PULR pg7-115	delete Cyc 1 as bounding
U2 SAR	15.1.3.4	NED	2CAN120001 PULR pg7-115	Subsequent Analysis CEA Misoperation
U2 SAR	15.1.4.2.1	NED	5.2.2.1	added 2 analized modes
			2CAN120001 PULR pg7-119	uncontrolled boron dilution 138gpm
			2CAN120001 PULR pg7-121	UBDI refueling
			2CAN120001 PULR pg7-122	UBDI other times
			2CAN120001 PULR pg7-120	initial boron concentration
U2 SAR	15.1.4.2.2	NED	2CAN120001 PULR pg7-119	uncontrolled boron dilution 138gpm
U2 SAR	15.1.4.2.3.1	NED	2CAN120001 PULR pg7-119	uncontrolled boron dilution 138gpm
			2CAN120001 PULR pg7-122	withdrawn CEAs bounding
U2 SAR	15.1.4.2.3.2	NED	5.2.2.1	
			2CAN120001 PULR pg7-121	indication of the UBDI
			2CAN120001 PULR pg7-122	UBDI RCS Partially Drained
U2 SAR	15.1.4.2.4	NED	5.2.2.1	wording
			2CAN120001 PULR pg7-122	UBDI Hot Shutdown
U2 SAR	15.1.4.2.5	NED	2CAN120001 PULR pg7-121	Hot Standby conditions assumed
			2CAN120001 PULR pg7-122	UBDI Hot Standby
U2 SAR	15.1.4.2.6	NED	2CAN120001 PULR pg7-122	UBDI Critical Operation
U2 SAR	15.1.4.4	NED	5.2.2.2.d	SG plugging
U2 SAR	15.1.5.2.3.7	NED	2CAN120001 PULR pg7-123	elec failure LOF description
			2CAN120001 PULR pg7-125	elec failure LOF analysis
			2CAN120001 PULR pg7-126	elec failure LOF results
U2 SAR	15.1.5.2.3.8	NED	2CAN120001 PULR pg7-128	Seized Rotor LOF analysis
			2CAN120001 PULR pg7-130	Seized Rotor LOF results
U2 SAR	15.1.13.1	NED	5.2.2.1	change ref
U2 SAR	15.1.13.4.1	NED	2CAN120001 PULR pg7-181	2060cc/hr Leakage Rate
			2CAN120001 PULR pg7-151	control room dilution factors
U2 SAR	15.1.14.1.4.7	NED	2CAN120001 PULR pg7-134	future HZP analysis
U2 SAR	15.1.14.2.4.4	NED	2CAN120001 PULR pg7-136	cyc 16 Feedwater Line Break
U2 SAR	15.1.15.2.2	NED	2CAN120001 PULR pg7-140	fuel misloading
U2 SAR	15.1.15.2.3	NED	2CAN120001 PULR pg7-140	fuel misloading
U2 SAR	15.1.18.4.3	NED	2CAN120001 PULR pg7-141	SGTR w/ LOAC Assumptions
U2 SAR	15.1.18.4.3.A	NED	2CAN120001 PULR pg7-145	RSG
U2 SAR	15.1.18.4.3.B	NED	2CAN120001 PULR pg7-145	initial RCS flow
U2 SAR	15.1.18.4.3.C	NED	2CAN120001 PULR pg7-145	Core power
U2 SAR	15.1.18.4.3.D	NED	2CAN120001 PULR pg7-145	EFW Actuation Signal setpoint
U2 SAR	15.1.18.4.3.E	NED	2CAN120001 PULR pg7-145	steam generator pressure

LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
U2 SAR	15.1.18.4.3.F	NED	2CAN120001 PULR pg7-145	SIAS
U2 SAR	15.1.18.4.3.G	NED	2CAN120001 PULR pg7-144	time zero events
U2 SAR	15.1.18.4.3.H	NED	2CAN120001 PULR pg7-144	CPCS trip setpoint
U2 SAR	15.1.18.4.3.I	NED	2CAN120001 PULR pg7-144	MTC
U2 SAR	15.1.18.4.3.J	NED	2CAN120001 PULR pg7-144	EOC Doppler
U2 SAR	15.1.18.4.3.K	NED	2CAN120001 PULR pg7-144	BOC delayed
U2 SAR	15.1.18.4.3.L	NED	2CAN120001 PULR pg7-144	CEA insertion
U2 SAR	15.1.18.4.3.M	NED	2CAN120001 PULR pg7-144	core inlet temperature
U2 SAR	15.1.18.4.3.N	NED	2CAN120001 PULR pg7-145	pressurizer pressure
U2 SAR	15.1.18.4.3.O	NED	2CAN120001 PULR pg7-144	LOAC + rupture of a single U-tube
U2 SAR	15.1.18.4.3.P	NED	2CAN120001 PULR pg7-142	Sixty minutes operator response
U2 SAR	15.1.18.4.3.2	NED	2CAN100102 Att. 1 pg10	60min steam flow values (30 in PULR)
U2 SAR	15.1.18.4.3.3	NED	2CAN120001 PULR pg7-146	within the 10CFRI0 limits
U2 SAR	15.1.20.4.7	NED	2CAN120001 PULR pg7-148	CEA ejection
U2 SAR	15.1.23.2	NED	2CAN120001 PULR pg7-151	13.5% iodines
			2CAN120001 PULR pg7-150	peaking factor
			2CAN120001 PULR pg7-151	site boundary
			2CAN120001 PULR pg7-152	breathing rate
			5.2.2.2.d	VSC-24 transfer cask
U2 SAR	15.1.23.3	NED	2CAN120001 PULR pg7-151	13.5% iodines
			2CAN120001 PULR pg7-150	peaking factor
U2 SAR	15.2	NED	5.2.2.1	added listing of refs
U2 SAR	T 3.9-6	NSSS	2CAN120001 PULR pg4-5	norm temp
U2 SAR	T 4.3-3	NED	5.2.2.2.a	Doppler coef
			5.2.2.1	density coefficient
U2 SAR	T 5.1-1A	NSSS	2CAN120001 PULR pg7-157	Design Thermal Power
			2CAN120001 PULR pg8-3	Btu/hr
			2CAN120001 PULR pg3-4	Coolant Flow / Temp in / Temp out
			5.2.2.1	PUR
U2 SAR	T 5.1-2	NED		Reactor Vessel volume
U2 SAR	T 5.5-2	NSSS	5.2.2.1	RSG Heat Transfer Rate
			2CAN120001 PULR pg7-157	Design Thermal Power
			2CAN120001 PULR pg3-4	Coolant Flow
			5.2.2.1	Steam Pressure
			5.2.2.1	Steam Temperature
			2CAN120001 PULR pg3-2	Steam Flow
			2CAN120001 PULR pg3-2	Feedwater Temperature
			2CAN120001 PULR pg3-4	T cold
U2 SAR	T 5.6-1	NSSS	2CAN120001 PULR pg3-4	RCS temps
U2 SAR	T 6.2-34	NED	2CAN120001 PULR pg7-3	Release data for containment pressure

LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
U2 SAR	T 6.2-35	NED	2CAN120001 PULR pg7-15	base slab thinkness
U2 SAR	T 6.3-9	NED	2CAN120001 PULR pg7-14	sys parameters for LBLOCA
U2 SAR	T 6.3-11	NED	5.2.2.1	renumbered
			5.2.2.2.a	deleted Slot Break
			2CAN120001 PULR pg7-3	added 0.3 Double-Ended Guillotine
U2 SAR	T 6.3-12	NED	5.2.2.1	renumbered
U2 SAR	T 6.3-13	NED	5.2.2.1	renumbered
U2 SAR	T 6.3-14	NED	2CAN120001 PULR pg7-16	whole table
			5.2.2.2.a	deleted Slot Break
U2 SAR	T 6.3-15	NED	2CAN120001 PULR pg7-16	whole table
			5.2.2.2.a	deleted Slot Break
U2 SAR	T 6.3-16	NED	2CAN120001 PULR pg7-19	whole table
U2 SAR	T 6.3-17	NED	2CAN120001 PULR pg7-18	whole table
U2 SAR	T 6.3-18	NED	2CAN120001 PULR pg7-5	break spectrum
U2 SAR	T 6.3-19	NED	2CAN120001 PULR pg7-20	whole table
U2 SAR	T 6.3-20	NED	2CAN120001 PULR pg7-20	whole table
U2 SAR	T 6.3-21	NED	2CAN120001 PULR pg7-20	SBLOCA values
			2CAN120001 PULR pg7-16	LBLOCA values
			2CAN120001 PULR pg7-18	Heat Generation
U2 SAR	T 6.3-23	NED	5.2.2.1	
U2 SAR	T 6.3-24	NED	5.2.2.2.a	whole table
U2 SAR	T 6.3-25	NED	5.2.2.2.a	whole table
U2 SAR	T 6.3-26	NED	5.2.2.2.a	whole table
U2 SAR	T 6.3-27	NED	5.2.2.2.a	whole table
U2 SAR	T 6.3-28	NED	2CAN120001 PULR pg7-22	whole table
U2 SAR	T 7.2-2	NSSS	2CAN120001 PULR pg3-4	RCS temps
			ER980547N207 50.59	RSG presssure
U2 SAR	T 7.2-4	NSSS	2CAN120001 PULR pg7-243	Low Pressurizer Pressure
			ER980547N207 50.59	RSG level
			ER980547N207 50.59	RSG presssure
U2 SAR	T 9.1-6	NED		whole table
U2 SAR	T 9.3-5	NSSS	2CAN120001 PULR pg3-4	T cold
U2 SAR	T 9.3-9	NSSS	5.2.2.1	change ref
			2CAN120001 PULR pg3-4	T cold
U2 SAR	T 9.3-10	NSSS	2CAN120001 PULR pg3-4	T cold
U2 SAR	T 10.3-1	NED	5.2.2.2.a	delete set pressure
			5.2.2.1	change ref
U2 SAR	T 10.4-1	BOP	5.2.2.1	condenser design
U2 SAR	T 10.4-3	BOP	2CAN120107 pg4	cooling tower performance
U2 SAR	T 14.1-6	Testing	2CAN120001 PULR pg9-9	PUR tests
U2 SAR	T 15.1.0-1	NED	2CAN120001 PULR pg7-145	SIAS setpoint
			5.2.2.2.a	RTD time
			2CAN120001 PULR pg7-137	MSIS setpoint
			2CAN120001 PULR pg7-159	FWLB Trip Delay

LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
U2 SAR	T 15.1.0-2	NED	5.2.2.1	added cyc 1
U2 SAR	T 15.1.1-7	NED	2CAN120001 PULR pg7-160	whole table
U2 SAR	T 15.1.1-8	NED	2CAN120001 PULR pg7-161	whole table
U2 SAR	T 15.1.1-9	NED	2CAN120001 PULR pg7-162	whole table
U2 SAR	T 15.1.2-8	NED	2CAN120001 PULR pg7-164	whole table
U2 SAR	T 15.1.2-9	NED	2CAN120001 PULR pg7-166	whole table
U2 SAR	T 15.1.2-10	NED	2CAN120001 PULR pg7-163	whole table
U2 SAR	T 15.1.2-11	NED	2CAN120001 PULR pg7-165	whole table
U2 SAR	T 15.1.3-2	NED	5.2.2.1	renumbering
U2 SAR	T 15.1.3-3	NED	5.2.2.1	renumbering
U2 SAR	T 15.1.3-4	NED	5.2.2.1	renumbering
U2 SAR	T 15.1.3-5	NED	2CAN120001 PULR pg7-167	whole table
U2 SAR	T 15.1.4-1	NED	2CAN120001 PULR pg7-168	6 Refueling Condition
			2CAN120001 PULR pg7-169	5 Partially Drained / 5 Alarms Inoperable
			2CAN120001 PULR pg7-170	5 Alarms Operable
			2CAN120001 PULR pg7-171	4 Alarms Inoperable / 4 Alarms Operable
			2CAN120001 PULR pg7-172	3 Alarms Inoperable / 3 Alarms Operable
			2CAN120001 PULR pg7-173	2 Startup Condition
U2 SAR	T 15.1.5-12	NED	2CAN120001 PULR pg7-174	whole table
U2 SAR	T 15.1.5-13	NED	2CAN120001 PULR pg7-175	whole table
U2 SAR	T 15.1.5-14	NED	2CAN120001 PULR pg7-176	whole table
U2 SAR	T 15.1.5-15	NED	2CAN120001 PULR pg7-177	whole table
U2 SAR	T 15.1.5-16	NED	2CAN120001 PULR pg7-178	whole table
U2 SAR	T 15.1.13-1	NED	2CAN120001 PULR pg7-180	whole table
U2 SAR	T 15.1.13-2	NED	5.2.2.1	Containment / ESF / Pump seal
			2CAN120001 PULR pg7-133	Thyroid total
U2 SAR	T 15.1.13-3	NED	2CAN120001 PULR pg7-180	Iodine inventory
U2 SAR	T 15.1.13-5	NED	5.2.2.2.a	whole table
U2 SAR	T 15.1.14-48	NED	2CAN120001 PULR pg7-182	whole table
U2 SAR	T 15.1.14-49	NED	2CAN120001 PULR pg7-183	whole table
U2 SAR	T 15.1.18-5	NED	2CAN120001 PULR pg7-185	whole table
U2 SAR	T 15.1.18-6	NED	2CAN120001 PULR pg7-186	whole table
U2 SAR	T 15.1.18-7	NED	2CAN120001 PULR pg7-187	whole table
U2 SAR	T 15.1.18-8	NED	2CAN120001 PULR pg7-187	whole table
U2 SAR	T 15.1.20-19	NED	2CAN120001 PULR pg7-188	whole table
U2 SAR	T 15.1.20-20	NED	2CAN120001 PULR pg7-190	whole table
U2 SAR	T 15.1.20-21	NED	2CAN120001 PULR pg7-191	whole table
U2 SAR	T 15.1.23-1	NED	5.2.2.1	Entire Fuel Assembly (multipule of 4 rows)
			2CAN120001 PULR pg7-192	Four Rows
U2 SAR	T 15.1.23-2	NED	2CAN120001 PULR pg7-152	Inhalation

LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
			2CAN120001 PULR pg7-152	Whole Body
			2CAN120001 PULR pg7-152	Skin
				whole figure
U2 SAR	F 4.3-24a	NED	5.2.2.2.a	
U2 SAR	F 5.3-2	BOP	5.2.2.1	
U2 SAR	F 6.2-30	NED		
U2 SAR	F 6.2-32	NED	5.2.2.2.e	
U2 SAR	F 6.2-33	NED		
U2 SAR	F 6.2-34	NED		
U2 SAR	F 6.3-13a through 6.3-17h	NED	2CAN120001 PULR pg7-23 through 2CAN120001 PULR pg7-77	whole figure
U2 SAR	F 6.3-18a through 6.3-19h	NED	2CAN120001 PULR pg7-3	deleted extra Lg break analysis
U2 SAR	F 6.3-20	NED	5.2.2.1	updated to match info in other figures
U2 SAR	F 6.3-22a through 6.3-22h	NED	2CAN120001 PULR pg7-5	deleted extra Sm break analysis
U2 SAR	F 6.3-23a through 6.3-23h	NED	2CAN120001 PULR pg7-94 through 2CAN120001 PULR pg7-101	whole figure
U2 SAR	F 6.3-24a through 6.3-24h	NED	2CAN120001 PULR pg7-86 through 2CAN120001 PULR pg7-93	whole figure
U2 SAR	F 6.3-25a through 6.3-25h	NED	2CAN120001 PULR pg7-78 through 2CAN120001 PULR pg7-85	whole figure
U2 SAR	F 6.3-26	NED	5.2.2.1	updated to match info in other figures
U2 SAR	F 6.3-27a through 6.3-27r	NED	2CAN120001 PULR pg7-23 through 2CAN120001 PULR pg7-77	replaced by F 6.3-13a through 6.3-17h
U2 SAR	F 6.3-48a through 6.3-48r	NED	2CAN120001 PULR pg7-23 through 2CAN120001 PULR pg7-77	replaced by F 6.3-13a through 6.3-17h
U2 SAR	F 6.3-49a through 6.3-51h	NED	2CAN120001 PULR pg7-78 through 2CAN120001 PULR pg7-101	replaced by F 6.3-23a through 6.3-25h
U2 SAR	F 6.3-52	NED	2CAN120001 PULR pg7-102	whole figure
U2 SAR	F 6.3-53	NED	2CAN120001 PULR pg7-103	whole figure
U2 SAR	F 7.3-9	BOP	2CAN120001 PULR pg2-16	Note D.1.a" ...about 49% ..."
U2 SAR	F 9.1-19	BOP	5.2.2.1	Fuel pool heat removal @120F
U2 SAR	F 9.1-20	BOP	2CAN050105 enclosure	Fuel pool heat removal @150F

LBD doc	Section Number	dis	NRC Corr. Letter # & page or exemption # in LI-101	notes
U2 SAR	F 15.1.0-5	NED		deleted
U2 SAR	F 15.1.1-5	NED	2CAN120001 PULR pg7-197	whole figure
U2 SAR	F 15.1.1-6	NED	2CAN120001 PULR pg7-198	whole figure
U2 SAR	F 15.1.1-7	NED	2CAN120001 PULR pg7-199	whole figure
U2 SAR	F 15.1.1-8	NED	2CAN120001 PULR pg7-200	whole figure
U2 SAR	F 15.1.2-11	NED	2CAN120001 PULR pg7-206	whole figure
U2 SAR	F 15.1.2-12	NED	2CAN120001 PULR pg7-207	whole figure
U2 SAR	F 15.1.2-13	NED	2CAN120001 PULR pg7-208	whole figure
U2 SAR	F 15.1.2-14	NED	2CAN120001 PULR pg7-209	whole figure
U2 SAR	F 15.1.2-15	NED	2CAN120001 PULR pg7-201	whole figure
U2 SAR	F 15.1.2-16	NED	2CAN120001 PULR pg7-202	whole figure
U2 SAR	F 15.1.2-17	NED	2CAN120001 PULR pg7-203	whole figure
U2 SAR	F 15.1.2-18	NED	2CAN120001 PULR pg7-205	whole figure
U2 SAR	F 15.1.2-19	NED	2CAN120001 PULR pg7-204	whole figure
U2 SAR	F 15.1.4-1 through 15.1.4-9	NED	2CAN120001 PULR pg7-211 through 2CAN120001 PULR pg7-219	whole figure
U2 SAR	F 15.1.5-18	NED	2CAN120001 PULR pg7-220	whole figure
U2 SAR	F 15.1.5-19	NED	2CAN120001 PULR pg7-221	whole figure
U2 SAR	F 15.1.5-20	NED	2CAN120001 PULR pg7-222	whole figure
U2 SAR	F 15.1.5-21	NED	2CAN120001 PULR pg7-228	whole figure
U2 SAR	F 15.1.5-22 through 15.1.5-26	NED	2CAN120001 PULR pg7-223 through 2CAN120001 PULR pg7-227	whole figure
U2 SAR	F 15.1.14-143 through 15.1.14-147	NED	2CAN120001 PULR pg7-230 through 2CAN120001 PULR pg7-234	whole figure
U2 SAR	F 15.1.18-17 through 15.1.18-24	NED	2CAN120001 PULR pg7-235 through 2CAN120001 PULR pg7-242	whole figure
U2 TRM	B 3/4.1.2	NED	2CAN120001 Attachment 4	whole page
U2 TRM	3.1.2.7	NED	2CAN120001 Attachment 4	whole page
U2 TRM	3.1.2.8	NED	2CAN120001 Attachment 4	whole page
U2 TRM	F 3.1-1	NED	2CAN120001 Attachment 4	whole figure
U2 TS	B 3/4.9.9	NED	2CAN120001 PULR pg7-151	iodine gap activity
U2 TS	B 3/4.9.10	NED	2CAN120001 PULR pg7-151	iodine gap activity

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FFN 2002-0011

Attachment A TAP 02-0-001

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	2

I. OVERVIEW / SIGNATURES

4/12/2

Facility: ~~ANO - Unit 2~~ Common

Document Reviewed: TAP-02-0-001 **Change/Rev.:** 0

System Designator(s): Fire Water

Description of Proposed Change

Connect temporary pump to fire water system test header at the Unit 1 Intake Structure. Installation of temporary modification will provide a supplementary water supply via the fire water system piping.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): *(Only sections indicated must be included in the Review)*

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FEN#02-011	**Sections I, II, III, and V required**

Preparer: Woody Walker/ /ENS/EPC/04-12-02
Name (print) / Signature / Company / Department / Date

Reviewer: Ronald D. Hendrix /Ronald D. Hendrix/ENS/EP&C/4-12-02
Name (print) / Signature / Company / Department / Date

OSRC: Randall V. Fuller /R V Fuller 4-12-02
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
Jack Johnson	Provided initial response to fire water system aspect of change

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		M-209 sh. 4 & M-219 sh. 1 will be temporarily revised to indicate the connections and revised valve positions. No update will be made to the FSAR.
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ YES
☒ NO

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ YES
☒ NO
☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. Basis

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

Question 1: This temporary activity impacts FSAR Figure 9-10 (P&ID M-209 sh. 4) and Figure 9-16 (P&ID M-219 sheet 1). Since the function of the systems are not impacted, there are no other LBD's or Operating License documents that are affected by this temporary modification to the fire water system and screen wash system.

Question 2: Installation of a temporary modification to connect a pump to the fire water system does not involve a test or experiment not described FSAR.

Question 3: This temporary modification is to be installed in an area that will not impact the storage of spent fuel.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:

LRS Zyindex was utilized to perform keyword searches 50.59 common.

Manual search performed on the following LBD's FHA-Intake Structure, Unit 1 FSAR section 9.8. Unit 1 FSAR App. 9D Unit 2 FSAR section 9.5, Unit 2 FSAR App. 9D

Unit 1 Figures 9-10 and 9-16

Unit 2 Figure 9.2-3

Keywords:

Fire w/5 water, Test w/5 header, screen wash.

D. Is the validity of this Review dependent on any other change?
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☐ Yes
☒ No

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. Executive Summary *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

As evaluated in the FSAR the design of the firewater system is such that rupture or inadvertent operation will not jeopardize the capability of safety related equipment. This temporary alteration installs piping/hoses that connects a pump to the fire water sytem test header outside of the Unit 1 Intake Structure via a section of 'unused' screen wash piping. The temporary alteration to the test header can be isolated from the fire system main in the event of a break in the temporary piping. The temporary piping will be isolated from the remainder of the screen wash piping. Also, there is no safety related equipment in the area of the piping that can be affected by a break. Therefore, this activity will not result in more than a minimum increase in the frequency of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Unit 1 and Unit 2 FSAR's evaluate the firewater system for line breaks, misoperation and the mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental cooling water being supplied by this temporary alteration will not affect the fire water system's capability to perform within the requirements as evaluated in the FSAR's. The fire water system's ability to mitigate a fire will not be decreased by this activity. The screen wash system piping that is being utilized is outside the Intake structures and does not impact equipment important to safety. Therefore, this change will not result in more than a mimimal increase in likelihood of a malfunction of a structure, system or component important to safety as previously evaluated in the FSAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The fire water system is designed to minimize the affects of fires such that pipe rupture or inadvertent operation does not cause loss of function to components important to safety. The main fire pumps and all fire protection components will remain functional and available for fire fighting purposes. The fire water system's ability to perform its function is not affected by this temporary modification. Connection of the temporary pump to the fire water system will not degrade safety system component capability because provisions are included in the temporary alteration to account for hose/pipe failures via the installation of a check valve and an isolation valve. The temporary piping is isolated from the remainder of the screen wash system and thus has no impact on system function (which is not required to mitigate the consequences of an accident). Therefore, this activity will not result in more than a minimal increase in the consequences of an accident previously evalvuated in the FSAR.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The fire water system is designed such that any failure will not affect equipment important to safety. The fire water system test header, the temporary pump and connecting pipe/hoses are all located outside of plant structures and in areas that failure would not affect any safety related equipment. This temporary alteration does not alter the availabilty or reliability of the fire water system nor screen wash system. Consequently, the ability of any equipment important to safety to perform its design function is unaffected by this change. Therefore, this activity will not result in more than a minimal increase in the consequences of a malfunction of a structure, system or component important to safety previously evaluated in the FSAR.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Unit 1 and Unit 2 FSAR's evaluate the fire water system for line breaks, misoperation and the mitigation of fires which could have an effect on safety related equipment. Supplemental water being supplied by a temporary pump will not affect the fire water system's capability of perfoming within the design requirements as described in the FSAR. All redundant features of the fire water system will be maintained after installation of the temporary modification. The screen wash piping utilized by this temporary alteration is isolated from the remainder of the screen wash system. Therefore, this activity will not create a possibility for an accident of a different type than any previously evaluated in the FSAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The equipment and connections required for installation of this temporary modification is outside of plant structures and located in areas that a failure would not affect any structure, system or component important to safety. Connection and operation of a temporary pump to the fire water system test header does not modify or affect the fire water system interface with other structures, systems or components. The portion of the screen wash system that is utilized does not have an interface with any equipment that is important to safety. Therefore, activities proposed by this temporary modification will not create a possibility for a malfunction of a structure, system or component important to safety with a different result than any previously evaluated in the FSAR.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

Installation of this temporary modification is located in an area that will not affect any fission product barriers. This temporary activity will not affect the fuel cladding, RCS pressure boundary or the containment building. Therefore, this change will not result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

This activity will provide supplemental water via a temporay pump connected to the fire water system test header and an 'unused' portion of the screen wash system. The fire water system was designed and installed to meet the requirements of NFPA Standards as described in the FSAR. After the temporary alteration is installed the fire water system will still meet the requirements of NFPA Standards. Therefore, this activity does not result in a departure from a method of evaluating design bases or safety analysis as described in the FSAR.

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FFN 2002-0012

ATTACHMENT A – SUPERCEDED BY TAPR.1 → ATTACHMENT E

Entergy	EN-S NUCLEAR MANAGEMENT MANUAL	QUALITY RELATED ADMINISTRATIVE	LI-101	Revision 2		
		INFORMATION USE				
ATTACHMENT 9.1		50.59 REVIEW FORM	Page	1	of	12

I. OVERVIEW / SIGNATURES

Facility: ANO - Common

Document Reviewed: T-ALT TAP-02-2-004 (Supersedes) **Change/Rev.:**

System Designator(s)/Description: Firewater, ACW and control room chillers

Description of Proposed Change

T-ALT to provide Fire water as temporary cooling to normal control room chiller

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

- ☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.
- ☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).
- ☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☒	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION (#: ~~02-005~~ TB 4/11/02-012**	**Sections I, II, III, and V required**

Preparer: Keith Perkins / [signature] / EOI / Systems Engr / 4-12-02
Name (print) / Signature / Company / Department / Date

Reviewer: J. Greg Hines / [signature] / EOI / Systems Engr / 4-12-02
Name (print) / Signature / Company / Department / Date

OSRC [signature] (Randall V. Fuller) 4-12-02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		Temporary Change only as discussed below
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program [4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
☐ Yes ☒ No
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
☐ Yes ☒ No ☐ N/A
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112.

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

(See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

B. Basis

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

The temporary alteration provides a temporary cooling water connection between the plant fire water system and the normal control room chiller, 2VCH2A. Firewater will be used for cooling water when the ACW system is out of service and unable to provide normal chilled water system cooling. The temporary cooling connection will be to fire hose station 2HR-22. The normal ACW cooling water piping will be removed from the 2VCH2A chiller condenser and temporary hoses will be connected between the fire hose station and the chiller condenser. A temporary fire water pump shall be installed under a different temporary alteration to prevent undue wear on the permanent fire pumps P6A and P6B. The necessity for operating the permanent firewater pumps for cooling water supply is eliminated. The water exiting the chiller unit will be routed to the storm drain system and then drains to the lake. The connection of the firewater system to the normal control room chiller for temporary cooling and the hose routed to the storm drain system are beyond the scope of the Unit 2 Operating License documents. Therefore, this temporary alteration will not require a change to the Technical Specifications, Operating License, Confirmatory Orders or any other license bases document. The fire protection water supplies and pumps are shared between the two units and draw water from the Arkansas River (Dardanelle Reservoir). Water is supplied at 125 psig to the 12 in yard main header encircling the plant. The normal fire system pumps are one 2500 gpm automatic electric motor driven pump (P6A) and one 2500 gpm automatic diesel driven pump (P6B). Each pump is individually capable of providing full flow required for proper fire suppression water system operation. The electric pump starts automatically when the fire main pressure drops to 110 psg. The diesel driven fire pump will start when the fire main pressure drops to 90 psig. Based upon the largest flow requirement of any sprinkler or deluge system, either of the normal fire pumps is capable of meeting water demand of 2000 gpm and a simultaneous flow of 750 gpm for hose streams. A temporary fire pump with capacity of approximately 2000 gpm at normal system conditions shall be installed in association with this ER. Temporary cooling demand to the normal control room chiller 2VCH2A is 400 gpm. The temporary connections will restrict cooling flow rates to less than 400 gpm. Thus, the temporary cooling demand to the chiller unit will not exceed the capacity of the temporary fire pump. The temporary fire pump supplements the fire water system's existing pumps and does not affect the operation of any system component or the qualification of the system itself. The T-ALT should not render hose station 2HR-22 inoperable during the installation of the temporary alteration. If 2HR-22 must be left inoperable 2HR-72 located less than 100 feet from 2HR-22, will serve as a back up and a fire hose can be routed between the two hose reels such that if required valve 2FS-165 (2HR-72 supply) can be connected to supply water to 2HR-22. Additionally at least one of the two installed area smoke detectors, 2XSH8740A or 2XSH8740B, will be operational and active. Therefore, the text information in the SAR documents will remain true and accurate. However, Unit 2 SAR Figure 9.5-1 (P&ID M-2219 sheet 2) and Unit 2 SAR Figure 3.2-3 (P&ID M-2221 sheet 1) will be inaccurate while the TALT is installed. A change to the SAR figure is not required because of the temporary nature of this alteration. Nonetheless, a safety evaluation will be performed. The T-ALT created from this ER does not involve a test or experiment that could degrade the margins of safety during normal operations or anticipated transients or degrade the adequacy of structures, systems, or components to prevent accidents of mitigate accident consequences. Accordingly, it does not constitute a test or experiment not described in the SAR. There is no potential impact to the environment due to the installation and use of this TALT. The discharge of the temporary cooling water to a yard storm drain has been discussed with and approved by the Arkansas PC&E. Environmental Impact Checklist is included in this determination. This temporary alteration does not involve the processing of radioactive material outside of the Auxiliary Building, Reactor Building or Low Level Radwaste Storage Building, or create a new pathway outside of the monitored ventilation or drainage pathways. Therefore, a Radiological Safety Evaluation is not required. This TALT does not involve any potential impact to the equipment or facilities utilized for dry fuel storage activities

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
LRS common 50.59	control w/10 room, 2VCH2*, 2VCH-2*, ACW, Firewater, Fire w/10 water

D. Is the validity of this Review dependent on any other change? (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☐ Yes
☒ No

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

☐ The proposed activity meets all of the following criteria regarding design function per Section 5.5.1.1:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.5.1.2. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The NRC has approved the proposed activity or portions thereof per Section 5.5.1.3. Reference:

B. Basis

(Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions. See Section 5.5.6 of the EOI 10CFR50.59 Review Program Guidelines for guidance.)

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

As discussed above

Reason for proposed Change:
As discussed above

50.59 Evaluation summary and conclusions

It is acceptable to perform this temporary change.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The TALT implemented by this ER will connect temporary hoses from the fire water system to the normal control room chiller 2VCH-2A to provide area cooling while the Auxiliary Cooling Water system is out of service. The temporary cooling water demand on the fire water system will not exceed 400 gpm with the installation of this temporary alteration. A temporary fire pump shall be installed under another T-ALT to prevent placing undue wear on the permanent firewater pumps, P6A and P6B. The normal fire water pumps and all normal fire protection system components will remain functional and be available for fire fighting purposes. The fire systems ability to perform its design function is not degraded. With the installation of the third fire pump via a different T-ALT, the fire systems reliability is in fact enhanced. No safety related system piping is altered and the installation or use of this T-ALT affects no safety function. The Control Room chilled water system is not necessary to maintain normal plant operation and is not required to respond or mitigate the consequences of any accident conditions. This activity is not an accident initiator and does not affect any SAR evaluated accidents. The cooling water flow rate demand will not exceed the temporary fire pump capacity of 2000 gpm. There is no accident evaluated in the SAR chapter 15 that involves the firewater or the normal control room chilled water systems. Therefore, the frequency of occurrence of an accident previously evaluated in the SAR will not be increased by implementation of this temporary

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The Fire Protection system is designed to minimize the affect of fires and the probability of pipe ruptures or inadvertent operation that has the potential to cause loss of function to components important to safety. The normal fire pumps and all normal fire protection system components will remain functional and be available for fire fighting purposes. The fire systems ability to perform its function is not degraded. No safety related system piping is altered and no safety function is affected. Connection of the Fire Water system to the chilled water system will not degrade safety system component capability or reliability. Implementation of this TALT will not increase the probability of the failure of equipment important to safety to perform its specified safety function as discussed in the SAR. Therefore, the likelihood of occurrence of a malfunction of equipment important to safety will not be altered

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The SAR evaluates Fire Protection System line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by a TALT will not affect the Fire Water systems capability of performing in accordance with the design requirements as evaluated in the SAR. No accidents evaluated in the SAR will have their radiation dose consequences altered as a result of the activities proposed in this TALT. Thus, consequences of an accident previously evaluated in the SAR will not be increased.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The SAR evaluates Fire Protection System line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by a TALT will not affect the Fire Water systems capability of performing in accordance with the design requirements as evaluated in the SAR. No accidents evaluated in the SAR will have their radiation dose consequences altered as a result of the activities proposed in this TALT. Thus, consequences of an accident previously evaluated in the SAR will not be increased.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The SAR evaluates Fire Protection system line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by a temporary fire pump provides additional system capacity such that the normal fire water system components remain capable of performing in accordance with the design requirements as evaluated by the SAR. The cooling water demand to the chiller unit will not affect the fire protection systems capability of performing in accordance with the design requirements as evaluated in the SAR nor will it create any new types of accidents which have not been previously analyzed in the SAR. Therefore, the possibility of an accident of a different type than previously evaluated will not be created by the activities proposed by this T-ALT.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   The SAR evaluates Fire Protection system line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by a temporary fire pump provides additional system capacity such that the normal fire water system components remain capable of performing in accordance with the design requirements as evaluated by the SAR. The cooling water demand to the chiller unit will not affect the fire protection systems capability of performing in accordance with the design requirements as evaluated in the SAR nor will it create any new types of accidents which have not been previously analyzed in the SAR. Therefore, the possibility of an accident of a different type than previously evaluated will not be created by the activities proposed by this TALT.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

   BASIS:

   TheT-ALT will not impact any product barrier in any way. The Fire water system will remain operable. Since the fire water system remains operable all fission product barrier components and structures are protected from fire as designed.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

   BASIS:

   The T-ALT implemented by this ER will have no impact of any method of evaluation for any design bases established in the SAR.

-----Original Message-----
From: CALLOWAY, JAMES D
Sent: Wednesday, March 13, 2002 1:00 PM
To: PARTRIDGE, RENAE; PROCK, MICHAEL E
Cc: BUCKLEY, RICKY N
Subject: Conversation Memo

CONVERSATION MEMO WITH ADEQ

Date: 3/13/02

Time: 1020

Participants: Mo Shafii (ADEQ, NPDES Division), Dennis Calloway (EOI)

Summary: I contacted Mr. Mo Shafii (acting ADEQ Engineering Supervisor, NPDES Permits) to discuss the discharge of untreated lake water to the storm water drain system during 2R15. I references a 1997 letter from Mr. Mark Bradley (ADEQ Engineering Supervisor, NPDES Permits, stating the discharge of untreated lake water did not require an NPDES permit. Mr. Shafii approved the requested discharge of untreated lake water for this application only. Mr. Shafii informed me that any future discharges would need to go through a permitted outfall.

To prepare for future discharges of untreated lake water or di-water, ANO is submitting a request to the ADEQ in the 2002 NPDES Permit Application for a designated outfall for the discharge of untreated lake water and di-water wastewater's through the site stormwater drainage system.

J. Dennis Calloway

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EN-S NUCLEAR MANAGEMENT MANUAL		Page 1
E-DOC TITLE: 50.59 REVIEW FORM	**E-DOC NO.** LI-101 Att 9.1	**CHANGE NO.** 2

TAP 02-2-005
PAGE ATT 1

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: 50.59 Common for ER-ANO-2002-370-000 **Change/Rev.:** _____

System Designator(s): FW, ACW

SUPERCEDED BY ATTACHMENT 7

Description of Proposed Change

This ER provides the engineering documentation necessary to complete a temporary alteration when needed. The temporary alteration provides a temporary cooling water connection between the plant fire water system and the Auxiliary Building extension chiller, 2VCH3B. Firewater will be used for cooling water when the ACW system is out of service and unable to provide normal chilled water system cooling.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 . (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review: *(Only sections indicated must be included in the Review)*

☒	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** 02-013	**Sections I, II, III, and V required**

Preparer: Keith Perkins / EOI / Systems Engr / 4-9-02
Name (print) / Signature / Company / Department / Date

Reviewer: Lindy Bramlett / EOI / Systems Engr / 4/10/02
Name (print) / Signature / Company / Department / Date

OSRC: Tom Brown 4/11/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
N/A	N/A

II. SCREENING

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PAGE Att 4

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		Temporary Change only while T-ALT is installed
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	Uses water from Fire water system. Another T-ALT for additional capacity is required to implement a T-ALT with this ER.
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ **YES**
☒ **NO**

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112.
(See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ **YES**
☒ **NO**
☐ **N/A**

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.

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B. Basis

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

1. This ER provides the engineering documentation necessary to complete a temporary alteration when needed. The temporary alteration provides a temporary cooling water connection between the plant fire water system and the Auxiliary Building extension chiller, 2VCH3B. Firewater will be used for cooling water when the ACW system is out of service and unable to provide normal chilled water system cooling. The temporary cooling connection will be to fire hose station 2HR74 located at elevation 335 in the Auxiliary extension outside of the chiller equipment room. The normal ACW cooling water piping will be removed from the 2VCH3B chiller condenser and temporary hoses will be connected between the fire hose station and the chiller condenser. A temporary fire water pump shall be installed under a different temporary alteration to prevent undue wear on the permanent fire pumps P6A and P6B. The necessity for operating the permanent firewater pumps for cooling water supply is eliminated. The water exiting the chiller unit will be routed to the storm drain system and then drains to the lake. The connection of the firewater system to the Auxiliary Building extension chiller for temporary cooling and the hose routed to the storm drain system are beyond the scope of the Unit 2 Operating License documents. Therefore, this temporary alteration will not require a change to the Technical Specifications, Operating License, Confirmatory Orders or any other license bases document. The temporary alteration provides a supplemental firewater supply to the Auxiliary Building Extension Chilled water system, which provides necessary area cooling to the Outage Control Center and the Chemistry Lab Radioisotope Count Room. The fire protection water supplies and pumps are shared between the two units and draw water from the Arkansas River (Dardanelle Reservoir). Water is supplied at 125 psig to the 12 in yard main header encircling the plant. The normal fire system pumps are one 2500 gpm automatic electric motor driven pump (P6A) and one 2500 gpm automatic diesel driven pump (P6B). Each pump is individually capable of providing full flow required for proper fire suppression water system operation. The electric pump starts automatically when the fire main pressure drops to 110 psg. The diesel driven fire pump will start when the fire main pressure drops to 90 psig. Based upon the largest flow requirement of any sprinkler or deluge system, either of the normal fire pumps is capable of meeting water demand of 2000 gpm and a simultaneous flow of 750 gpm for hose streams. A temporary fire pump with capacity of approximately 2000 gpm at normal system conditions shall be installed in association with this ER. Temporary cooling demand to the Auxiliary Building extension chiller 2VCH3B is 400 gpm. The temporary connections will restrict cooling flow rates to less than 400 gpm. Thus, the temporary cooling demand to the chiller unit will not exceed the capacity of the temporary fire pump. The temporary fire pump supplements the fire water system's existing pumps and does not affect the operation of any system component or the qualification of the system itself. The T-ALT does not alter the function of fire hose station 2HR74. Therefore, the text information in the SAR documents will remain true and accurate. However, Unit 2 SAR Figure 9.5-1 (P&ID M-2219 sheet 2) and Unit 2 SAR Figure 3.2-4 (P&ID M-2222 sheet 3) will be inaccurate while the TALT is installed. A change to the SAR figure is not required because of the temporary nature of this alteration. Nonetheless, a safety evaluation will be performed The T-ALT created from this ER does not involve a test or experiment that could degrade the margins of safety during normal operations or anticipated transients or degrade the adequacy of structures, systems, or components to prevent accidents of mitigate accident consequences. Accordingly, it does not constitute a test or experiment not described in the SAR. There is no potential impact to the environment due to the installation and use of this TALT. The discharge of the temporary cooling water to a yard storm drain has been discussed with and approved by the Arkansas PC&E. Environmental Impact Checklist is included in this determination. This temporary alteration does not involve the processing of radioactive material outside of the Auxiliary Building, Reactor Building or Low Level Radwaste Storage Building, or create a new pathway outside of the monitored ventilation or drainage pathways. Therefore, a Radiological Safety Evaluation is not required. This TALT does not involve any potential impact to the equipment or facilities utilized for dry fuel storage activities. Therefore, a 10CFR72.48 review is not required .

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C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
LRS 50.59 Common	"fire water" ; "fire system", "fire protection" ; chill*, ACW,

D. Is the validity of this Review dependent on any other change? ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

N/A

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III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

IV. 50.59 EVALUATION EXEMPTION

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Enter this section only if a "yes" box was checked in either Section II.A, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

☐ The proposed activity meets all of the following criteria regarding design function per Section 5.5.1.1:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**).

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.5.1.2. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The NRC has approved the proposed activity or portions thereof per Section 5.5.1.3.
Reference: _____

B. Basis

(Provide a clear concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions. See Section 5.5.6 of the EOI 10CFR50.59 Review Program Guidelines for guidance.)

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V. 50.59 EVALUATION

A. Executive Summary *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The TALT implemented by this ER will connect temporary hoses from the fire water system to the Auxiliary Building extension chiller 2VCH3B to provide area cooling while the Auxiliary Cooling Water system is out of service. The temporary cooling water demand on the fire water system will not exceed 400 gpm with the installation of this temporary alteration. A temporary fire pump shall be installed under another T-ALT to prevent placing undue wear on the permanent firewater pumps, P6A and P6B. The normal fire water pumps and all normal fire protection system components will remain functional and be available for fire fighting purposes. The fire systems ability to perform its design function is not degraded. With the installation of the third fire pump via a different T-ALT, the fire systems reliability is in fact enhanced. No safety related system piping is altered and the installation or use of this T-ALT affects no safety function. The Auxiliary Building extension chilled water system is not necessary to maintain normal plant operation and is not required to respond or mitigate the consequences of any accident conditions. This activity is not an accident initiator and does not affect any SAR evaluated accidents. The cooling water flow rate demand will not exceed the temporary fire pump capacity of 2000 gpm. There is no accident evaluated in the SAR chapter 15 that involves the firewater or the ABE chilled water systems. If flooding does occur due to the temporary hose, the amount of water spilled will be bounded by the accident analysis or contingency actions are easy to implement (i.e. close valve 2FS54)). A manual isolation valve will be installed at the fire water system connection to provide immediate isolation of the temporary cooling should the need arise. Therefore, the frequency of occurrence of an accident previously evaluated in the SAR will not be increased by implementation of this temporary alteration.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

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BASIS:

The Fire Protection system is designed to minimize the affect of fires and the probability of pipe ruptures or inadvertent operation that has the potential to cause loss of function to components important to safety. The normal fire pumps and all normal fire protection system components will remain functional and be available for fire fighting purposes. The fire systems ability to perform its function is not degraded. No safety related system piping is altered and no safety function is affected. Connection of the Fire Water system to the Chilled Water system will not degrade safety system component capability or reliability. Implementation of this TALT will not increase the probability of the failure of equipment important to safety to perform its specified safety function as discussed in the SAR. Therefore, the likelihood of occurrence of a malfunction of equipment important to safety will not be altered.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The SAR evaluates Fire Protection System line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by a TALT will not affect the Fire Water systems capability of performing in accordance with the design requirements as evaluated in the SAR. No accidents evaluated in the SAR will have their radiation dose consequences altered as a result of the activities proposed in this TALT. Thus, consequences of an accident previously evaluated in the SAR will not be increased.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The SAR evaluates Fire Protection System line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by a TALT will not affect the Fire Water systems capability of performing in accordance with the design requirements as evaluated in the SAR. No accidents evaluated in the SAR will have their radiation dose consequences altered as a result of the activities proposed in this TALT. Thus, consequences of an accident previously evaluated in the SAR will not be increased.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The SAR evaluates Fire Protection system line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by a temporary fire pump provides additional system capacity such that the normal fire water system components remain capable of performing in accordance with the design requirements as evaluated by the SAR. The cooling water demand to the chiller unit will not affect the fire protection systems capability of performing in accordance with the design requirements as evaluated in the SAR nor will it create any new types of accidents which have not been previously analyzed in the SAR. Therefore, the possibility of an accident of a different type than previously evaluated will not be created by the activities proposed by this TALT.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

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BASIS

The SAR evaluates Fire Protection system line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. Supplemental water being supplied by a temporary fire pump provides additional system capacity such that the normal fire water system components remain capable of performing in accordance with the design requirements as evaluated by the SAR. The cooling water demand to the chiller unit will not affect the fire protection systems capability of performing in accordance with the design requirements as evaluated in the SAR nor will it create any new types of accidents which have not been previously analyzed in the SAR. Therefore, the possibility of an accident of a different type than previously evaluated will not be created by the activities proposed by this TALT.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The T-ALT will not impact any product barrier in any way. The Fire water system will remain operable. Since the fire water system remains operable all fission product barrier components and structures are protected from fire as designed.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The T-ALT implemented by this ER will have no impact of any method of evaluation for any design bases established in the SAR.

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FFN 2002-0014

02-014

Entergy	EN-S NUCLEAR MANAGEMENT MANUAL	QUALITY RELATED ADMINISTRATIVE	LI-101	Revision 2		
		INFORMATION USE				
ATTACHMENT 9.1		50.59 REVIEW FORM	Page	1		

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: ACTIONS FOR UNCOUPLING CEA 65 (2409.738) Change/Rev. 000-00-0

System Designator(s)/Description: Refueling

Description of Proposed Change

This is a new Work Plan which contains instructions for Uncoupling CEA #65 while the Upper Guide Structure is lifted above the Unit 2 Reactor Vessel.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2._____ (Insert Item # from Section 5.2.2.2).

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☐	SCREENING	Sections I, II, and III required
☐	50.59 EVALUATION EXEMPTION	Sections I, II, III, and IV required
☒	50.59 EVALUATION (#: EEN) 02-014	Sections I, II, III, and V required

Preparer: Jay Gary Wellwood / /Entergy-ANO/OPS2/ 4-17-2002
Name (print) / Signature / Company / Department / Date

Reviewer: Stanley J. Hayes / /Entergy-ANO/~~OPS2~~ Nuclear Engineering 4/17/02 4-17-2002
Name (print) / Signature / Company / Department / Date

OSRC: Randall V. Fuller / R V Fuller 4-17-02
Chairman's Name (print)/Signature/ Date
[Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.]

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
N/A	N/A

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS IMPACTED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	

If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	☐	☒		
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		

If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # (if applicable)and/or SECTIONS IMPACTED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	

If "YES", evaluate/process any changes in accordance with the appropriate regulation.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ YES ☒ NO
   If "yes", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

3. Does the proposed activity potentially impact equipment, procedures or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation? ☐ YES ☒ NO ☐ N/A
   (Check "N/A" if dry fuel storage is not applicable to the facility.)
   If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112.
   (See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES" evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. Basis

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

The instructions contained within this Work Plan have been gleaned from already previously approved procedures associated with CEA Uncoupling and Upper Guide Structure movements. Due to unusual circumstances (The Upper Guide Structure raised above the Unit 2 Reactor Vessel with CEA #65 still coupled to it's respective extension shaft), additional requirements and precautions were added to the sequence of steps to ensure personnel and equipment will be protected. The steps associated with the lowering of the Upper Guide Structure, as well as ~~though~~ those found in the Uncoupling sequence provide no conflict with any of the LBDs. To ensure an adequate and thorough approach has been taken, a 50.59 Evaluation has been performed.

4-17-2002

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:

LRS – Unit 2 50.59

Unit 2 Technical Specifications

Unit 2 TRM

Unit 2 SAR – sections 4, 7, and 9.

Keywords:

Upper Guide Structure; CEA*; Extension Shafts; Refueling; Core Alterations; Uncoupling

D. Is the validity of this Review dependent on any other change? (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☐ Yes
☒ No

If "Yes," list the required changes.

N/A

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? [1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A above.

A. **Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.**

☐ The proposed activity meets all of the following criteria regarding design function per Section 5.5.1.1:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; AND

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; AND

The proposed activity does not adversely affect a method of evaluation that demonstrates intended design function(s) of an SSC described in the FSAR will be accomplished.

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed activity already exists per Section 5.5.1.2. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The NRC has approved the proposed activity or portions thereof per Section 5.5.1.3. Reference: N/A

B. Basis

(Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions. See Section 5.5.6 of the EOI 10CFR50.59 Review Program Guidelines for guidance.)

N/A

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)

Brief description of change, test, or experiment:

Evaluation of Uncoupling CEA from the CEA Extension Shaft with the Upper Guide Structure not fully inserted into the Unit 2 reactor Vessel.

Reason for proposed Change:

To provide for Uncoupling of the CEA from the CEA Extension Shaft.

50.59 Evaluation summary and conclusions

Uncoupling the CEA from the CEA Extension Shaft in this configuration is acceptable and results in no adverse consequences, nor does it present any challenges not already analyzed.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The Uncoupling of CEA #65 may result in the uncontrolled drop of the CEA back into the fuel region, or potential binding of the CEA as the Upper Guide Structure is lowered. The drop of the CEA, although bounded by the normal operation of the Unit 2 Reactor during normal conditions, could present in this Plant Condition the possibility for the CEA fingers to contact the fuel. For either case, the condition would result in potential failure of the CEA fingers, and possible fuel cladding breach. The results of this event would occur when Unit 2 Reactor has been shutdown for already >100 hours. Any release is clearly bounded by the Fuel Handling Accident a evaluated in Chapter 15 of the Unit 2 FSAR, which is anticipated to occur at least once in the life cycle of the Unit. Since the CEA drop and potential cladding breach is easily bounded (but not defined as a) fuel handling accident, the frequency of occurrence has not been raised. The handling of CEAs occurs no more frequently than the handling of fuel. As such, there is no increase in the frequency of this event. In the event that the CEA should become breached, there are no fission product gases, and products which would be released.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The uncoupling of the CEA in it's current position does not raise the likelihood that the fuel handling accident scenario (which bounds this event) will occur. In the unlikely event that the CEA should drop from it's current location, the expected damage to the fuel cladding will be bound by the fuel handling accident with no other structures being impacted or being used in any other form than that they were designed for. As such, the likelihood has not changed as a result of the performance of this activity.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

This evolution could result in either the inadvertent drop of a CEA, or potentially binding the CEA in the top of the fuel assembly. The work plan is written such that binding of the CEA will be prevented via direct observation of the CEA with a camera while lowering the Upper Guide Structure. In addition, the CEA extension shaft will also be monitored for movement. The CEA is currently inserted into the guide tubes ~ 12 inches. In the event that the CEA became inadvertently uncoupled at it's current position, it would drop into the fuel assembly guide tubes.

The drop of the CEA could potentially breach the fuel cladding. As such, the release of fission products will easily be bounded by the fuel handling accident scenario already analyzed in Chapter 15 of the FSAR. Since the analysis has set bounding limits, there will be no increase in the dose rates or radiological release in the unlikely event the CEA drops (or becomes bound) and the fingers penetrate the fuel cladding.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The drop of the CEA (as mentioned previously) could potentially breach the fuel assembly cladding (which is analyzed in Chapter 15 of the FSAR). As such, the consequences have already been established and clearly bound this scenario.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

Although not specifically addressed in the FSAR, the drop of the CEA onto the fuel, and the potential for the breaching of the fuel cladding is considered bounded by a fuel handling accident since the CEA would be dropped onto the fuel and could potentially breach the cladding. Since this has already been evaluated (fuel handling accident) this is not a new accident. CEA movement is a normal evolution in the SFP. The weight of a CEA is much less than a fuel assembly and is clearly bounded by the FSAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

In the event that the CEA should drop onto the fuel, and should the cladding be breached, the accident is contained to the fuel, which is an analyzed component. No other components will be impacted, and the accident will be limited to the Refueling Canal, which is the analyzed accident location/system.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The fission product barrier may be potentially breached, however, this is clearly analyzed in the Fuel Handling Accident as described in Chapter 15.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The method of analysis remains unchanged for a fuel handling accident. The fuel handling accident expects that the fuel assembly (weight ~ 1200 lbs.) is dropped and travels a distance of 202" onto a protruding object and becomes damaged. In this case, in the event that the CEA does drop onto the fuel assembly (weight ~ 60 lbs.), it will travel a worst case distance of ~13 feet (156 inches). This scenario is easily bounded by the already existing fuel handling accident.

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FFN 2002-0015

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: FSAR **Change/Rev.:** 0

System Designator(s)/Description: 2KP

Description of Proposed Change

Provide temporary equivalent capacity fire hose to the Unit 2 Containment during 2R15 outage. Route and connect fire hose from yard hydrant H-5 to hose reel station 2HR-51 at elevation 354 in the Containment Building.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

- ☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.
- ☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).
- ☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION (#: EFN) 02-015**	**Sections I, II, III, and V required**

Preparer: Jackie L. Johnson / Jackie L. Johnson / EHS / EP&C / 4-2-02
Name (print) / Signature / Company / Department / Date

Reviewer: Thomas D. Robinson / Thomas D. Robinson / ENS / EP&C / 4/3/02
Name (print) / Signature / Company / Department / Date

OSRC R V Fuller / Randall V. Fuller 4-18-02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
Woody Walker	Containment closure aspect

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II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		Temporary change SAR figure 9.5-1 M-2219 Sheets 1 and 5.
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ Yes
☒ No

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112.

☐ Yes
☒ No
☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

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(See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

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B. Basis

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

Question 1: This activity temporary impacts FSAR figure 9.5-1 P&ID's M-2219 Sheets 2 and 5. There are no other LBD's or Operating License affected by this temporary modification to the fire water system. This TAP will not prevent closure of the equipment hatch within the allotted time for containment closure.

Question 2:Installation of a temporary modification to provide fire water to Containment Building does not involve a test or experiment not described in the FSAR.

Question 3: This temporary modification is to be installed in an area that will not impact the storage of spent fuel.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:

LRS Zyindex was utilized to perform keyword searches 50.59 common.

A manual search was performed on the following sections. FHA, Unit 1 FSAR section 9.8.2, App. 9d.2, Unit 2 FSAR section 9.5, App. 9D

Unit 2 figure 9.5-1 P&ID's reviewed.

Keywords:

Fire w/5 hydrant, hose w/5 reel, fire w/5 water, containment w/10 closure, fuel handling accident and closure

D. Is the validity of this Review dependent on any other change? (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☐ Yes
☒ No

If "Yes," list the required changes.

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III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

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IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

☐ The proposed activity meets all of the following criteria regarding design function per Section 5.5.1.1:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.5.1.2. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The NRC has approved the proposed activity or portions thereof per Section 5.5.1.3. Reference:

B. Basis

(Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions. See Section 5.5.6 of the EOI 10CFR50.59 Review Program Guidelines for guidance.)

50.59 evaluation performed.

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provide temporary equivalent capacity fire hose to the Unit 2 Containment during 2R15 outage. Route and connect fire hose from yard hydrant H-5 to hose reel station 2HR-51 at elevation 354 in the Containment Building.

Reason for proposed Change:
Provide temporary equivalent capacity fire hoses to the Unit 2 Containment Building as required by the FSAR.

50.59 Evaluation summary and conclusions

This temporary modification meets the requirements for backup eqivalent capacity fire hoses as required by the FSAR. The only LBD's affected by this activity are the fire water system P&ID's that depict the hose reel stations and fire hydrant H-5.

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B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:
As evaluated in the FSAR the design of the Fire Water System is such that rupture or inadvertent operation will not jeopardize the capability of safety related equipment. The hoses being installed by this temporary modification are rated for fire protection service and will not normally be charged. In the event that the hoses are charged and there is a failure the hoses can be isolated at hydrant H-5. Therefore, this activity will not result in more than a minimal increase in the frequency of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:
The Fire Water System is evaluated in the FSAR for line breaks, misoperation and to mitigate the consequences of fires which have an effect on safety related equipment. Installation of the fire hoses will not affect the ability to respond to a failure or inadvertent operation of the fire water system. The capability of the hose stations to mitigate a fire remains functional and is capable of performing in accordance with current design requirements. Therefore, this activity will not result in more than a minimal increase in the likkelihood of of a malfunction of a structure, system or component important to safety previously evaluated in the FSAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:
The Fire Protection System is designed to minimize the affects of fires and such that pipe rupture or inadvertent operation does not cause loss of function to components important to safety. The original design and operation of the fire hose stations were installed to meet NFPA Standards as described in the FSAR. This activity will not degrade the capability of the hose stations and safety system reliability will be maintained. The equipment hatch is capable of being closed within the time allotted to minimize the consequences of a Fuel Handling Accident. Therefore, this activity will not result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:
The Fire Water System is designed such that any failure will not affect equipment important to safety. In the event of a failure while the fire hose is charged there is capability to isolate at hydrant H-5 as required by the FSAR. Therefore, the consequences of a malfunction of equipment important to safety will not be increased.

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BASIS:
The types of accidents that could be created by the Fire Water System are evaluated in the FSAR for pipe rupture and inadvertent operation. There are no other accidents, which could be created by this change that would affect the failure of the system. The fire hoses being installed by this activity have the same design rating as those currently installed in the Reactor Building for manual fire fighting capability. Therefore, this activity will not create a possibility for an accident of a different type than any previously evaluated in the FSAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS
Installation of temporary fire hoses does not impair the ability of the hose stations, in the Containment Building, from performing their operability requirements as required by the FSAR. The sections of fire hoses being installed by this activity will not create any new failure modes because in the event of a break in a charged hose the hose is capable of being isolated. Therefore, this activity will not create a possibility for a malfunction of a structure, system or component important to safety with a different result than any previously evaluated in the FSAR.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:
Installation of this Temporary Alteration requires that the Containment Building equipment hatch be in the open position. Fire hose installed by this activity is to be removed prior to entering modes that require containment integrity. This change is temporary and will not affect the fuel cladding, RCS pressure boundary or containment.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:
This activity provides equivalent backup hose station capability to the Unit 2 Containment Building as required by the FSAR. The fire hose stations were designed under guidance contained in NFPA-14. After the temporary alteration is installed the hose stations will still meet the requirements of NFPA-14. Therefore, this activity does not result in a departure from a method of evaluation as described in the FSAR.

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FFN 2002-0016

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit ~~1~~ 2 (2R)

TAP - 02 - 2 - 009 (2R)

Document Reviewed: ~~ER-ANO-2002-0491-000~~ **Change/Rev.:** 0

System Designator(s): ~~CW~~ AC CR 4/20/02

Description of Proposed Change

At the present time, (during 2R15), the ACW system is out of service, rendering the main chillers unavailable. In order to provide cooling for the containment building, a temporary chiller will be tied into the chilled water system at valves 2AC-153 and 2AC-155. This chiller, along with a temporary diesel generator to power it, will be located in the breezeway area and will be connected to the chilled water system with temporary hoses.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): *(Only sections indicated must be included in the Review)*

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** 02-016	**Sections I, II, III, and V required**

Preparer: John Richardson/ John Richardson / EOI / MCS Design / 4/19/2002
Name (print) / Signature / Company / Department / Date

Reviewer: David MacPhee / [signature] / EOI / MCS Design / 4/19/02
Name (print) / Signature / Company / Department / Date

OSRC: Tom Brown / [signature] 4/21/02
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		No changes will be made since this evaluation supports a temporary condition
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ **YES**
☒ **NO**

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)

☐ **YES**
☒ **NO**

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate se
Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ N/A

B. Basis

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

The affected portions of the chilled water system is not safety related and is not required by Tech Specs. The main chiller can affect the ability to maintain the requirements of containment systems T.S. 3.6.1.4 "Internal Pressure, Air Temperature and Relative Humidity", however, the Tech Spec does not state that the main chilled water system is required to maintain containment conditions. This temporary alteration will allow us to cool the containment atmosphere without affecting the Tech Specs, Operating License or Confirmatory Orders.

The proposed Temp Alt will affect the accuracy of drawings and descriptions in the SAR. While the Temp Alt is installed, the chilled water for the containment coolers will be supplied by a temporary chiller, not the main chillers. The temporary chiller will be tied into the chilled water system at valves 2AC-153 and 2AC-155, which are shown on SAR figure 3.2-4 as having blind flanges.

The use of the temporary chillers does not involve any new operation of the present ventilation systems. The chill water will be supplied by the skid mounted temporary chiller. The use of chilled water is normal for the plant and supplying the water with a temporary chiller is not a test or an experiment.

This design change has no impact or potential impact on the equipment or facilities used for ventilated storage cask activities. The chiller and generator will be located in the breezeway area and no activity or modification will occur in any area which could affect the dry fuel storage.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:

LRS: 50.59 common

Manual Sections U2 SAR Sections 6.2.2.2.2 "Containment Cooling System", 9.4.5 "Containment Building", Table 15.1.34-1 "Identification of Safety Related Air Operated Valves and Their Failure Modes"

Figure 3.2-4

Keywords:

Chiller, "chill w/10 water", "chilled w/10 water", freon, 2VCH1A, 2VCH1B

D. Is the validity of this Review dependent on any other change? ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☒	☐	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☒	☐	Involve the installation or use of equipment that will result in an air emission discharge?
☒	☐	Involve the installation or modification of a stationary or mobile tank?
☒	☐	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. **Executive Summary** *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This temporary alteration will install a temporary chiller and a diesel generator to power it to provide chilled water for the main chilled water system. The temporary chiller will interface with the present chilled water system only. The temporary equipment and hoses are not in areas containing safety related equipment. Therefore, the proposed Temp Alt will not increase the probability of any of the accidents presently analyzed in the SAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The temporary chiller will not directly interface with any safety related equipment. Nor will the temporary chiller and its piping be in the vicinity of any safety related equipment. The use of a temporary chiller to provide cooling to the main chilled water system will not interfere with the ability of the service water system to provide emergency cooling to the containment coolers or affect the containment coolers in the emergency mode of operation. The containment isolation valves in the chilled water lines supplying the containment coolers will be functional in order to be able to close upon receipt of a CIS.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The equipment affected by the proposed Temp Alt is not used to mitigate the consequences of any accident analyzed in the SAR. The chilled water system will be intact and will interface with the containment coolers in the same way as usual. The containment building isolation function of the main chilled water system is unaffected by the use of the temporary chiller. The radiological consequence of the presently analyzed SAR accident will be unaffected by the proposed Temp Alt.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The proposed temporary chiller will have no impact on any of the safety related equipment in the plant. The proposed Temp Alt will not change the plant's ability to mitigate the consequence of an accident. The only safety related components in the affected system are the main chilled water containment isolation valves. Since the temporary chiller pump produces less head than the main chilled water pumps, 55 to 75 psi versus over 100 psi, the required thrust loading of the valves is reduced and their ability to close is not jeopardized. The amount of off-site dose due to the malfunction of any plant equipment will remain unchanged by the Temp Alt.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The proposed Temp Alt will provide cooling water to the containment coolers using installed chilled water system piping. Some temporary hoses will be used to make the connections to the installed piping. The potential effect of the temporary hose is no different from the effect of the existing installed piping in that area. The additional fuel, refrigerant and equipment is located in areas which do not contain safety related equipment and do not have the potential to affect any radiological barriers or affect the operation of any equipment important to safety. The temporary hose is rated for pressures well in excess of the system operating pressure and its failure would not have an effect any different from the failure of other piping or equipment containing treated water.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   None of the equipment that will interface with or be in the proximity of the Temp Alt is safety related. The chilled water that the temporary chiller will provide will be delivered to the system load via the existing pipe system. The possibility of a malfunction of equipment will not be affected by a change in the equipment that chills the water before it is delivered to the point of use.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

   BASIS:

   This Temp Alt will not negatively change any condition which is important to any fission product barrier. The only affect this Temp Alt will have which is pertinent to this question is the reduction in chilled water system pressure due to the lower head produced by the pump on the temporary chiller skid. This lower pump head will reduce the required thrust of the containment isolation valves, thereby enhancing their ability to function.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

   BASIS:

   The source of chilled water for the containment coolers does not have any bearing on the method of evaluation of any safety analysis. This Temp Alt provides a different water source to a non-safety related system which is not depended upon for any safety analysis in the current mode of operation (refueling or defueled).

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FFN 2002-0017

FFN # 02-017

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: 01-R-2008-04, "ANO-2 Cycle 16 COLR" **Change/Rev.:** 0

System Designator(s)/Description:

Description of Proposed Change

The following items have been changed in Revision 0 of the Cycle 16 COLR as compared to the Cycle 15 COLR:

- The lower limit for MTC (Figure 1) has been revised form –3.4 E-04 Δk/k/°F to –3.8 E-04 Δk/k/°F.
- Modified the EFPD breakpoints in the Core Operating Limit for Moderator Temperature Coefficient (MTC) that specifies where a less positive (burnup dependent) MTC was credited in the safety analyses. The first breakpoint is at 124.9 EFPD. The second breakpoint is 353.2 EFPD.
- The required downpower and time frame for a dropped CEA (Figure 2). Also changed the title to this figure to "Required Power Reduction After Inward CEA Deviation".
- Linear Heat Rate has been changed from ≤ 13.5 kW/ft to ≤ 13.7 kW/ft up to a burnup of 187 EFPD and ≤ 12.6 kW/ft for burnups exceeding 187 EFPD.
- With COLSS in service and neither CEAC operable, COLSS calculate core power must be maintained less than or equal to COLSS calculated core power operating limit based on DNBR decreased by X. The value of X was changed from 13% to 10%.
- DNBR Margin with COLSS out of service and at least one CEAC operable (Figure 4). Added a note to this figure to clarify that DNBR greater than that indicated at the top of the figure is acceptable, provided the indicated ASI limits remain between the bounds that are shown for lower DNBR. In addition, the redundant title was removed from the figure.
- DNBR Margin with COLSS out of service and both CEACs inoperable (Figure 5). Added a note to this figure to clarify that DNBR greater than that indicated at the top of the figure is acceptable, provided the indicated ASI limits remain between the bounds that are shown for lower DNBR. In addition, the redundant title was removed from the figure.

In addition to the changes listed above, the reload process was modified to allow accelerated delivery of the startup products. Some of these products include the values listed in the COLR. This change in the process is also evaluated in this 50.59 review.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☐	SCREENING	Sections I, II, and III required
☐	50.59 EVALUATION EXEMPTION	Sections I, II, III, and IV required
☒	50.59 EVALUATION (#: 02-011)	Sections I, II, III, and V required

Preparer: Robert W Clark / Robert W Clark / EOI / NE / 04/23/02
Name (print) / Signature / Company / Department / Date

Reviewer: Bryan Daiber / [signature] / EOI / NE / 04/23/02
Name (print) / Signature / Company / Department / Date

OSRC Tom Brown / [signature] 4/25/02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR		X		
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☒	☐		This document
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program [4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. **Does the proposed activity involve a test or experiment not described in the FSAR?**
   If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.
   ☐ Yes ☒ No

3. **Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?**
   (Check "N/A" if dry fuel storage is not applicable to the facility.)
   If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112.
   (See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)
   ☐ Yes ☒ No ☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. **Basis**

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

General Information

Limit Change

The most negative MTC limit in COLR Figure 1 was changed based on the requirements of the reload analysis including Power Uprate. No other changes to the figure were required. The EFPD breakpoints at which credit is taken for less positive MTCs than the COLR limit in the Single CEA Withdrawal (SCEAW) event. The SCEAW analysis applies the most positive COLR limit MTC to the BOC and first break point and less positive MTCs to the second break point and EOC timepoints.

The Required Power Reduction limit is changed based on the requirements of the CEA drop analysis including Power Uprate.

The change to the LHR limit is required to disposition the PAC exceptions related to the gadolinia radial falloff curves and the pin-to-box factor as used in the bounding Fuel Performance Analysis supporting power uprate. The philosophy of the fuel performance analysis that develops a bounding limit with a break point in burnup is addressed in the Power Uprate submittal. This 50.59 review addresses the Cycle16 specific value for the break point.

The DNBR Margin changes were based on the margin requirements of the reload analyses for Cycle 16. These analyses include Power Uprate.

The change in the title to Figure 2 is in accordance with what has been previously transmitted to the NRC.

The notes added to Figures 4 and 5 are to provide clarification.

Process Change

The current Asbuilt/Startup Analysis process portion of the Reload Analysis Methodology results in the following products:

- Final Core Load Map
- COLSS Database Changes and Testing Information
- COLSS and CPC Startup Test Parameters
- Startup Physics Test Predictions
- Refueling Boron Concentration

This process is also used to confirm that the behavior of the asbuilt core is sufficiently similar to that of the reference design core such that the previous assessments (Physics Checklist, CCL based on reference design) will remain valid.

This process also interfaces with the Setpoint Analysis process. It is from this Setpoint Analysis process that the values for the COLR are derived.

The current process requires three main inputs. These are:

- Results and Physics models from the reference design analysis
- The best estimate of the previous cycle shutdown burnup (from ANO)
- The Asbuilt Uranium and Burnable Absorber loading of the fresh feed batch fuel assemblies. (from Westinghouse)

Since the asbuilt loadings are generally not available until the Final Scheduled Shipment Date, the Asbuilt/Startup analysis process, which currently requires approximately 5 weeks to complete, is a critical path activity. In the current process, the Startup products are delivered approximately 3 weeks after shutdown, In the past, with outages significantly exceeding 30 days, this scheduled provided sufficient time for installation and testing prior to plant startup. However, with current outage times approaching or sometimes even less than 30 days, there is a need to advance the delivery schedule for these products.

In the revised process, the delivery of the products is advanced since these products no longer require asbuilt fuel loadings. The best estimate of burnup and the results from the reload efforts are still required prior to the beginning of the analyses for the startup products. It should be noted that the tolerance around the best estimate burnup has increased from 3 EFPD to 5 EFPD.

Westinghouse as evaluated the impact increasing the tolerance of the burnup estimate and eliminating the explicit asbuilt loadings on the process. The results of the evaluations that these changes do not introduce errors that are not accounted for in the plant safety and setpoint analyses.

The process changes did not result in any setpoint or other analytical penalties. However, the process changes did eliminate the fine-tuning of the core power distribution that was previously performed using the assembly specific asbuilt fuel loadings. This may result in a loss in operating margin (in DNBR and PLHGR due to potential increases in radial power peaking) in some cycles relative to that that would have been possible with full asbuilt optimization of 0.5% or less. It is noted by Westinghouse that this margin loss is well within the normal statistical variations expected from cycle to cycle due to calculational uncertainty, loading pattern variations, and operating conditions and thus will probability not be discernable during operations.

Operating License Documents

ANO-2 Tech Spec 6.9.5 requires "the core operating limits be established and documented in the Core Operating Limits Report [COLR] prior to each reload cycle. Tech Spec 6.9.5.1 lists the analytical methods used to develop the operating limits. This document meets the requirements of these two specifications.

The actual cycle-specific limits that are listed in the COLR are not addressed in the Technical Specifications. The Technical Specification Safety Limits, Limiting Safety Settings, and Limiting Conditions of Operations governing the operation of the Cycle 16 core are bounding.

The actual cycle-specific limits and the Asbuilt/Startup Analysis process change are beyond the scope of the ANO-2 Operating License, ANO-2 Technical Specifications and the Confirmatory Orders.

LBDs Controlled Under 50.59

This document is Revision 0 of the ANO-2 Cycle 16 COLR. Therefore an evaluation is required for the proposed changes. An LDCR has been prepared.

The ANO-2 SAR does discuss some of the values listed in the text, particularly in Chapters 4, 6 and 15. The limits listed in the COLR ensure that the limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits like SDM, and transient and accident analysis limits) of the safety analysis are met.

The bases of the ANO-2 Technical Specifications and the NRC's SERs discuss in general the parameters and the limits listed in the COLR. The values for the cycle-specific limits are beyond the scope of the bases of the Technical Specifications and SERs.

The proposed changes to the cycle-specific operating limits are beyond the scope of the TRM and ODCM.

The change in the setpoint analysis process is beyond the scope of the LBDs controlled under 50.59.

LBDs Controlled Under Other Regulations

The proposed changes to the cycle-specific operating limits and the setpoint analysis process are beyond the scope of the LBDs that are controlled under other regulations.

Does the proposed activity involve a test or experiment? NO

The implementation of the setpoint analysis change does not constitute testing or experimentation. The cycle-specific limits were determined using NRC approved methods. Any test that must be performed to verify the operation of the unit within the limits listed in the COLR (e.g., MTC) are described in Section 4.5 of the FSAR.

Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an ISFSI? NO

The changes in the cycle-specific operating limits and the setpoint analysis process do not change the design basis of the spent fuel pool or associated support systems. Operation of the reactor and Cycle 16's core is beyond the scope of the equipment, procedures, etc., used at an ISFSI.

C. **References**

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:

LRS:- 50.59, Unit 2

ANO-2 Tech Specs and bases (3.1.1; 3.1.3; 3.2.1; 3.2.4; 3.10; 6.9.5)

ANO-2 SAR (4.2; 4.3; 4.4; 4.5; 6.3; 7.2; 15.1; 15.1.3; 15.1.7; 15.1.14; 15.1.20)

NRC SER (amendments 24; 26; 66; 70; 122; 156; 157; 163; 164; 186; 190; 208; 222; 236; 238)

Keywords:

("CEA deviation"; "CEA position"; MTC; "moderator temperature coefficient"; "DNBR margin"; "linear heat rate"; LHR; PLHGR; "-3.4x10-4"; 166.4; 311.6)

D. **Is the validity of this Review dependent on any other change?** (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☒ Yes
☐ No

If "Yes," list the required changes.

2CAN120001, "Application for License Amendment to Increase Authorized Power Level", dated December 19, 2000.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. **Executive Summary** (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Reason for proposed Change:

50.59 Evaluation summary and conclusions

Per LI-101, step 5.6.1, ANO does not perform 50.59 Evaluation Summaries and this section is not applicable.

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The changes described above will ensure that the unit is operated during Cycle 16 in a manner that is consistent with the assumptions used in the safety analysis for this cycle. The appropriate actions required if these limits are violated are in the Technical Specifications and are not being changed. The changes to the COLR and to the Asbuilt/Startup Analysis process affects only the operational limits and has no impact on the initiating events of any accident previously evaluated in the FSAR. Therefore the frequency of occurrence of an accident previously evaluated in the FSAR will not be increased.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The changes to the COLR affect only the operational limits and ensure the core is operated in a manner that is consistent with the assumptions used in the analyses for this core design. The changes described above do not involve any changes in equipment. These changes will alter the manner in which the unit is operated; however, the function and duty of the structures, systems, and components important to safety is not altered.

The change to the setpoint analysis process does not alter any equipment or the way the equipment is operated.

Therefore, these changes do not increase the likelihood of occurrence of a malfunction of a structure, system or component important to safety previously evaluated in the FSAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The changes described above will ensure that the unit is operated during Cycle 16 in a manner that is consistent with the assumptions used in the safety analyses for Cycle 16. The appropriate actions required, if these limits are violated are in the Technical Specifications and are not being changed. Changing the limits for MTC, required downpower, LHR, and DNBR margin would not result in a change to the evaluated consequences of accidents. The change in the setpoint analysis process does not result in a change to the evaluated consequences of accidents. The analyses for the reload, including the setpoint analyses, has been performed with NRC approved methodologies to ensure that the SAFDLs will not be violated and the dose consequences are bounded by the results in the licensing basis analyses. Therefore, the consequences of an accident previously evaluated in the FSAR will not be increased.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The changes described above do not require any changes to the assumptions concerning structure, system or component availability or failure modes. These changes do not involve any changes in the structures, systems, or components. In addition, these changes do not impact negatively the overall function or duty of the structures, systems, or components important to safety. These changes will not result in a change to the evaluated consequences of the accidents, which also included consideration of all relevant structure, system and component malfunctions. Therefore, the consequences of a malfunction of a structure, system, or component important to safety will not be increased.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The changes described above will ensure that the unit is operated during Cycle 16 in a manner that is consistent with the assumptions used in the Cycle 16 safety analyses. These changes do not create an additional failure modes than what has already been analyzed. No initiators to any of the accidents are impacted by these changes. 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 FSAR. Based on the above, the possibility of an accident of a different type than any previously evaluated in the FSAR will not be created.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

No changes in the failure modes of the structures, systems, or components important to safety are assumed in the changes described above. No new operating conditions or plant configurations are created that could lead to a malfunction of structures, systems, or components of a different type than any previously evaluated in the FSAR. Therefore, the possibility of a malfunction of a structure, system or component important to safety with a different result than previously evaluated in the FSAR will not be created by the described changes.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The Cycle 16 reload safety analyses were performed to demonstrate compliance with the design basis limits for the three fission product barriers. In some cases, the analyses demonstrated that to ensure compliance with the limits additional margin had to be reserved or lower operating limits invoked. The changes described above to the operating limits will ensure that the core is operated in Cycle 16 in a manner that is consistent with the Cycle 16 safety analyses assumptions. The changes will then ensure that the core is operated in a conservative manner with respect to the design basis limits. Based on the above the changes to the COLR for Cycle 16 or in the setpoint analyses do not result in a SAR described design basis limit for a fission product barrier being altered or exceeded.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses?

☐ Yes
☒ No

BASIS:

ANO-2 Technical Specification 6.9.5.1 lists the NRC approved methodologies that are to be used to determine the core operating limits. The Cycle 16 limits were developed using these methodologies.

The methodologies used by Westinghouse in their evaluation of the process change are the same ones that are normally used in Asbuilt/Startup Analysis process. No new methodologies were introduced. The only changes are due to the input assumptions used in the methodologies.

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FFN 2002-0018

FFN # 02-018

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: OP 2202.010,Standard Attachments Attachment 12 **Change/Rev.:** 07-00-0
OP 2202.003, LOCA **Change/Rev.:** 06-00-0
OP 2202.009, Functional Recovery **Change/Rev.** 06-00-0

System Designator(s): HPSI, BS

Description of Proposed Change

This 50.59 Review provides justification for throttling the HPSI pumps during hot leg injection from 825 gpm to 800 gpm as provided in Attachment 12 of OP 2202.010 and to delay the time for aligning hot leg injection to 3 hours per OP 2202.003 and OP 2202.009. The application of Attachment 12 is directed by OP 2202.003, and OP 2202.009.

The need to perform the throttling action to 800 gpm during hot leg injection is to ensure the continued HPSI pump/system operability in light of the conditions identified in condition report ANO-2-2002-0978. The condition report identifies the fact that the HPSI pumps could exceed their current design basis maximum limit of 825 GPM and the fact that available NPSH is inadequate for 2P-89C during the hot leg injection mode. The operator action to align the HPSI in hot leg injection is already established by procedure 2202.003 in the event of a LOCA. During swap-over to hot leg injection a Caution (already contained in the Attachment 12) ensures that the HPSI flow rates are below a specified limit of 825 gpm (being changed to 800 gpm).

The operator action to swap to hot leg injection is to occur between 2 to 4 hours into the LOCA event. OP 2202.003, Action 24 states "Check at least 2 hours have elapsed since start of LOCA". A desing limit of 760 gpm is established to ensure that adequate flow the RCS is maintained. To stay within this flowrate including instrument uncertainty results in a need to further delay hot leg injection to about 3 hours. Therefore, Action 24 of OP 2202.003 is being changed to state "Check at least 3 hours . . .". The cold leg HPSI injection is fully automatic and is not affected by this condition. The action to delay hot leg injection to 3 hours is consistent with the recent changes made for ANO-2 SAR section 6.3.3.15, Long-Term ECCS Performance as provided in the Power Uprate SAR changes. Section 6.3.3.15 states that "Between 2 and 4 hours post LOCA, the MOVs on the hot leg injection lines are energized and opened. . ." "this accomplished complete core flushing". This ensures that there is no boric acid buildup beyond the required solubility limits. The change from 2 hours to 3 hours post LOCA to initiate hot leg injections is consistent with the SAR and is not being further evaluated.

Therefore, the only procedure change being addressed by the 50.59 Evaluation is for the reduction of HPSI flow in Attachment 12 of OP 2202.010 from 825 gpm to 800 gpm.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 . (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): *(Only sections indicated must be included in the Review)*

☒	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** 02-018	**Sections I, II, III, and V required**

Preparer: Robert McBride / [signature] / EOI / ANO-2 Ops / 4/27/02
Name (print) / Signature / Company / Department / Date

Reviewer: Steve Bennett [signature] /EOI / ANO Licensing / 4/27/02
Name (print) / Signature / Company / Department / Date

OSRC: Tom Brown [signature] 4/27/02
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
Bryan Daiber	Analytical support
Jerry Howell	Engineering support for ER-2002-0528

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☐	☒		See Section II B below
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		

Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☐	☒	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. **Does the proposed activity involve a test or experiment not described in the FSAR?**
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ YES
☒ NO

3. **Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?**
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ YES
☒ NO
☐ N/A

B. Basis

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

A search of the license basis documents as detailed below in II C, indicates that the results of this proposed procedure change has no effect on the Tech Specs, Operating License or Confirmatory Orders. The results of this search indicate that the FSAR is affected in Section 6.3.1.5, which reflects the required NPSH at a pump flowrate of 825 gpm. Even though the required flowrate is being reduced by procedure, there is no change to the licensing basis of ANO-2 since the overall condition of the HPSI pumps is being controlled under 10CFR50, Appendix B Criterion XVI and under the guidance of Generic Letter 91-18. Therefore, the procedural action to control the flowrate to a value less than this is considered appropriate and conservative for ensuring adequate NPSH. Even though there is no change to the SAR or other LBDs, the operator action to limit HPSI flow is being evaluated under a 50.59 Evaluation as a compensatory action for condition report ANO-2-2002-0978.

This change does not represent a test or experiment in accordance with LI-101.

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

C. **References**

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:

Unit 2 50.59

FSAR Sections Reviewed:

Unit 2 SAR Chapter 6, Unit 2 T.S. Section 3/4.5 and 3/4.6

Keywords:

hot leg injection, HPSI w/20 flow, HPSI w/20 NPSH, HPSI w/20 test, HPSI w/20 825, High Pressure Injection w/20 flow, High Pressure Injection w/20 825, High Pressure Injection w/20 NPSH, High Pressure Injection w/20 Net Positive Suction Head, injection w/20 indica, 825 gpm, 2P89 w/20 flow, 2P89 w/20 NPSH, sump elevation w/20 feet, sump level w/20 feet, sump water level w/20 feet, containment sump water level w/20 elevation, sump w/20 temperature, 2P35 & spray pump, 2K4B, Diesel Load, EDG Load, HPSI w/20 hp, 2P89B

D. **Is the validity of this Review dependent on any other change?** ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. Executive Summary *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

Provided in Section I of this form

Reason for proposed Change:

Provided in Section I of this form

50.59 Evaluation summary and conclusions

Contained in Part B of this Section

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This change allows for the HPSI flow to be throttled from 825 gpm to 800 gpm. This action does not have the ability to initiate an accident or impact the frequency of occurrence of an accident. The function of the HPSI system is to mitigate accident events. Therefore, there is no change in the frequency of occurrence of an accident.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The throttling of the HPSI pumps during hot leg injection from 825 gpm to 800 gpm continues to ensure that there is adequate NPSH for pump suction. Therefore, this action protects the HPSI design function during hot leg injection and ensures that adequate flow is available to the RCS.

   The ER supporting this change maintains NPSH operability margin. The HPSI system during hot leg injection is also required to maintain a minimum flow to the RCS while also ensuring a minimum flow to the core for preventing boron precipitation. The reliability of the HPSI system for either design funceion will not be decreased. In additional, loads such as electrical has been analyzed and no system/equipment protection features have been impacted and other design limits are not affected. The change in the operating flow band and throttling of injection valves will not increase the likelihood of any malfunctions. Therefore, the increased likelihood of a malfunction of equipment important to safety will not occur.

☐ Yes
☒ No

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR?

BASIS:

During hot leg injection the upper limit established by procedure is to maintain flow to prevent loss of NPSH. In addition, the reduction of this flow to 800 gpm is still above the required minimum flow of 760 (including instrument uncertainty) which ensures that core cooling is maintained. The function of the HPSI system while in hot leg injection is to ensure long term ECCS performance by flushing the core under a cold leg break. The change to reduce the HPSI upper flow band and throttling of the injection valves will not impact the HPSI system to be able to perform this ECCS function. Operator action is already performed to accomplish throttling of HPSI at 825 gpm and a reduction to 800 gpm continues to provide adequate suction head. The HPSI system will continue to mitigate the consequences of an accident by protecting the fuel cladding boundary. Therefore, this change will not affect the ability of the HPSI system to mitigate the release of radioactive material. There will be no impact to inplant doses that would restrict access to vital areas or impede mitigating actions. Therefore, this change has no impact on the consequences of any previously evaluated accident.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

This change will only affect the controlled flowrate of the HPSI system and will not result in any change to the already analyzed failure modes of the system. There will not be any additional reliance on the HPSI system as a result of this change. Throttling the HPSI valves to 800 gpm does involve operation of equipment important to safety, however, it is acceptable since the actions being taken are presently within existing procedures and is supported by the ANO-2 SAR. Therefore, there are no increases of the consequences of any equipment malfunction previously evaluated (i.e., dose associated with plant's response) in the SAR.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

The change in the upper flow band and the delay in aligning of the injection valves will not create any new operating requirement or configuration, which will affect the ability of the plant to respond to an accident. The analysis conducted in ER2002-0528-000 confirms the ability of the HPSI pumps to perform their required function for control of boric acid precipitation. No new accident initiators or failures are generated with this change. Since plant operations has not been changed, then the possibility of an accident of a different type is not created.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS

No new equipment configurations are created by the change in the HPSI flow band or the throttling of the injection valves. The change in the upper flow band will not cause plant equipment important to safety to be operated in a different manner than previously identified. Throttling of the valves is within the design function of these valves and is therefore not being impacted by the change in limiting flow to 800 gpm. No new failure mechanisms are generated due to this change. Therefore, the possibility of an equipment malfunction with a different result is not created.

☐ Yes
☒ No

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered?

BASIS:

The action to limit HPSI pump flow assures that the protective function of HPSI is maintained within the required NPSH limits and to ensure adequate HPSI flow during hot leg injection. The conditions where these events would occur would be post LOCA. The purpose of the HPSI system is to ensure that the fuel parameters are maintained. These parameters are unchanged as a result of these changes. The operating requirements and system configuration will not be altered due to the change in the upper limit of the HPSI flow band and the throttling of the injection valves. The upper limit of the flow band remains acceptable to provide adequate flow. Since the new flow characteristics are within the design limits of the system, there will be no affect on the fission product barrier.

☐ Yes
☒ No

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses?

BASIS:

The analysis performed under ER-2002-0528-000 did not use any new analytical methods for evaluation. No analytical methods are being changed as a result of these procedure changes.

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FFN 2002-0020

I. OVERVIEW / SIGNATURES

Facility: ANO - Common

Document Reviewed: ER-ANO-2000-3151-003 **Change/Rev.:** 0

System Designator(s): BA

Description of Proposed Change

This ER disconnects electrically and mechanically Breathing Air compressor C-29 and abandons it in place along with various associated support components of this compressor. The compressor is not operable and cannot be economically repaired at this time. No design basis functions of the Breathing Air System are changed by this NCP, but only the number of serviceable compressors is reduced from two to one.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 . (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): *(Only sections indicated must be included in the Review)*

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FFN#02-020	**Sections I, II, III, and V required**

Preparer: WILLIAM E. ROGERS / William E. Rogers / EOI / EP&C / 5-22-02
Name (print) / Signature / Company / Department / Date

Reviewer: DAVID N. MCKENNEY / [signature] / EOI / SYE-1 / 5/24/02
Name (print) / Signature / Company / Department / Date

OSRC: R V Fuller / Randall V. Fuller 5/30/02
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
J. R. Jones	Searches and document change drafts.

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		U1 SAR Section 9.9 and Figure 9-14 & U2 SAR Section 9.3
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ YES
☒ NO

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)

☐ YES
☒ NO

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines) ☐ **N/A**

B. Basis

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

The Breathing Air system is a non-safety related system used to provide breathing air throughout both units. It is also used as a backup to the Instrument Air system on both units. There are no Technical Specifications or Licensing commitments associated with the system that are affected by this change other than the descriptions of the system in Unit 1 SAR Section 9.9 and Figure 9-14 of and Unit 2 SAR Section 9.3. Other Sections were reviewed as indicated below. In addition, the changes made by this NCP in no way involve any test or experiment not described by the SAR and do not impact any part of the facilities for the storage of Spent Fuel on-site.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
LRS Searches:	
Unit 1 50.59 & Unit 2 50.59	"C-29", "Breathing" , "Instrument w/5 Air"
Manual Reviews:	
Unit 1 SAR	Figure 9-14
Unit 2 SAR	Sections 1.2.2.10, 15.1.34, Table 15.1.34-1, Figure 9.3-1

D. Is the validity of this Review dependent on any other change? ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. Executive Summary *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

This ER disconnects electrically and mechanically Breathing Air compressor C-29 and abandons it in place along with various associated support components of this compressor. The compressor is not operable and cannot be economically repaired at this time. No design basis functions of the Breathing Air System are changed by this NCP, but only the number of serviceable compressors is reduced from two to one.

Reason for proposed Change:

To remove the inoperable compressor, C-29 and its associated support components from the recognized list of usable plant components. This will remove an Operations Concern associated with this compressor and allow the removal of Operations Caution and Hold Tags. It will also remove this compressor from the list of active components that must be maintained by the Maintenance Department.

50.59 Evaluation summary and conclusions

The removal of C-29 and its associated support components as described in the NCP does not affect any analyzed accident or impact any presently defined dose release consequences. No existing design basis function of the Breathing Air System is changed by the reduction of the number of compressors from two to one.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   Based on a review of the accidents described in Chapter 14 of the U1 SAR and Chapter 15 (Section 15.1.34) of the U2 SAR, the Breathing Air system was found to be in no way involved or mentioned in of any of those events. Since none of the described events are either initiated or mitigated by the Breathing Air system or any of its components, the abandonment of one of the two compressors causes no increase in the frequency of occurrence of an accident. In the same way, the removal of language in the SAR describing functions of the BA system that are no longer used also does not increase the frequency of the occurrence of any evaluated accident.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

Although the Breathing Air system is described in the U1 SAR and the U2 SAR, neither the compressors nor any other part of the system is required for accident mitigation. The system exists merely to supply air to workers in areas were fresh air respirators are needed. In addition, the system can be used to supply backup volume to the Instrument Air System, if required. In either case, the system is not involved either as an initiator or mitigator of any evaluated accident and the changes made to the system by this NCP do not increase the likelihood of occurrence of a malfunction on any SSC important to safety.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Breathing Air system is not involved either as an initiator or mitigator of any evaluated accident. Its purpose is to provide breathable air to workers using fresh air respirators. The abandonment of one of the two compressors and the changing of the language in the U1 SAR and U2 SAR to recognize that the system can be feed from Instrument Air does not impact the dose consequences of any accident.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Breathing Air system is not safety-related and does not support any functions of structures, systems or components important to safety. Its function of supplying breathable air to workers using fresh air respirators is an Industrial Safety function and the changes made in this NCP recognize that this function can also be supplied by the Instrument Air System as described in the U1 SAR. The abandonment of one of the two compressors does not render the BA system incapable of supplying breathable air, but merely reduces the volume that can be supplied. In addition, the BA system can still be used, if needed, to backup the Instrument Air System. Since none of these design functions in any way affect the dose or release consequences of SSCs important to safety, the NO answer to this question is justified.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The changes made by this NCP do not change the function of the Breathing Air System. It is still capable of supplying breathable air to workers using fresh air respirators, just the volume that can be supplied is reduced and the backup function of supplying Instrument Air is still possible. Since no new design functions are introduced by this NCP, the creation of an accident of a different type than any previously analyzed is not possible.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The U1 SAR already recognizes the use of the Instrument Air System as the breathable air supply for fresh air respirators. In addition, the changes made to the Breathing Air System in this NCP do not change the function or design basis of the system, but merely reduce the available volume of air that can be supplied since the number of compressors is reduced from one to two. Also, both the Instrument Air System and Breathing Air System have no safety functions. Therefore, there is no new possibility for a malfunction of a SSC important to safety with a different result than any previously evaluated in the SAR.

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FFN 2002-0021

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	2

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: ER-ANO-2002-0053-000 **Change/Rev.:** 0

System Designator(s): CW

Description of Proposed Change:

This ER removes switch 2FIS-1216 out of the 2K427 window # 11 alarm circuit permanently and updates the drawings accordingly. 2FIS-1216 has been disconnected from the alarm circuit temporarily by T-Alt since 1999 under ER991960E201. 2P-3B circulating water pump gland packing domestic water passes through a rotameter that has a low flow switch (2FIS-1216). This flow switch was constantly in alarm due to indicated low domestic water flow. During 2R15, the lines from the rotameter to the gland packing were cleaned and the rotameter indicated good flow with the pump shut down. It was also discovered that further work is needed on the bearing and the packing to eliminate the indicated low flow condition at a future pump rebuild. This ER will make changes to the documentation and drawings and justifies the removal of the low flow switch permanently. This will eliminate the T-Alt and remove this condition from the Operations Concerns Ops Log and Annunicator Out of Service lists. It is possible that following the future bearing and packing rework, Systems Engineering may initiate a subsequent ER to place the 2FIS-1216 alarm back in service.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 (A).

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): *(Only sections indicated must be included in the Review)*

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FFN #02-021	**Sections I, II, III, and V required**

Preparer: WILLIAM E. ROGERS / William E. Rogers / EOI / EP&C / 6/7/02
Name (print) / Signature / Company / Department / Date

Reviewer: MICHAEL J. McINERNEY / M. J. McInerney / EOI / SYE-2 / 6/7/02
Name (print) / Signature / Company / Department / Date

OSRC: Tom Brown / T. Brown / 6/13/02
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:
Michael Azami	LRS searches

Name: Michael Azami

Scope of Assistance: LRS searches

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		Section10.4.5.5, Figure 10.4-1
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ YES ☒ NO

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)

☐ YES ☒ NO

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ **N/A**

B. Basis

The T-Alt done under ER991960E201 disabled the signal generated by the low flow condition experienced by the flow-indicating switch 2FIS-1216. This signal would have brought Annunciator 2K427, window # 11 into alarm. The activation of any alarm window on Annunciator module 2K427 will initiate a common window B9 (CIRC WTR SYS TROUBLE) on Annunciator 2K12 in the control room. The T-Alt was done to remove the nuisance alarm and to allow the Operations to be cognizant of any other Circulating Water System changes via 2K427 and 2K12-B9 alarms. Defeating the alarm had no other effect on the operating pump and did not place the pump in any danger.

The Domestic Water System supplies lubricating water to the circulating water pump bearings and packing glands. On the loss of domestic water, a solenoid valve at each pump will open automatically and allow the pump discharge water to provide the required lubricating flow. Renewal of domestic water flow will automatically close the solenoid valves. Each circulating water pump is provided with dual cyclone separators to clean the water (either domestic water or pump discharge water) injected into the packing gland and bearing.

The Unit 2 SAR discusses the Circulating Water Pumps and their Glands in more detail and what is needed. It also mentions that the pumps have gland flow alarms. The description about the rotameter and the alarm is not important for the operation of the pump. Circulating Pump 2P-3B has been running with this condition since 1999. Work performed during 2R15 demonstrated that the gland seal is getting adequate cooling water and is in no danger. In addition, the backup systems described earlier are there to provide assurance that gland seals will get enough cooling water at all times. The two-sentence paragraph in the SAR needs to be deleted. This 50.59 addresses the deletion of the two sentences (page 10.4-15 third paragraph from the bottom of the page) and corrects SAR Figure 10.4-1 (M-2209-1). No other LBDs are impacted, as the level of detail found in the Operating License documents is not sufficient to contain references to this flow meter. In addition, no tests or experiments not described in the FSAR are involved and this change in no way involves or impacts any part of the Independent Spent Fuel Storage installation.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
Unit 2 50.59 Review	2FIS-1216, rotameter, packing gland, alarm w/20 gland
PIDs – Manual Search	

D. Is the validity of this Review dependent on any other change? ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. Executive Summary *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

2FIS-1216 has been disconnected from the alarm circuit to 2K427 Window 11 temporarily by T-Alt since 1999 under ER991960E201. This ER will make changes to the documentation and drawings and justifies the removal of the low flow switch permanently. This will eliminate the T-Alt and remove this condition from the Operations Concerns Ops Log and Annunicator Out of Service lists. It is possible that following the future bearing and packing rework, Systems Engineering may initiate a subsequent ER to place the 2FIS-1216 alarm back in service.

Reason for proposed Change:

2FIS-1216 has been disconnected from the alarm circuit to 2K427 Window 11 temporarily by T-Alt since 1999 under ER991960E201. 2P-3B circulating water pump gland packing domestic water passes through a rotameter that has a low flow switch (2FIS-1216). This flow switch was constantly in alarm due to indicated low domestic water flow, although during 2R15, the lines from the rotameter to the gland packing were cleaned and the rotameter indicated good flow with the pump shut down. It was also discovered that further work is needed on the bearing and the packing to eliminate the indicated low flow condition at a future pump rebuild. This ER will make changes to the documentation and drawings and justifies the removal of the low flow switch permanently. This will eliminate the T-Alt and remove this condition from the Operations Concerns Ops Log and Annunicator Out of Service lists. It is possible that following the future bearing and packing rework, Systems Engineering may initiate a subsequent ER to place the 2FIS-1216 alarm back in service.

50.59 Evaluation summary and conclusions

The removal of the alarm signal from 2FIS-1216 will not result in any detrimental effects as the cooling water to the Gland has been demonstrated to be adequate by the work done during 2R15 and a backup flow path exists should it become necessary.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☐ Yes
☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

A review of the accidents in Chapter 15 of U2 SAR found that only the "Loss of Condenser Vacuum" accident is related to the Circulating Water System. The removal of the low flow signal from the domestic water flow to the 2P-3B gland generated by 2FIS-1216 will not result in an increase in the frequency of occurrence of this accident. This is due to the fact that the gland has two sources of cooling water and work performed during 2R15 demonstrated that the low flow signal from this switch is, in fact, erroneous. In addition, another indication and alarm is available to the Operations Control Room staff should loss of domestic water flow occur and is provided by 2FIS-1217.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The removal of this alarm will not change any failure considerations previously evaluated in the SAR. The Circulating Water System, though described in the Loss of Condenser Vacuum accident in Chapter 15 of U2 SAR, does not involve any safety related equipment or perform any safety functions for any accident previously evaluated in the SAR. Since the liklihood of malfunction of the Circulating Water Pumps is not increased by this change, no new pathway for release of radioactive material is created, nor it will affect any barriers which mitigate dose to the public or onsite doses.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The Circulating Water System is not essential to safety and the implementation of this ER will not increase the off-site dose consequences of any previously evaluated accident. The Loss of Condenser Vacuum accident reviewed in Chapter 15 of the U2 SAR is not impacted from a dose prespective. The loss of a Circulating Water pump is already evaluated by this accident and this is the worst possible condition in the highly unlikely event that all sources of cooling water to the gland be lost.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This ER change only affects the Circulating Water System, which has no equipment important to safety. The failure of a Circulating Water Pump, while not safety-related, can cause a loss of condenser vacuum which in turn can trip the turbine-generator and present a challenge to safety-related systems required to safely shut down the reactor, but these events have already been evaluated by the Loss of Condenser Vacuum accident. Therefore, the changes made by this ER will not increase the consequences of a malfunction of equipment important to safety beyond the existing safety analysis.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This ER does not change the function or failure mode of the Circulating Water System. Since the failure of the Circulating Water System is already evaluated in the SAR (under the loss of vacuum), this change will not alter any SAR accident type considerations. The possibility of an accident of different type than those previously evaluated in the SAR will not be created.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   The function and operating modes of the Circulating Water System are not being changed. This ER change does not affect any equipment important to safety. The presently evaluated results of the loss of condenser vacuum are bounding of any condition that could be the result of the changes made by this ER. Therefore the possibility of a malfunction of equipment important to safety with a different result beyond what was previously evaluated is not created by this change.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

This ER is not associated with any design basis related to fission product barrier as described in the SAR. The Circulating Water Pumps are not related to fission product barriers and their failure could not impact any such barrier beyond the existing design bases.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

No method of evaluation described in the FSAR is impacted by the changes made by this ER. Therefore, no departures from any method of evaluation is impacted nor will this ER have any affect on the Safety Analyses or the design bases established in the SAR.

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FFN 2002-0025

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 2

Document Reviewed: ER-ANO-2002-0897-000 **Change/Rev.:** 0

System Designator(s)/Description: TG

Description of Proposed Change

Quarterly main turbine valve stroke testing is normally accomplished per Procedure 2106.009 Supplement # 3. However, due to the increased risk of an inadvertent turbine trip during the stroke test, it is desirable to defer this testing until September 30, 2002. The turbine valves were last stroked during the turbine overspeed test on May 5, 2002. Per the surveillance requirements defined in TRM 4.3.4.1.2, the turbine valve stoke test should be performed every 92 days. Including the allowable 25% tolerance, the next stroke test must be performed on or before August 28, 2002. The purpose of ER-ANO-2002-0897-000 is to evaluate the deferral of the ANO-2 main turbine quarterly valve stroke testing. This ER provides the necessary justification to defer quarterly testing of the main turbine stop valves, control valves and reheat stop/intercept valves until September 30, 2002. CR 8/8/02

CR 8/8/02

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

- ☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.
- ☐ The proposed activity represents an "FSAR-only" change as allowed in Section 5.2.2.2_____. (Insert item # from Section 5.2.2.2).
- ☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): (Only the sections indicated must be included in the Review.)

☒	**SCREENING**	**Sections I, II, and III required**
☒	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION (#: FFN#02-025)**	**Sections I, II, III, and V required**

Preparer: Douglas Edgell / Douglas Edgell / EOI / SYE / July 31, 2002
Name (print) / Signature / Company / Department / Date

Reviewer: WALTER A. HILL / Walter A. Hill / EOI / SYE-1 / JULY 31, 2002
Name (print) / Signature / Company / Department / Date

OSRC Randall V. Fuller / R V Fuller / 8-8-02
Chairman's Signature / Date (N/A for Screenings and 50.59 Evaluation Exemptions)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? (Check "N/A" for those documents that are not applicable to the facility.)

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☐	☒		
TS Bases	☐	☒		
Technical Requirements Manual	☒	☐		Although, no revision is required to TRM 4.3.4.1.2, ER-ANO-2002-0897-000 justifies deferral of the turbine valve testing until September 30, 2002.
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒		
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program [4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ Yes
☒ No

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes," perform a 72.48 Review in accordance with NMM Procedure LI-112.
(See Sections 1.5 and 5.3.1.5 of the EOI 10CFR50.59 Review Program Guidelines.)

☐ Yes
☒ No
☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. Basis

(Provide a clear, concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

Section II.A - The testing of the Main Turbine overspeed protection system is only discussed in the Unit 2 SAR and the TRM. The postponement of this testing will therefore not affect any other LBD. The SAR states in Section 3.5.2.2.3 that periodic cycling of the steam stop valves will be performed. The recommended frequency defined in TRM 4.3.4.1.2 for cycling the turbine valves at least once every 92 days. The proposed change will extend the interval of testing beyond the 92 day requirement.

Section II.B - The change will affect the frequency of the Main Turbine overspeed protection system test, but will not affect the test methodology. The test methodology is not described in detail in the SAR.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
LBD Search 50.59 Common	Turbine w/10 valve, Turbine w/10 Quarterly, Turbine w/10 overspeed, missil* w/10 turbine, turbine w/10 strok*, "Stop Valve", CIV, "Turbine Control Valve"
SAR Section 3.5.2.2, 10.2, Table 3.5-2, 3.5-3	
TRM 3 / 4.3.4	

D. Is the validity of this Review dependent on any other change? (See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

☐ Yes
☒ No

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1] See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

IV. 50.59 EVALUATION EXEMPTION

Enter this section only if a "yes" box was checked in Section II.A, above.

A. Check the applicable boxes below. If any of the boxes are checked, a 50.59 Evaluation is not required. If none of the boxes are checked, perform a 50.59 Evaluation in accordance with Section V. Provide supporting documentation or references as appropriate.

☐ The proposed activity meets all of the following criteria regarding design function per Section 5.5.1.1:

The proposed activity does not adversely affect the design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of performing or controlling a design function of an SSC as described in the FSAR; **AND**

The proposed activity does not adversely affect a method of evaluation that demonstrates intended functions of an SSC described in the FSAR will be accomplished.

☐ An approved, valid 50.59 Review(s) covering associated aspects of the proposed change already exists per Section 5.5.1.2. Reference 50.59 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59 Review remains valid.

☐ The NRC has approved the proposed activity or portions thereof per Section 5.5.1.3. Reference: _____

B. Basis

(Provide a clear, concise basis for determining the proposed activity may be exempted such that a third-party reviewer can reach the same conclusions. See Section 5.5.6 of the EOI 10CFR50.59 Review Program Guidelines for guidance.)

N/A

V. 50.59 EVALUATION

A. Executive Summary (Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after PSRC approval, if available.)

Brief description of change, test, or experiment:

Provided in Section I of this form.

Reason for proposed Change:
Provided in Section I of this form.

50.59 Evaluation summary and conclusions

Contained in Part B of this Section.

B. License Amendment Determination

CR 8/13/02

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below.

☒ Yes
☑ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR?

☐ Yes
☒ No

BASIS:

Testing of the main turbine overspeed trip system requires stroking each of the stop valves, control valves and intercept valves, independently. Based on industry experience, this activity has an increased risk of a turbine trip associated with it. Deferring the turbine valve stroke test effectively decreasing the test frequency and therefore, the frequency of occurrence of any of the evaluated accidents involving a turbine trip will be decreased. The stroke test deferral does result in a small increase in the risk of turbine overspeed due to a stuck open valve. However, this increased risk is very small based on the short duration of this deferral and the fact that ANO-2 has never experienced a stuck open turbine valve. Also, the fact that either the turbine control valve or the stop valve can perform this isolation function and that both valves would have to stick open simultaneously for an overspeed condition to occur, makes this condition even more unlikely.

The increased testing interval has no effect on the possibility of a turbine missile generation. Per Section 3.5.2.2.2, the turbine can not reach an overspeed condition high enough to fail the new mono-block LP rotors installed during 2R6 and 2R7.

Based on the above discussion, the deferral of the turbine valve stoke test will not result in more than an minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The deferral of testing of the Main Turbine overspeed trip system will have no effect on SSCs important to safety. The purpose of stroking the turbine valves is to verify that the valves will close if an overspeed condition occurs. The initial requirement for the valve stroke testing discussed in the SAR was due to the "shrunk-on wheel" design of the original LP rotors. These rotors were capable of missile generation if the turbine experienced a sustained overspeed event. The new mono-block rotors have lower stress levels and will not fail at the maximum overspeed that the turbine can achieve per SAR Section 3.5.2.2.2 and thus will not generate a turbine missile. Because there is no potential for missile generation and the turbine itself is not a component important to safety, the likelihood of a malfunction of a SSC important to safety is not increased.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This change involves the deferral of turbine valve testing. The turbine valves are not critical in preventing or mitigating radiological exposure to the public. The stop valves are not designed to actuate to prevent radioactive material from spreading to other areas of the plant and potentially to the public.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   This change involves the deferral of turbine valve testing. The turbine valves are not critical in preventing or mitigating radiological exposure to the public. The stop valves are not designed to actuate to prevent radioactive material from spreading to other areas of the plant and potentially to the public. For example, the Steam Generator Tube Rupture Accident assumes that some radioactive material travels from the Steam Generators to the Condenser.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The change being implemented is simply a change in test interval. This is not a physical change to the equipment and no change in equipment operation. It is not plausible that another accident scenario would result. The only possibility of a new accident is the possibility of a control valve and stop valve sticking open simultaniously, causing excessive steam to be removed from the Steam Generators. This event has always been a possibility and is enveloped by consideration of secondary steam line breaks.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   This change does not modify the plant. The function of the system will not be changed. There will be no changes in any interfaces with other systems. Because system function and performance will remain the same, an different malfunction or result is not plausible.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

The deferral of turbine valve testing will have no effect on any fission product barrier. The system will be operated and tested in the same manner as before. Even a malfunction of the system during testing would not result in a design basis limit being exceeded. The possibility of a missile ejection event was eliminated due to the installation of the monoblock rotors. Therefore, the increase interval between tubine valve testing does not affect the probability of a turbine missile ejection.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

The deferral of the turbine test will not affect the method of evaluation in the SAR. The SAR has a discussion for determining the probability of missile genesis (P1). As explained by notes found in the applicable SAR section, the discussion was for the original LP rotor design. Deferral of testing would have an effect on the probability of missile genesis as discussed for the original LP rotors. The P1 value is derived from the average probability of a valve failure. Testing frequency will affect the calculation for average probability of a valve failure. However, the new design LP rotors have been evaluated and, as discussed in Section 3.5.2.2.2; "The amount of steam entering the turbine from the time of full load loss to stop valve closure is insufficent to drive the turbine to the overspeed required to fail the monblock. Should the stop valves fail to close, other turbine parts such as the last stage buckets, generator wedges, and bearings (if high vibrations occur) would fail, stopping the turbine, at speeds below that required to burst the monoblock rotor." Deferral of the test will have no effect on the design basis of the new monoblock burst evaluation and therefore, no effect on missile barrier analysis.

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FFN 2002-0029

I. OVERVIEW / SIGNATURES

Facility: ANO - Common

Document Reviewed: ANO-ER-2002-0780-000 TA 02-0-002 **Change/Rev.:** 0

System Designator(s): KP

Description of Proposed Change

Install 6-inch mechanical jumper between fire system test header and yard hydrant H-1

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): *(Only sections indicated must be included in the Review)*

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** **Evaluation #:** FFN# 02-029	**Sections I, II, III, and V required**

Preparer: Jackie L. Jones / Jackie L. Jones / EN-S / EP&C / 9-11-02
Name (print) / Signature / Company / Department / Date

Reviewer: ROBERT W. McWILLIAMS / Robert W. McWilliams / EN-S / EP&C / 9-12-02
Name (print) / Signature / Company / Department / Date

OSRC: JAMES McWILLIAMS / James McWilliams 9/16/02
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.)

List of Assisting/Contributing Personnel:

Name:	Scope of Assistance:

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		M-209-4, M-219-1 & M-2219-5 will be temporarly revised to indicate jumper connection. FSAR will not be revised. 50.59 eval. attached.
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		
Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. Does the proposed activity involve a test or experiment not described in the FSAR?
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ YES ☒ NO

3. Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ YES ☒ NO ☐ N/A

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[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

B. Basis

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

The connection of a mechanical jumper between the fire water test header and yard fire hydrant H-1is beyond the scope of both the Unit 1 and Unit 2 operating license documents.

This temporary alteration (TA) will provide the minimum of 2500 GPM to the fire water system header as required by the FSAR. Therefore, the text information of the FSAR documents will remain true and accurate while TA is installed. However, Unit 1 FSAR figure 9-16 P&ID M-219 Sheet 1, Unit 2 FSAR figure 9.5-1 P&ID M-2219 Sheet 5 and Unit 1 FSAR figure 9-10 P&ID M-209 sheet 4 will be inaccurate while the TA is installed. As such, a safety evaluation will be performed. A change to the above FSAR figures is not required because this change is temporary. As specified in the text of the FSAR, areas under the turbine generator floor are hydraulic designed to provide 2900 GPM to the area. Installation of the TA will result in less than adequate pressure to this system which would be considered degraded. There are no specified compensatory requirements for this Insurer required system. However, an hourly fire watch will be posted in the area under the operating floor of both units for the duration of the TA.

This TA does not involve a test or experiment that could degrade the margins of safety during normal operations or anticipitated trainsients. Accordingly this TA does not constitute a test or experiment not described in the FSAR.

This activity is in an area of the yard that will not potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an independent spent fuel storage installation.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	*Keywords:*
Commitment Tracking ZYindex was utilized to perform keyword searches 50.59 Common	Fire w/5 header, test w/5 header, fire w/5 hydrant, screen wash
Manual search performed on the following LBD's FHA-Intake Structure, Unit 1 FSAR section 9.8, Unit 1 FSAR App. 9D, Unit 2 FSAR section 9.5, Unit 2 FSAR App. 9D	
Unit 1 FSAR figures 9-10 and 9-16	
Unit 2 FSAR figue 9-5-1	

D. Is the validity of this Review dependent on any other change? ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. **Executive Summary** *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

Reason for proposed Change:

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

50.59 Evaluation summary and conclusions

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

B. **License Amendment Determination**

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   As evaluated in the FSAR the design of the firewater system is such that rupture or inadvertent operation will not jeopardize the capability of safety related equipment. This TA installs piping/hoses that connect to the fire water system test header outside of the Unit 1 Intake Structure, unused screen wash piping and hydrant H-1. The TA is capable of being isolated in the unlikely event of a break of the hoses/piping. Also, all temporary hose/piping will be located outside, such that a rupture or inadvertent operation would not cause a loss of function of plant structures, systems or components important to safety. Therefore, this activity will not result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The fire water system is designed to minimize the affect of fires and the probability of pipe ruptures or inadvertent operation that has the potential to cause loss of function to components important to safety. All fire protection system components protecting safety related equipment will remain functional and be available for fire fighting purposes. Both primary pumps will be capable of providing 2500 GPM via the temporary hose to the fire system header as required by the FSAR. Therefore, the implementation of this TA will not result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety previously evaluated in the FSAR.

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The Unit 1 and Unit 2 FSAR's evaluate the fire water system for line breaks, misoperation, and mitigation of the consequences of fires which could have an effect on safety related equipment. The temporary hose supplying fire water to the main header via hydrant H-1 will not affect the systems capability to perform within design requirements as evaluated for the protection of safety related equipment. There are no accidents evaluated in the FSAR that will have their radiation dose consequences altered as a result of this TA. Thus, this activity will not result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component to safety as previously evaluated in the FSAR.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The fire water system is designed such that any failure will not affect equipment important to safety. The test header temporary hose/pipe, hydrant H-1 and unused screen wash pipe connections are all located outside of plant structures and in an area such if there was a failure it would not affect safety equipment. The activities proposed by this TA do not affect or change the failure mode of any equipment important to safety. Therefore, installation of this TA will not result in more than a minimal increase in the consequences of a malfunction of a structure, system or component important to safety previously evaluated in the FSAR.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS:

The FSAR evaluates the fire water system for line breaks, misoperation and mitigation of the consequences of fires which could have an effect on safety related equipment. An alternate flow path of fire water being supplied via the test header to hydrant H-1 will not affect the fire protection system's capability of providing protection to those areas having safety related equipment as evaluated in the FSAR. Therefore, this activity will not create a possibility for an accident of a different type than any previously evaluated in the FSAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

BASIS

The equipment and connections associated with this TA are all located outside of plant structures and in an area such that failure would not affect any safety related equipment. The portion of the screen wash system that is utilized does not have an interface with any equipment that is important to safety. The connection of a hose between the fire system test header and hydrant H-1 does not modify or affect the fire protection system's interface with other systems, structures or components. Therefore, this activity will not create a possibility for a malfunction of a structure, system or component important to safety with a different result than any previously evaluated in the FSAR.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

BASIS:

Installation of this TA is in the yard area near the Unit 1 Intake structure. The fire water piping to the both Containment Buildings will not be altered by this activity. Therefore, this activity will not affect the fuel cladding, RCS boundary or containment for either Unit 1 or Unit 2.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

BASIS:

This TA provides an alternate flow path of the primary fire suppression system. The fire water system was designed and installed to meet the NFPA requirements as required by the FSAR. The alternate flow path will meet the requirements for system demand on all regulatory required systems. Fire hydrant H-1 is designed to have temporary hoses connected to the 4 ½ inch connection and the test was previously evaluated for temporary of pipe. Therefore, this activity will not result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or safety analysis.

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FFN 2002-0036

I. OVERVIEW / SIGNATURES

Facility: ANO - Unit 1

Document Reviewed: TAP-02-1-004, MAI-72719 **Change/Rev.:**

System Designator(s): SW/ICW

Description of Proposed Change

Install a blind flange/spool piece configuration in place of SW-8C so that spent fuel pool cooling can be maintained. The flange/spool piece serves two functions, i.e. to act as the pressure boundary location for SW and to allow piping alignment/fit-up for welding on the downstream side of the spool piece. The alignment concerns are on an OOS part of the SW system. This part of the SW system is isolated via a blind plate installed in place of FO-3825 and other blind flanges. Since these activities remove the direct SW discharge flume outlet flow path, an alternate path to the discharge flume will be procedurally controlled via 1104.028, Attachment B. This path routes the Nuc-ICW heat exchanger SW outlet to the ACW flume discharge downstream of the SW outlet isolation. This procedurally controlled TAP will not be addressed in this 50.59. However, TAP-02-1-004 must be installed in conjunction with the 1104.028 procedurally controlled temporary alteration so that the loss of spent fuel pool cooling is minimized. 50.59 Evaluation FFN 01-010 was written for the temporary cooling arrangement on E-28C (for TAP-01-1-001). In addition ER's and calculations have been performed to address various issues related to the alternate flume discharge path and incorporated into applicable operating procedures, i.e. time to boil, lake temperature, and flows. The selected blind flange meets the SW pipe class rating of 150 lb. Since the same design specification is utilized, an exemption from an Evaluation is possible. However, SYE conservatively elected to perform an Evaluation for this blind flange/spool piece installation.

If the proposed activity, in its entirety, involves any one of the criteria below, check the appropriate box, provide a justification/basis in the Description above, and forward to a Reviewer. No further 50.59 Review is required. If none of the criteria is applicable, continue with the 50.59 Review.

☐ The proposed activity is editorial/typographical as defined in Section 5.2.2.1.

☐ The proposed activity represents an "FSAR-only change as allowed in Section 5.2.2.2 (Insert item # from Section 5.2.2.2)

☐ The proposed activity is controlled by another regulation per Section 5.2.2.3.

If further 50.59 Review is required, check the applicable review(s): *(Only sections indicated must be included in the Review)*

☐	**SCREENING**	**Sections I, II, and III required**
☐	**50.59 EVALUATION EXEMPTION**	**Sections I, II, III, and IV required**
☒	**50.59 EVALUATION** Evaluation #: FFN#02-036	**Sections I, II, III, and V required**

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	2

Preparer: James T. South / J. South / EOI / SYE-1 / 10/3/02
Name (print) / Signature / Company / Department / Date

Reviewer: GEORGE E. INGLETON / George E. Ingleton / EOI / MODS / 10.3.02
Name (print) / Signature / Company / Department / Date

OSRC: Tom Brown / [signature] / 10/4/02
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings (see Section 5.8) and 50.59 Evaluations.)

List of Assisting/Contributing Personnel:

Name: **Scope of Assistance:**

II. SCREENING

A. Licensing Basis Document Review

1. Does the proposed activity impact the facility or a procedure as described in any of the following Licensing Basis Documents? *(Check "N/A" for those documents that are not applicable to the facility.)*

Operating License	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Operating License	☐	☒		
TS	☐	☒		
NRC Orders	☐	☒	☐	
If "YES", obtain NRC approval prior to implementing the change. (See Section 5.1.13 for exceptions.)				

LBDs controlled under 50.59	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
FSAR	☒	☐		SAR Figure 9-6, 9-18, & 9-20 are untrue during the temporary installation of this spool piece.
TS Bases	☐	☒		
Technical Requirements Manual	☐	☒		
Core Operating Limits Report	☐	☒		
Offsite Dose Calculations Manual	☐	☒	☐	
NRC Safety Evaluation Reports[1]	☐	☒		
If "YES", perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.				

LBDs controlled under other regulations	YES	NO	N/A	CHANGE # and/or SECTIONS TO BE REVISED
Quality Assurance Program Manual[2]	☐	☒		
Emergency Plan[2]	☐	☒		
Security Plan[2, 3]	☐	☒		

[1] If "YES," see Section 5.1.5.
[2] If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed.
[3] The Security Plan is classified as safeguards and can only be reviewed by personnel with the appropriate security clearance. The Preparer should notify the security department of potential changes to the Security Plan.
[4] If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition.

E-DOC TITLE:	E-DOC NO.	CHANGE NO.
50.59 REVIEW FORM	LI-101 Att 9.1	2

Fire Protection Program[4] (includes the Fire Hazards Analysis)	☐	☒	☐	
If "YES", evaluate/process any changes in accordance with the appropriate regulation.				

2. **Does the proposed activity involve a test or experiment not described in the FSAR?**
If "yes," perform an Exemption Review per Section IV OR perform a 50.59 Evaluation per Section V.

☐ YES
☒ NO

3. **Does the proposed activity potentially impact equipment, procedures, or facilities utilized for storing spent fuel at an Independent Spent Fuel Storage Installation?**
(Check "N/A" if dry fuel storage is not applicable to the facility.)
If "yes", perform a 72.48 Review in accordance with NMM Procedure LI-112. (See Sections 1.5 and 5.3.1.5 of EOI 10CFR50.59 Review Program Guidelines)

☐ YES
☒ NO
☐ N/A

B. Basis

(Provide a clear concise basis for the answers given in the applicable sections above. Adequate basis must be provided within the Screening such that a third-party reviewer can reach the same conclusions. Simply stating that the change does not affect TS or the FSAR is not an acceptable basis.)

TAP-02-1-004, in conjunction with MAI-72719, installs a blind flange/spool piece in place of SW-8C. Allowed modes of this installation include 5, 6, or defueled. Since SAR figures are temporarily changed, an Evaluation will be performed for TAP-02-1-004/MAI-72719. It should be pointed out that the SW pressure rating in this area is 150 lb. class. The selected flange is also a 150 lb. class flange which fully meets the design criteria requirements.

C. References

[Discuss the methodology for performing the LBD search. State the location of relevant licensing document information and explain the scope of the review such as electronic search criteria used (e.g., key words) or the general extent of manual searches per Section 5.3.6.4 of LI-101.]

LBDs/Documents Reviewed:	Keywords:
SAR, Section 6, 9, & 14. Figures 9-6, 9-18, and 9-20.	"Service water", "SW" w/10 operable, SW-8*, "Intermediate Cooling Water", "ICW" w/20 operable

D. Is the validity of this Review dependent on any other change? ☐ Yes ☒ No
(See Section 5.3.4 of the EOI 10CFR50.59 Program Review Guidelines)

If "Yes," list the required changes.

III. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115, "Environmental Evaluations," and attached to this 50.59 Review.

Will the proposed Change being evaluated:

Yes	No	
☐	☒	Involve a land disturbance of previously disturbed land areas in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
☐	☒	Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
☐	☒	Involve dredging activities in a lake, river, pond, or stream?
☐	☒	Increase the amount of thermal heat being discharged to the river or lake?
☐	☒	Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
☐	☒	Discharge any chemicals new or different from that previously discharged?
☐	☒	Change the design or operation of the intake or discharge structures?
☐	☒	Modify the design or operation of the cooling tower that will change water or air flow characteristics?
☐	☒	Modify the design or operation of the plant that will change the path of an existing water discharge or that will result in a new water discharge?
☐	☒	Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?
☐	☒	Involve the installation of stationary fuel burning equipment or use of portable fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?[1]
☐	☒	Involve the installation or use of equipment that will result in an air emission discharge?
☐	☒	Involve the installation or modification of a stationary or mobile tank?
☐	☒	Involve the use or storage of oils or chemicals?
☐	☒	Involve burial or placement of any solid wastes in the site area that may effect runoff, surface water, or groundwater?

[1]See NMM Procedure EV-117, "Air Emissions Management Program," for guidance in answering this question.

V. 50.59 EVALUATION

A. Executive Summary *(Serves as input to NRC summary report. Limit to one page or less. Send an electronic copy to the site licensing department after OSRC approval, if available.)*

Brief description of change, test, or experiment:

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

Reason for proposed Change:

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

50.59 Evaluation summary and conclusions

Per LI-101, this section is not applicable to ANO and; therefore, does not require completion.

B. License Amendment Determination

Does the proposed Change being evaluated represent a change to a method of evaluation ONLY? If "Yes," Questions 1 – 7 are not applicable; answer only Question 8. If "No," answer all questions below. ☐ Yes ☒ No

Does the proposed Change:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   In consideration of SW pressure boundary, TAP-02-1-004 & ER-ANO-2001-0451-003 specify a 150 lb. class blind flange, which satisfies the SW system design requirements for piping in these locations. As such, it is concluded that the likelihood of a SW pressure boundary failure has not changed. Therefore, it is further concluded that there will be no expected increase in the frequency of occurrence of a SAR evaluated accident based on this installation.

2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   Based on the use of appropriate design pressure rated blind flange for pressure boundary control, there is not more than a minimal increase in the likelihood of a malfunction of an SSC

3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The installation of this blind flange/spool piece will allow isolation of the SW downstream piping for pipe replacement. By itself, this temporary change does not affect the consequences of any analyzed accident as this part of the SW system is automatically isolated during an ES actuation. However, for mode 5/6, or defueled conditions, additional measures must be taken to address spent fuel pool cooling. As such, this TAP and the 1104.028 Attachment B alteration are used in combination for that purpose. Associated ER's, calculation(s), and a separate 50.59 have been performed to satisfy design and regulatory requirements for the SPF temporary cooling requirements. Therefore, since the applicable design requirements are met via the use of a 150 lb. class blind flange, there is not more than a minimal increase in the consequences of a SAR evaluated accident.

4. Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   The only SAR accident even remotely affected by this change is the fuel handling accident. Based on the specified modes of installation for this TAP, the dose noted for the fuel handling accident bounds any possible affect of this TAP. As such, there is not more than a minimal increase in the dose consequences for this TAP.

5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS:

   In consideration of this blind flange/spool piece installation as an improvement in the pressure boundary to facilitate downstream pipe welds and that the specific part is the same design pressure class, there are no expectations of a breach in this part of the SW system. As such, it is concluded that this TAP does not create a possibility for an accident of a different type than any previously evaluated in the SAR.

6. Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the FSAR? ☐ Yes ☒ No

   BASIS

   All equipment affected by this change is NON-Safety related. In consideration of the existing mitigative options in 1104.006 (Spent Fuel Cooling System) that bound a loss of cooling flow, the conclusion is made that the possibility for a malfunction of a SSC important to safety is not created.

7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☒ No

   BASIS:

   This blind flange/spool piece does not affect any fission product barrier or associated equipment. As such, it does not change any design basis limit for a fission product barrier.

8. Result in a departure from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses? ☐ Yes ☒ No

   BASIS:

   Since the blind flange is better than the actual valve in terms of leakage, there are no expected deviations in SW or ICW system conditions. As such, there are no departures in the methods of evalaution in the SAR.