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GNRO-2006/00025

May 10, 2006

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Report of 10CFR50.59 Safety Evaluations and Commitment
Changes – April 1, 2005 through March 31, 2006
Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29

Dear Sir or Madam:

Pursuant to 10CFR50.59(d)(2) Entergy Operations, Inc. hereby submits a summary of 50.59 evaluations for the period of April 1, 2005 through March 31, 2006. Also attached is the summary of commitment changes for the same period in accordance with NEI 95-07 Guidelines.

If you have any questions or require additional information, please contact Dennis Coulter at 601-437-6595.

This letter does not contain any commitments.

Yours Truly,

A handwritten signature in black ink, appearing to be "CAB" or similar, written over a horizontal line.

CAB/DMC/dmc

Attachments: 1. Table of Contents
2. 10CFR50.59 Evaluations and Commitment Change Evaluations

cc: (See Next Page)

cc: NRC Senior Resident Inspector
Grand Gulf Nuclear Station
Port Gibson, MS 39150

U.S. Nuclear Regulatory Commission
ATTN: Dr. Bruce S. Mallett (w/a)
Regional Administrator, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

U.S. Nuclear Regulatory Commission
ATTN: Mr. Bhalchandra Vaidya, NRR/DORL (w/a)
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Mail Stop OWFN/O-7D1A
Washington, D.C. 20555-0001

Mr. D. E. Levanway (Wise Carter) (w/a)
Mr. L. J. Smith (Wise Carter) (w/a)
Mr. N. S. Reynolds (w/a)
Mr. J. N. Compton

Attachment 1

Table of Contents

Grand Gulf Nuclear Station

10CFR50.59 Evaluation and Commitment Change Evaluation Report for the Period April 1, 2005 through March 31, 2006

Acronyms

ARI	Alarm Response Instruction	LOP	Loss of Power
ASTM	American Society for Testing and Materials	MAPLHGR	Maximum Average Planar Linear Heat Generation Rate
CCE	Commitment Change Evaluation	MCPR	Minimum Critical Power Ratio
CMWT	Core Megawatts Thermal	MNCR	Material Non-Conformance Report
CR	Condition Report	MOV	Motor Operated Valve
DCP	Design Change Package	MS	Mechanical Standard
EP	Emergency Procedure	MSIV-LCS	Main Steam Isolation Valve Leakage Control System
EPI	Equipment Performance Instruction	NPE	Nuclear Plant Engineering
EPRI	Electric Power Research Institute	NSSS	Nuclear Steam Supply System
ER	Engineering Request	PDMS	Plant Data Management System
ES	Electrical Standard	PPM	Parts per Million
ESF	Engineered Safety Feature	PRA	Probabilistic Risk Assessment
GE	General Electric	PSW	Plant Service Water
GG	Grand Gulf	RCIC	Reactor Core Isolation Cooling
GGN	Grand Gulf Nuclear	RFO	Refueling Outage
GPM	Gallons per Minute	RHR	Residual Heat Removal
IOI	Integrated Operating Instruction	RPV	Reactor Pressure Vessel
ISI	In Service Inspection	SCN	Standard Change Notice
IST	In Service Testing	SERI	System Energy Resources, Inc.
LBDC	License Basis Document Change	SGTS	Standby Gas Treatment System
LDC	License Document Change	SOER	Significant Operating Experience Report
LHGR	Linear Heat Generation Rate	SSW	Standby Service Water
LLRT	Local Leak Rate Test	TRM / TS	Technical Requirements Manual / Technical Specifications
LOCA	Loss of Coolant Accident	UHS	Ultimate Heat Sink

Attachment 1
Table of Contents
Grand Gulf Nuclear Station
10CFR50.59 Evaluation and Commitment Change Evaluation Report
for the Period April 1, 2005 through March 31, 2006

Safety Evaluations

Evaluation Number	Initiating Document	Summary
SE 2005-0002-R00	Calculation XC-Q1111-98017, REV. 2	Revised the LOCA dose analysis 1) to apply the new RAPTOR dose methodology, 2) to modify the control room model by deleting the need for control room fresh air after 3 days of isolated operation, 3) to consider stable isotopes so that HEPA loadings can be generated, and 4) to reformat the calculation to meet procedure ENS-DC-126 format.
SE 2005-0003-R00	LDC 2005-028, REV. 0	Revised FSAR SECTION 15.4.1.1.3 to remove reference to single rod out shutdown margin check following refueling. This check has is a hold over from startup testing.
SE 2005-0004-R00	ER-GG-2003-0359-000	Evaluation of acid flushing the tube side of an RHR heat exchanger. The acid flush is facilitate the Eddy Current testing of the heat exchanger..
SE 2005-0004-R01	ER-GG-2003-0359-000	This first revision of SE 2005-0004 reassesses the operability of the RHR and SSW systems when the inboard heat exchanger drain valves are closed.
SE 2005-0005-R00	LDC-2005-060 and COLR	Cycle 15 reload changes and operation of the cycle 15 core as given in the Core Operating Limits Report (COLR).
SE 2005-0006-R00	Calculations XC- Q1P53-05011 and XC-Q1M46-04004	Calculations associated with offsite and control room doses associated with secondary containment bypass leakage through the instrument air and service air piping.
SE 2005-0007-R00	LBDC 2004-0095	Modification of the ODCM/TRM 6.3.9 required actions and operability requirements applicable to the discharge canal flow monitoring instrumentation.
SE 2005-0008-R00	ER 2004-0234-001	Extend the DIV II Diesel Generator fuel oil storage tank inspection by three months.
SE 2006-0001-R00	ER-2005-0197-000	Change the fuel pool decay heat analytical method from the Branch Technical Position ASB 9-2 to the Oak Ridge Isotope Generation and Depletion code – ORIGEN V2.1.
SE 2006-0002-R00	LDC-2006-002	TRM 6.3.8 Relaxation of turbine overspeed trip ATT testing LCO actions.
SE 2006-0003-R00	ER-GGN-2005-0110-00-00	Removed logic for diesel generator low control air pressure trip during a LOCA

Attachment 1

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Grand Gulf Nuclear Station

10CFR50.59 Evaluation and Commitment Change Evaluation Report for the Period April 1, 2005 through March 31, 2006

Commitment Change Evaluations

Commitment Number	Source Document	Summary
CCE 2005-0002	AECM 86/0395	Deleted 1) Independent verification of amendments implementation checklist developed for each TS amendment. 2) Hold points and final verification will be established on the checklist prior to declaring the system operable.
CCE 2005-0003	AECM 86/0077	Revised dose related restricted locations in the spent fuel pool per analysis documented in the source document.
CCE 2005-0004	AECM 86/0077	Revised the requirement that dose related restricted locations had to be filled with fuel bundles with one year of decay for cycle 1 discharged fuel.
CCE 2005-0005	AECM 86/0089	Deleted pre-NEI 99-04 guidance for justification of UFSAR and commitment change or deletion.

Attachment 2

10CFR50.59 Evaluations and Commitment Change Evaluations

GGNS 50.59 Safety Evaluation Number

SE 2005-0002-R00

50.59 REVIEW FORM

Page 1 of 9

I. OVERVIEW / SIGNATURES

Facility:

Document Reviewed: Calculation XC-Q1111-98017Change/Rev.: 2

System Designator(s)/Description: Various

Description of Proposed Activity:

This calculation revises the GGNS LOCA dose analysis to (i) apply the new RAPTOR dose methodology, (ii) revise the control room model to delete the need for control room fresh air after 3 days of isolated operation (due to the large assumed inleakage rate of 2000 cfm), (iii) consider stable isotopes so that HEPA loadings can be generated, and (iv) re-format the calculation to the ENS-DC-126 format.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2005-0002-R00</u>)	Sections I, II, and IV required

Preparer: G.E. Boadbert / G.E. Boadbert / EOI / Eng / 7-18-05
 Name (print) / Signature / Company / Department / Date

Reviewer: Scott Franchard / Scott Franchard / EOI / Mgr. Eng. Sd / 7/18/05
 Name (print) / Signature / Company / Department / Date

OSRC: Dennis P. Wines / DPW / 7/26/05
 Chairman's Name (print) / Signature / Date
 (Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.)

<input checked="" type="checkbox"/>	CA RECORD
RT.	314.33
<input type="checkbox"/>	NON-CA RECORD
INITIALS	
NUMBER OF PAGES	9
DATE	8/17/05
RELATED DOCUMENT NUMBER	

II. SCREENINGS**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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tables 15.6-9, 15.6-13, 15.6-14, Figure 15.6-3
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed. Attach the 50.54 evaluation.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes
☒ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. **Basis**

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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.

Tech Specs/Operating License

The current GGNS Tech Specs and Operating License are inputs into the LOCA dose analysis. No changes were identified or proposed by this analysis.

FSAR

The LOCA dose analysis is reported in SAR 15.6.5. Several changes to this section have been identified as noted in Section II of this 50.59 review. LDC 2005-037 makes the applicable changes.

Test or Experiment not Described in the SAR

This calculation revision only updates the methodology applied in the LOCA dose analysis. This calculation does not call for any action in the plant or changes to plant procedures.

4. **References**

Discuss the methodology for performing LBD searches. 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. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

Electronic search method used:

Keywords:

*Tech Specs, Operating License, FSAR,
COLR, ODCM, Emergency Plan, SER*

"RAPTOR", "LOCA Dose", "LOCA Radiological"

LBDs reviewed manually:

SAR 15.6.5

5. Is the validity of this Review dependent on any other change? ☐ Yes
☒ No

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

YES NO

1. ☐ ☒ Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
2. ☐ ☒ Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
3. ☐ ☒ Involve dredging activities in a lake, river, pond, ditch, or stream?
4. ☐ ☒ Increase the amount of thermal heat being discharged to the river or lake?
5. ☐ ☒ Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
6. ☐ ☒ Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency?
7. ☐ ☒ Change the design or operation of the intake or discharge structures?
8. ☐ ☒ Modify the design or operation of the cooling tower that will change water or air flow characteristics?
9. ☐ ☒ 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?
10. ☐ ☒ Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?¹
11. ☐ ☒ 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
12. ☐ ☒ Involve the installation or use of equipment that will result in a new or additional air emission discharge?
13. ☐ ☒ Involve the installation or modification of a stationary or mobile tank?¹
14. ☐ ☒ Involve the use or storage of oils or chemicals that could be directly released into the environment?
15. ☐ ☒ Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater?

¹ See NMM Procedure EV-117 for guidance in answering this question.

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

1. ☐ ☒ Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)?
2. ☐ ☒ Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)?
3. ☐ ☒ Cause materials or equipment to be placed or installed within the Security Isolation Zone?
4. ☐ ☒ Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities?
5. ☐ ☒ Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)?
6. ☐ ☒ Modify or otherwise affect the operation or field of view of the security cameras?
7. ☐ ☒ Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment?
8. ☐ ☒ Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station?
9. ☐ ☒ Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways?
10. ☐ ☒ Modify or otherwise affect the facility's telephone or security radio systems?

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Data)

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Grand Gulf or Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "YES," a 72.48 Review must be performed in accordance with NMM Procedure LI-112 and attached to this 50.59 Review.

Will the proposed activity being evaluated:

YES **NO**

1. ☐ ☒ Any activity that directly impacts spent fuel cask storage or loading operations?
2. ☐ ☒ Involve the ISFSI including the concrete pad, security fence, and lighting?
3. ☐ ☒ Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI?
4. ☐ ☒ Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches?
5. ☐ ☒ Involve a change to the Fuel Building or Control Room(s) radiation monitoring?
6. ☐ ☒ Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry?
7. ☐ ☒ Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)?
8. ☐ ☒ Involve a change to the Fuel Building electrical power that could potentially impact cask loading or storage activities?
9. ☐ ☒ Involve a change to the Fuel Building ventilation that could potentially impact cask loading or storage activities?
10. ☐ ☒ Involve a change to the ISFSI security?
11. ☐ ☒ Involve a change to off-site radiological release projections from non-ISFSI sources?
12. ☐ ☒ Involve a change to spent fuel characteristics?
13. ☐ ☒ Redefine/change heavy load pathways?
14. ☐ ☒ Involve fire and explosion protection near or in the on-site transport paths or near the ISFSI?
15. ☐ ☒ Involve a change to the loading bay or supporting components power that could potentially impact cask loading or storage activities?
16. ☐ ☒ New structures near the ISFSI?
17. ☐ ☒ Modifications to any plant systems that support dry fuel storage activities?
18. ☐ ☒ Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building?

III. 50.59 EVALUATION EXEMPTION

A. Check the applicable box below. If a box is checked, clearly document the basis in Section III.B, below. If none of the boxes are appropriate, perform a 50.59 Evaluation in accordance with Section IV. Provide supporting documentation or references as appropriate.

- ☐ The proposed activity meets all of the following criteria regarding design function:

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. 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.
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.

IV. 50.59 EVALUATION**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:
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:
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR? ☐ Yes ☐ No
BASIS:
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:
5. Create a possibility for an accident of a different type than any previously evaluated in the FSAR? ☐ Yes ☐ No
BASIS:
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:
7. Result in a design basis limit for a fission product barrier as described in the FSAR being exceeded or altered? ☐ Yes ☐ No
BASIS:
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 document under review is Revision 2 to Calculation XC-Q1111-98017, which converts the LOCA dose analysis described in SAR 15.6.5 from the TRANSACT computer code to the newer RAPTOR computer code (SCR-2004-0735). Also, a small change to the model was also made in the control room model. The other changes including the addition of stable isotopes and re-formatting, do not affect the results. Thus, there were two changes to the elements of the methodology: (i) a change in the model for the control room, and (ii) a change in the computer code.

Control Room Model Change:

The change in the model to the control room deleted the modeling assumption that fresh air is introduced into the control room after 3 days and the control room is assumed to be in the recirc mode for the duration of the LOCA analysis. Based on a carbon dioxide buildup and oxygen depletion analysis, it was found that fresh air is no longer needed since the very large assumed leakage rate of 2010 cfm would provide sufficient fresh air for the control room and TSC personnel. Thus, to more accurately reflect the expected plant response considering the assumed elevated leakage, fresh air intake was not modeled. The radiological impact of this change on the control room doses is insignificant since the source term release is very small after 3 days. Thus, since this change to the elements of analysis methods yield results that are essentially the same, it is not considered to be a departure from approved methods.

Computer Code Change:

As described in Engineering Report G-SA-2003-001, Rev. 2, the RAPTOR methodology has more capabilities than the older TRANSACT methodology including (i) tracking daughter products and stable isotopes, (ii) more isotopes, (iii) more volumes and flows, and (iv) better numerical stability and has been successfully benchmarked to TRANSACT. These additional capabilities are the reason for the transition to newer methodologies.

In addition, the RAPTOR code has been rigorously benchmarked to the NRC's RADTRAD code and was found to generate results that are essentially the same as RADTRAD. The code benchmarks are documented in Engineering Reports G-SA-2005-001, -002, -003, -004, -005, -006, and -007. The new calculation therefore applies a methodology that is essentially the same as the method applied by the NRC for this application.

The GGNS LOCA dose analysis is reported in FSAR Section 15.6.5; however, the method of evaluation is not explicitly described. SAR 15.6.5 only states "[t]he methods, assumptions, and conditions used to evaluate this accident are in accordance with those guidelines set forth in Regulatory Guide 1.183." Section 4.2.3 of RG 1.183 specifically endorses the RADTRAD code as a suitable methodology for evaluating control room doses. In addition, Appendix A to RG 1.183 also mentions the RADTRAD methodology as acceptable for evaluating spray and aerosol removal factors. Thus, RADTRAD is deemed to be a methodology approved by the NRC for this application. In fact, since RADTRAD is a standard industry code, many utilities have prepared AST submittals with RADTRAD and have received SERs on their proposed changes. Thus, in using the RAPTOR methodology, GGNS is applying a method that is essentially the same as the NRC methodology that has been explicitly endorsed for this application.

The results of this new revision are compared to the current SAR results below. The doses at all locations have decreased slightly due to the application of the new RAPTOR methodology. These decreased doses are due to TRANSACT's very conservative core release model, which is more realistic in RADTRAD and RAPTOR. These results could be classified as "non-conservative" (as described in the 50.59 guidelines in ENS-LI-101) in that they are lower than the previous values and yield more margin to the applicable acceptance criteria. However, since they were developed with a methodology that has been shown to be essentially the same as an NRC-approved method, these results are considered to be acceptable.

Location	Dose Results (Rem TEDE)	
	SAR Table 15.6-14	New Results in Calculation XC-Q1111-98017, Rev. 2
Exclusion Area Boundary	8.78	8.41
Low Population Zone	4.60	4.46
Control Room	3.65	3.64

If any of the above questions is checked "YES," obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure LI-113.

GGNS 50.59 Safety Evaluation Number

SE 2005-0003-R00

I. OVERVIEW / SIGNATURES

Facility: Grand Gulf Nuclear Station

Document Reviewed: LDC 2005-028 Change/Rev.: 0

System Designator(s)/Description:

N/A

Description of Proposed Activity:

Change FSAR Section 15.4.1.1.3 to remove reference to single rod out shutdown margin check following refueling. The single rod out shutdown margin check following refueling is not required per any safety analysis or licensing basis and has been done historically only as a hold over from early startup testing for added conservatism. This change does not involve an unreviewed safety question.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2005-0003-Rod</u>)	Sections I, II, and IV required

Preparer: Ken L. Walker Ken Walker EOI Rx Eng 7/15/05
 Name (print) / Signature / Company / Department / Date

Reviewer: P.M. Different P.M. Different EOI Rx Eng 7/18/05
 Name (print) / Signature / Company / Department / Date

OSRC: D.P. WILES DPW 7/21/05
 Chairman's Name (print) / Signature / Date
 (Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.)

X	QA RECORD
	REF <u>614-33</u>
	NON-QA RECORD
01	INITIALS
	PAGES / IMAGES <u>1 / 10</u>
	DATE <u>8/17/05</u>
	RELATED DOCUMENT NUMBER

II. SCREENINGS

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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15.4.1.1.3 LDC 2005-028
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed. Attach the 50.54 evaluation.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes
☒ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. **Basis**

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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 change does impact the FSAR as described in Section IV.

4. **References**

Discuss the methodology for performing LBD searches. 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. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

Electronic search method used:

Keywords:

Autonomy (All LBD)

"Shutdown margin", "SDM", "refueling" within 10 words of "margin"

"Single rod", "one rod"

LBDs reviewed manually: None

5. Is the validity of this Review dependent on any other change? ☐ Yes
☒ No

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

YES NO

1. ☐ ☒ Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
2. ☐ ☒ Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
3. ☐ ☒ Involve dredging activities in a lake, river, pond, ditch, or stream?
4. ☐ ☒ Increase the amount of thermal heat being discharged to the river or lake?
5. ☐ ☒ Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
6. ☐ ☒ Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency?
7. ☐ ☒ Change the design or operation of the intake or discharge structures?
8. ☐ ☒ Modify the design or operation of the cooling tower that will change water or air flow characteristics?
9. ☐ ☒ 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?
10. ☐ ☒ Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?¹
11. ☐ ☒ 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
12. ☐ ☒ Involve the installation or use of equipment that will result in a new or additional air emission discharge?
13. ☐ ☒ Involve the installation or modification of a stationary or mobile tank?¹
14. ☐ ☒ Involve the use or storage of oils or chemicals that could be directly released into the environment?
15. ☐ ☒ Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater?

¹ See NMM Procedure EV-117 for guidance in answering this question.

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

1. ☐ ☒ Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)?
2. ☐ ☒ Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)?
3. ☐ ☒ Cause materials or equipment to be placed or installed within the Security Isolation Zone?
4. ☐ ☒ Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities?
5. ☐ ☒ Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)?
6. ☐ ☒ Modify or otherwise affect the operation or field of view of the security cameras?
7. ☐ ☒ Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment?
8. ☐ ☒ Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station?
9. ☐ ☒ Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways?
10. ☐ ☒ Modify or otherwise affect the facility's telephone or security radio systems?

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Data)

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Grand Gulf or Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "YES," a 72.48 Review must be performed in accordance with NMM Procedure LI-112 and attached to this 50.59 Review.

Will the proposed activity being evaluated:

- | | <u>YES</u> | <u>NO</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any activity that directly impacts spent fuel cask storage or loading operations? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the ISFSI including the concrete pad, security fence, and lighting? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building or Control Room(s) radiation monitoring? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building electrical power that could potentially impact cask loading or storage activities? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building ventilation that could potentially impact cask loading or storage activities? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the ISFSI security? |
| 11. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to off-site radiological release projections from non-ISFSI sources? |
| 12. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to spent fuel characteristics? |
| 13. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Redefine/change heavy load pathways? |
| 14. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve fire and explosion protection near or in the on-site transport paths or near the ISFSI? |
| 15. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the loading bay or supporting components power that could potentially impact cask loading or storage activities? |
| 16. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | New structures near the ISFSI? |
| 17. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modifications to any plant systems that support dry fuel storage activities? |
| 18. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building? |

III. 50.59 EVALUATION EXEMPTION

A. Check the applicable box below. If a box is checked, clearly document the basis in Section III.B, below. If none of the boxes are appropriate, perform a 50.59 Evaluation in accordance with Section IV. Provide supporting documentation or references as appropriate.

- ☐ The proposed activity meets all of the following criteria regarding design function:

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. 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.
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.

NA

IV. 50.59 EVALUATION

License Amendment Determination

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

Does the proposed Change:

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

BASIS:

Inadvertent withdrawal of a control rod during refueling resulting in criticality is considered an infrequent event in the FSAR. There is no postulated set of circumstances which results in a rod withdrawal error during REFUEL Mode. With the mode switch in the SHUTDOWN position, a control rod block also prevents the withdrawal of a control rod. The proposed change makes no physical modifications to any plant systems, interlocks, or components. It makes no change to any process used in control blade replacement activities. There is no change to refueling, fuel movement, or core loading verification processes. The SER for TS Amendment 120 addressed this issue directly, stating: "Although the shutdown margin may not have been demonstrated in Mode 5, shutdown margin calculations would have been performed and, along with procedural compliance for any Core Alterations, would provide assurance that adequate shutdown margin is available."

Thus, there is no increase in the frequency of occurrence of an accident previously evaluated in the FSAR by removing the requirement to perform a single rod out shutdown margin (SDM) check following completion of refueling.

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

BASIS:

The proposed change to remove the single rod out SDM check does not physically modify any structure, system, or component (SSC). This check is not relied upon by any analysis nor is it needed to prevent an inadvertent criticality from occurring. The check was simply considered an industry good practice at one time and was never required to prevent occurrence of any analyzed event. The FSAR describes this event as "precluded", and this check as only an "experimental" verification. No other events such as Rod Drop Accident, Mislocated Fuel Assembly, or Rod Withdrawal Error during operation are impacted. Removing this verification does not increase the likelihood of malfunction on any SSC or the likelihood of the event itself.

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

BASIS:

The single rod out check was never intended to mitigate consequences of an inadvertent criticality during refueling. It was meant only as a loose verification that the reactor would indeed not go critical with strongest rod out once reloaded. In effect, this check depended on an analytical determination of the strongest worth control rod, so the check was no more reliable than the analysis it was attempting to check. No changes to any processes, systems, interlocks, or release barrier used to prevent or mitigate the consequences of an accident are being made by this revision.

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 are no modifications to any SSC as a result of the proposed change. The change does not make the consequences of an inadvertent criticality (in the unlikely event one were to occur) more severe. It does not impact any fuel movement procedures. No reliance has been assumed on this check in order to prevent or mitigate the consequences of malfunction of a SSC. Control Rod Drive system, fuel movement equipment, containment systems, and safety interlocks are unaffected. Thus there is no increase in the consequences of an SSC malfunction.

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

BASIS:

Inadvertent criticality during refueling has already been considered in the FSAR, and determined to be precluded by plant design. This change makes no physical changes to the plant. Other types of possible events such as multiple rod withdrawal during refueling or unrecognized multiple fuel movement errors are not created by this change. Not performing the single rod out check does not create the possibility of a new operating event. SDM is confirmed for each Core Alteration that loads a fuel bundle to core (unless doing a spiral reload) and additionally SDM must be confirmed at initial criticality per Technical Specification requirements. Thus, no new type of event or accident is created by this 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:

No SSC are being modified by the proposed change. No operating procedures (other than the requirement to perform this check) are being revised. Inadvertent criticality, which this check never was intended to prevent or mitigate, has already been evaluated. Processes used to ensure proper core loading remain unchanged. There is no possible new type of SSC malfunction 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:

The proposed change does not alter any barrier. No physical changes at all are being proposed. There is no impact on fuel, vessel or containment design. No process, procedure, or analysis changes impacting barriers are being made as a result of removing the single rod out SDM check. Thus, no barrier limit is 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:

No changes to methods or analytical bases are being made. The methods used to calculate SDM are unchanged. This check has not been used to benchmark or verify any analytical methods. It only served as a rough verification of subcriticality to back up the analytical determinations made in the design and licensing of the new reload core. There are no impacts on the uncertainties used to establish the SDM limits in the Technical Specifications. Thus, there is no departure from established methods.

If any of the above questions is checked "YES," obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure LI-113.

GGNS 50.59 Safety Evaluation Number

SE 2005-0004-R00

I. OVERVIEW / SIGNATURES

Facility: Grand Gulf Nuclear StationDocument Reviewed: ER-GG-2003-0359-000Change/Rev.: 0System Designator(s)/Description: 1E12 / Acid Flush of Residual Heat Removal Heat Exchangers

Description of Proposed Change:

The ER reviewed approves an acid-flush solution and develops a process to acid-flush the tube side of an RHR heat exchanger unit (1E12B001A/2A or 1E12B001B/2B). It also provides a guideline to the number of acid flushes allowed. The purpose of the acid flush is to facilitate eddy current testing of the heat exchanger tubes. It could also improve the thermal performance of the flushed heat exchanger unit.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2005-0004-R00</u>)	Sections I, II, and IV required

Preparer: Shyy-Jong D. Lin / [Signature] / EO1 / EP&C / 6/29/05
 Name (print) / Signature / Company / Department / Date

Reviewer: MIKE CAUSEY / [Signature] / EO1 / Sys Eng / 6/29/05
 Name (print) / Signature / Company / Department / Date

OSRC: M. A. Krupa / M. A. Krupa / 6-29-05
 Chairman's Name (print) / Signature / Date
 [Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.]

<input checked="" type="checkbox"/>	QA RECORD
	RT. <u>14.33</u>
<input type="checkbox"/>	NON-QA RECORD
<input checked="" type="checkbox"/>	INITIALS
	NUMBER OF PAGES <u>13</u>
	DATE <u>8/17/05</u>
	RELATED DOCUMENT NUMBER

II. SCREENINGS

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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM ENS-LI-113. (See Section 5.2[13] for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change. If obtaining NRC approval, document the LBD change in Section II.A.5; no further 50.59 review is required. However, the change cannot be implemented until approved by the NRC. AND initiate an LBD change in accordance with NMM ENS-LI-113.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2, 3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3, 4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3, 4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES", evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM ENS-LI-113. No further 50.59 review is required.

¹ If "YES," see Section 5.2[5]. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed. Attach the 50.54 Review.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR?

☒ Yes

☐ No

If "yes," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the change in Section II.A.5; no further 50.59 review is required. However, the change cannot be implemented until approved by the NRC.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR and why the proposed activity does or does not involve a new test or experiment not previously described in the FSAR. Discuss other LBDs if impacted. 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 ER reviewed approves an acid cleaning solution for cleaning the RHR Heat Exchanger tubes, describes an acid mixing/injecting process to inject and recirculate the acid solution through the heat exchanger to perform the cleaning, and provides a guideline on the allowable number of acid cleaning for the RHR Heat Exchangers. Similar acid flush processes, except that injecting and collecting ports were readily available, using 4% citric acid solution have been performed routinely to clean the (T46) ESF Switchgear Room Coolers. Safety evaluations have been performed for the acid flush. For some of the room coolers, more than 20 flushes have been performed. Similar acid flushes using 2.5% citric acid have also been performed before for flushing the SSW "A" and "B" piping. Safety evaluations have also been performed for those flushes. This safety evaluation reaffirms some results from two previous safety evaluations, namely SE 88-0006 and SE 87-0045, on similar acid flushes and focuses on the additional components present in the chemical cleaning boundary for the acid flush of the RHR Heat Exchangers.

The RHR Heat Exchangers are safety related heat exchangers cooled by the Standby Service Water. They are described in the FSAR and their heat removal capability requirements are specified therein. They are also mentioned in other licensing basis documents. However, cleaning or method of cleaning of the RHR Heat Exchangers is not mentioned in any LBD. Acid flush of some of the SSW-cooled heat exchangers, excluding the RHR Heat Exchangers, because of cross-tie of the SSW piping with the Plant Service Water piping was committed by GGNS in the NRC GL 89-13 heat exchanger program. As expected, searches through all LBD's via AUTONOMY using keywords "acid flush", "acid cleaning", and "chemical cleaning" yielded a number of hits, and the only relevant ones are NRC inspection reports regarding commitments and program establishment to acid flush those heat exchangers only, none about the RHR Heat Exchangers and none about the method of acid flush or the acid-flush chemical. Therefore, neither the proposed acid flush of the RHR Heat Exchangers nor the proposed acid-flush solution, let alone the allowable number of acid flushes, is described in any LBD, and implementation of this ER would not violate any LBD or require any changes to be made to any LBD.

The proposed acid mixing method would result in proper mixing of the Betz KI-2 (containing 40% citric acid) and a Nalco penetrant (Nalco 73551 preferred), both approved by Chemistry, with SSW to form a 10% Betz KI-2 solution containing approximately 4% citric acid and 200 ppm of the penetrant. A minute amount of a defoaming agent, Betz Foamtrol CT, also approved by Chemistry, might be added at the discretion of Chemistry. Being a weak acid, the 4% citric acid solution would pose more a nuisance than a safety hazard. Proper Personnel Protection Equipment is to be worn during the acid cleaning work as directed by the RP. Cautions are provided in the work instructions against spills and splashes. The floor drains will be covered by securely taping the cover to the floor, but not plugged, before the acid cleaning is started, as is done in acid flushing of the ESF Switchgear Room Coolers. This will make it easier to stop the acid cleaning process and restore the system if a postulated accident should occur. Upon completion of the acid cleaning, discharging the used 10% Betz KI-2 solution and Nalco penetrant contained in the SSW in the RHR Heat Exchangers and associated piping as well as the various drums after acid cleaning of the RHR Heat Exchangers via the SSW basin is approved by the State of Mississippi per an NPDES permit.

The system boundaries established for cleaning the RHR Heat Exchangers (1E12B001A/B and 1E12B002A/B) are shown on P&ID M-1061C/D between valves 1P41F014A/B and 1P41F068A/B as well as valves 1P41F120A/B, 1P41F121A/B, 1P41F166A/B, 1P41F214A/B, 1P41F167A/B, 1P41F164A/B, 1P41F158A/B, and 1P41F165A/B. The proposed acid cleaning solution was evaluated in the ER with respect to its corrosion effect on and compatibility with all components within the chemical cleaning boundary and determined to be acceptable since the expected corrosion extent at the end of one acid cleaning of the specified duration would be well within the corrosion allowances. Other types of corrosion (crevice, IGSCC, pitting, etc.), corrosion of welding/brazing metal or other corrosion mechanism possibilities were reviewed and determined not to be credible factors due to the nature of the selected chemical cleaning process, the specified chemical solution, the wetted materials within the established boundary and by following the prescribed process controls. The above-cited safety evaluations specifically discuss crevice corrosion and corrosion of welding/brazing materials as not being a concern when using a chemical cleaning process with a similar citric acid solution. Also, a non-metallic material previously not evaluated, the EPT material in the SSW inlet and outlet butterfly isolation valves, has been found, by reference and by testing, to be compatible with the proposed chemical solution. Another non-metallic material is the plastic, KEL-F81, used for the valve seat in Anderson-Greenwood relief valves 1P41F100A/B, just like those for the ESF Switchgear Room Coolers, 1P41F127A/B, 1P41F138A/B, 1P41F151A/B, 1P41F194A/B, and 1P41F157A/B. No detailed information about the plastic is available in the vendor manual and it does not appear that the impact of 4% citric acid on KEL-F81 has been specifically evaluated. However, none of the ESF Switchgear Room Cooler relief valves, which

have been through numerous flushing by the acid solution, or 1P41F100A/B, which have also been through two SSW piping acid flushes before, was actually found to have suffered noticeable damages, except perhaps some minor leakage, for which the reasons were unknown. Also, relief valves 1P41F100A/B are located about 30" more or less vertically up from the junction to the SSW main piping. As discussed in the ER, unless the valve is leaking during the acid flushing, the turbulent eddies alone could not possibly carry the citric acid solution into the small branch line to any noticeable distance within the time frame of the acid cleaning. Indeed, relief valves 1P41F100A/B are currently not leaking. Therefore, it is believed that the upcoming acid cleaning of RHR "B" Heat Exchangers will not affect relief valve 1P41F100B. It is for this same reason that rinsing of this branch line, which will require manipulation of the relief valve, will not be performed immediately after the acid flush. In reality, since the butterfly valves 1P41F014A/B & 1P41F068A/B are not leaking and are more than 18' away from the heat exchanger nozzles, they are not expected to be affected by the cleaning solution either. The temporary hoses, valves, fittings, and injection pumps used are similar to those used for the ESF room coolers or brand new and compatible with the cleaning solution. *No other non-metallic materials are known to exist within the system boundary identified.* Based solely on the corrosion rate of the limiting component, carbon steel, 11 acid cleaning could be allowed. However, *two acid cleanings, each with 9-hour acid recirculating/soaking after at most 13 hours of acid mixing/injecting, are approved based conservatively on the MIC Program data.*

The proposed method of acid injection would, for current lack of acid injecting and collecting locations, require conversion of the RHR Heat Exchanger outboard drain valves into injection and collection ports for the acid solution with the heat exchanger inboard drain isolation valves closed. The affected train of the SSW/RHR system would be declared INOP upon the valve conversion, and an LCO entered. The conversion would be performed as a part of the acid cleaning in accordance with applicable procedures such as that for welding, and the modified valves and the properly rated temporary hoses, isolation valves, and Injection Pump would form an adequate new pressure boundary for the RHR fluid. During the cleaning process while the inboard isolation drain valves are open, the RHR Heat Exchangers and SSW System would be maintained functional by closing but not tag-closing the SSW inlet and outlet isolation valves for the RHR Heat Exchangers and posting a dedicated Operator near the inboard isolation valves to close the valves in case of actuation of the SSW System. After completion of the acid cleaning, a Maintenance Leak Test will be performed. Also the RHR Heat Exchangers monthly EPI performed by OPS and currently scheduled in the same week as, but just before the acid cleaning, will be performed only after the acid cleaning as a post-cleaning test to verify that the SSW flow rate has not been adversely affected. These are considered sufficient for OPS to clear the LCO.

The 10% Betz KI-2 solution obtained from mixing the chemicals in one of the Mixing Drum would be injected into the heat exchangers and associated piping through the injection port, pushing the existing SSW out of the collection port into the other Mixing Drum. After completion of the acid injection within a maximum of 13 hours, a recirculating loop including only one Mixing Drum would be established to recirculate the acid solution through the loop. At the end of the recirculation phase, the outboard drain valves would be restored and the RHR Heat Exchangers declared Operable. The cleaning process may include a period of time for soaking the tubes with the acid solution thereafter before starting the SSW Pump to rinse off the acid solution. The acid cleaning process is monitored by taking SSW samples at 3, 6, and 9 hours into the Recirculating Phase, and by watching closely the RHR-side pressure (1E12N026A/B) and conductivity alarm (1E12L602A/B) to detect a tube leak. The total duration of the recirculating and soaking is limited to 9 hours. The recirculating/soaking is also to be deemed complete when the maximum allowable copper concentration in the SSW sample exceeds 4725 ppm. The cleaning process would be promptly terminated upon SSW system automatic initiation, detecting RHR-side pressurization and confirming an RHR Heat Exchanger tube leak, or detecting radioactivity in SSW samples by isotope analyses (by Chemistry Dept.). In case of a tube leak with the RHR side leak tight, only a small amount of SSW could leak into the RHR side when the SSW side pressure is higher, thus raising the reading of 1E12N026A/B. The SSW would be flushed to the Suppression Pool, thus diluting the concentration of the citric acid, and then cleaned up by means of the precoat system. One quart of 4% citric acid solution would be diluted to a undetectable concentration level of 10 ppb in the Suppression Pool. The concentration would be further reduced after cleaning by the precoat system before any chance of the citric acid entering the reactor coolant system. If the SSW pressure drops below the RHR-side pressure with a tube leak, the SSW side would be contaminated by the RHR-side fluid. Significant leakage flow would be detectable by observing the levels in the two Mixing Drums and isotope analysis of the SSW sample or even by the Area Radiation Monitor. The waste SSW collected and the excess 10% Betz KI-2 solution remaining in the Mixing Drums at the end of the acid cleaning will be pumped back to the SSW basin via any of the nearby SSW system valves identified in the procedure (07-1-34-T46-B00X-2) for acid flushing of the ESF Switchgear Room Coolers, such as 1P41F352, 1P41F337, etc. after an isotope analysis of a sample has verified no radioactive contamination. The relatively low concentration of citric acid and removed corrosion products in the acid solution remaining in the cleaning solution is not expected to cause any damage to the SSW basin area, based on previous experiences with the SSW piping flushes. In particular, only slight etching on the concrete has been noticed after the SSW piping flushing. The tower fan blades would not be wetted. The ceramic fill material is compatible with citric acid and no adverse effects

have been noticed before. The small total amounts of citric acid, Nalco penetrant, and removed corrosion products after being diluted by the vast basin volume will be harmless to the system and the SSW basin water will be allowed to be discharged to the river per a NPDES permit. A permit for storing combustible material in the work area will be obtained since the total amount would exceed the normal allowance but would not be excessive.

The acid mixing/injecting equipment, drums, and hoses would be set up mainly on the grating of the spacious RHR Heat Exchanger Room at El. 119' of Auxiliary Building in the low-dose area. All pumps, valves, fittings, drums, and hoses will be either new or previously verified to be free from radioactive contamination before use. The drum setup would be such that the grating loading will not be exceeded. The Acid Drums and filled Waste Drums may be set up outside the RHR Heat Exchanger Room, but the door will be closed, except when entering and leaving during acid injection for the purpose of draining a required amount of acid from the Acid Drum to be added to the Mixing Drum inside the room and replacement of the filled Waste Drum with an emptied Acid Drum.

4. References

Discuss the methodology for performing LBD searches. 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 5.5.1(5)(d) of LI-101. **NOTE:** Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.

Keyword searches were performed with all LBDs listed in AUTONOMY selected. The hits were reviewed to ensure that they are not related to the proposed acid flush of the RHR Heat Exchangers and associated piping.

LBDs/Documents reviewed via keyword search:

Keywords:

All LBDs listed in AUTONOMY

"acid flush",

"acid cleaning",

"chemical cleaning".

LBDs/Documents reviewed manually:

None

5. Is the validity of this Review dependent on any other change?

☐ Yes

☒ No

If "YES", list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

(List the required changes / submittals.)

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure ENS-EV-115, "Environmental Evaluations," and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed Change being evaluated:

- | | <u>Yes</u> | <u>No</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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)? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve dredging activities in a lake, river, pond, or stream? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the amount of thermal heat being discharged to the river or lake? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the concentration or quantity of chemicals being discharged to the river, lake, or air? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharge any chemicals new or different from that previously discharged? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the cooling tower that will change water or air flow characteristics? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? ¹ |
| 11. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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 |
| 12. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or use of equipment that will result in a new or additional air emission discharge? |
| 13. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or modification of a stationary or mobile tank? |
| 14. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the use or storage of oils or chemicals that could be directly released into the environment? |
| 15. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater? |

¹ See NMM Procedure ENS-EV-117, "Air Emissions Management Program," for guidance in answering this question.

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

- | | <u>Yes</u> | <u>No</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Cause materials or equipment to be placed or installed within the Security Isolation Zone? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the operation or field of view of the security cameras? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's telephone or security radio systems? |

Documentation for accepting any "yes" statement for these reviews will be attached to this 50.59 Review or referenced below.

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "yes," an ISFSI Review must be performed in accordance with NMM Procedure ENS-LI-112, "72.48 Review," and attached to this Review.

Will the proposed Change being evaluated:

- | | <u>Yes</u> | <u>No</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any activity that directly impacts spent fuel cask storage or loading operations? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the Independent Spent Fuel Storage Installation (ISFSI) including the concrete pad, security fence, and lighting? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building or Control Room(s) radiation monitoring? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building electrical power? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building ventilation? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the ISFSI security? |
| 11. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to off-site radiological release projections from non-ISFSI sources? |
| 12. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to spent fuel characteristics? |
| 13. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Redefine/change heavy load pathways? |
| 14. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Fire and explosion protection near or in the on-site transport paths or near the ISFSI? |
| 15. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the loading bay or supporting components? |
| 16. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | New structures near the ISFSI? |
| 17. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modifications to any plant systems that support dry fuel storage activities? |
| 18. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building? |

IV. 50.59 EVALUATION**License Amendment Determination**

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

Does the proposed Change:

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

BASIS:

The corrosion impact of the proposed 4 % citric acid solution on all components, including weld material, within the chemical cleaning boundary for the acid flush of the RHR Heat Exchangers was evaluated. Crevice corrosion attack was not considered a concern since chemical environments associated with the cleaning process are not of a nature to create an aggressive environment for crevice corrosion mechanisms in the case of the SSW system, and the crevice corrosion requires before accelerated metal dissolution begins some incubation period that would not be available because the length of time crevices in the SSW system were to be exposed to the chemical cleaning process would be sufficiently short and areas that could be saturated by this chemical environment would be subsequently flushed. The critical components affected by an acid flush were found to be carbon steel piping, 70-30 CuNi heat exchanger tubes, Ethylene Propylene Terpolymer (EPT) elastomer seats of SSW isolation butterfly valves (1P41F014A/B & 1P41F068A/B), and KEL-F81 plastic seats of the Anderson Greenwood relief valves 1P41F100A/B. The corrosion impact on carbon steel and 70-30 CuNi by a 9-hour acid recirculating/soaking, following less than 13 hours of mixing/injecting of the acid solution has been determined to be insignificant and well within the corrosion allowances. The EPT elastomer is quite compatible with citric acid solution. *No detailed information is available on the KEL-F81 plastic in the vendor manual. However, no adverse effect on these non-metallic materials has been observed from numerous 4% citric acid flushing of the ESF Switchgear Room Coolers or a previous flush of the entire SSW system using a 2.5 % citric acid solution for more than 24 hours. A recent 24-hour soaking of the EPT seat material from a similar butterfly valve in the proposed acid flush solution also resulted in no significant visible changes and no noticeable change in its Shore "A" Hardness value (approximately 65). Since the safety positions of these safety-related valves are "OPEN" so as to allow SSW flow under postulated accident conditions, leak-tightness is not required for their safety function. Therefore, even if unlikely, slight degradation in the EPT material should result in minor leakage after such exposure, it would not pose a safety concern. Also, even with slight leakage through the EPT packing, there would still be sufficient torque for the valve operators to open the valves were they found to be closed unexpectedly. In reality, these butterfly valves as well as the relief valves, being leak-tight and far away from the junctions with the main piping, are not expected to be affected by the cleaning solution during the short cleaning duration. Therefore, no components will be degraded by the acid flush as to increase the frequency of occurrence of an accident previously evaluated in the FSAR.*

In the beginning of the proposed acid cleaning, the HX outboard isolation drain valves (1P41F165A/B & 1P41F167A/B) of the affected train would be temporarily converted into injection and collection ports for the acid solution, and the RHR train would be declared INOP but functional. The conversion is to replace the valve stem and other internals with a quill, which will be held in place to seal off the outlet opening and allow the acid solution to go through the inlet opening. The inboard drain isolation valves (1P41F166A/B, 1P41F214A/B, 1P41F158A/B, and 1P41F164A/B) would serve the function of isolation during the conversion work; therefore, the conversion work would not increase the frequency of occurrence of an accident previously evaluated in the FSAR. During the acid mixing and injecting as well as the acid recirculating/soaking, the SSW inlet and outlet isolation butterfly valves would be closed but not tag-closed so that they could open automatically in case of an actuation of the SSW system. The inboard isolation valves 1P41F214A/B and 1P41F164A/B, and the temporary injection and collection ports would be open; therefore, by posting a dedicated Operator to close the inboard drain isolation valves in case of an accident resulting in actuation of the SSW Pump, the RHR system would remain functional. The only hazard that this could present in case of an accident resulting in actuation of the SSW Pump during these periods would be a potential for SSW coming out of the collection port or even the injection port and briefly overflowing the Mixing Drums. Caution would be placed in the work package to minimize this hazard, which would not be a plant safety concern. Thus, the inboard isolation valves would serve the function of isolation during these periods of acid cleaning work and the frequency of occurrence of an accident previously evaluated in the FSAR would not increase as a result.

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 corrosion impact on limiting components within the chemical cleaning boundary, namely carbon steel piping and 70-30 CuNi tubes, by the proposed acid flush has been determined to be well within the corrosion allowances. The safety function of the isolation valves, butterfly valves or otherwise, would not be affected by the acid flush. Therefore, no structures, systems, or components important to safety within the chemical cleaning boundary would be affected by the acid flush as to increase the likelihood of occurrence of a malfunction. The inboard drain valves are about 15' from each other; therefore, a single dedicated Operator can isolate them in case of accident within a relatively short time. This factor would not increase the likelihood of occurrence of not being able to close the drain valves.

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

BASIS:

The integrity of the RHR Heat Exchangers and associated piping would not be compromised by the acid flush since the corrosion effect would be well within the allowance. The safety function of all isolation valves would not be impaired by the acid flush. Therefore, no systems or components within the chemical cleaning boundary would be prevented from performing their safety function during an accident previously evaluated in the FSAR as to cause any increase in the consequences of the accident. The dedicated Operator would be able to close the inboard drain isolation valves in case of an accident within a relatively short time so that they could perform their safety function during the accident and would not increase the consequences of the 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 acid flush would not compromise the integrity of the SSW system boundary or degrade the heat exchanger function or affect the operation of any other safety system/component within the chemical cleaning boundary required for mitigating the consequences of an accident; therefore, it would not cause any 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 impact of the proposed acid flush on all exposed components within the chemical cleaning boundary is insignificant and well within the corrosion allowances. Leaving the inboard drain valves and the injection and collection ports open during the acid cleaning work would only add the need to post a dedicated Operator to close the inboard drain valves but would not create a possibility for an accident of a different type to occur since the inboard drain valves would serve the isolation function. Therefore, no possibility for an accident of a different type than any previously evaluated in the FSAR could 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 impact of the proposed acid flush on all exposed components within the chemical cleaning boundary is insignificant and well within the corrosion allowances. The inboard drain valves would be closed by the posted dedicated Operator in case of a postulated accident resulting in actuation of the SSW System to serve the isolation function as usual. The results of any malfunction of a structure, system, or component important to safety previously evaluated would not be made different by the acid flush. Therefore, no possibility for a malfunction with a different result than any previously evaluated in the FSAR could be 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 impact of the proposed acid flush on all exposed components within the chemical cleaning boundary is insignificant and well within the corrosion allowances. The inboard drain isolation valves would be closed within a relatively short time by the posted dedicated Operator in case of a postulated accident resulting in actuation of the SSW System, causing negligible loss in the SSW. Therefore, the acid flush would not change any result of accidents previously analyzed in the FSAR. Hence, it could 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:

The proposed acid flush is to chemically clean the RHR Heat Exchangers and associated piping to be better prepared for the Eddy Current Testing and possibly improve the heat exchanger thermal performance. The heat removal capability of the RHR Heat Exchangers used in safety analyses was based on the design fouling level and would not be affected by the acid flush. Therefore, the proposed acid flush would not affect any method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses.

If any of the above questions is checked "YES", obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure ENS-LI-113.

GGNS 50.59 Safety Evaluation Number

SE 2005-0004-R01

50.59 REVIEW FORM

Page 1 of 13

I. OVERVIEW / SIGNATURES

Facility: Grand Gulf Nuclear StationDocument Reviewed: ER-GG-2003-0359-000Change/Rev.: 0System Designator(s)/Description: 1E12 / Acid Flush of Residual Heat Removal Heat Exchangers

Description of Proposed Activity:

This safety evaluation is a revision of the previously performed safety evaluation (#SE 2005-0004-R00) to re-assess the operability of the RHR and SSW systems when the heat exchanger inboard drain valves are closed.

The ER reviewed approves an acid-flush solution and develops a process to acid-flush the tube side of an RHR heat exchanger unit (1E12B001A/2A or 1E12B001B/2B). It also provides a guideline to the number of acid flushes allowed. The purpose of the acid flush is to facilitate eddy current testing of the heat exchanger tubes. It could also improve the thermal performance of the flushed heat exchanger unit.

Work order #35963 provides instructions per the ER to perform the acid flush of RHR "B" Heat Exchangers 1E12B001B/2B. It also includes instructions and cautions to cut out the RHR "B" Heat Exchanger outboard drain valve, 1P41F167B, and to weld back a like-for-like replacement valve.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>SE 2005-0004-R01</u>)	Sections I, II, and IV required

Preparer: Shyy-Jong D. Lin / Shyy-Jong D. Lin / EO1 / EP&C / 8/9/05
Name (print) / Signature / Company / Department / Date

Reviewer: MIKE CAUSEY / Mike Causey / EO1 / Sys Eng / 8/9/05
Name (print) / Signature / Company / Department / Date

OSRC: MATTHEW V. ROYER / Matthew V. Royer / 8/10/05
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.)

X	QA RECORD
	RT- <u>614.33</u>
	NON-QA RECORD
	INITIALS
	NUMBER of PAGES <u>13</u>
	DATE <u>8/17/05</u>
	RELATED DOCUMENT NUMBER

II. SCREENINGS

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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed. Attach the 50.54 evaluation.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☒ Yes
☐ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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 ER reviewed approves an acid cleaning solution for cleaning the RHR Heat Exchanger tubes, describes an acid mixing/injecting process to inject and recirculate the acid solution through the heat exchanger to perform the cleaning, and provides a guideline on the allowable number of acid cleaning for the RHR Heat Exchangers. The work order provides instructions to perform the acid flush of RHR "B" Heat Exchangers 1E12B001B/2B. It includes instructions and cautions to cut out the RHR "B" Heat Exchanger outboard drain valve, 1P41F167B, and to weld back a like-for-like replacement valve.

Similar acid flush processes, except that injecting and collecting ports were readily available, using 4% citric acid solution have been performed routinely to clean the (T46) ESF Switchgear Room Coolers. Safety evaluations have been performed for the acid flush. For some of the room coolers, more than 20 flushes have been performed. Similar acid flushes using 2.5% citric acid have also been performed before for flushing the SSW "A" and "B" piping. Safety evaluations have also been performed for those flushes. This safety evaluation reaffirms some results from two previous safety evaluations, namely SE 88-0006 and SE 87-0045, on similar acid flushes and focuses on the additional components present in the chemical cleaning boundary for the acid flush of the RHR Heat Exchangers.

The RHR Heat Exchangers are safety related heat exchangers cooled by the Standby Service Water. They are described in the FSAR and their heat removal capability requirements are specified therein. They are also mentioned in other licensing basis documents. However, cleaning or method of cleaning of the RHR Heat Exchangers is not mentioned in any LBD. Acid flush of some of the SSW-cooled heat exchangers, excluding the RHR Heat Exchangers, because of cross-tie of the SSW piping with the Plant Service Water piping was committed by GGNS in the NRC GL 89-13 heat exchanger program. As expected, searches through all LBD's via AUTONOMY using keywords "acid flush", "acid cleaning", and "chemical cleaning" yielded a number of hits, and the only relevant ones are NRC inspection reports regarding commitments and program establishment to acid flush those heat exchangers only, none about the RHR Heat Exchangers and none about the method of acid flush or the acid-flush chemical. Therefore, neither the proposed acid flush of the RHR Heat Exchangers nor the proposed acid-flush solution, let alone the allowable number of acid flushes, is described in any LBD, and implementation of this ER would not violate any LBD or require any changes to be made to any LBD.

RHR & SSW Systems Operable When Inboard Drain Valves Are Closed

The proposed method of acid injection would, for current lack of acid injecting and collecting locations, require conversion of the RHR Heat Exchanger outboard drain valves into injection and collection ports for the acid solution with the heat exchanger inboard drain isolation valves closed. An evaluation of the operability of the RHR "B" system and SSW "B" system, which would be applicable to the "A" train as well, for the period between the time any of the heat exchanger outboard drain valves or the piping downstream of the inboard isolation valves are first modified and the time when the inboard drain valves are opened to start acid-solution injection, considering the following results of further evaluations by Design Engineering-Mechanical and Piping/Civil:

1. All of the inboard drain valves are maintained normally closed per P&ID M1061D Rev. 38 and SOI 04-1-01-P41-1 Rev. 122. Additionally, the downstream outboard drain valves 1P41F165B and 1P41F167B do not have any operational function to support the SSW and RHR system safety functions. They are normally closed during all modes of SSW operation, as are the upstream valves.

2. Per MS-05, Rev. 5, for systems with less than 900 psig pressure rating are only required to have a single drain isolation valve. The HBC drain line classification is rated for 150 psig. Therefore the downstream valve is not required in each line per this standard.
3. The line class for all of the associated piping is 1"-HBC-104. Per MS-02, Rev. 50 the design conditions for this piping is 180 psig (195 psig for SSW piping below el. 133') at 150F. Per MS-03 Rev. 1, for 2" and smaller HBC line classes, valves are 1500# socket welded material class CBC (1500 psig, carbon steel, ASME III-3). Therefore the piping and single valve have sufficient pressure rating to maintain the boundary.
4. Calculation MC-Q1P41-03016 Rev. 0 determines the maximum allowed SSW system leakage to be 15 gpm given all leakage allowed by current procedures, calculations, programs, etc. Therefore even if the upstream valves leak by, as long as the total is less than 15 gpm, the SSW system will still have sufficient inventory for 30 days post-LOCA operation and will remain operable. This can be verified by opening the 1P41F165B and 1P41F167B and measuring the leakage past the closed upstream valves at standby conditions, and using a ratio to compare to the maximum allowed leakage at design conditions (Flow rate is proportional to the square root of the pressure difference). Per drawing M1348C, the RHR heat exchanger elevation is at 104' 8-3/4" and the valves are all located at elevation 93' 6" per FSK-S-1061D-053-B through -056-B. This is an elevation difference of 11.23 feet, which corresponds to 4.86 psig of static head. Using a ratio to compare the maximum allowed 15 gpm at 195 psig, the maximum allowed total leakage past the 4 boundary valves is 2.36 gpm at static conditions.
5. Drain piping from RHR Heat Exchanger 1E12B002B has been designed by utilizing criteria specified in Engineering Standard M-18 for small bore piping. These drain piping have two "three directional" pipe supports in the vicinity of valves 1P41F164B and 1P41F158B for RHR Heat Exchanger Q1E12B001B and two "three directional" pipe supports in the vicinity of valves 1P41F166B and 1P41F214B for RHR Heat Exchanger Q1E12B002B. Per M-18 design criteria, 1" schedule 80 piping system is acceptable for unsupported piping span of 22" from "three directional" support for all loading conditions, including seismic event.
6. The rubber hoses, fittings, temporary isolation valves, and the Injection Pump are all rated for at least 150 psig, and the hoses connected to the quills installed on the outboard drain valves will be taped down on the floor in the immediate vicinity of the quills and tied to handrails and other appropriate structure as they are run to the side of the room and up to the 119' elevation. Thus the weights of the whole assemblies would not be placed on the piping and would have negligible impact on the piping in case of a seismic event.

It can be concluded that, as long as the total leakage rate from the four inboard drain valves is less than 2.36 gpm and that the piping cut to remove an outboard drain valve is made at a location that is within 22" from the nearest "three dimensional" support, the SSW "B" system integrity will be maintained by the piping and the inboard drain valves while modifications are made to the downstream piping or valves.

WO# 35963 provides notes and cautions to achieve the following:

1. Perform a leakage test for the inboard drain valves, 1P41F214B and 1P41F166B for 1E12B002B and 1P41F164B and 1P41F158B for 1E12B001B, before cutting the piping to replace the outboard drain valve 1P41F167B, and later during the acid flush work session, before starting the valve conversion to ensure that the total leakage rate from the 4 inboard drain valves is less than 2.36 gpm,
2. Identify the cut locations for cutting the pipe to replace the outboard drain valve 1P41F167B, ensuring that the cut locations are within 22" from the nearest "three dimensional" support,

Thus, the RHR "B" system and the SSW "B" system will remain fully capable of performing their design safety functions during the pipe cutting, welding, and valve disassembly and modification associated with the conversion of the outboard drain valves while the inboard drain valves are closed; Therefore, they need not be declared INOP during this time.

In performing some of the work, the High Energy Line Break (HELB) door #1A202 has to be blocked open. An evaluation has previously been performed for blocking open HELB doors including #1A202 in ER-GG-2005-0038-000, Rev. 0 for which a 50.59 screening was performed. The results of the ER showed it to be acceptable to block the door open as long as the annual limits of 32 hours and 3.9 hours for the case RHR not operating and the case RHR operating, respectively, are not exceeded. The door blocking will be performed in accordance with plant procedure 01-S-06-2. As of today, the number of hours expended are 0.8 hours and 0 hour for not-operating case and operating case, respectively. The number of hours that might be used in this acid cleaning work will not exceed 29 hours, thus within the limit established in that ER.

RHR and SSW Systems INOP When Inboard Drain Valves Are Re-Opened for Acid Injection

Once the inboard drain valves are opened (following modifications for acid injection capability) to allow acid injection, both RHR "B" and SSW "B" will be declared INOP and LCO entered, but they will be maintained functional by posting an Operator nearby the inboard drain valves (within about 15' between the two trains) to close them in case of an SSW "B" pump initiation. The SSW inlet and outlet isolation butterfly valves, 1P41F014B and 1P41F068B, will be closed but not tagged during the acid mixing, injecting, and recirculating, so that they will open automatically upon an SSW system initiation.

Valve Conversion

The valve conversion would be performed as a part of the acid cleaning in accordance with applicable procedures such as that for welding, and the modified valves and the properly rated temporary hoses, isolation valves, and Injection Pump would form an adequate new pressure boundary for the SSW. After completion of the acid cleaning, a Maintenance Leak Test will be performed. Also the RHR Heat Exchangers monthly EPI performed by OPS will be performed only after the acid cleaning as a post-cleaning test to verify that the SSW flow rate has not been adversely affected. These are considered sufficient for OPS to clear the LCO.

Acid Flush

The proposed acid mixing method would result in proper mixing of the Betz KI-2 (containing 40% citric acid) and a Nalco penetrant (Nalco 73551 preferred), both approved by Chemistry, with SSW to form a 10% Betz KI-2 solution containing approximately 4% citric acid and 200 ppm of the penetrant. A minute amount of a defoaming agent, Betz Foamtrol CT, also approved by Chemistry, might be added at the discretion of Chemistry. Being a weak acid, the 4% citric acid solution would pose more a nuisance than a safety hazard. Proper Personnel Protection Equipment is to be worn during the acid cleaning work as directed by the RP. Cautions are provided in the work instructions against spills and splashes. The floor drains will be covered by securely taping the cover to the floor, but not plugged, before the acid cleaning is started, as is done in acid flushing of the ESF Switchgear Room Coolers. This will make it easier to stop the acid cleaning process and restore the system. The requirements for covering and uncovering the floor drains will be per established plant procedures and maintenance practices for similar activities. Upon completion of the acid cleaning, discharging the used 10% Betz KI-2 solution and Nalco penetrant contained in the SSW in the RHR Heat Exchangers and associated piping as well as the various drums after acid cleaning of the RHR Heat Exchangers via the SSW basin is approved by the State of Mississippi per an NPDES permit.

The system boundaries established for cleaning the RHR Heat Exchangers (1E12B001A/B and 1E12B002A/B) are shown on P&ID M-1061C/D between valves 1P41F014A/B and 1P41F068A/B as well as valves 1P41F120A/B, 1P41F121A/B, 1P41F166A/B, 1P41F214A/B, 1P41F167A/B, 1P41F164A/B, 1P41F158A/B, and 1P41F165A/B. The proposed acid cleaning solution was evaluated in the ER with respect to its corrosion effect on and compatibility with all components within the chemical cleaning boundary and determined to be acceptable since the expected corrosion extent at the end of one acid cleaning of the specified duration would be well within the corrosion allowances. Other types of corrosion (crevice, IGSCC, pitting, etc.), corrosion of welding/brazing metal or other corrosion mechanism possibilities were reviewed and determined not to be credible factors due to the nature of the selected chemical cleaning process, the specified chemical solution, the wetted materials within the established boundary and by following the prescribed process controls. The above-cited safety evaluations specifically discuss crevice corrosion and corrosion of welding/brazing materials as not being a concern when using a chemical cleaning process with a similar citric acid solution. Also, a non-metallic material previously not evaluated, the EPT material in the SSW inlet and outlet butterfly isolation valves, has been found, by reference and by testing, to be compatible with the proposed chemical solution. Another non-metallic material is the plastic, KEL-F81, used for the valve seat in Anderson-Greenwood relief valves 1P41F100A/B, just like those for the ESF Switchgear Room Coolers, 1P41F127A/B, 1P41F138A/B, 1P41F151A/B, 1P41F194A/B, and 1P41F157A/B. No detailed information about the plastic is available in the vendor manual and it does not appear that the impact of 4% citric acid on KEL-F81 has been specifically evaluated. However, none of the ESF Switchgear Room Cooler relief valves, which have been through numerous flushing by the acid solution, or 1P41F100A/B, which have also been through two SSW piping acid flushes before, was actually found to have suffered noticeable damages, except perhaps some minor leakage, for which the reasons were unknown. Also, relief valves 1P41F100A/B are located about 30" more or less vertically up from the junction to the SSW main piping. As discussed in the ER, unless the valve is leaking during the acid flushing, the turbulent eddies alone could not possibly carry the citric acid solution into the small branch line to any noticeable distance within the time frame of the acid cleaning. Indeed, relief valves 1P41F100A/B are currently not leaking. Therefore, it is believed that the upcoming acid cleaning of RHR "B" Heat Exchangers will not affect relief valve 1P41F100B. It is for this same reason that rinsing of this branch line, which will require manipulation of the relief valve, will not be performed immediately after the

acid flush. In reality, since the butterfly valves 1P41F014A/B & 1P41F068A/B are not leaking and are more than 18' away from the heat exchanger nozzles, they are not expected to be affected by the cleaning solution either. The temporary hoses, valves, fittings, and injection pumps used are similar to those used for the ESF room coolers or brand new and compatible with the cleaning solution. No other non-metallic materials are known to exist within the system boundary identified. Based solely on the corrosion rate of the limiting component, carbon steel, 11 acid cleanings could be allowed. However, two acid cleanings, each with 9-hour acid recirculating/soaking after at most 13 hours of acid mixing/injecting, are approved based conservatively on the MIC Program data.

The 10% Betz KI-2 solution obtained from mixing the chemicals in one of the Mixing Drums would be injected into the heat exchangers and associated piping through the injection port, pushing the existing SSW out of the collection port into the other Mixing Drum. After completion of the acid injection within a maximum of 13 hours, a recirculating loop including only one Mixing Drum would be established to recirculate the acid solution through the loop. At the end of the recirculation phase when the inboard drain valves are closed, the RHR "B"/SSW "B" systems can be declared Operable. The cleaning process may include a period of time for soaking the tubes with the acid solution thereafter before starting the SSW Pump to rinse off the acid solution. The acid cleaning process is monitored by taking SSW samples at 3, 6, and 9 hours into the Recirculating Phase, and by watching closely the RHR-side pressure (1E12N026A/B) and conductivity alarm (1E12L602A/B) to detect a tube leak. The total duration of the recirculating and soaking is limited to 9 hours. The recirculating/soaking is also to be deemed complete when the maximum allowable copper concentration in the SSW sample exceeds 4725 ppm. The cleaning process would be promptly terminated upon SSW system automatic initiation, detecting RHR-side pressurization and confirming an RHR Heat Exchanger tube leak, or detecting radioactivity in SSW samples by isotope analyses (by Chemistry Dept.). In case of a tube leak with the RHR side leak tight, only a small amount of SSW could leak into the RHR side when the SSW side pressure is higher, thus raising the reading of 1E12N026A/B. The SSW would be flushed to the Suppression Pool, thus diluting the concentration of the citric acid, and then cleaned up by means of the *Suppression Pool Cleanup* system. One quart of 4% citric acid solution would be diluted to a undetectable concentration level of 10 ppb in the Suppression Pool. The concentration would be further reduced after cleaning by the *Suppression Pool Cleanup* system before any chance of the citric acid entering the reactor coolant system. If the SSW pressure drops below the RHR-side pressure with a tube leak, the SSW side would be contaminated by the RHR-side fluid. Significant leakage flow would be detectable by observing the levels in the two Mixing Drums and isotope analysis of the SSW sample. The waste SSW collected and the excess 10% Betz KI-2 solution remaining in the Mixing Drums at the end of the acid cleaning will be dumped or pumped back to the SSW basin via any of the nearby SSW system valves identified in the procedure (07-1-34-T46-B00X-2) for acid flushing of the ESF Switchgear Room Coolers, such as 1P41F352, 1P41F337, etc. after an isotope analysis of a sample has verified no radioactive contamination. The relatively low concentrations of citric acid and removed corrosion products in the acid solution remaining in the cleaning solution is not expected to cause any damage to the SSW basin area, based on previous experiences with the SSW piping flushes. In particular, only slight etching on the concrete has been noticed after the SSW piping flushing. The tower fan blades would not be wetted. The ceramic fill material is compatible with citric acid and no adverse effects have been noticed before. The small total amounts of citric acid, Nalco penetrant, and removed corrosion products after being diluted by the vast basin volume will be harmless to the system and the SSW basin water will be allowed to be discharged to the river per a NPDES permit. A permit for storing combustible material in the work area will be obtained since the total amount would exceed the normal allowance but would not be excessive.

The acid mixing/injecting equipment, drums, and hoses would be set up mainly on El. 119' of Auxiliary Building outside the RHR Heat Exchanger Room. All pumps, valves, fittings, drums, and hoses will be either new or previously verified to be free from radioactive contamination before use.

4. References

Discuss the methodology for performing LBD searches. 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. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

Keyword searches were performed with all LBDs listed in AUTONOMY selected. The hits were reviewed to verify that they are not related to the proposed acid flush of the RHR Heat Exchangers and associated piping.

Electronic search method used:

All LBDs listed in AUTONOMY

Keywords:

"acid flush",

"acid cleaning",

"chemical cleaning".

LBDs reviewed manually:

None

5. Is the validity of this Review dependent on any other change?

☐ Yes

☒ No

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

YES NO

1. ☐ ☒ Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
2. ☐ ☒ Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
3. ☐ ☒ Involve dredging activities in a lake, river, pond, ditch, or stream?
4. ☐ ☒ Increase the amount of thermal heat being discharged to the river or lake?
5. ☐ ☒ Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
6. ☐ ☒ Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency?
7. ☐ ☒ Change the design or operation of the intake or discharge structures?
8. ☐ ☒ Modify the design or operation of the cooling tower that will change water or air flow characteristics?
9. ☐ ☒ 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?
10. ☐ ☒ Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?¹
11. ☐ ☒ 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
12. ☐ ☒ Involve the installation or use of equipment that will result in a new or additional air emission discharge?
13. ☐ ☒ Involve the installation or modification of a stationary or mobile tank?¹
14. ☐ ☒ Involve the use or storage of oils or chemicals that could be directly released into the environment?
15. ☐ ☒ Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater?

¹ See NMM Procedure EV-117 for guidance in answering this question.
LI-101-01, Rev. 8; Effective Date: 6/23/05

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

1. ☐ ☒ Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)?
2. ☐ ☒ Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)?
3. ☐ ☒ Cause materials or equipment to be placed or installed within the Security Isolation Zone?
4. ☐ ☒ Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities?
5. ☐ ☒ Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)?
6. ☐ ☒ Modify or otherwise affect the operation or field of view of the security cameras?
7. ☐ ☒ Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment?
8. ☐ ☒ Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station?
9. ☐ ☒ Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways?
10. ☐ ☒ Modify or otherwise affect the facility's telephone or security radio systems?

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Data)

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Grand Gulf or Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "YES," a 72.48 Review must be performed in accordance with NMM Procedure LI-112 and attached to this 50.59 Review.

Will the proposed activity being evaluated:

- | | <u>YES</u> | <u>NO</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any activity that directly impacts spent fuel cask storage or loading operations? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the ISFSI including the concrete pad, security fence, and lighting? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building or Control Room(s) radiation monitoring? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building electrical power that could potentially impact cask loading or storage activities? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building ventilation that could potentially impact cask loading or storage activities? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the ISFSI security? |
| 11. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to off-site radiological release projections from non-ISFSI sources? |
| 12. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to spent fuel characteristics? |
| 13. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Redefine/change heavy load pathways? |
| 14. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve fire and explosion protection near or in the on-site transport paths or near the ISFSI? |
| 15. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the loading bay or supporting components power that could potentially impact cask loading or storage activities? |
| 16. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | New structures near the ISFSI? |
| 17. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modifications to any plant systems that support dry fuel storage activities? |
| 18. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building? |

IV. 50.59 EVALUATION

License Amendment Determination

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

Does the proposed Change:

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

BASIS:

The corrosion impact of the proposed 4 % citric acid solution on all components, including weld material, within the chemical cleaning boundary for the acid flush of the RHR Heat Exchangers was evaluated. Crevice corrosion attack was not considered a concern since chemical environments associated with the cleaning process are not of a nature to create an aggressive environment for crevice corrosion mechanisms in the case of the SSW system, and the crevice corrosion requires before accelerated metal dissolution begins some incubation period that would not be available because the length of time crevices in the SSW system were to be exposed to the chemical cleaning process would be sufficiently short and areas that could be saturated by this chemical environment would be subsequently flushed. The critical components affected by an acid flush were found to be carbon steel piping, 70-30 CuNi heat exchanger tubes, Ethylene Propylene Terpolymer (EPT) elastomer seats of SSW isolation butterfly valves (1P41F014A/B & 1P41F068A/B), and KEL-F81 plastic seats of the Anderson Greenwood relief valves 1P41F100A/B. The corrosion impact on carbon steel and 70-30 CuNi by a 9-hour acid recirculating/soaking following less than 13 hours of mixing/injecting of the acid solution has been determined to be insignificant and well within the corrosion allowances. The EPT elastomer is quite compatible with citric acid solution. No detailed information is available on the KEL-F81 plastic in the vendor manual. However, no adverse effect on these non-metallic materials has been observed from numerous 4% citric acid flushing of the ESF Switchgear Room Coolers or a previous flush of the entire SSW system using a 2.5 % citric acid solution for more than 24 hours. A recent 24-hour soaking of the EPT seat material from a similar butterfly valve in the proposed acid flush solution also resulted in no significant visible changes and no noticeable change in its Shore "A" Hardness value (approximately 65). Since the safety positions of these safety-related valves are "OPEN" so as to allow SSW flow under postulated accident conditions, leak-tightness is not required for their safety function. Therefore, even if unlikely, slight degradation in the EPT material should result in minor leakage after such exposure, it would not pose a safety concern. Also, even with slight leakage through the EPT packing, there would still be sufficient torque for the valve operators to open the valves were they found to be closed unexpectedly. In reality, these butterfly valves as well as the relief valves, being leak-tight and far away from the junctions with the main piping, are not expected to be affected by the cleaning solution during the short cleaning duration. Therefore, no components will be degraded by the acid flush as to increase the frequency of occurrence of an accident previously evaluated in the FSAR.

In the beginning of the proposed acid cleaning, the HX outboard isolation drain valves (1P41F165A/B & 1P41F167A/B) of the affected train would be temporarily converted into injection and collection ports for the acid solution. The conversion is to replace the valve stem and other internals with a quill, which will be held in place to seal off the outlet opening and allow the acid solution to go through the inlet opening. *The total leakage rate from the four inboard drain isolation valves of the affected train is to be verified to be less than 2.36 gpm to ensure that the inboard drain valves are functional before commencing any work on the outboard drain valves. When cutting out outboard drain valve 1P41F167B to replace it like-for-like, the cut is to be within 22" from the nearest "three-dimension" support in order to maintain the piping structural integrity for all loading conditions including a seismic event. The inboard drain isolation valves (1P41F166A/B, 1P41F214A/B, 1P41F158A/B, and 1P41F164A/B) would serve the function of*

isolation during the valve conversion work and the setup work connecting hoses with fittings, valves and pump to the quills. The RHR and SSW systems will remain operable as long as the inboard drain valves are closed. During the acid mixing and injecting as well as the acid recirculating/soaking, the SSW inlet and outlet isolation butterfly valves would be closed but not tag-closed so that they could open automatically in case of an initiation of the SSW system. The hoses connected to the quills installed on the outboard drain valves will be taped down on the floor in the immediate vicinity of the quills so that the weights of the whole assemblies will not be placed on the piping and would have negligible impact on the piping in case of a seismic event. The inboard isolation valves 1P41F214A/B and 1P41F164A/B, and the temporary injection and collection ports would be open, and the RHR and SSW systems will be declared INOP but they will remain functional by posting a dedicated Operator to close the inboard drain isolation valves in case of an initiation of the SSW Pump. The only hazard that this could present in case of an accident resulting in actuation of the SSW Pump during these periods would be a potential for SSW coming out of the collection port or even the injection port and briefly overflowing the Mixing Drums. Caution would be placed in the work package to minimize this hazard, which would not be a plant safety concern. Thus, the inboard isolation valves would serve the function of isolation during these periods of acid cleaning work and the frequencies of occurrence of all accidents previously evaluated in the FSAR would not increase as a result.

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 corrosion impact on limiting components within the chemical cleaning boundary, namely carbon steel piping and 70-30 CuNi tubes, by the proposed acid flush has been determined to be well within the corrosion allowances. The safety function of the isolation valves, butterfly valves or otherwise, would not be affected by the acid flush. Therefore, no structures, systems, or components important to safety within the chemical cleaning boundary would be affected by the acid flush as to increase the likelihood of occurrence of a malfunction. *The inboard drain valves are about 15' from each other; therefore, a single dedicated Operator can isolate them in case of accident within a relatively short time.*

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

BASIS:

The integrity of the RHR Heat Exchangers and associated piping would not be compromised by the acid flush since the corrosion effect would be well within the allowance. The safety function of all isolation valves would not be impaired by the acid flush. Therefore, no systems or components within the chemical cleaning boundary would be prevented from performing their safety function during an accident previously evaluated in the FSAR as to cause any increase in the consequences of the accident. The dedicated Operator would be able to close the inboard drain isolation valves in case of an accident within a relatively short time so that they could perform their safety function during the accident and would not increase the consequences of the 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 acid flush would not compromise the integrity of the SSW system boundary or degrade the heat exchanger function or affect the operation of any other safety system/component within the chemical cleaning boundary required for mitigating the consequences of an accident; therefore, it would not cause any 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 impact of the proposed acid flush on all exposed components within the chemical cleaning boundary is insignificant and well within the corrosion allowances. Leaving the inboard drain valves and the injection and collection ports open during the acid cleaning work would only add the need to post a dedicated Operator to close the inboard drain valves but would not create a possibility for an accident of a different type to occur since the inboard drain valves would serve the isolation function. Therefore, no possibility for an accident of a different type than any previously evaluated in the FSAR could 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 impact of the proposed acid flush on all exposed components within the chemical cleaning boundary is insignificant and well within the corrosion allowances. The inboard drain valves would be closed by the posted dedicated Operator in case of a postulated accident resulting in actuation of the SSW System to serve the isolation function as usual. The results of any malfunction of a structure, system, or component important to safety previously evaluated would not be made different by the acid flush. Therefore, no possibility for a malfunction with a different result than any previously evaluated in the FSAR could be 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 impact of the proposed acid flush on all exposed components within the chemical cleaning boundary is insignificant and well within the corrosion allowances. The inboard drain isolation valves would be closed within a relatively short time by the posted dedicated Operator in case of a postulated accident resulting in actuation of the SSW System, causing negligible loss in the SSW. Therefore, the acid flush would not change any result of accidents previously analyzed in the FSAR. Hence, it could 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:

The proposed acid flush is to chemically clean the RHR Heat Exchangers and associated piping to be better prepared for the Eddy Current Testing and possibly improve the heat exchanger thermal performance. The heat removal capability of the RHR Heat Exchangers used in safety analyses was based on the design fouling level and would not be affected by the acid flush. Therefore, the proposed acid flush would not affect any method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses.

If any of the above questions is checked "YES," obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure LI-113.

GGNS 50.59 Safety Evaluation Number

SE 2005-0005-R00

50.59 REVIEW FORM

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I. OVERVIEW / SIGNATURES

Facility:

Document Reviewed: Core Operating Limits Report (COLR)

Change/Rev.: LDC 2005-060

System Designator(s)/Description: J11

Description of Proposed Activity:

This evaluation addresses the Cycle 15 reload changes and operation of the Cycle 15 reload core as given in the Core Operating Limits Report (COLR)

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2005-0005-^{R00}800</u> <u>10/19/05</u>)	Sections I, II, and IV required

Preparer: Guy B. Spikes / G. B. Spikes / EOI / NE-SA / 10/10/05
Name (print) / Signature / Company / Department / Date

Reviewer: G.E. Broadbent / G.E. Broadbent / EOI / Eng / 10-10-05
Name (print) / Signature / Company / Department / Date

OSRC: D.P. Wiles / D.P. Wiles / 10/12/05
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings and 50.59 Evaluations)

List of Assisting/Contributing Personnel:

Name:

J. A. Elam (Central Engineering BWR Fuels)Shen G. Shue (Central Eng. BWR Fuels)D. L. Smith (Central Engineering BWR Fuels)J. P. Head (Central Engineering BWR Fuels)G. W. Smith (GGNS-PSA)

Scope of Assistance:

Core design and neutronic inputCore design and neutronic inputFuel mechanical inputCore stability and hydraulic inputEOP Input

EX-100-CHU
614.33
DATE
NUMBER OF PAGES 21
DATE
RELATED DOCUMENT NUMBER

II. SCREENINGS**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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LDC 2005-061
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LDC 2005-060
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2, 3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3, 4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3, 4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101 No LBD change is required

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed Attach the 50.54 evaluation

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes
☒ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. **Basis**

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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 evaluation addresses the reload-related changes associated with the Cycle 15 reload and operation of the Cycle 15 reload core as given in the Core Operating Limits Report (COLR) located in the Operating License Manual (OLM). Cycle 15 has been designed for 511 Effective Full Power Days with a core consisting of 232 fresh, 244 once-burnt, 239 twice-burnt, and 85 thrice burnt ATRIUM-10 assemblies. There are no TS or TS Bases changes required to operate with this new core, however, the FSAR does require updates. The Cycle 15 core has been designed and analyzed for a rated thermal power of 3898 MWt. Attachment 1 provides a detailed description of the Cycle 15 reload analysis and the issues considered in this evaluation. Control rod behavior indicative of increased (abnormal) channel bow was observed in some control cells during Cycle 14 operation (CR-GGN-2005-3287). The Cycle 15 reload safety analyses includes abnormal channel bow that bounds the bow measured during RF14 fuel channel inspections and the expected bowing during Cycle 15 operation. The channels of seventeen ATRIUM-10 bundles expected to experience the worst bowing during Cycle 15 have been replaced with fresh (unirradiated) channels. During RF14, two Cycle 15 thrice-burnt ATRIUM-10 bundles were discharged and replaced with two similar thrice-burnt bundles expected to experience less bowing during Cycle 15. This change to the original Cycle 15 core reference loading pattern is also considered in this evaluation.

Operating License/Technical Specifications (OL/TS)

The current MCPR Safety Limit has been shown to be applicable to the Cycle 15 core. As such, Tech Spec 2.1.1.2 does not need to be revised. There are no other Tech Specs, LCO's, TS Bases, surveillances or other controls in the GGNS OL/TS affected by the Cycle 15 reload.

TRM

The Cycle 15 reload does not affect any TRM requirements. As such, the TRM is not impacted by the Cycle 15 reload evaluation.

FSAR

The Cycle 15 core will contain fuel types currently described in the FSAR. However, the core characteristics and response will be different than that currently described in the FSAR. As such, Cycle 15 analyses have been performed for the new core and the FSAR will be updated to reflect these analyses and operation of the Cycle 15 core.

COLR

Cycle 15 operation will require new core operating limits and the Core Operating Limits Report has been revised to include these new limits. These limits include flow-, power-, and exposure-dependent LHGR, MAPLHGR, and MCPR limits.

Test or Experiment

The Cycle 15 reload does not involve any tests or experiments.

There are no NRC orders applicable to the Cycle 15 reload campaign. The evaluation does not affect the FHA, ODCM, QAPM, E-Plan, or NRC SERs.

4. References

Discuss the methodology for performing LBD searches. 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. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

Electronic search method used

Keywords.

GGNS Autonomy LBDs OLM, FSAR, COLR,
TS Bases, TRM

Fuel, reload, channel, COLR

LBDs reviewed manually

COLR

5. Is the validity of this Review dependent on any other change?

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

☒ Yes

☐ No

An acceptable final core loading. For a final core loading not exactly as provided in - JLR 05 131, an evaluation of the as-loaded core must be performed to ensure that the Cycle 15 reload analyses continues to be acceptable. Core loading verification is accomplished IAW procedure 17-S-02-108, Core Loading Verification.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

- | | <u>YES</u> | <u>NO</u> | |
|----|--------------------------|-------------------------------------|--|
| 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)? |
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)? |
| 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve dredging activities in a lake, river, pond, ditch, or stream? |
| 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the amount of thermal heat being discharged to the river or lake? |
| 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the concentration or quantity of chemicals being discharged to the river, lake, or air? |
| 6 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency? |
| 7 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures? |
| 8 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the cooling tower that will change water or air flow characteristics? |
| 9 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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? |
| 10 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? ¹ |
| 11 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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 |
| 12 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or use of equipment that will result in a new or additional air emission discharge? |
| 13 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or modification of a stationary or mobile tank? ¹ |
| 14 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the use or storage of oils or chemicals that could be directly released into the environment? |
| 15 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater? |

¹ See NMM Procedure EV-117 for guidance in answering this question

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

- | | | | |
|----|--------------------------|-------------------------------------|--|
| 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Add, delete, modify, or otherwise affect Security department responsibilities (e g , including fire brigade, fire watch, and confined space rescue operations)? |
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a breach to any security barrier(s) (e g , HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)? |
| 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Cause materials or equipment to be placed or installed within the Security Isolation Zone? |
| 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities? |
| 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the intrusion detection systems (e g , E-fields, microwave, fiber optics)? |
| 6 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the operation or field of view of the security cameras? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment? |
| 8 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station? |
| 9 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways? |
| 10 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's telephone or security radio systems? |

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Data)

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE. This section is not applicable to Grand Gulf or Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "YES," a 72.48 Review must be performed in accordance with NMM Procedure LI-112 and attached to this 50.59 Review.

Will the proposed activity being evaluated:

- | | <u>YES</u> | <u>NO</u> | |
|----|--------------------------|-------------------------------------|--|
| 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any activity that directly impacts spent fuel cask storage or loading operations? |
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the ISFSI including the concrete pad, security fence, and lighting? |
| 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI? |
| 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches? |
| 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building or Control Room(s) radiation monitoring? |
| 6 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry? |
| 7 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)? |
| 8 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building electrical power that could potentially impact cask loading or storage activities? |
| 9 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building ventilation that could potentially impact cask loading or storage activities? |
| 10 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the ISFSI security? |
| 11 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to off-site radiological release projections from non-ISFSI sources? |
| 12 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to spent fuel characteristics? |
| 13 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Redefine/change heavy load pathways? |
| 14 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve fire and explosion protection near or in the on-site transport paths or near the ISFSI? |
| 15 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the loading bay or supporting components power that could potentially impact cask loading or storage activities? |
| 16 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | New structures near the ISFSI? |
| 17 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modifications to any plant systems that support dry fuel storage activities? |
| 18 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building? |

IV. 50.59 EVALUATION**License Amendment Determination**

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

Does the proposed Change

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

BASIS:

The Cycle 15 core loading and cycle operation will not result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the FSAR. The precursors to these events are independent of the core design and the frequency classifications reported in FSAR Chapter 15 are unaffected by the core parameters. The following considerations support this conclusion.

Mechanical

The ATRIUM-10 mechanical design has been reviewed for use at Grand Gulf. No unusual failure modes or increased failure frequency have been identified for this fuel design. This is the fourth reload at GGNS with ATRIUM-10 fuel and this fuel design has accumulated operational experience at GGNS and other plants with no significant problems. The Cycle 15 bundles will operate within the power history assumptions in the fuel mechanical analyses and will result in exposures within the analyzed burnup limits of the ATRIUM-10 mechanical design, including those bundles that will be irradiated for a fourth cycle. The re-channelled fuel bundles continue to satisfy all mechanical design criteria. Although an increased channel bow condition can result in increased friction between the control blade and its corresponding fuel assemblies, control rod settle and insertion testing (EPI 04-1-03-C11-7) will continue to be performed during Cycle 15 to ensure that the increased axial friction loads on the channel and fuel assembly load chain remain below acceptable limits.

Nuclear

The neutronic characteristics of the Cycle 15 ATRIUM-10 core design have been considered in the safety analysis. Adequate shutdown margin has been predicted by analysis and will be confirmed during startup tests. In addition, the hold-down capability of the standby liquid control system and the subcriticality of Cycle 15 fuel in the spent fuel storage racks have been confirmed. Therefore, the probability of inadvertent criticality has not been increased by the introduction of the Cycle 15 reload fuel. The neutronic characteristics of the ATRIUM-10 bundles are not affected by channel replacement or by abnormal channel bow.

Thermal-Hydraulic

Cycle 15 is an all ATRIUM-10 core. Therefore, considerations of the thermal-hydraulic compatibility of the ATRIUM-10 with co-resident fuel types do not apply. Analyses have been performed to demonstrate that Cycle 15 meets all Enhanced-1A stability performance criteria without changes to the E1A hardware or power-flow map region boundaries. The thermal-hydraulic performance of the ATRIUM-10 bundles is not affected by channel replacement or by abnormal channel bow. Therefore, the probability of thermal-hydraulic instabilities has not increased.

Analyzed Events

The probability of the occurrence of anticipated operational events is not dependent on the core configuration. No changes to the plant design are required for the Cycle 15 core. The Cycle 15 core loading will not affect the precursors to any of the Chapter 15 events. The probability of an analyzed event therefore has not increased.

As described in FSAR Section 15A.6.5.3, the Control Rod Drop Accident (CRDA) results from a failure of the control rod-to-drive mechanism coupling after the control rod becomes stuck in its fully

inserted position. Although an increased channel bow condition can result in increased friction between the control blade and its corresponding fuel assemblies, analyses have shown that there would not be sufficient friction to result in a mechanical failure of the coupling. Additionally, the control rod drive mechanism would not produce enough force to result in a mechanical failure of the coupling even if the channel bow was so severe that the assemblies would preclude blade movement. As such, channel bow is not considered a precursor to the CRDA, and any increased bow associated with the high exposure ATRIUM-10 bundles would not increase the probability of this event.

On these bases, the probability of occurrence of accidents previously identified in the FSAR is not increased for the Cycle 15 core with increased channel bow.

- 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 plant modifications are required to accommodate the new all ATRIUM-10 core design. The mechanical design and neutronic, and thermal-hydraulic characteristics of the ATRIUM-10 fuel bundles have been shown to be unaffected by channel replacement. The only additional loads placed on plant equipment would be due to increased friction between the control blades and excessively bowed ATRIUM-10 bundles. This probability has been reduced by re-channeling 17 ATRIUM-10 fuel bundles and replacing two others considered most susceptible to abnormal bow. Based on previous experience with bowed fuel at GGNS and other BWR-6's, increased control blade friction can result in increased control rod settle times but is not expected to significantly impact scram times. Technical Specification scram time testing and control rod settle and insertion testing (EPI 04-1-03-C11-7) will continue to be performed during Cycle 15. These actions would identify any potential scram time or other impacts and such that appropriate corrective actions are taken. These actions will ensure that the increased control blade friction loads are not sufficient to cause any failures associated with the control blades or the control blade drive system, the fuel assembly load chain, or the vessel internals.

A conservative vessel overpressurization analysis has been performed, which shows that the vessel pressure limit is not exceeded.

The precursors to any malfunction of equipment important to safety are not affected by this the Cycle 15 reload core. Therefore, there is not more than a minimal increase in the likelihood of an 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:

As reported in Attachment 1, the acceptance criteria reported in FSAR Section 15.0.3.1 and the Technical Specifications are satisfied for each event classification. Core operating limits have been developed to ensure that moderate frequency events do not violate the MCPR safety limit or fuel cladding strain limits. The consequences of infrequent events have been shown to meet the appropriate acceptance criteria while the individual acceptance criteria for the limiting faults have been demonstrated to be satisfied. As such, the consequences of infrequent events and limiting faults described in the FSAR are unchanged for the Cycle 15 reload core. The following considerations support these conclusions.

Moderate Frequency Events

The Cycle 15 core operating limits have been developed with NRC-approved methodologies such that the MCPR safety limit and the fuel cladding strain limit will not be violated by any analyzed moderate frequency transient initiated from any statepoint available to GGNS. As such, no fuel failures are expected to result from any moderate frequency event. These analyses considered GGNS-specific operational modes such as MEOD, SLO, FHOOS, and EOC-RPT inoperable. These core operating limits consist of MCPR, MAPLHGR and LHGR curves that are functions of flow, power, and exposure. These limits consider conservative channel bow assumptions that bound the

current measured bow data and the expected increased bow associated with the highly exposed ATRIUM-10 fuel. These core operating limits will be incorporated into the core monitoring system.

Infrequent Events

The consequences of the limiting infrequent events have been evaluated and shown to meet their respective acceptance criteria. These events include the pressure regulator failure downscale, misplaced (*i.e.*, misoriented and mislocated) bundle and single loop operation pump seizure accidents. Radiological analyses using the alternative source term (AST) have been performed to ensure that these events will not result in an increase in offsite or control room doses or doses greater than their respective acceptance criteria. These evaluations include conservative channel bow assumptions that bound the current measured bow data and the expected increased bow associated with the highly exposed ATRIUM-10 fuel.

Limiting Faults

The limiting faults at GGNS include the fuel handling accident, the control rod drop accident, and the design basis LOCA. The radiological analyses for these events have been developed as part of the GGNS AST effort and bound the Cycle 15 core parameters. For the LOCA, MAPLHGR operating limits and single-loop multipliers have been developed for the Cycle 15 core configuration such that the requirements of 10CFR50.46 are satisfied. The containment response for the Cycle 15 core was found to be bounded by previous cycles as is the hydrogen analysis. The seismic/LOCA response of the Cycle 15 core has been confirmed to be acceptable. The Cycle 15 core design results in minor changes to three EP parameters (Mclad, Mfuel, Fafi-18), however, the existing EP's remain applicable to Cycle 15.

Therefore, the proposed change does 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 Cycle 15 ATRIUM-10 reload fuel design has been shown to be compatible with the co-resident ATRIUM-10 fuel inserted in previous cycles. Channel replacement has been shown to have no effect on the ATRIUM-10 fuel bundle envelope or mechanical design. The malfunctions of key plant components are analyzed as part of the reload process with the results reported in various sections of the FSAR. The consequences of these malfunctions have been shown to remain unchanged for Cycle 15 operation.

Therefore, Cycle 15 operation 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 Cycle 15 ATRIUM-10 reload fuel is similar to and compatible with the ATRIUM-10 fuel that was inserted in previous cycles. The details of this design have been specifically considered in the safety analysis and the core monitoring system. Channel replacement has been shown to have no effect on the ATRIUM-10 fuel bundle envelope or mechanical design. No plant modifications are required to accommodate the new core design or Cycle 15 operation. The GGNS Cycle 15 fuel has been approved for the Cycle 15 reactor chemistry conditions.

The GGNS operational parameters (water chemistry requirements, spectral-shift core designs, and MEOD rod-lines) have been reviewed and are not expected to result in unusual crud buildup like that observed on the high-power GE11 bundles at River Bend. Inspection of a high-power, once-burnt representative fuel bundle during GGNS RF10 has confirmed that the high-power GGNS Cycle 10 fuel bundles have no unusual crud buildup.

Therefore, Cycle 15 operation 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 Cycle 15 ATRIUM-10 reload fuel design has been shown to be mechanically, neutronically, and thermal-hydraulically compatible with the co-resident ATRIUM-10 fuel. Cycle 15 is an all ATRIUM-10 core. As such, the reload fuel will not introduce any adverse flow distribution effects. The mechanical design and neutronic, and thermal-hydraulic characteristics of the ATRIUM-10 fuel bundles have been shown to be unaffected by channel replacement. No plant modifications are required to accommodate the new core design and no additional loads will be imposed on any existing equipment. The ATRIUM-10 bundles provide sufficient clearance for proper control blade operation and allow sufficient bypass flow in the bypass region to provide adequate cooling for control blades and in-core detectors. There are no special operational considerations associated with the Cycle 15 core other than those associated with the increased bow condition. Control rod settle and insertion testing (EPI 04-1-03-C11-7) will continue to be performed during Cycle 15 to ensure that the increased control blade friction is not sufficient to cause any failures associated with the control blades or the control blade drive system, the fuel assembly load chain, or the vessel internals.

Therefore, Cycle 15 operation will not create the possibility for a malfunction of an 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:

Mechanical analyses have been performed to ensure that all fuel in the Cycle 15 core meet the mechanical design limits for steady-state operation as well as transient conditions including fatigue damage, creep collapse, corrosion, fuel rod internal pressure, rod bow, internal pressure, etc. The re-channeled ATRIUM-10 bundles have been shown to meet the applicable mechanical design limits for steady-state and transient operation. Additionally, no Cycle 15 fuel will exceed the applicable burn-up limits.

Core operating limits have been developed using NRC approved codes in order to ensure that the Cycle 15 fuel will not exceed the MCPR safety limits for steady-state operation and anticipated operation occurrences. Similarly, operating limits have been developed to ensure that the Cycle 15 fuel will not exceed the 1% cladding strain limit or experience core-wide fuel melt during steady-state operation or AOO's. Although some vessel blowdown to the suppression pool may be experienced during some AOO's, which would increase the suppression pool temperature, the bulk containment pressure increase is negligible and would not exceed the design limit.

As described in Attachment 1, a bounding pressurization event with a failure of the direct scram has been analyzed for Cycle 15 to ensure compliance with ASME code requirements. This analysis indicates that the vessel pressure safety limit is not exceeded for Cycle 15.

A design basis limit for the peak fuel enthalpy of 280 cal/gm has been established for the control rod drop accident (CRDA) to preclude significant fuel cladding failure such that core geometry and cooling may be impacted. The CRDA has been evaluated for Cycle 15. This evaluation considers all potential withdrawal sequences and concludes that a CRDA will not exceed the 280 cal/gm peak enthalpy limit. Since this accident is a localized event and the peak enthalpy does not exceed 280 cal/gm, there is no impact on the vessel or containment pressures. As such their respective limits are not exceeded.

10CFR50.46 provides limits associated with the ECCS performance analysis (LOCA analysis). Two such limits are Peak Clad Temperature (PCT) and local clad oxidation. Although these limits are not subject to 10CFR50.59, they are discussed in this evaluation for completeness. Grand Gulf specific analyses have been performed for ATRIUM-10 fuel in accordance with 10CFR50.46. These analyses, which are applicable to Cycle 15, show that the PCT and local oxidation are well below the limits set forth in 10CFR50.46. These analyses also show that the core-wide metal water reaction, which is used to evaluate compliance with the containment design limit, is less than the 10CFR50.46 limit. The remainder of the existing containment analysis associated with LOCA events is applicable to Cycle 15 as described in Attachment 1. As such, the containment pressure design limit will not be exceeded in Cycle 15.

An ATWS evaluation has also been performed for Cycle 15. As described in Attachment 1, the resulting vessel pressure remains below the ASME emergency vessel pressure limit of 1500 psig and the temperature response used in the existing ATWS containment analysis is applicable to Cycle 15. Thus, the containment pressure design limit will not be exceeded for the ATWS event.

Additional evaluations have been performed for Cycle 15 including Appendix R (Fire Protection), hydrogen analyses, and SBO as described in Attachment 1. These evaluations show that the existing evaluations are applicable to Cycle 15 and that their respective limits are not exceeded.

Therefore, Cycle 15 operation 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:

The reload analyses performed by the fuel vendor utilized NRC approved methods as listed in Technical Specification 5.6.5 and described throughout the FSAR. These methods are consistent with those used for Cycle 15. As described in Attachment 1, uncertainty applied in the Safety Limit calculation associated with each of the equipment out of service combinations was calculated in accordance with Framatome-ANP's NRC approved methodology. The pellet exposure based LHGR limit (PEBLL) was developed in accordance with Framatome-ANP's NRC approved methodology for analyzing the Fuel Design Limit. The abnormal channel bow data assumed in the safety analyses is within the bow database of Framatome-ANP's approved methodology. Framatome-ANP recently revised the methodology used to calculate the fuel channel stresses due to channel wall differential pressure. This revised methodology, which is applied to all channels in the GGNS Cycle 15 core, was recently approved by the NRC. All remaining GGNS evaluations currently described in the FSAR have been shown to be applicable to Cycle 15. As such, no new methods were used. Finally, the GGNS EP calculation has been updated to consider the minor changes to two fuel parameters. This revision did not incorporate any new or different methods.

Therefore, Cycle 15 operation 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.

GGNS 50.59 Safety Evaluation Number

SE 2005-0006-R00

50.59 REVIEW FORM

Page 1 of 10

I. OVERVIEW / SIGNATURES

Facility:

Document Reviewed: Calculation XC-Q1P53-05011
Calculation XC-Q1M46-04004Change/Rev.: 0
Change/Rev.: 1

System Designator(s)/Description: M46, P52, P53

Description of Proposed Activity:

Calculation XC-Q1P53-05011 determines the offsite and control room doses associated with secondary containment bypass leakage through the instrument air and service air piping. This analysis was necessary considering the potential post-accident unavailability of the active venting systems for these lines as described in CR-GGN-2005-02334. Calculation XC-Q1M46-04004 determines the offsite and control room doses associated with water leakage through the fuel transfer tube door of the Horizontal Fuel Transfer System (HFTS). This calculation was necessary since this leakage path is not currently considered in the LOCA dose analysis. These leak paths result in very small increases to the LOCA doses at all locations. The proposed change will therefore add the radiological impacts of secondary containment bypass through the service and instrument air piping and water leakage through the fuel transfer tube door to the current doses associated with the Loss of Coolant Accident (LOCA).

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2005-0006-^{ROO}600</u>) <u>10/19/05</u>	Sections I, II, and IV required

Preparer: G.E. Broadbent / G.E. Broadbent / EOS / Eng / 10-6-05
Name (print) / Signature / Company / Department / DateReviewer: William E. Long Jr. / William E. Long Jr. / EOS / SA / 10-6-05
Name (print) / Signature / Company / Department / DateOSRC: Dennis P. Wines / DPW / 10/13/05
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings and 50.59 Evaluations)

<input checked="" type="checkbox"/>	CA RECORD
RI	614-33
<input type="checkbox"/>	NON CA RECORD
<input checked="" type="checkbox"/>	INITIALS
NUMBER OF PAGES	10
DATE	10/19/05
RELATED DOCUMENT NUMBER	

II. SCREENINGS

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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sections 6 2 and 15 6 5
TS Bases	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 3 6 4 2
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2, 3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3, 4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3, 4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed. Attach the 50.54 evaluation.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes
☒ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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.

Tech Specs/Operating License

The current GGNS Tech Specs and Operating License are inputs into these dose analyses. No changes were identified or proposed by these analyses.

FSAR

The LOCA dose analysis is reported in SAR 15.6.5. Several changes to this section have been identified as noted in Section II of this 50.59 review. LDC 2005-065 makes the applicable changes.

Test or Experiment not Described in the SAR

These calculations only quantify the radiological impact of certain post-LOCA leakage paths. This calculation does not call for any action in the plant or changes to plant procedures, other than limiting the LLRT leakage values to the current admin limits applied in the radiological analysis (as described in detail in Section II A 5).

4. References

Discuss the methodology for performing LBD searches. 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. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

Electronic search method used

Keywords

Tech Specs, Operating License, FSAR, COLR, ODCM, Emergency Plan, SER

"LOCA Dose", "LOCA Radiological", "bypass leakage", "secondary containment bypass"

LBDs reviewed manually

SAR 15.6.5

5. Is the validity of this Review dependent on any other change? ☒ Yes
☐ No

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

These calculations apply containment penetration leak rates that are based on the LLRT administrative limits reported in SEP-APJ-001. Although the current (post-RF14) LLRT results for these penetrations have been confirmed to be well below these admin limits, Section 3.2 of Appendix C to SEP-APJ-001 allows GGNS the flexibility to exceed the admin limit if the total Type B and C leak rates do not exceed their respective allowable limits. The HFTS leakage rate is not included in the Type A, B and C leak rates. CR-GGN-2005-02334, CA#7 and WT-GGN-2005-0000, CA#818 have been issued to Engineering Programs to ensure that the admin limits for Penetrations 4, 41, 42, and 70 are not exceeded without supporting dose evaluations since they are direct inputs into the safety analysis.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

- | | <u>YES</u> | <u>NO</u> | |
|----|--------------------------|-------------------------------------|--|
| 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)? |
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)? |
| 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve dredging activities in a lake, river, pond, ditch, or stream? |
| 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the amount of thermal heat being discharged to the river or lake? |
| 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the concentration or quantity of chemicals being discharged to the river, lake, or air? |
| 6 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency? |
| 7 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures? |
| 8 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the cooling tower that will change water or air flow characteristics? |
| 9 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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? |
| 10 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? ¹ |
| 11 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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 |
| 12 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or use of equipment that will result in a new or additional air emission discharge? |
| 13 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or modification of a stationary or mobile tank? ¹ |
| 14 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the use or storage of oils or chemicals that could be directly released into the environment? |
| 15 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater? |

¹ See NMM Procedure EV-117 for guidance in answering this question
LI-101-01, Rev. 8; Effective Date: 6/23/05

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

- | | | | |
|----|--------------------------|-------------------------------------|--|
| 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Add, delete, modify, or otherwise affect Security department responsibilities (e g , including fire brigade, fire watch, and confined space rescue operations)? |
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Result in a breach to any security barrier(s) (e g , HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)? |
| 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Cause materials or equipment to be placed or installed within the Security Isolation Zone? |
| 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities? |
| 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the intrusion detection systems (e g , E-fields, microwave, fiber optics)? |
| 6 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the operation or field of view of the security cameras? |
| 7 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment? |
| 8 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station? |
| 9 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways? |
| 10 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify or otherwise affect the facility's telephone or security radio systems? |

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Data)

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Grand Gulf or Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "YES," a 72.48 Review must be performed in accordance with NMM Procedure LI-112 and attached to this 50.59 Review.

Will the proposed activity being evaluated:

- | | <u>YES</u> | <u>NO</u> | |
|----|--------------------------|-------------------------------------|--|
| 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any activity that directly impacts spent fuel cask storage or loading operations? |
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the ISFSI including the concrete pad, security fence, and lighting? |
| 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI? |
| 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches? |
| 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building or Control Room(s) radiation monitoring? |
| 6 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry? |
| 7 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)? |
| 8 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building electrical power that could potentially impact cask loading or storage activities? |
| 9 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the Fuel Building ventilation that could potentially impact cask loading or storage activities? |
| 10 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the ISFSI security? |
| 11 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to off-site radiological release projections from non-ISFSI sources? |
| 12 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to spent fuel characteristics? |
| 13 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Redefine/change heavy load pathways? |
| 14 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve fire and explosion protection near or in the on-site transport paths or near the ISFSI? |
| 15 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the loading bay or supporting components power that could potentially impact cask loading or storage activities? |
| 16 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | New structures near the ISFSI? |
| 17 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modifications to any plant systems that support dry fuel storage activities? |
| 18 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building? |

III. 50.59 EVALUATION EXEMPTION

A. Check the applicable box below. If a box is checked, clearly document the basis in Section III.B, below. If none of the boxes are appropriate, perform a 50.59 Evaluation in accordance with Section IV. Provide supporting documentation or references as appropriate.

- ☐ The proposed activity meets all of the following criteria regarding design function:

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. 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
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

IV. 50.59 EVALUATION

License Amendment Determination

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

Does the proposed Change

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

BASIS

The proposed change does not physically modify any structure, system, or component (SSC). The proposed change therefore does not affect any accident initiators. Deleting the credit for the instrument air system venting in the dose analysis does not affect the overall system performance or reliability and cannot change the likelihood of a loss of instrument air event in SAR 15.2.10.

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

BASIS

The proposed change only updates the LOCA dose analysis and makes no physical modifications to the plant such that important-to-safety SSCs will not be impacted by the proposed change.

This change does slightly increase the source term release into the Auxiliary Building with the addition of the HFTS leakage rate. The environmental qualification analyses are not impacted by the proposed change. If the service air and instrument air lines become a path for secondary containment bypass leakage due to the failure of the active vent function and continued integrity of the piping runs, the source term inventory in the Auxiliary Building would actually decrease due to the bypass of these source terms. For the HFTS leakage, the primary release into the Auxiliary Building is from noble gases that evolve from the decay of dissolved iodine in the spent fuel pool. Per Calculation 5.6.7-N, these airborne source terms are neglected in the general area dose rate evaluations. Also, as noble gases, these source terms would not be removed by the SGTS and would not contribute to doses in the SGTS room. The small amount of iodine released from the pool and collected by the SGTS filter train is negligible compared to the overall LOCA iodine source term currently modeled on the filter train.

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

BASIS

The only accident that is affected by these leakage paths is the LOCA dose analysis, which is documented in FSAR Section 15.6.5 per Calculation XC-Q1111-98017, Rev 2. The current results are documented in Table 15.6-14, which was recently updated by LDC 2005-037. This change adds the impacts of the secondary containment bypass leakage through the service air and instrument air lines and the water leakage through the HFTS to the current SAR results. The updated LOCA doses are compared to the current SAR values in the table below.

Location	Dose (Rem TEDE)		
	Current SAR Table 15.6-14 (LDC 2005-037)	New SAR Table 15.6-14 with these leak paths	Regulatory Limit (10CFR50.63)
Exclusion Area Boundary	8.41	8.45	25
Low Population Zone	4.46	4.56	25
Control Room	3.64	3.69	5

A minimal increase in consequences is defined as 10% of the difference between the current calculated dose value and the regulatory limit. As shown below, these increases are less than "minimal" increases at all dose locations. Therefore, these changes do not result in more than a minimal increase in the consequences of an accident previously evaluated in the FSAR.

Location	Dose (Rem TEDE)	
	"Minimal" Increase	Actual Increase
Exclusion Area Boundary	1.66	0.04
Low Population Zone	2.05	0.10
Control Room	0.14	0.05

- 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 active venting function of the instrument and service air systems is an important-to-safety SSC that is currently credited in the FSAR with mitigating the doses from a LOCA. This change determines the consequences of the failure of the active vent system in the event of a LOCA such that there is no reliance on this SSC to function post-LOCA. As shown in the response to Question 3, this increase in consequences is not more than a minimal increase, even when combined with the doses from the HFTS leakage.

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

BASIS

This change does not physically modify any SSC and cannot create any accident of a different type than 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 proposed change only updates the LOCA dose analysis and makes no physical modifications to the plant such that important-to-safety SSCs will not be impacted by the proposed change. Therefore, this change will not create the possibility for a malfunction with a result different than 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 change does not result in a design basis fission product barrier being exceeded or altered. The LOCA dose analysis is performed based on the failure of the fuel cladding barrier and the RCS pressure boundary. The LOCA dose analysis credits the containment and secondary containment and these changes do not alter or degrade the effectiveness of these boundaries. This change does not physically modify any SSC such that the fission product barriers are not 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 radiological analyses evaluated in these calculations are leak paths that may exist after a LOCA. The radiological computer code applied in these calculations is called RAPTOR and has recently been approved for use per Safety Evaluation 2005-0002-R00 based on extensive benchmarks to the previous GGNS methodologies and the NRC's own methods.

Calculation XC-Q1P53-05011 for the instrument and service air leakage paths credits aerosol settling and halogen deposition to reduce the source term release to the environment. These models have not been applied at GGNS but have been endorsed by the NRC for other BWR applications. Specifically, the aerosol settling model was developed by the NRC in Accident Evaluation Branch (AEB) 98-03 for the main steam line at Perry and has been accepted at other plants besides Perry. The elemental and organic halogen deposition model was developed by Cline [J E Cline, "MSIV Leakage Iodine Transport Analysis," Letter Report dated March 26, 1991] and is endorsed in Appendix A to Reg. Guide 1.183. It is important to note that these models were initially developed to model source term transport in the main steam line piping, which is a significant leakage path for many BWRs and this application applies these same models to the instrument air and service air piping. The extension of this methodology to the smaller diameter and lower temperature piping associated with the air systems is provided in the methodology.

Calculation XC-Q1M46-04004 documents the impact of leakage through the HFTS. This is not a secondary containment bypass leakage path like instrument and service air but is specifically evaluated since it is not part of the containment L_a calculation or the analyzed 1-12 gpm of suppression pool leakage in the LOCA dose analysis. This calculation applies the NRC-approved assumptions documented in Reg. Guide 1.183 with the RAPTOR methodology.

Therefore, these changes apply the relevant methodologies approved for use at GGNS and do not represent a departure from a method of evaluation described in the FSAR.

If any of the above questions is checked "YES," obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure LI-113.

GGNS 50.59 Safety Evaluation Number

SE 2005-0007-R00

50.59 REVIEW FORM

Page 1 of 9

I. OVERVIEW / SIGNATURES

Facility:

Document Reviewed: LBDC 2004-0095 Change/Rev.: _____System Designator(s)/Description: N71 Circulating Water System

Description of Proposed Activity: The proposed changes modify the TRM and ODCM the required actions and operability requirements of ODCM/TRM 6.3.9 applicable to Discharge Canal flow monitoring instrumentation. The change will affect administrative requirements only, and no physical modification is being made. The affected instrumentation is non-safety related and has no automatic functions. This change will make Circulating Water Blowdown the primary source of dilution flow for liquid radwaste discharges, and allow use of Discharge Canal flow instrumentation only as a means of estimating dilution flow when Circulating Water Blowdown flow instrumentation is inoperable. Only the Circulating Water Blowdown flow instrumentation will be considered a ODCM/TRM required channel.

FSAR Section 11.2 describes the Liquid Radwaste discharge system. Prior to being released to the environment, liquid radwaste is processed on a batch basis and sampled to determine radioactivity. Based on the results of the sample analysis, the waste may be released under controlled conditions to the environment. Liquid radwaste is only released via the discharge basin, after being diluted by Circulating water blowdown or Plant Service Water.

TRM/ODCM 6.3.9 specifies the requirements for radioactive liquid effluent monitoring instrumentation. The limiting conditions and actions associated with this TRM are applicable at all times. Required instrumentation includes one channel of radiation monitoring on the liquid radwaste effluent monitoring line. The radiation monitor provides alarm and termination of the release. In addition to radiation monitoring, flow rate measurement devices are provided on the liquid radwaste effluent line, and on two dilution flow paths.

TRM 6.3.9/ODCM Table 2.b currently allows use of flow instrumentation on either the Discharge Canal or Circulating Water Blowdown line for measuring dilution flow when discharging liquid radwaste to the environment. The two instrumentation channels are independent and provide operational flexibility for performing discharges. The Circulating Water Blowdown flow instrumentation measures flow into the discharge basin. This channel cannot be used for dilution with PSW. The Discharge Canal flow element is located between the discharge basin and the outflow to the river. It can be used to measure dilution flow from both Circulating water blowdown and Plant Service Water.

Inherent limitations in the design and application of the discharge canal flow monitor have adversely affected the availability of the instrument channel. Operating experience at GGNS has shown this instrumentation to be difficult to maintain within an acceptable level of accuracy. Circulating water blowdown flow instrument channel has proven much more reliable. Also, Circulating water blowdown flow rate instrumentation provides an automatic isolation of the radwaste discharge on low dilution flow, whereas no automatic functions are associated with the Discharge Canal flow instrumentation. Consequently, circulating water blowdown is preferred and generally used to provide dilution flow and associated flow monitoring during release.

The proposed change will result in the Circulating water blowdown flow instrumentation being the only required dilution flow channel. Canal discharge flow will no longer be a ODCM/TRM qualified instrument. The canal discharge flow rate instrumentation currently provides operational flexibility as an alternative to circulating water blowdown flow instrumentation or if PSW is used for dilution flow. As a result of the change, use of PSW flow for dilution will be allowed only after LCO 6.3.9 is entered, since there will be no qualified instrument channel capable of measuring PSW flow. This is acceptable, since circulating water is the preferred channel. As previously discussed, the canal discharge flow it is not normally used for monitoring discharges.

LI-101-01, Rev. 8; Effective Date: 6/23/05

✓	QA RECORD
RT =	81433
	NON-QA RECORD
	INITIALS DC
	NUMBER OF PAGES 9
	DATE 1-30-06
	RELATED DOCUMENT
	NUMBER =

There is no safety significance to this change since radwaste discharges can be still be performed as usual with circulating water blowdown. There is no additional level of safety provided by the canal discharge flow instrumentation. There is no automatic isolation associated with the canal discharge flow instrumentation. Also, since discharges are performed on a batch basis, unavailability of dilution flow monitoring can normally be corrected while discharge is secured in accordance with TRM 6.3.9 Action A.1. In situations where blowdown flow instrumentation cannot be restored before a batch discharge is necessary, Action A.2 allows entry into Condition C which requires dilution flow to be estimated once per four hours. Use of the canal discharge flow instrumentation will only be allowed after entering LCO 6.3.9. It could then be used if available for estimating dilution flow per Acton C.1. Estimating flow is already required by Action C.1, and the canal discharge flow will provide an additional means of estimating flow. Also, per Action C.2 the required channel must be restored to operable status within 30 days

The changes to ODCM/TRM 6.3.9 constitute a change to the ODCM since this TRM LCO is also contained in the ODCM. However, no ODCM calculation methodologies or other information is affected. Changes to the Offsite Dose Calculation Manual are controlled by Grand Gulf Nuclear Station Technical Specification (TS), Administrative Controls Section 5.5.1. In accordance with TS Section 5.5.1 an ODCM change shall contain:

1. sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change, and
2. a determination that the change(s) maintain the levels of radioactive effluent control required by 10CFR20.1302, 40CFR190, 10CFR50.36a, and 10CFR50, Appendix I, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.

Regulations 40CFR190, 10CFR50.36a, and 10CFR50 Appendix I deal with dose calculations in the ODCM. None of the dose calculation methodologies in the ODCM are affected by this change. Therefore, these regulations are not affected.

Regulation 10CFR20.1302 deals with radioactive releases to unrestricted areas. TRM LCO 6.11.1 is the technical requirement for 10CFR20.1302. The proposed changes only affect liquid radwaste discharges. No liquid or gaseous release points, parameters, or requirements are affected. Therefore the requirements of 10CFR20.1302 (TRM LCO 6.11.1) are met.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2005-0007-RDD</u>)	Sections I, II, and IV required

Preparer: Ricky M Liddell [Signature] EOI/OPS 12-1-05
 Name (print) / Signature / Company / Department / Date

Reviewer: D.M. BEARD [Signature] EOI/OPS 12-1-05
 Name (print) / Signature / Company / Department / Date

OSRC: M. A. Krupa [Signature] 12-1-05
 Chairman's Name (print) / Signature / Date
 (Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.)

II. SCREENINGS

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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>TRM 6.3.9 Action C.1 (Pg 6.3-20), and Table 6.3.9-1, Section 2.b (Pg 6.3-23)</i>
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>ODCM/TRM 6.3.9 Action C.1 (Pg A-13), and Table 6.3.9-1, Section 2.b (Pg A-14)</i>

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed. Attach the 50.54 evaluation.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes
☒ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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.

TRM 6.3.9, Radioactive Liquid Effluent Monitoring Instrumentation, is the only LBD that addresses the affected instrumentation. This instrumentation is not discussed in the Operating License or Technical Specifications. The proposed change to TRM 6.3.9 will remove the canal discharge flow as a required instrumentation channel for dilution flow for liquid radioactive waste discharges. This change involves no test or experiment, and will in no way affect the normal method of monitoring liquid radwaste discharge to the environment. The primary channel used for dilution flow rate monitoring is circulating water blowdown flow, which is unaffected by this change. Only the use of the alternate channel, discharge canal flow, is affected by the change. The physical instrumentation for discharge canal flow will remain and will be unaffected by the TRM change. Only the TRM operability and surveillance requirements for the subject instruments are affected.

4. References

Discuss the methodology for performing LBD searches. 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. NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.

Electronic search method used:

Keywords:

Keyword search of UFSAR, Operating License Manual, TS/TRM, TS Bases, ODCM

Radwaste discharge, radioactive release, liquid effluent, dilution flow

LBDs reviewed manually:

UFSAR Section 11.2.1, 11.2.3, 15.7.2, 15.7.3

ODCM, QAPM, FPP, Emergency Plan

5. Is the validity of this Review dependent on any other change? ☐ Yes
☒ No

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

YES NO

1. ☐ ☒ Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
2. ☐ ☒ Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
3. ☐ ☒ Involve dredging activities in a lake, river, pond, ditch, or stream?
4. ☐ ☒ Increase the amount of thermal heat being discharged to the river or lake?
5. ☐ ☒ Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
6. ☐ ☒ Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency?
7. ☐ ☒ Change the design or operation of the intake or discharge structures?
8. ☐ ☒ Modify the design or operation of the cooling tower that will change water or air flow characteristics?
9. ☐ ☒ 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?
10. ☐ ☒ Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?¹
11. ☐ ☒ 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
12. ☐ ☒ Involve the installation or use of equipment that will result in a new or additional air emission discharge?
13. ☐ ☒ Involve the installation or modification of a stationary or mobile tank?¹
14. ☐ ☒ Involve the use or storage of oils or chemicals that could be directly released into the environment?
15. ☐ ☒ Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater?

¹ See NMM Procedure EV-117 for guidance in answering this question.

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

1. ☐ ☒ Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)?
2. ☐ ☒ Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)?
3. ☐ ☒ Cause materials or equipment to be placed or installed within the Security Isolation Zone?
4. ☐ ☒ Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities?
5. ☐ ☒ Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)?
6. ☐ ☒ Modify or otherwise affect the operation or field of view of the security cameras?
7. ☐ ☒ Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment?
8. ☐ ☒ Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station?
9. ☐ ☒ Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways?
10. ☐ ☒ Modify or otherwise affect the facility's telephone or security radio systems?

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Date)

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Grand Gulf or Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "YES," a 72.48 Review must be performed in accordance with NMM Procedure LI-112 and attached to this 50.59 Review.

Will the proposed activity being evaluated: N/A FOR GGNS PER STEP 5.4.2.4

YES NO

1. ☐ ☐ Any activity that directly impacts spent fuel cask storage or loading operations?
2. ☐ ☐ Involve the ISFSI including the concrete pad, security fence, and lighting?
3. ☐ ☐ Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI?
4. ☐ ☐ Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches?
5. ☐ ☐ Involve a change to the Fuel Building or Control Room(s) radiation monitoring?
6. ☐ ☐ Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry?
7. ☐ ☐ Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)?
8. ☐ ☐ Involve a change to the Fuel Building electrical power that could potentially impact cask loading or storage activities?
9. ☐ ☐ Involve a change to the Fuel Building ventilation that could potentially impact cask loading or storage activities?
10. ☐ ☐ Involve a change to the ISFSI security?
11. ☐ ☐ Involve a change to off-site radiological release projections from non-ISFSI sources?
12. ☐ ☐ Involve a change to spent fuel characteristics?
13. ☐ ☐ Redefine/change heavy load pathways?
14. ☐ ☐ Involve fire and explosion protection near or in the on-site transport paths or near the ISFSI?
15. ☐ ☐ Involve a change to the loading bay or supporting components power that could potentially impact cask loading or storage activities?
16. ☐ ☐ New structures near the ISFSI?
17. ☐ ☐ Modifications to any plant systems that support dry fuel storage activities?
18. ☐ ☐ Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building?

IV. 50.59 EVALUATION

License Amendment Determination

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

Does the proposed Change:

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

BASIS:

The affected instrumentation is non-safety related, and no physical modification is being made to any plant equipment. Accidents associated with liquid radioactive waste releases that are evaluated in FSAR 15.7 are bounded by liquid radwaste tank failures. There is no accident analysis associated with a failure of the discharge canal flow instrumentation, nor is there any credit given for this function. This change will not affect the bases or results of any accident analyses. Therefore, this change will not increase 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 ☐ Yes
structure, system, or component important to safety previously evaluated in the FSAR? ☒ No

BASIS:

The affected instrumentation is non-safety related and is not credited in any safety analysis. No physical modification is being made, therefore this change will have no effect on any structure, system or component important to safety. The requirements of TRM/ODCM 6.3.9 will be maintained for the liquid radwaste effluent line flow measurement, radiation monitor, and dilution flow (i.e. circulating water blowdown) measurement. Only the requirements associated with the discharge canal flow instrumentation are affected. Therefore this change will not increase the likelihood of occurrence of a malfunction of a structure, system or component important to safety.

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

BASIS:

The affected instrumentation is non-safety related. There are no automatic functions associated with discharge canal flow instrumentation and no credit is taken for it in any safety analysis. Accidents associated with liquid radioactive waste releases are bounded by liquid radwaste tank failures. No analyzed accidents or equipment used to mitigate an accident are affected by this change. Therefore, this change will not increase the consequences of any accident.

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

BASIS:

There is no credit taken for discharge canal flow instrumentation in any safety analysis, and no other equipment is affected in any way by this change. No equipment modification is being made and no requirements associated with equipment important to safety are affected. No structure, system or component important to safety is in any way affected by this change. The requirements of TRM/ODCM 6.3.9 will be maintained for the liquid radwaste effluent line flow measurement, radiation monitor, and dilution flow (i.e. circulating water blowdown) measurement. Only the requirements associated with the discharge canal flow instrumentation are affected. Therefore, this change will not increase the consequences of a malfunction of a structure, system or component important to safety.

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

BASIS:

No physical change is being implemented. Only the operability and surveillance requirements for discharge canal flow instrumentation is affected. No new failure modes are created for any structure, system or component as a result of this change. Therefore, this change will not create the possibility of a different type of accident than 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:

There is no physical change being made to any structure, system or component. Only the operability and surveillance requirements for discharge canal flow instrumentation is affected. Accidents associated with liquid radioactive waste releases are bounded by liquid radwaste tank failures. No new potential for a malfunction of equipment is created, and no potential for any different results of malfunctions previously evaluated. This change will not create the possibility of a different type of accident than previously evaluated.

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

BASIS:

There is no credit for this instrumentation in any safety analysis. There is no physical change being made to any structure, system or component. Fission product barriers, i.e. fuel cladding, reactor coolant pressure boundary, primary and secondary containment, are in no way affected. Analyzed accidents associated with liquid radioactive waste releases occur outside containment and do not involve any containment barrier integrity aspects. Therefore, this change will not affect any fission product barriers.

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 requirements of TRM/ODCM 6.11.1, 6.11.2, and 6.11.3 for liquid radwaste effluent concentration, dose limits, and treatment systems are unchanged. All the basic requirements for radioactive liquid effluent monitoring instrumentation as discussed in the ODCM Bases for TRM 6.3.9 are maintained. The applicable General Design Criteria 60, 63, and 64 of 10CFR Appendix A will continue to be met. The requirements of TRM/ODCM 6.3.9 will be maintained for the liquid radwaste effluent line flow measurement, radiation monitor, and dilution flow (i.e. circulating water blowdown) measurement. Only the requirements associated with the discharge canal flow instrumentation are affected. Only the operability and surveillance requirements for discharge canal flow instrumentation is affected. There is no credit for this instrumentation in any safety analyses, and existing methods of evaluations for accident analyses as described in the FSAR are unchanged. Therefore, this change will not affect any methods of evaluation for design bases or safety analyses.

If any of the above questions is checked "YES," obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure LI-113.

GGNS 50.59 Safety Evaluation Number

SE 2005-0008-R00

50.59 REVIEW FORM

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I. OVERVIEW / SIGNATURES

Facility:

Document Reviewed: ER-GG-2003-0234-001Change/Rev.: 00

System Designator(s)/Description:

P75 Standby Diesel Generator

Description of Proposed Activity:

ER-GG-2003-0234-001 extends the frequency of the inspection of the Division 2 Diesel generator fuel oil storage tank by three months, from December 2005 until March 2006.

NOTE: ER-GG-2003-0234-000 approved extending the inspection for the Division I and II Diesel generator fuel oil storage tanks until December 2005. Reference Safety Evaluation number 2004-0004-R00 approved August 09, 2004.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2005-0008-R00</u>)	Sections I, II, and IV required

Preparer: K. M. Black/ *KM Black* /Entergy/Engineering/ 12-14-05
Name (print) / Signature / Company / Department / Date

Reviewer: R. W. Fuller/ *Robert W Fuller* /Entergy/Engineering/ 12-14-05
Name (print) / Signature / Company / Department / Date

OSRC: M. A. Krupa 12-15-05
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.)

M. A. Krupa

QA RECORD
RT- <u>814.73</u>
NON-QA RECORD
INITIALS <u>DC</u>
NUMBER of PAGES <u>13</u>
DATE <u>1-9-06</u>
RELATED DOCUMENT NUMBER

II. SCREENINGS

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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	UFSAR Appendix 3A, Reg. Guide 1.137, LBD 2005-0082
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TRM SR TR 3.8.3.6, LBD 2005-0082
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed. Attach the 50.54 evaluation.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes
☒ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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 purpose of the evaluation is to provide the rationale for extending the Division II inspection to March 2006. The one time inspection extension will be documented in the TRM requirement SR TR3.8.3.6 and FSAR Appendix 3A, Reg. Guide 1.137. The change is based on previous Diesel Generator Fuel tanks inspections where only minor wall wear and degradation was observed (ref. MNCR 108-92, MNCR 174-92, MAI 327093 and WO 00056003). The TRM and FSAR revision will be to take credit for the minor wall wear and wall degradation to the Diesel Generator Fuel Storage tank. The wall degradation is due to the sample element. The sample element is the device used to measure the tank volume and the degradation is due to monthly use. The Division I fuel oil storage tank was inspected in February of 2005 and no anomalies were noted.

Operating License:

The Grand Gulf Nuclear Station (GGNS) operating license does not affect Diesel Generator Fuel tank inspections. The Technical Specifications and the Environmental Protection Plan are not impacted by this ER. Therefore, the proposed activity does not impact the GGNS operating license.

Technical Specifications:

The Diesel Generator Fuel tank inspection is not covered by Technical Specifications. However, Technical Requirement Manual Surveillance Requirement SR TR3.8.3.6 has requirements for Fuel tank inspections. The evaluation will not create a system configuration or operating condition such that a Technical Specifications LCO or surveillance requirement is no longer adequate. Likewise, the evaluation will not bypass or invalidate features required to be operable by the Technical Specifications or exceed any limits specified in the Operating License and Technical Specifications. Therefore, no Technical Specifications change is required for the issuance of this evaluation.

UFSAR:

The UFSAR is affected by this evaluation because it is a one time extension of the Division II Fuel Oil Storage tank inspection to March 2006. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 identifies the Fuel oil system for Standby Diesel Generators. This part of the FSAR will be changed for the one time extension of the Diesel Fuel Oil Storage Tank inspection to March 2006. The one time exception to the inspection will allow the Fuel Oil Storage Tank inspection to be extended to March 2006. This 50.59 provides a basis for the Diesel Generator Fuel Storage Tank inspection extension to March 2006.

NRC Orders:

The NRC Orders issued at Grand Gulf are not affected by this evaluation because this evaluation deals with Diesel Generator Fuel Oil Storage tank inspection and this evaluation is not to be used for security reasons.

Technical Specification Bases:

There are no Technical Specifications or Bases impacted by this activity. The Technical Specification for Diesel Fuel Oil is 3.8.3 and the surveillance requirement is under Technical Requirement Manual is TR3.8.3.6 for Diesel Generator Fuel Oil Storage Tank inspection. These items will remain the same. This is an evaluation for increasing the inspection to March 2006 which is not part of the Technical Specification Bases.

Technical Requirements Manual (TRM):

Technical Requirements Manual SR TR3.8.3.6 is affected by this activity. This section is revised to indicate the inspection extension for Division 2 DG fuel oil storage tank until March 2006. This section mentions that the fuel storage tank inspection is in conjunction with of ASME Boiler and Pressure Vessel Section XI inspection. The only ASME B&PV Section XI requirement is pressurizing the tank with the fuel still in the tank. This 50.59 clarifies that Diesel Generator Fuel Oil storage tank inspection will be extended one time to March 2006. The reason is that previous diesel generator fuel oil storage tank inspections discovered only minor wear and wall degradation to the fuel oil tank and that increasing the inspection to March 2006 will be acceptable.

Core Operating Limits Report:

This activity does not impact the COLR (GGNS Core Operating Limits Report). This evaluation explains extending the Diesel Fuel Oil Storage tank inspection to March 2006. It does not have any impact on the COLR and does not affect any licensing activities.

Offsite Dose Calculations Manual:

This activity does not impact any equipment required to monitor offsite dose. Therefore, no changes to the ODCM is required.

NRC Safety Evaluation Reports:

There is no impact to any SERs by providing an evaluation for evaluating extending the diesel fuel oil storage tank inspection to March of 2006.

Quality Assurance Program Manual:

This evaluation complies with all requirements of the Entergy Quality Assurance Program Manual, as applicable. This activity does not change any commitments contained in the QAPM. Therefore, this activity does not require a change to the QAPM.

Emergency Plan:

There is no impact to the Emergency Plan for evaluating extending the diesel generator fuel oil storage tank inspection to March of 2006.

Fire Protection Program:

This activity does not change any commitments contained in the Fire Protection Program. Therefore, this activity does not require a change to the Fire Protection Program.

Test and Experiment:

Evaluating extending the diesel fuel oil storage tank inspection to March of 2006 does not constitute a test or experiment.

4. References

Discuss the methodology for performing LBD searches. 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. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

50.59 REVIEW FORM

Page 6 of 13

Electronic search method used:

Keywords:

Autonomy

Fuel oil storage tank

LBDs reviewed manually:

TRM SR TR3.8.3.6, UFSAR Appendix 3A page
3A/1.137-1 & 2, UFSAR Sections 8.3 and 9.5.4
and Technical Specification Bases 3.8.3

5. Is the validity of this Review dependent on any other change?

☐ Yes

☒ No

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

YES NO

1. ☐ ☒ Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
2. ☐ ☒ Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
3. ☐ ☒ Involve dredging activities in a lake, river, pond, ditch, or stream?
4. ☐ ☒ Increase the amount of thermal heat being discharged to the river or lake?
5. ☐ ☒ Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
6. ☐ ☒ Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency?
7. ☐ ☒ Change the design or operation of the intake or discharge structures?
8. ☐ ☒ Modify the design or operation of the cooling tower that will change water or air flow characteristics?
9. ☐ ☒ 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?
10. ☐ ☒ Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?¹
11. ☐ ☒ 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
12. ☐ ☒ Involve the installation or use of equipment that will result in a new or additional air emission discharge?
13. ☐ ☒ Involve the installation or modification of a stationary or mobile tank?¹
14. ☐ ☒ Involve the use or storage of oils or chemicals that could be directly released into the environment?
15. ☐ ☒ Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater?

¹ See NMM Procedure EV-117 for guidance in answering this question.
LI-101-01, Rev. 8; Effective Date: 6/23/05

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

1. ☐ ☒ Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)?
2. ☐ ☒ Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)?
3. ☐ ☒ Cause materials or equipment to be placed or installed within the Security Isolation Zone?
4. ☐ ☒ Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities?
5. ☐ ☒ Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)?
6. ☐ ☒ Modify or otherwise affect the operation or field of view of the security cameras?
7. ☐ ☒ Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment?
8. ☐ ☒ Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station?
9. ☐ ☒ Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways?
10. ☐ ☒ Modify or otherwise affect the facility's telephone or security radio systems?

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Data)

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Grand Gulf or Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "YES," a 72.48 Review must be performed in accordance with NMM Procedure LI-112 and attached to this 50.59 Review.

Will the proposed activity being evaluated:

YES NO

1. ☐ ☒ Any activity that directly impacts spent fuel cask storage or loading operations?
2. ☐ ☒ Involve the ISFSI including the concrete pad, security fence, and lighting?
3. ☐ ☒ Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI?
4. ☐ ☒ Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches?
5. ☐ ☒ Involve a change to the Fuel Building or Control Room(s) radiation monitoring?
6. ☐ ☒ Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry?
7. ☐ ☒ Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)?
8. ☐ ☒ Involve a change to the Fuel Building electrical power that could potentially impact cask loading or storage activities?
9. ☐ ☒ Involve a change to the Fuel Building ventilation that could potentially impact cask loading or storage activities?
10. ☐ ☒ Involve a change to the ISFSI security?
11. ☐ ☒ Involve a change to off-site radiological release projections from non-ISFSI sources?
12. ☐ ☒ Involve a change to spent fuel characteristics?
13. ☐ ☒ Redefine/change heavy load pathways?
14. ☐ ☒ Involve fire and explosion protection near or in the on-site transport paths or near the ISFSI?
15. ☐ ☒ Involve a change to the loading bay or supporting components power that could potentially impact cask loading or storage activities?
16. ☐ ☒ New structures near the ISFSI?
17. ☐ ☒ Modifications to any plant systems that support dry fuel storage activities?
18. ☐ ☒ Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building?

III. 50.59 EVALUATION EXEMPTION

A. Check the applicable box below. If a box is checked, clearly document the basis in Section III.B, below. If none of the boxes are appropriate, perform a 50.59 Evaluation in accordance with Section IV. Provide supporting documentation or references as appropriate.

- ☐ The proposed activity meets all of the following criteria regarding design function:

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. 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.
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.

IV. 50.59 EVALUATION

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 frequency of occurrence of an accident is not affected by extending the Division II Diesel Fuel Oil Storage Tank inspection to March 2006. There have been previous inspections of the Division I, Division II and Division III fuel oil storage tanks. The inspections have resulted in discovery of minor areas of degradation of the coating of the sample probes. The most recent inspection of the Division I tank in February of 2005 resulted in no anomalies being discovered. UFSAR section 3A/1.137 is affected by this evaluation because it is a one time extension of the Division II Diesel Fuel Oil Storage Tank inspection to March 2006. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 addresses the Fuel Oil Systems for Standby Diesel Generators. Regulatory Guide 1.137 requires the draining of the fuel oil stored in the supply tanks, removal of accumulated sediment, and tank cleaning at a 10 year intervals. As stated above, previous inspections noted that degradation being minimal and the last inspection of Div I showed no increase, therefore an extension to Div II can be applied since they are subjected to the same conditions.

This part of the UFSAR will be changed to reflect the one time extension of the Diesel Fuel Oil Storage Tank inspection. The one time exception to the scheduled inspection will allow the Fuel Oil Storage Tank inspection to be extended to March 2006. The frequency of occurrence of an accident is not affected by extending the Division II Diesel Fuel Oil Storage Tank inspection to March 2006. As there are no indications that tank degradation is beyond the minimal amount noted previously and the design of the tank is not challenged, thus there is a very low probability that the tank will fail prior to being inspected. As tank failure is not expected, there is no increase in the frequency of occurrence of an accident previously evaluated in the FSAR by extending the inspection time until March 2006.

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:

UFSAR 3A/1.137 is affected by this evaluation because it is a one time extension of the Division II Fuel Oil Storage tank inspection to March 2006. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 addresses the Fuel oil system for Standby Diesel Generators. This part of the UFSAR will be changed to reflect the one time extension of the Diesel Fuel Oil Storage Tank inspection.

The extension is based on previous ten year inspections showing minor wear and wall degradation to the Diesel Generator Tank walls and no serious deterioration of the diesel generator fuel oil storage tanks. The wall degradation is due to the sample element probes in the tank and this is minor. Additionally, The Division I fuel oil storage tank was inspected in February of 2005 and no anomalies were noted. These inspections are documented in MNCR 108-92, MNCR 174-92, MAI 327093 and WO 00056003. The proposed activity does not adversely affect the design function of the Diesel Fuel Oil storage tank as described in the FSAR. Inspection of the tanks will still occur. The inspection schedule extension will be based on the minor wear discovered in the Diesel Generator Fuel Oil tanks from previous inspections. Therefore, proposed activity does 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:

UFSAR 3A/1.137 is affected by this evaluation because it is a one time extension of the Division II Fuel Oil Storage tank inspection to March 2006. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 i addresses the Fuel oil system for Standby Diesel Generators. This part of the UFSAR will be changed to reflect the one time extension of the Diesel Fuel Oil Storage Tank inspection. The one time exception to the scheduled inspection will allow the Fuel Oil Storage Tank inspection to be extended to March 2006.

The consequences of a Diesel failure or Diesel Fuel Oil storage tank failure are unaffected by extending the frequency of the tank inspection. The proposed activity does not adversely affect the design function of the Diesel Fuel Oil storage tank as described in the FSAR. Inspection of the tank will still occur. The scheduled inspection extension is based on the minor wear discovered in the Diesel Generator Fuel Oil tanks from previous inspections. As the design function is not affected, there is no increase to the chance of failure, thus there is no adverse affect to the consequences of any of the accidents 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:

UFSAR 3A/1.137 is affected by this evaluation because it is a one time extension of the Division II Fuel Oil Storage tank scheduled inspection. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 addresses the Fuel oil system for Standby Diesel Generators. This part of the UFSAR will be changed to reflect the one time extension of the Diesel Fuel Oil Storage Tank scheduled inspection. The one time exception to the inspection will allow the Fuel Oil Storage Tank inspection to be extended to March 2006.

The consequences of a Diesel failure or Diesel Fuel Oil storage tank remained unchanged. The proposed activity does not adversely affect the design function of the Diesel Fuel Oil storage tank as described in the FSAR. Inspection of the tank will still occur. It will be extended based on the minor wear discovered in the Diesel Generator Fuel Oil tanks from previous inspections. The proposed activity does not adversely affect the consequences of component malfunction 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 possibility of a different type of accident is not affected by extending the Diesel Fuel Oil Storage Tank inspection to March 2006. There are no new components being added to the tank and the tank is not being modified or changed. The UFSAR is affected by this evaluation because it is a one time extension of the Division II Fuel Oil Storage tank scheduled inspection. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 addresses the Fuel oil system for Standby Diesel Generators. This part of the UFSAR will be changed to reflect the one time extension of the Diesel Fuel Oil Storage Tank scheduled inspection. The one time exception to the inspection will allow the Fuel Oil Storage Tank inspection to be extended to March 2006. This 50.59 provides a basis for the Diesel Generator Fuel Storage Tank inspection extension to March 2006.

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 UFSAR is affected by this evaluation because it is a one time extension of the Division II Fuel Oil Storage tank scheduled inspection to March 2006. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 addresses the Fuel oil system for Standby Diesel Generators. This part of the UFSAR will be changed to reflect the one time extension of the Diesel Fuel Oil Storage Tank inspection to March 2006.

The extension is based on previous ten year inspections showing minor wear and wall degradation to the Diesel Generator Tank walls and no serious deterioration of the diesel generator fuel oil storage tanks. The wall degradation is due to the sample element probes in the tank and this is minor. Additionally, The Division I fuel oil storage tank was inspected in February of 2005 and no anomalies were noted. These inspections are documented in MNCR 108-92, MNCR 174-92, MAI 327093 and WO 00056003. The proposed activity does not adversely affect the design function of the Diesel Fuel Oil storage tanks as described in the FSAR. Inspection of the tanks will still occur. The inspection extension will be based on that previous inspections indicated only minor wear being discovered in the Diesel Generator Fuel Oil tanks. The proposed activity does not produce a different result for the malfunction of the Diesel Fuel Oil storage tank as described 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:

The UFSAR is affected by this evaluation because it is a one time extension of the Division II Fuel Oil Storage tank inspection to March 2006. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 addresses the Fuel oil system for Standby Diesel Generators. This part of the UFSAR will be changed to reflect the one time extension of the Diesel Fuel Oil Storage Tank scheduled inspection.

The extension is based on previous ten year inspections showing minor wear and wall degradation to the Diesel Generator Tank walls and no serious deterioration of the diesel generator fuel oil storage tanks. The wall degradation is due to the sample element probes in the tank and this is minor. Additionally, The Division I fuel oil storage tank was inspected in February of 2005 and no anomalies were noted. These inspections are documented in MNCR 108-92, MNCR 174-92, MAI 327093 and WO 00056003. The proposed activity does not adversely affect the design function of the Diesel Fuel Oil storage tanks as described in the FSAR. Inspection of the tanks will still occur. The scheduled inspection extension will be based on the minor wear discovered in the Diesel Generator Fuel Oil tanks from previous inspections. There are no fission barriers affected by extending the inspection to March 2006 of the Diesel Fuel Oil storage tank as described 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 UFSAR is affected by this evaluation because it is a one time extension of the Division II Fuel Oil Storage tank inspection to March 2006. UFSAR section for Regulatory Guide 1.137 on page 3A/1.137 addresses the Fuel oil system for Standby Diesel Generators. This part of the UFSAR will be changed to reflect the one time extension of the Diesel Fuel Oil Storage Tank inspection to March 2006.

There is no change in method of inspection of the Diesel Fuel Oil Storage tank. Therefore, this does 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.

If any of the above questions is checked "YES," obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure LI-113.

GGNS 50.59 Safety Evaluation Number

SE 2006-0001-R00

50.59 REVIEW FORM

Page 1 of 13

I. OVERVIEW / SIGNATURES

Facility:

Document Reviewed: ER-2005-0197-000

Change/Rev.: 0

System Designator(s)/Description: G41

Description of Proposed Activity:

Change the decay heat analytical method used in the thermal-hydraulic analysis of the spent fuel pool and fuel pool cooling system from Branch Technical Position ASB 9-2 to the Oak Ridge Isotope Generation and Depletion Code (ORIGEN V2.1). This proposed activity is a methods change as defined in 10 CFR 50.59 paragraph (a)(2). The proposed activity does not involve any physical changes to the facility.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2005-0001-R00</u>) 1/9/06	Sections I, II, and IV required

Preparer: Guy B. Spikes / Guy B. Spikes / EO1/NE / 1/3/2006
Name (print) / Signature / Company / Department / Date

Reviewer: William E. Long, Jr. / William E. Long / EO1/NE / 1-4-06
Name (print) / Signature / Company / Department / Date

OSRC: M. A. Krupa / M. A. Krupa / 1-9-06
Chairman's Name (print) / Signature / Date
(Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.)

<input checked="" type="checkbox"/>	QA RECORD
RT =	814.33
	NON-QA RECORD
INITIALS	DC
NUMBER of PAGES	13
DATE	1-9-06
RELATED DOCUMENT	
NUMBER =	

II. SCREENINGS

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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LBDC 2005-083
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed. Attach the 50.54 evaluation.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes
☒ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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 proposed activity involves changing the current analytical method used to calculate the decay heat from spent fuel bundles in the fuel storage pools from that described in Branch Technical Position ASB 9-2 to the Oak Ridge Isotope Generation and Depletion Code (ORIGEN V2.1). The change is applicable only to calculating spent fuel decay heat used in the thermal-hydraulic analysis of the spent fuel pool and Fuel Pool Cooling and Cleanup (FPCC) system. The proposed activity is a methods change as defined in 10 CFR 50.59 paragraph (a)(2) and does not involve any physical changes to the facility. The scope of this evaluation is limited to demonstrating that the proposed methodology change does not constitute a departure from a method of evaluation described in the FSAR in accordance with 10 CFR 50.59 paragraph (c)(2)(viii). Implementation of this new methodology will be performed subsequent to this evaluation and associated changes to affected LBDs implemented under 10 CFR 50.59 at that time.

Operating License/Technical Specifications (OL/TS)

The OL/TS and TS Bases include several references to reactor core and fuel pool decay heat. However, the methods used to calculate fuel storage pool decay heat are not described in the OLM or in any Tech Spec, LCO, or TS Bases. As such, no TS, LCO, TS Bases, surveillances or other controls in the GGNS OL/TS are affected by the proposed activity.

TRM

The TRM is not impacted by the proposed activity. TRM requirements do not describe the method used to calculate decay heat. As such, changing the method used to calculate fuel storage pool decay heat does not affect any TRM requirements.

FSAR

The methodology currently used to calculate the spent fuel pool design normal maximum and abnormal maximum decay heat loads (ASB 9-2) used in the spent fuel pool cooling (FPCC) system performance analysis is described in FSAR Section 9.1.3.3. The resulting normal maximum and abnormal maximum decay heat loads are shown in FSAR Table 9.1-12. The scope of this evaluation is limited to demonstrating that changing the methodology used to calculate the spent fuel pool decay heat load from ASB 9-2 to ORIGEN V2.1 (ORIGEN2) does not constitute a departure from a method of evaluation described in the FSAR. Implementation of the new methodology is not included in the scope of this evaluation. Therefore, the description of the decay heat calculation method in FSAR Section 9.1.3.3 is revised to include the ORIGEN2 code as an approved method. However, the decay heat values in the FSAR tables are not changed.

FSAR Section 9.2.5.3 describes ASB 9-2 (APCSB 9-2) as the method used to calculate the post-accident spent fuel pool heat rate input to the Standby Service Water (SSW) Ultimate Heat Sink (UHS) capability analysis. This value is reported in FSAR Tables 9.2-16 and 9.2-17. The proposed change to decay heat methods applies only to calculating the spent fuel pool heat load for the thermal-hydraulic analysis of the spent fuel pool and Fuel Pool Cooling and Cleanup (FPCC) system. This evaluation does not consider changing the methodology applied in the UHS analysis. Therefore, this proposed activity does not affect FSAR Section 9.2.5.3.

FSAR Table 12.3-2 is a list of computer codes used in radiation shielding design. The ORIGIN code is included in this table and in FSAR Section 12.3.5 (References). This description of the *ORIGIN methodology* refers to an application (radiation shielding) different from that considered in this evaluation (fuel bundle decay heat). Therefore, the proposed method change does not affect this description.

COLR

Decay heat or decay heat methods are not described in the COLR. As such, the proposed activity does not impact the GGNS COLR.

NRC SERs

Various NRC Safety Evaluation Reports associated with licensing the high density spent fuel storage racks (HDSFR) describe ASB 9-2 (either directly or by reference) as the method for calculating pool decay heat for the pool thermal-hydraulic analyses. These SER's include MAEC 86/0264 (interim HDSFR SER) and GNRI 92/00163 (final SER). This evaluation determines whether or not replacing ASB 9-2 with a new methodology constitutes a departure from a method of evaluation described in the FSAR in accordance with 10 CFR 50.59 paragraph (c)(2)(viii). The outcome of this evaluation does not affect the descriptions in SER's previously issued by the NRC.

Test or Experiment

The proposed activity changes the method of calculating fuel decay heat from ASB 9-2 to ORIGIN2. This change does not involve any tests or experiments.

There are no NRC orders applicable to decay heat methods. The proposed activity does not affect the FHA, ODCM, QAPM, or E-Plan.

4. References

Discuss the methodology for performing LBD searches. 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. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

Electronic search method used:

Keywords:

GGNS Autonomy. LBDs: OLM, FSAR, TS, TS Bases, TRM, NRC SERs.

ORIGIN, ASB 9-2, APCSB 9-2, Branch Position, Branch Technical Position, decay heat, spent fuel pool.

LBDs reviewed manually:

FSAR Sections 9.1.2, 9.1.3, 9.2.1, 9.2.5, 12.3,
FSAR Tables 9.1-12, 9.2-16, 9.2-17, 12.3-2.
NRC SERs MAEC 86/0264, GNRI 92/00163.

5. Is the validity of this Review dependent on any other change?

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

☐ Yes

☒ No

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

- | | <u>YES</u> | <u>NO</u> | |
|-----|--------------------------|-------------------------------------|--|
| 1. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)? |
| 2. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)? |
| 3. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve dredging activities in a lake, river, pond, ditch, or stream? |
| 4. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the amount of thermal heat being discharged to the river or lake? |
| 5. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Increase the concentration or quantity of chemicals being discharged to the river, lake, or air? |
| 6. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency? |
| 7. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Change the design or operation of the intake or discharge structures? |
| 8. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify the design or operation of the cooling tower that will change water or air flow characteristics? |
| 9. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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? |
| 10. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)? ¹ |
| 11. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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 |
| 12. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or use of equipment that will result in a new or additional air emission discharge? |
| 13. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the installation or modification of a stationary or mobile tank? ¹ |
| 14. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve the use or storage of oils or chemicals that could be directly released into the environment? |
| 15. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater? |

¹ See NMM Procedure EV-117 for guidance in answering this question.

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

1. ☐ ☒ Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)?
2. ☐ ☒ Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)?
3. ☐ ☒ Cause materials or equipment to be placed or installed within the Security Isolation Zone?
4. ☐ ☒ Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities?
5. ☐ ☒ Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)?
6. ☐ ☒ Modify or otherwise affect the operation or field of view of the security cameras?
7. ☐ ☒ Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment?
8. ☐ ☒ Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station?
9. ☐ ☒ Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways?
10. ☐ ☒ Modify or otherwise affect the facility's telephone or security radio systems?

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Date)

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Grand Gulf or Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "YES," a 72.48 Review must be performed in accordance with NMM Procedure LI-112 and attached to this 50.59 Review.

Will the proposed activity being evaluated:

YES **NO**

1. ☐ ☒ Any activity that directly impacts spent fuel cask storage or loading operations?
2. ☐ ☒ Involve the ISFSI including the concrete pad, security fence, and lighting?
3. ☐ ☒ Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI?
4. ☐ ☒ Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches?
5. ☐ ☒ Involve a change to the Fuel Building or Control Room(s) radiation monitoring?
6. ☐ ☒ Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry?
7. ☐ ☒ Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)?
8. ☐ ☒ Involve a change to the Fuel Building electrical power that could potentially impact cask loading or storage activities?
9. ☐ ☒ Involve a change to the Fuel Building ventilation that could potentially impact cask loading or storage activities?
10. ☐ ☒ Involve a change to the ISFSI security?
11. ☐ ☒ Involve a change to off-site radiological release projections from non-ISFSI sources?
12. ☐ ☒ Involve a change to spent fuel characteristics?
13. ☐ ☒ Redefine/change heavy load pathways?
14. ☐ ☒ Involve fire and explosion protection near or in the on-site transport paths or near the ISFSI?
15. ☐ ☒ Involve a change to the loading bay or supporting components power that could potentially impact cask loading or storage activities?
16. ☐ ☒ New structures near the ISFSI?
17. ☐ ☒ Modifications to any plant systems that support dry fuel storage activities?
18. ☐ ☒ Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building?

IV. 50.59 EVALUATION

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:

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:

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

BASIS:

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:

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

BASIS:

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:

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

BASIS:

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 to the current fuel storage pool decay heat analytical method from Branch Technical Position ASB 9-2 to the Oak Ridge Isotope Generation and Depletion Code (ORIGEN V2.1) does NOT result in a departure of a method of evaluation. The definition of "departure from a method of evaluation ..." provides flexibility to adopt a completely new methodology without prior NRC approval provided that the new method is approved by the NRC for the intended application. A new method is "approved by the NRC for the intended application" if it is approved for the type of analysis being conducted and the licensee satisfies the terms and conditions for its use. The NRC

has approved the use of ORIGEN V2.1 (ORIGEN2) for spent fuel pool applications through the issuance of Safety Evaluation Reports (SERs). This evaluation reviews these SERs and demonstrates that the ORIGEN2 applications approved by the NRC are entirely consistent with the proposed application of the ORIGEN2 methodology at GGNS. The criteria in the NEI Guidelines for 50.59 Implementation (NEI 96-07 Rev. 1) and the Entergy 10CFR50.59 Program Guidelines (ENS-LI-101 Attachment 9.3) are also used to ensure that the important considerations for determining that the proposed application of ORIGEN2 is technically appropriate for the intended application, within the limitations of the applicable SERs, consistent with the GGNS licensing basis, and does not require NRC approval.

BACKGROUND

The current ASB 9-2 and proposed ORIGEN V2.1 (ORIGEN2) methodologies are briefly described below.

ASB 9-2 models the energy release from the fission products of U-235 and heavy elements U-239 and Np-239 using a summation of exponential terms with empirical constants. ASB 9-2 is based on experimental data relating to energy release from the decay of fission products published from 1958 to 1973. It draws heavily on an ANS decay heat standard proposed in 1971. This proposed standard was simplistic in that a single curve (fission product decay heat versus cooling time) was chosen to represent the decay heat power of uranium-fueled thermal reactors. Many phenomena that make the decay heat power unique to each case were ignored and assumed to be included within the appropriately large uncertainties that were adopted. The actual ASB 9-2 equation resulting from the curve fit is more complex than that in the proposed ANS standard; however, the results of the curve-fit equations agree with each other reasonably well. In addition, the exponential terms and empirical constants for decay heat generation due to heavy elements and the uncertainty factors in ASB 9-2 were taken directly from the proposed ANS standard. ASB 9-2 acknowledges the lack of consistent experimental data and the differing results of various calculations available at the time and concludes that "...the effect of all uncertainties can be treated ... by a suitably conservative multiplying factor." This factor is 20% for decay times less than 10^3 seconds and 10% for decay times between 10^3 and 10^7 seconds. While the experimental data bases for ASB 9-2 extend to shutdown times up to 10^7 seconds (~118 days), the NRC Standard Review Plan for spent fuel pool cooling systems (NUREG-0800, SRP 9.1.3) states that, for calculating the amount of heat to be removed by the spent fuel pool cooling system, ASB 9-2 can be extended to times $>10^7$ seconds. For these long-term fuel pool cooling calculations, the SRP 9.1.3 methodology specifies an uncertainty factor of 10%. These uncertainties and the empirical constants are built into the ASB 9-2 methodology.

ORIGEN2 is a more rigorous and precise method of calculating decay heat than the empirically based ASB 9-2 methodology. ORIGEN2 explicitly models fissile material behavior during periods of irradiation and decay by computing time-dependent concentrations and source terms of a large number of isotopes which are simultaneously generated or depleted through neutronic transmutation, fission, radioactive decay, and physical or chemical removal rates. ORIGEN2 was released in 1980 with the primary objective of providing a code that can perform a broad range of fuel cycle analyses with simple input specifications and a few select cross-section data libraries. ORIGEN2 and its predecessor, ORIGEN, are the most widely used computer codes for predicting the characteristics (isotopic inventory, radiation source terms and decay power) of spent nuclear fuel. The required input for ORIGEN2 consists of data relating to the specific problem to be analyzed, including fissile isotope concentrations (i.e., bundle enrichments and uranium weight), bundle power during irradiation, length of irradiation, and length of decay period. Thus ORIGEN2 provides a rigorous treatment of the decay heat calculation. This assessment is supported by the NRC, which states in Information Notice 96-39:

"ORIGEN does not use empirical methods to calculate decay heat but tracks the buildup and decay of the individual fission products within the reactor core during operation and shutdown. ORIGEN also includes the effect of element transmutation from neutron capture, both in fissile isotopes and fission products. Because ORIGEN is a rigorous calculation of all decay heat inputs, it was used in the calculations for decay heat ..."

In addition to the empirical constants and uncertainty terms discussed above, the ASB 9-2 methodology includes techniques for selecting input parameter values which ensure conservative parameter selection. The affected input parameters include bundle irradiation time, outage time, and

bundle specific power. Since these techniques are described in ASB 9-2, they are considered part of the ASB 9-2 methodology. The ORIGEN2 code manual describes code inputs and formats but does not describe the method of selecting values of input parameters. The ORIGEN2 code also does not explicitly account for code biases or uncertainties.

EVALUATION

The NRC has previously approved the use of ORIGEN2 for calculating fuel bundle decay heat in spent fuel pool thermal-hydraulic analyses. Three approvals, one for a PWR (V. C. Summer), one for an older BWR/4 (Duane Arnold), and a more recent approval for a newer BWR/6 (Clinton Power Station), are discussed in this evaluation.

In a letter dated September 21, 2001, the NRC issued a license amendment to the Duane Arnold Energy Center (DAEC) for a revised thermal-hydraulic analysis of the spent fuel pool. In discussing the methodology for determining bundle decay heat, the Technical Evaluation Report referenced by the SER states:

"This program can perform decay heat calculations using either Branch Technical Position ASB 9-2, or the ORIGEN2 [sic] computer code. For both analyses ... the ORIGEN2 [sic] option was used. All fuel assemblies were assumed to have been irradiated to the appropriate maximum burnup level. Based on this review, BNL [Brookhaven National Laboratory] concurs that the methodology and assumptions the licensee used to calculate the decay heat loads meet the intent of the applicable NRC guidelines."

In the SER, the NRC echoed this conclusion, stating that:

"Based on its review, the NRC staff concluded that the methodology and assumptions used by the licensee to calculate the decay heat loads and to calculate the SFP bulk temperatures met the intent of the applicable NRC guidelines."

In an SER dated August 30, 2002, the NRC issued an amendment to V. C. Summer for spent fuel pool re-racking. In discussing the analysis of the spent fuel pool decay heat removal capability, the SER states:

"The decay heat is calculated using the ORIGEN2 code assuming a 2-percent thermal power uncertainty and using the licensed thermal power at the time of discharge for historical discharges. ...The staff performed independent calculations of decay heat load and heat exchanger performance to verify the accuracy of the analyses provided by SCE&G. The decay heat load calculations used the method described in Branch Technical Position ASB 9-2.... These calculations, with consideration for the differing analytical methods and assumptions, confirmed the results provided by SCE&G were accurate."

In a more recent application, AmerGen Energy Company (AmerGen) submitted a license amendment request (LAR) to the NRC to increase the fuel storage capacity in the spent fuel pool at Clinton Power Station. The associated licensing analysis included a comprehensive thermal-hydraulic evaluation of the spent fuel pool. The calculation of long-term decay heat was performed using the ORIGEN2 code. In a subsequent Request for Additional Information (RAI), the NRC questioned the decay heat loads calculated in the licensing analysis. Specifically, the staff noted that the maximum decay heat load to the pool and the peak bulk pool temperature calculated in the licensing analysis, which included the additional fuel due to proposed fuel storage expansion, was less than the heat load and peak temperature from the existing analysis as reported in the USAR. In their response, AmerGen stated that the licensing analysis decay heat evaluation:

"...employs the precision computer code ORIGEN2 to compute the radioactive energy release from irradiated spent nuclear fuel. This procedure avoids the empirical methods (i.e., Branch Technical Position ASB 9-2 "Residual Decay Energy for Light-Water Reactors for Long-Term Cooling") deployed in the Clinton Power Station (CPS) Updated Safety Analysis Report (USAR) that provided conservative estimates of decay heats. Although the quantity of fuel to be stored in [the] storage expansion application is increased, the calculated decay heat load and maximum bulk temperature that results from the increased quantity of spent fuel is more than offset by removal of excessive conservatism."

The NRC issued the requested license amendment to AmerGen Energy Company (AmerGen) on October 31, 2005. In discussing the spent fuel pool thermal-hydraulic analysis, the NRC SER states:

"The licensee evaluated the SFP maximum bulk water temperature for this case, incorporating into the analysis ... a more precise treatment of the decay heat generated by the spent fuel by using ORIGEN2 calculations. The staff has reviewed the licensee's submittal and finds the heat load calculation is acceptable."

Based on the above examples, the ORIGEN2 methodology has been previously approved by the NRC for the calculation of decay heat loads in spent fuel pool thermal-hydraulic applications. These applications are entirely consistent with the proposed application of the ORIGEN2 methodology at GGNS. Further, in reviewing the pool storage expansion request for Clinton Power Station, the NRC recognized that spent fuel decay heat loads calculated by ORIGEN2 are more precise and less conservative than those calculated using ASB 9-2 methods.

In addition to the previous NRC approvals discussed above, Energy Northwest evaluated and approved changing the methodology for calculating spent fuel pool bundle decay heat at the Columbia Generating Station from ASB 9-2 to ORIGEN2 and ORIGEN-ARP methods in accordance with 10 CFR 50.59 paragraph (c)(2)(viii).

Section 4.3.8.2 of NEI 96-07 (50.59 Implementation Guidelines) provides specific guidance for determining when changing from one method of evaluation to another is not considered a departure from a method of evaluation described in the FSAR. The use of a new NRC-approved methodology (e.g., new or upgraded computer code) to reduce uncertainty, provide more precise results or other reasons, is acceptable provided that such use is:

1. Based on sound engineering practice. The ORIGEN methodology provides a rigorous calculation of the physical phenomenon involved in predicting the decay heat associated with irradiated spent nuclear fuel. ORIGEN2 computes time-dependent concentrations and source terms of a large number of isotopes, which are simultaneously generated or depleted through neutronic transmutation, fission, radioactive decay, and physical or chemical removal rates. As discussed above, the NRC has acknowledge that the rigorous methodology in ORIGEN2 is superior to the empirically-based ASB 9-2 methodology.
2. Appropriate for the intended application. ORIGEN2 and its predecessor, ORIGEN, are the most widely used computer codes for predicting the characteristics (isotopic inventory, radiation source terms, and decay power) of spent nuclear fuel, fissile material, and other radioactive materials. The ORIGEN code series was developed to specifically address problems associated with out-of-reactor applications, such as the characterization of spent nuclear fuel. ORIGEN2 computes time-dependent material concentrations based on point (i.e., no spatial dependence) depletion/decay methods and is able to capture the build-up and decay of a large number of nuclides needed for this class of problem. Thus, the ORIGEN2 code is appropriate, and widely used, for calculating the physical characteristics of spent fuel, including isotopic inventory, radiation source terms, and decay heat. Like the original ORIGEN code, ORIGEN2 is designed to operate as a stand-alone calculational tool with fixed cross-section data libraries provided for several reactor models.
3. Within the limitations of the applicable SER. The NRC has previously approved the use of ORIGEN2 for calculating fuel bundle decay heat in the spent fuel pool thermal-hydraulic analyses at two BWRs (Duane Arnold, Clinton Power Station) and a PWR (V. C. Summer). Each of these applications accounted for the existing spent fuel in the pools and the projected pool heat load based on filling the pool to the limit of storage rack capacity considering conservative bounding equilibrium fuel cycles. The ORIGEN2 code will be used at GGNS to calculate the decay heat of spent fuel stored in the spent fuel pool in order to model FPCC system performance and estimate pool temperatures. Bounding analyses of the normal maximum and abnormal maximum decay heat loads will be calculated using a combination of actual data for the existing fuel stored in the pool and projected data based on equilibrium cycle estimates. The proposed application of ORIGEN2 at GGNS is entirely consistent with the applications in the referenced SERs and is within the limitations of these SERs as discussed below.
 - GGNS, Clinton Power Station, and Duane Arnold are currently using advanced BWR fuel designs (e.g., GE14, ATRIUM-10). The ORIGEN2 cross-section libraries contain a file corresponding to a generic extended burnup BWR fuel assembly. This generic library file conservatively maximizes the decay heat calculated by ORIGEN2 for the advanced fuel designs used at GGNS. The generic cross-section libraries originally issued with ORIGEN2 were used in the applications of ORIGEN2 in the T/H analyses supporting the DAEC and V. C.

Summer submittals approved by the NRC.

- The license submittals for DAEC and V. C. Summer contain the relevant spent fuel parameter inputs to ORIGEN2 (e.g., burnup, cooling times) that are typical of the inputs for the fuel stored in the GGNS spent fuel pool.
 - Both the DAEC and V. C. Summer submittals apply a power measurement uncertainty of 2% to the ORIGEN2 decay heat load calculations. The proposed activity to change the GGNS decay heat load methodology from ASB 9-2 to ORIGEN2 will therefore add a requirement to either directly use this 2% uncertainty factor or otherwise account for power measurement uncertainties in calculating the design basis pool decay heat loads.
4. *Consistent with the facility's licensing basis and relevant industry standards.* Section 9.1.3 of the fuel pool cooling system Standard Review Plan endorses the use of the ASB 9-2 methodology for calculating the decay heat of irradiated fuel stored in the spent fuel pool. The GGNS FSAR and HDSFR licensing submittals, while discussing ASB 9-2, do not contain a specific commitment to comply with SRP 9.1.3 and the GGNS FSAR does not contain a commitment to comply with the NRC's Standard Review Plan. In addition, there are no 10 CFR Part 50 requirements that specify the heat load methodology for the fuel pool cooling (FPCC) system. There are no GGNS Core Operating Limits Report (COLR) or Regulatory Guide commitments that specify the decay heat load method for the FPCC system. The use of ORIGEN2 for calculating spent fuel pool decay is entirely consistent with relevant industry standards. As described in this evaluation, ORIGEN2 and its predecessor, ORIGIN, are the most widely used computer codes for predicting the characteristics of spent nuclear fuel. ORIGEN2 has been applied at other plants in performing decay heat calculations similar to those proposed for GGNS. As such, application of this methodology does not require exemptions to regulations, exceptions to industry standards and guidelines, or is otherwise inconsistent with the GGNS licensing basis.
 5. If a computer code is involved, has the code been installed in accordance with applicable software quality assurance requirements? The ORIGEN2 code package was procured by Entergy from the Oak Ridge Radiation Shielding Information Center (RISC). The ORIGEN2 software has been installed and verified in accordance with applicable Entergy software QA procedures. These procedures require that code installation, verification and validation be formally documented. Verification and validation is accomplished by execution of sample problems and comparison of results to those provided by the code developer. The procedures also delineate qualification requirements for users and tracking of code error notices supplied by the code developer.
 6. Has the code been qualified through benchmark comparisons against test data, plant data or approved engineering analyses? The accuracy of ORIGEN2 fuel bundle decay heat predictions has been demonstrated in two benchmark studies. The first study compared ORIGEN2 decay heat predictions to those from an ANS decay heat standard (ANSI/ANS-5.1-1978). The second study compared ORIGEN2 decay heat to measured decay heat data from three PWR spent fuel assemblies. Results from these benchmarks showed excellent agreement between the ORIGEN2 and calculated (ANS) and measured decay heat data.
 7. The design and operation of the facility for which the methodology has been approved is *consistent with the facility to which the methodology is to be applied*. The NRC has approved applications of ORIGEN2 for calculating spent fuel pool decay heat loads for a BWR/4 (Duane Arnold), a BWR/6 (Clinton Power Station) and a PWR (V. C. Summer). These applications use ORIGEN2 to calculate spent fuel decay heat for evaluations of spent fuel pool heat loads and temperatures assuming bounding fuel pool inventory and various fuel pool cooling system alignments. Spent fuel decay heat is a function of the specific power of the core, initial bundle enrichment, bundle exposure, operating cycle length, and cooling time. The values of these parameters in the NRC approved applications are not significantly different from the proposed application at GGNS. The proposed change in decay heat methodology does not introduce or exclude any design basis accident. This change is applicable only to calculating spent fuel decay heat to evaluate the performance of the FPCC system under design conditions. Therefore, there are no identified differences in configuration and licensing bases that impact the use of ORIGEN2 as a method for determining the spent fuel heat load.

In summary, the above evaluation demonstrates that the proposed change to the fuel storage pool decay heat analytical method from NRC's Branch Technical Position ASB 9-2 to a more realistic (and

less conservative) methodology based on the ORIGEN2 code is not a departure from a method of evaluation under 10 CFR 50.59 (c)(2)(viii) because the new method and proposed application:

- Is technically appropriate for the intended application,
- Has been previously approved by the NRC for the intended application,
- The design and operation of the facilities for which the methodology has been approved (spent fuel storage pools and FPCC systems) is consistent with the proposed application.

The NRC SERs do not include any special restrictions or limitations on the use of the ORIGEN2 methodology. The application of ORIGEN2 considered in the SERs and in this evaluation is limited to calculating the decay heat of fuel bundles stored in the spent fuel pool for use in the thermal-hydraulic analysis of the spent fuel pool and fuel pool cooling system. This application will use plant-specific code inputs and appropriately account for uncertainties in core thermal power measurement.

REFERENCES

The following references were used in preparing this evaluation.

1. ER-2005-0197-000.
2. MAEC 86/0264, L. L. Kintner (USNRC) to O. D. Kingsley, Jr., "Revision to Technical Specifications – Fuel Storage and Spent Fuel Storage Pool Temperature," dated August 18, 1986.
3. GNRI 92/00163, P. W. O'Conner (USNRC) to W. T. Cottle, "Proposed Method to Provide Augmented Spent Fuel Pool Cooling," dated July 30, 1992.
4. Branch Technical Position ASB 9-2, "Residual Decay Energy for Light-Water Reactors for Long-term Cooling," included in NUREG-0800, Standard Review Plan Section 9.2.5 "Ultimate Heat Sink," Revision 2, dated July, 1981.
5. ORNL/TM-7175, "A User's Manual for the ORIGEN2 Computer Code," A. G. Croff, Union Carbide Corporation, Oak Ridge National Laboratory, Oak Ridge, TN, July, 1980.
6. NUREG-0800, Section 9.1.3, Rev. 2, "Spent Fuel Pool Cooling and Cleanup System," July, 1981.
7. NEI 96-07, Rev. 1, "Guidelines for 10 CFR 50.59 Implementation," NEI, November, 2000.
8. ANS Proposed Standard, ANS 5.1 "Decay Energy Release Rates Following Shutdown of Uranium-Fueled Thermal Reactors," American Nuclear Society Subcommittee ANS-5, October, 1971, Revised October, 1973.
9. NRC Information Notice 96-39, "Estimates of Decay Heat using ANS 5.1 Decay Heat Standard May Vary Significantly," USNRC, July 5, 1996.
10. B. L. Mozafari (USNRC) to G. V. Middlesworth (DAEC), "Duane Arnold Energy Center-Issuance of Amendment for Revised Thermal-Hydraulic Analysis for Spent Fuel Pool (TAC No. MB0596)" dated September 21, 2001 (ML012500246).
11. K. R. Cotton (USNRC) to S. A. Byrne (SCE&G), "Virgil C. Summer Nuclear Station, Unit 1-Issuance of Amendment Re: Spent Fuel Pool Expansion (TAC No. MB2475)," dated August 30, 2002 (ML022330203).
12. K. R. Jury (AmerGen) to USNRC, "Additional Information Supporting the Request for License Amendment Related to Onsite Spent Fuel Storage Expansion," dated June 14, 2005 (ML051730431).
13. K. N. Jabbour (USNRC) to C. M. Crane (AmerGen), "Clinton Power Station, Unit 1-Issuance of Amendment - Re: Onsite Spent Fuel Storage Expansion (TAC No. MC4202)," dated October 31, 2005 (ML053070593).
14. Croff, Allen G, "ORIGEN2: A Versatile Computer Code for Calculating the Nuclide Compositions and Characteristics of Nuclear Materials," *Nuclear Technology*, Vol. 62, September, 1983.
15. 10CFR50.59 Evaluation 5059-05-0001, Rev. 0, "Methodology Change to Use ORIGEN-ARP to Calculate Decay Heat of Spent Fuel Stored in the Fuel Pool," Energy Northwest, April 6, 2005.
16. CPDP X-95/0002, ORIGEN2 Ver. 2.1 Computer Program Documentation Package.
17. CDP QR-016-26.01, "ORIGEN2.1R.P00, Isotopic Generation and Depletion Code for the IBM RISC Computer."

GGNS 50.59 Safety Evaluation Number

SE 2006-0002-R00

I. OVERVIEW / SIGNATURES

SE 2006-0002-RØ

Facility: Grand Gulf Nuclear Station

Document Reviewed: LDC 2006-002

Change/Rev.: _____

System Designator(s)/Description:

TURBINE OVERSPEED PROTECTION SYSTEM – TRM 6.3.8

Description of Proposed Activity:

This change involves a relaxation of Technical Requirements Manual (TRM) 6.3.8, Turbine Overspeed Protection System required actions and completion time of 72 hours to restore operability of inoperable stop or control valves. To allow this change, when a stop or control valve is inoperable, detail is added to TRM Bases 6.3.8 to require an evaluation to ensure the validity of the assumptions to the turbine missile discussion in UFSAR Section 3.5.1.3. The following changes are being made.

TRM 6.3.8 - Relaxation of 72 Hours Completion Time

The change evaluated involves modification of the TRM LCO 6.3.8 Required Action A.1 and A.2 which required a restoration of inoperable stop or control valves to OPERABLE status or close one valve in the affected steam line – either action had a Completion Time of 72 hours. The 72 hour completion time is changed to “immediately” and the required action to restore operability or close one valve in the affected steam line is changed to enter the actions of TRM 6.0.1. TRM 6.0.1 requires the following:

1. Develop and implement compensatory actions as needed.
2. Verify that a required safety function is not compromised by the inoperabilities.
3. Develop a plan for exiting LCO 6.0.1.
4. Obtain Duty Manager approval of the compensatory actions and a plan for exiting LCO 6.0.1 within 4 hours.

TRM Bases 6.3.8 - Addition of detail to Support Relaxation

This change also involves addition of detail to TRM Bases B 6.3.8 to support the relaxation to TRM 6.3.8. The new detail added to TRM Bases 6.3.8 will now require a review of the Turbine Missile discussion in UFSAR section 3.5.1.3 for affect on the probability analysis to ensure risk is appropriately addressed should a stop or control valve become inoperable.

BACKGROUND LICENSING BASIS INFORMATION

The Turbine Overspeed Protection System previously resided in the Grand Gulf Technical Specifications and was relocated to the TRM via Technical Specification Amendment 120. The basis for relocation was an amendment application (GNRO93-00109, Enclosure 2, Section 3.3 page 167) as follows:

The turbine overspeed protection system is not considered in any design basis accident or transient. The system is used to prevent overspeed which may result in the generation of missiles which could impact safety related equipment. However, the system performs no functions to mitigate the effects of the subsequent transient. Further, the evaluation summarized in NEDO-31466 determined the loss of this instrumentation to be a non-significant risk contributor to core damage frequency and offsite release. Therefore, the requirements specified for this function did not satisfy the NRC Interim Policy Statement technical specification screening criteria as documented in the application of Selection Criteria to the GGNS TS and have been relocated to plant documents controlled in accordance with 10CFR 50.59.

<input checked="" type="checkbox"/>	QA RECORD
<input checked="" type="checkbox"/>	RT- B14.33
<input type="checkbox"/>	NON-QA RECORD
<input checked="" type="checkbox"/>	INITIALS <i>[Signature]</i>
	NUMBER of PAGES 9
	DATE 4/11/06
	RELATED DOCUMENT NUMBER- LDC 06-0002

BACKGROUND LICENSING BASIS INFORMATION (cont.)

The NRC then issued Technical Specification Amendment 120(GNRI95-00044) allowing relocation of the Turbine Overspeed Protection system to the TRM. The Basis for approval is as follows:

The existing TS 3/4.3.9 conditions, RAs, and SRs for the turbine overspeed protection system instrumentation have been relocated to other plant documents. The turbine overspeed protection system instrumentation is not considered to prevent or mitigate any design basis accident or transient. Although the design basis accidents and transients include a variety of system failures and conditions which might result from turbine missiles striking various plant systems and equipment, the system failures and plant conditions could be caused by other events as well as turbine failures. In view of the low likelihood of turbine missiles, this scenario does not constitute a part of the primary success path to prevent or mitigate such design basis accidents and transients. Similarly, the turbine overspeed control is not part of an initial condition of a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The requirements associated with these instrumentation functions will be relocated to the UFSAR and will be controlled in accordance with 10 CFR 50.59.

Conclusion

A thorough search of Licensing Basis and Commitment documents did not reveal a documented basis for the 72 hour completion time listed in TRM 6.3.8. Replacement of the 72 hour completion time to isolate the affected steam line or restore operability with an allowance to enter TRM 6.0.1 will impose a risk based approach to any inoperability. The requirements in TRM 6.0.1 require definitive action in regard to safety function, therefore there is no impact on safety. The addition of detail to TRM Bases 6.3.8 to require a review of the turbine missile analysis will help avoid an error trap by referencing UFSAR 3.5.1.3.

The underlying basis for the 72 hours allowance as specified is not documented and no basis can be found. Therefore this change is evaluated via 10CFR50.59 process. Based on responses to Section IV 50.59 questions this change is acceptable.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#: <u>2006-0002-RP</u>)	Sections I, II, and IV required

Preparer: MICHAEL J. LARSON/EOI/NSA PLANT LICENSING 1/12/06
 Name (print) / Signature / Company / Department / Date

Reviewer: William E. Long Jr. / William E. Long Jr. / EOI/NE-SA/1-12-06
 Name (print) / Signature / Company / Department / Date

OSRC: M. A. Krupa / M. A. Krupa 1-13-06
 Chairman's Name (print) / Signature / Date
 (Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.)

II. SCREENINGS

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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. (See LI-101 for exceptions.)

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS Bases	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LDC2006-002
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," perform an Exemption Review per Section III OR perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the LBD change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

If "YES," evaluate any changes in accordance with the appropriate regulation AND initiate an LBD change in accordance with NMM LI-113.

¹ If "YES," see LI-101. No LBD change is required.

² If "YES," notify the responsible department and ensure a 50.54 evaluation is performed. Attach the 50.54 evaluation.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR? ☐ Yes
☒ No

If "YES," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113, if applicable. If obtaining NRC approval, document the change in Section II.A.5. However, the change cannot be implemented until approved by the NRC. Complete Section II.

3. **Basis**

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR. If the proposed activity involves a potential test or experiment not previously described in the FSAR also include an explanation. Discuss other LBDs if impacted. 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 change involves relaxation of required action and completion times as described in TRM Section 6.3.8. The changes are administrative in nature and no new tests or experiments are imposed as a result of these changes. The requirement to ensure UFSAR Section 3.5.1.3 remains valid will require a risk based approach is taken when evaluating turbine stop or control valve inoperabilities. The 72 hour requirement has no written technical basis. The affected TRM was previously located in the Technical Specifications. The NRC allowed relocation in Technical Specification Amendment 120; therefore there is no impact on the Operating License or Technical Specifications.

4. **References**

Discuss the methodology for performing LBD searches. 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. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

Electronic search method used:

Keywords:

All of the documents in Section II.A.1

TURBINE, MISSILE

LBDs reviewed manually:

5. Is the validity of this Review dependent on any other change? ☐ Yes
☒ No

If "YES," list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure EV-115 and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed activity being evaluated:

YES NO

1. ☐ ☒ Involve a land disturbance equal to or in excess of one acre (i.e., grading activities, construction of buildings, excavations, reforestation, creation or removal of ponds)?
2. ☐ ☒ Involve any land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
3. ☐ ☒ Involve dredging activities in a lake, river, pond, ditch, or stream?
4. ☐ ☒ Increase the amount of thermal heat being discharged to the river or lake?
5. ☐ ☒ Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
6. ☐ ☒ Discharge any new or different chemicals that are currently not authorized for use by the state regulatory agency?
7. ☐ ☒ Change the design or operation of the intake or discharge structures?
8. ☐ ☒ Modify the design or operation of the cooling tower that will change water or air flow characteristics?
9. ☐ ☒ 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?
10. ☐ ☒ Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?¹
11. ☐ ☒ 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
12. ☐ ☒ Involve the installation or use of equipment that will result in a new or additional air emission discharge?
13. ☐ ☒ Involve the installation or modification of a stationary or mobile tank?¹
14. ☐ ☒ Involve the use or storage of oils or chemicals that could be directly released into the environment?
15. ☐ ☒ Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater?

¹ See NMM Procedure EV-117 for guidance in answering this question.
LI-101-01, Rev. 8; Effective Date: 6/23/05

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

YES NO

1. ☐ ☒ Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)?
2. ☐ ☒ Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)?
3. ☐ ☒ Cause materials or equipment to be placed or installed within the Security Isolation Zone?
4. ☐ ☒ Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities?
5. ☐ ☒ Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)?
6. ☐ ☒ Modify or otherwise affect the operation or field of view of the security cameras?
7. ☐ ☒ Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment?
8. ☐ ☒ Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station?
9. ☐ ☒ Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways?
10. ☐ ☒ Modify or otherwise affect the facility's telephone or security radio systems?

The Security Department answers the following question if one of questions C.1 through C.10 above was answered "yes."

Is a change to the Security Plan required?

☐ Yes
☐ No

Attach to this 50.59 Review or reference below documentation for accepting a "yes" answer for any of Questions C.1 through C.10, above.

Name of Security Plan reviewer (print / Signature / Data)

IV. 50.59 EVALUATION

License Amendment Determination

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

Does the proposed Change:

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

BASIS:

The turbine overspeed protection system is not considered in any design basis accident or transient. The system is used to prevent overspeed of the turbine which may result in the generation of missiles which could impact safety related equipment. Turbine failure and resulting missile damage is not an evaluated accident nor is it an initiator to any accident described in the UFSAR.

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

BASIS:

Turbine failure and resulting missile damage to structures, systems, and components important to safety has been evaluated in UFSAR section 3.5.1.3. The new detail added to TRM Bases 6.3.8 will now require a review of the Turbine Missile discussion in UFSAR section 3.5.1.3 for affect on the probability analysis to ensure risk is appropriately addressed should a stop or control valve become inoperable. This addition will ensure there is no minimal increase in the likelihood of a malfunction.

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

BASIS:

Since the turbine overspeed protection system is not considered in any design basis accident or transient there will not be any increase in any consequences of an accident previously evaluated.

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 wording addition to TRM Bases 6.3.8 will impose a new requirement to verify the continued validity of the turbine missile analysis described in UFSAR 3.5.1.3. This will ensure the probability of a turbine overspeed event and any associated missile damage which could possibly cause radiation dose release caused by damage to a structure, system, or component is bounded by the UFSAR analysis. Therefore the consequences of a malfunction previously evaluated in the UFSAR is not increased.

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

BASIS:

Based on review of Chapter 15 of the UFSAR, turbine overspeed and subsequent turbine missiles is not an analyzed accident. The turbine overspeed system minimizes the probability of damage occurring to any safety related structure as discussed in UFSAR Section 3.5.1.3, "Probability Analysis for High Trajectory Missiles." No new accidents are created as a result of this change since any inoperable turbine stop or control valve will require a validity check of the assumptions of the turbine missile analysis discussed in UFSAR Section 3.5.1.3. Therefore, no new accidents of a different type are introduced.

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:

With the new requirements imposed in TRM Bases 6.3.8, there will not be a malfunction of any structure, system, or component as long as a stop or control valve inoperability is evaluated against the turbine missile assumptions described in UFSAR section 3.5.1.3. Evaluation against the assumptions specified in UFSAR 3.5.1.3 ensures there is not a different result than previously evaluated.

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 change does not affect fuel cladding, reactor coolant system boundaries, or containment since the probability of damage to a structure is kept within allowable values. The missile analysis discussed in UFSAR Section 3.5.1.3 discusses probability of damage to containment, however with TRM 6.0.1 controls imposed by this change and addition of wording to the TRM Bases 6.3.8 there will be no affect on containment. Operation within the specified probability of damage values specified in UFSAR Section 3.5.1.3 ensures there is no affect on a design basis limit for fission product barriers.

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 change any analysis or methods used for event evaluation described in the FSAR. Therefore this change does not depart from a method of evaluation described in the FSAR used in establishing the design bases or in the safety analyses.

If any of the above questions is checked "YES," obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure LI-113.

GGNS 50.59 Safety Evaluation Number

SE 2006-0003-R00

I. OVERVIEW / SIGNATURES

QA RECORD	
RT 64.33	
NON-QA RECORD	
INITIALS	
NUMBER of PAGES	20
DATE	4/12/06
RELATED DOCUMENT NUMBER	ER-66-2005-0110

Facility: Grand Gulf Nuclear StationDocument Reviewed: ER-GGN-2005-0110-00-00, Deletion of Low Control Air Pressure Trip during a LOCA

Change/Rev.: 0

System Designator(s)/Description: P75 – Standby Diesel Generator System

Description of Proposed Change:

ER GG-2005-0110 requested that Engineering evaluate moving the low control air pressure (< 40 psig) sensor from the Diesel Generator control LOCA logic. This is to make the diesel more reliable during post LOCA conditions if a loss of control air should occur. The associated Low Lube Oil Pressure Trip is being relocated from the Emergency Mode logic over to the Normal Mode logic. This removes the reliance on operator actions and non-safety related equipment during Emergency Diesel mode of operation. The action would have been to replenish air. The sensing of low control air pressure and a Low Lube Oil Pressure trip will also be available during a Diesel Start in Normal Mode. The Low Lube Oil Pressure trip and High Crankcase pressure trip are going from 2 out of 3 transmitters being used to a single sensor.

Check the applicable review(s): (Only the sections indicated must be included in the Review.)

<input type="checkbox"/>	EDITORIAL CHANGE of a Licensing Basis Document	Section I
<input type="checkbox"/>	SCREENING	Sections I and II required
<input type="checkbox"/>	50.59 EVALUATION EXEMPTION	Sections I, II, and III required
<input checked="" type="checkbox"/>	50.59 EVALUATION (#. <u>2006-6003-ROD</u>)	Sections I, II, and IV required

Preparer: Robert W. Fuller / Robert W. Fuller / EOI / Design Eng – Mech / 1-26-06

Name (print) / Signature / Company / Department / Date

Reviewer: John D. Wilson / John D. Wilson / EOI / Design Engineering / 1/26/06

Name (print) / Signature / Company / Department / Date

OSRC: Dennis P. Wiles / Dennis P. Wiles / 1/26/06

Chairman's Name (print) / Signature / Date

[Required only for Programmatic Exclusion Screenings and 50.59 Evaluations.]

II. SCREENINGS**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?

Operating License	YES	NO	CHANGE # and/or SECTIONS IMPACTED
Operating License	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	GNRO 2005-00016, TSTIF 400, GNRI-2006-0006
NRC Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If "YES", obtain NRC approval prior to implementing the change by initiating an LBD change in accordance with NMM ENS-LI-113. (See Section 5.2[13] for exceptions.)			

LBDs controlled under 50.59	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED
FSAR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LDC-2005-081
TS Bases	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LDC-2005-081
Technical Requirements Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluation Report and supplements for the initial FSAR ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Safety Evaluations for amendments to the Operating License ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If "YES", perform an Exemption Review per Section III <u>OR</u> perform a 50.59 Evaluation per Section IV <u>OR</u> obtain NRC approval prior to implementing the change. If obtaining NRC approval, document the LBD change in Section II.A.5; no further 50.59 review is required. However, the change cannot be implemented until approved by the NRC. <u>AND</u> initiate an LBD change in accordance with NMM ENS-LI-113.			

LBDs controlled under other regulations	YES	NO	CHANGE # (if applicable) and/or SECTIONS IMPACTED

¹ If "YES," see Section 5.2[5]. No LBD change is required.

Quality Assurance Program Manual ²	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan ^{2,3}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program ^{3,4} (includes the Fire Hazards Analysis)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculations Manual ^{3,4}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If "YES", evaluate any changes in accordance with the appropriate regulation <u>AND</u> initiate an LBD change in accordance with NMM ENS-LI-113. No further 50.59 review is required.			

² If "YES," notify the responsible department and ensure a 50.54 Evaluation is performed. Attach the 50.54 Review.

³ Changes to the Emergency Plan, Fire Protection Program, and Offsite Dose Calculation Manual must be approved by the OSRC in accordance with NMM OM-119.

⁴ If "YES," evaluate the change in accordance with the requirements of the facility's Operating License Condition or under 50.59, as appropriate.

2. Does the proposed activity involve a test or experiment not described in the FSAR?

☐ Yes

☒ No

If "yes," perform a 50.59 Evaluation per Section IV OR obtain NRC approval prior to implementing the change AND initiate an LBD change in accordance with NMM LI-113. If obtaining NRC approval, document the change in Section II.A.5; no further 50.59 review is required. However, the change cannot be implemented until approved by the NRC.

3. Basis

Explain why the proposed activity does or does not impact the Operating License/Technical Specifications and/or the FSAR and why the proposed activity does or does not involve a new test or experiment not previously described in the FSAR. Discuss other LBDs if impacted. 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.

ER GG-2005-0110 requested that Engineering evaluate moving the low control air pressure (< 40 psig) sensor from the Diesel Generator Start in Emergency Mode logic to a start in Normal Mode. This is to make the diesel more reliable during post LOCA conditions if a loss of control air should occur. This removes the reliance on operator actions and non-safety related equipment. The required action would have been to replenish air.

Operating License:

The Grand Gulf Nuclear Station (GGNS) Operating License (OL) does discuss the reliability of the diesel generators (#25), but it deals with installing a turbo charger on the diesels and not control air. The Operating License, and the Environmental Protection Plan are not impacted by ER GG-2005-0110. Therefore, the proposed activity does not impact the GGNS operating license.

Technical Specifications:

The scope of this ER does affect the Technical Specifications. Technical Specification SR 3.8.3.4 deals with starting air which supplies control air. Modifying the control air logic will not impact or impede starting air and it's Technical Specification requirements. Technical Specification 3.8.1.13 lists a Low Lube Oil Pressure trip but this critical trip will be relocated as a non-critical trip. An NRC evaluation per TSTIF 400 addresses the removal of the surveillance requirement. This 50.59 evaluates relocating the Low Lube Oil Pressure as a critical trip to a non-critical trip. Relocating the Low Lube Oil Pressure Critical trip to a non-critical trip removes the signal from the Emergency Mode of the Shutdown Logic to the Normal Mode of the Shutdown logic. This removes the two out of three signal requirement (Reg Guide 1.9) for the Low Lube Oil pressure. The results and conclusions do not adversely affect the mode of operation of any important to safety equipment or Technical Specification associated equipment. In addition, the moving the low control air pressure sensor from the Emergency Start logic to the Normal Start logic does not create a system configuration or operating condition such that a Technical Specifications LCO or surveillance requirement is no longer adequate. Likewise, ER GG-2005-0110 will not bypass or invalidate automatic actuation features required to be operable by the Technical Specifications or exceed any limits specified in the Operating License and Technical Specifications. There is a Technical Specifications change is required for the issuance of this ER. It removes the surveillance requirement from Technical Specification 3.8.1.13.

UFSAR:

UFSAR sections 8.3.1.1.4.1f(2)(f), 8.3.1.2.1 b 5(g) and FSAR Figure 8.3-008 are affected by this ER response. The requirement for the low control air pressure sensor is not needed post-LOCA (Emergency Start). It serves no safety related function and removing it will increase the reliability of the diesel during Emergency Mode Operation. The lube oil trip is moved from the Diesel in Emergency Mode to Normal Mode. This makes the Low Lube Oil Pressure trip non-critical/ FSAR Figure 8.3-008 will be updated to show this. An NRC evaluation per TSTIF 400 evaluates deleting the requirements for verifying the trip surveillance. A survey of the diesel owner's group discovered that many do not have the Lube Oil Pressure Low trip for the Emergency Mode of a Diesel start. Moving the Low Lube Oil Pressure Trip during Emergency mode to Normal mode will improve the reliability of the diesel operation post LOCA.

NRC Orders:

The NRC Orders issued at Grand Gulf are not affected by this ER because it deals with moving the low control air pressure sensor (<40 psig) and associated low lube oil pressure trip and its affect on Diesel operation for a Diesel Start in Emergency Mode and ER-GG-2005-0110 is not to be used for security reasons which is what Grand Gulf's current NRC Orders deal with.

Technical Specification Bases:

The Technical Specifications Bases are impacted by this activity. LDC-2005-081 is issued identifying that the Division I and II Low Lube Oil Pressure trip are non-critical trips.

Technical Requirements Manual (TRM):

There are no impacts to the Technical Requirements Manual affected by this activity.

Core Operating Limits Report:

This activity does not impact the COLR (GGNS Core Operating Limits Report). ER-GG-2005-0110 evaluates the acceptability of moving the diesel control air low pressure sensor (<40 psig) and associated low lube oil pressure trip from the Emergency Mode to the Normal Mode. It does not have any impact on the COLR and does not affect any licensing activities.

Offsite Dose Calculations Manual:

This activity does not impact any equipment required to monitor offsite dose. Therefore, no changes to the ODCM is required.

NRC Safety Evaluation Reports:

There is no impact to any SERs for evaluating deleting the diesel control air low pressure trip (< 40 psig) and its affect on Diesel operation and operability. However, SER Supplement 7 documents that a Low Lube Oil Pressure Trip is present during a LOCA. This is being deleted from the FSAR and Technical Specification Bases. An NRC evaluation per TSTIF 400 evaluated the removal from Technical Specification 3.8.1.13.

Quality Assurance Program Manual:

This ER complies with all requirements of the Entergy Quality Assurance Program Manual, as applicable. This activity does not change any commitments contained in the QAPM. Therefore, this activity does not require a change to the QAPM.

Emergency Plan:

This ER does not impact the interaction of GGNS personnel and offsite agencies in response to an emergency.

Security Plan:

This ER does not impact the Security Plan since it does not require the breaching of security

Fire Protection Program (includes the Fire Hazards Analysis):

This calculation does not impact the Fire Protection Program.

4. References

Discuss the methodology for performing LBD searches. 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 5.5.1[5](d) of LI-101. **NOTE: Ensure that manual searches are performed using controlled copies of the documents. If you have any questions, contact your site Licensing department.**

LBDs/Documents reviewed via keyword search: Keywords:

Control Air, Low Lube Oil Pressure Trip

Operating License, UFSAR, Technical Specification, TRM, NRC Orders, Technical Specification Bases, Technical Requirements Manual, Core Operating Limits Report, NRC Safety Evaluation Reports, QAPM, Emergency Plan, Security Plan, Fire Protection Program

LBDs/Documents reviewed manually:

UFSAR sections 8.3.1.1.4.1, 8.3.1.2.1 and TRM Bases 3.8.1.14.

5. Is the validity of this Review dependent on any other change?

☒ Yes

☐ No

If "YES", list the required changes/submittals. The changes covered by this 50.59 Review cannot be implemented without approval of the other identified changes (e.g., license amendment request). Establish an appropriate notification mechanism to ensure this action is completed.

(List the required changes / submittals.) GNRO 2005-00016, TSTIF 400

B. ENVIRONMENTAL SCREENING

If any of the following questions is answered "yes," an Environmental Review must be performed in accordance with NMM Procedure ENS-EV-115, "Environmental Evaluations," and attached to this 50.59 Review. Consider both routine and non-routine (emergency) discharges when answering these questions.

Will the proposed Change being evaluated:

Yes No

1. ☐ ☒ 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)?
2. ☐ ☒ Involve a land disturbance of undisturbed land areas (i.e., grading activities, construction, excavations, reforestation, creating, or removing ponds)?
3. ☐ ☒ Involve dredging activities in a lake, river, pond, or stream?
4. ☐ ☒ Increase the amount of thermal heat being discharged to the river or lake?
5. ☐ ☒ Increase the concentration or quantity of chemicals being discharged to the river, lake, or air?
6. ☐ ☒ Discharge any chemicals new or different from that previously discharged?
7. ☐ ☒ Change the design or operation of the intake or discharge structures?
8. ☐ ☒ Modify the design or operation of the cooling tower that will change water or air flow characteristics?
9. ☐ ☒ 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?
10. ☐ ☒ Modify existing stationary fuel burning equipment (i.e., diesel fuel oil, butane, gasoline, propane, and kerosene)?¹
11. ☐ ☒ 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
12. ☐ ☒ Involve the installation or use of equipment that will result in a new or additional air emission discharge?

¹ See NMM Procedure ENS-EV-117, "Air Emissions Management Program," for guidance in answering this question.

- 13. ☐ ☒ Involve the installation or modification of a stationary or mobile tank?
 - 14. ☐ ☒ Involve the use or storage of oils or chemicals that could be directly released into the environment?
 - 15. ☐ ☒ Involve burial or placement of any solid wastes in the site area that may affect runoff, surface water, or groundwater?
-

C. SECURITY PLAN SCREENING

If any of the following questions is answered "yes," a Security Plan Review must be performed by the Security Department to determine actual impact to the Plan and the need for a change to the Plan.

Could the proposed activity being evaluated:

Yes No

1. ☐ ☒ Add, delete, modify, or otherwise affect Security department responsibilities (e.g., including fire brigade, fire watch, and confined space rescue operations)?
2. ☐ ☒ Result in a breach to any security barrier(s) (e.g., HVAC ductwork, fences, doors, walls, ceilings, floors, penetrations, and ballistic barriers)?
3. ☐ ☒ Cause materials or equipment to be placed or installed within the Security Isolation Zone?
4. ☐ ☒ Affect (block, move, or alter) security lighting by adding or deleting lights, structures, buildings, or temporary facilities?
5. ☐ ☒ Modify or otherwise affect the intrusion detection systems (e.g., E-fields, microwave, fiber optics)?
6. ☐ ☒ Modify or otherwise affect the operation or field of view of the security cameras?
7. ☐ ☒ Modify or otherwise affect (block, move, or alter) installed access control equipment, intrusion detection equipment, or other security equipment?
8. ☐ ☒ Modify or otherwise affect primary or secondary power supplies to access control equipment, intrusion detection equipment, other security equipment, or to the Central Alarm Station or the Secondary Alarm Station?
9. ☐ ☒ Modify or otherwise affect the facility's security-related signage or land vehicle barriers, including access roadways?
10. ☐ ☒ Modify or otherwise affect the facility's telephone or security radio systems?

Documentation for accepting any "yes" statement for these reviews will be attached to this 50.59 Review or referenced below.

D. INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) SCREENING

(NOTE: This section is not applicable to Waterford 3 and may be removed from 50.59 Reviews performed for Waterford 3 proposed activities.)

If any of the following questions is answered "yes," an ISFSI Review must be performed in accordance with NMM Procedure ENS-LI-112, "72.48 Review," and attached to this Review.

Will the proposed Change being evaluated:

Yes No

1. ☐ ☒ Any activity that directly impacts spent fuel cask storage or loading operations?
2. ☐ ☒ Involve the Independent Spent Fuel Storage Installation (ISFSI) including the concrete pad, security fence, and lighting?
3. ☐ ☒ Involve a change to the on-site transport equipment or path from the Fuel Building to the ISFSI?
4. ☐ ☒ Involve a change to the design or operation of the Fuel Building fuel bridge including setpoints and limit switches?
5. ☐ ☒ Involve a change to the Fuel Building or Control Room(s) radiation monitoring?
6. ☐ ☒ Involve a change to the Fuel Building pools including pool levels, cask pool gates, cooling water sources, and water chemistry?
7. ☐ ☒ Involve a change to the Fuel Building handling equipment (e.g., bridges and cask cranes, structures, load paths, lighting, auxiliary services, etc)?
8. ☐ ☒ Involve a change to the Fuel Building electrical power?
9. ☐ ☒ Involve a change to the Fuel Building ventilation?
 ☐ ☒ Involve a change to the ISFSI security?
- 10.
11. ☐ ☒ Involve a change to off-site radiological release projections from non-ISFSI sources?
12. ☐ ☒ Involve a change to spent fuel characteristics?
13. ☐ ☒ Redefine/change heavy load pathways?

- 14. ☐ ☒ Fire and explosion protection near or in the on-site transport paths or near the ISFSI?
 - 15. ☐ ☒ Involve a change to the loading bay or supporting components?
 - 16. ☐ ☒ New structures near the ISFSI?
 - 17. ☐ ☒ Modifications to any plant systems that support dry fuel storage activities?
 - 18. ☐ ☒ Involve a change to the nitrogen supply, service air, demineralized water or borated water system in the Fuel Building?
-

IV. 50.59 EVALUATION

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 modification relocates the pneumatic Division I and II Low Control Air pressure sensor and associated Low Lube Oil Pressure trip from the Emergency Shutdown Logic to the Normal Shutdown logic. The tubing and fittings are designed and installed to the same requirements as the interfacing pressure boundaries in accordance with J-702.0, Analysis for installing Tubing (Piping Input). These requirements include ASME Code Section III, Code Class 2, Safety Class 2, Seismic Category I and Tornado Protection requirements. The Diesel system modes of operation are not changed or affected by this modification. The Diesel will continue to initiate on LOCA, LOP and LOP/LOCA. The sensing of low control air pressure and low Lube Oil Pressure trip will be moved to the Normal mode and deleted from the Emergency Mode to improve the reliability of the diesel during post Accident conditions. An NRC evaluation per TSTIF 400 deleted the surveillance requirement for the Low Lube Oil Pressure trip from Technical Specification 3.8.1.13. A survey of the Diesel Owner's group discovered that many in the owner's group including Riverbend do not have the Low Lube Oil Pressure Trip during an Emergency Start. Moving the Low lube Oil Pressure trip to the normal circuit of the shutdown logic will make it a non-critical trip that would alarm during surveillance testing if the condition existed. During an Emergency Start, the low Lube Oil Pressure trip would be bypassed. This would make the diesel more reliable during an Emergency Mode of Operation. There would only be two critical trips (Overspeed and Generator Differential) not bypassed during an Emergency Start which meets the requirements of Regulatory Guide 1.9. The Low Lube Oil Pressure trip and High Crankcase pressure trip are going from 2 out of 3 transmitters being used to a single sensor.

The sections potentially impacted are FSAR 8.3.1.2.1, and 8.3.1.1.4.1. The loss of control air event is evaluated herein. The low lube oil pressure trip will be relocated from the Emergency Shutdown Logic to the Normal shutdown logic and the diesel will not trip on low lube oil pressure or low control air pressure during Emergency conditions. The diesel will continue to run even if a valid diesel protection trip should happen to come in. Critical trips (Overspeed and Generator Differential) are unaffected and would trip the diesel during an Emergency Start. This is the preferred method of operating the diesel post accident. It provides a much more reliable diesel during accident conditions. Moving the Low Lube Oil Pressure Trip to the normal mode has no effect on the frequency of occurrence of an accident described in the FSAR. Removing this trip would improve the reliability of the diesel and removal a failure mechanism from the diesel trip logic. Per the discussion in USAR section Table 3.2-1 XLI, the pneumatic tubing would be B31.1 designed equipment. There is no change to these design requirements and no impact on the frequency of occurrence of a FSAR 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:

This modification relocates the Division I and II Low Lube Oil Pressure trip and associated low Control Air pressure sensor to the Normal mode of the start circuit. The tubing and fittings are designed and installed to the same requirements as the interfacing pressure boundaries in accordance with J-702.0, Analysis for installing Tubing (Piping Input) or Specification M-018.0. These requirements include ASME Code Section III, Code Class 2, Safety Class 2, Seismic Category I and Tornado Protection requirements. The Diesel system modes of operation are not changed or affected by this modification. The Diesel will continue to initiate on LOCA, LOP and LOP/LOCA. The low lube oil pressure trip will be moved to the Normal mode and deleted from the Emergency Mode to improve the reliability of the diesel during post Accident conditions. An NRC evaluation per TSTIF deleted the surveillance requirement for the Low Lube Oil Pressure trip from Technical Specification 3.8.1.13. A survey of the Diesel Owner's group discovered that many in the owner's group including Riverbend do not have the Low Lube Oil Pressure Trip during an Emergency Start. Moving the Low lube Oil Pressure trip to the Normal Mode of the shutdown logic will make it a non-critical trip that would alarm during surveillance testing if the condition existed. During an Emergency Start, the low Lube Oil Pressure trip would be bypassed. This will make the diesel more reliable during a LOCA with low Lube Oil Pressure trip bypassed. The reliability comes with the current configuration, one Low Lube Oil pressure signal (PS-24C) is processed two out of three times (Reg Guide 1.9 requirement). ER-GG-2005-0110 will have only one pressure signal and switch and move it over to the Normal mode. This removes the potential for a malfunction of the Low Lube oil pressure switch during a LOCA. There will be two critical trips (Overspeed and Generator Differential) not bypassed during an Emergency Start which still meets the requirements of Regulatory Guide 1.9. The Low Lube Oil Pressure trip and High Crankcase pressure trip are going from 2 out of 3 transmitters being used to a single sensor.

The sections potentially impacted are FSAR 8.3.1.2.1, and 8.3.1.1.4.1. The loss of control air event is evaluated herein. The low lube oil pressure trip will be relocated to the Normal shutdown logic and the diesel will not trip on low control air pressure during an Emergency Start. The diesel will continue to run even if a valid diesel protection trip should happen to come in. This is the preferred method of operating the diesel post accident. It provides a much more reliable diesel during accident conditions. Moving the diesel low control air pressure sensor and associated Low Lube Oil Pressure Trip to the normal mode has no effect on the frequency of occurrence of an accident described in the FSAR. Moving this trip would improve the reliability of the diesel and removal a failure mechanism from the diesel trip logic. The malfunction of the diesel generator control air system and low lube oil pressure switch during Emergency mode is decreased. This enhances the operation and reliability of the diesel.

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

☐ Yes☒ No

This modification moves the diesel generator low control air pressure sensor from the Emergency mode shutdown pneumatic circuit to the Normal mode shutdown pneumatic circuit. In addition to moving the low control air pressure sensor, the two out of three Low Lube oil pressure trip is moved from the Emergency Mode shutdown circuit to the Normal mode shutdown circuit. All remaining affected tubing and valve pressure boundaries are qualified to the appropriate operational conditions and meet the design and licensing requirements for pressure boundary integrity.

Accidents with consequences would be such as high energy line breaks. There are no new high energy line breaks as a result of this modification. Therefore, high energy pipe break and moderate energy line crack evaluations in accordance with USAR Section 3C.2.5 are not affected by this modification.

USAR Chapter 9.0 Section 9.5, Appendix A, Fire Hazards Analysis Report, evaluates the affects of fires involving combustible materials, both fixed and transient, on the ability to safely shutdown the plant and minimize radioactive releases. This modification is located within the diesel generator building (panels 1H22P400 and 1H22P401) and does not penetrate any structural wall or barriers. Therefore there is no affect to the boundary integrity of any fire area. This modification uses copper tubing which adds a negligible combustible loading to plant fire areas. Also this modification is deleting two pneumatic valves associated with high crankcase pressure trip. This two out of three logic was previously moved from the Emergency mode of the shutdown circuit to the Normal mode shutdown circuit. There is no requirement for two out of three logic in the Normal mode. Therefore, this modification will not compromise the function nor integrity of structures, systems or components important to safety and has no effect on the Fire Hazards Analysis Report.

A review of USAR Chapter 15 Accident Analysis was performed. The proposed modification was evaluated against the existing safety analyses to determine if any of the analyses are impacted. The criteria used in this evaluation is that the change shall not impact the ability of Division I and II Diesel Generators to provide backup power to ECCS equipment, shall not create an event of a type not previously analyzed, and previous component analyses shall not be negatively impacted. The proposed modification satisfies the evaluation criteria, and therefore, the modification is within the bounds of the existing safety analyses.

Specifically, the consequences of the transients and accidents evaluated in USAR Chapters 6 and 15 are unaffected by the moving the Low Control pressure sensor from the Emergency mode shutdown circuit to the Normal Mode shutdown circuit. Likewise for moving the Low Lube Oil pressure trip from Emergency mode to Normal mode shutdown pneumatic circuit will not impact the consequences of an accident. A review of Chapter 15 reveals that the Division I and II Diesel Generators will continue to meet its design basis function to mitigate the consequences of these events. Moving the Loss of Control Air sensor and associated Low Lube Oil Pressure trip over to the Normal shutdown pneumatic circuit will make the Diesels more reliable in Emergency mode (LOCA, LOP, LOP/LOCA) and will have no impact on accident consequences.

The other potentially impacted accidents are a FSAR Chapter 6 analysis. These accidents are considered limiting faults. For the case of the recirculation line break inside containment (i.e., drywell) coincident with a Loss of Power, the Division I and II diesel generator would continue to initiate and backup power would be available due to LOCA initiation signal (i.e., high drywell pressure or reactor vessel level low) and LOP. Thus, the evaluation of the consequences of this event are not changed by moving the Low Control Air pressure and Low Lube Oil Pressure from the Emergency Shutdown pneumatic circuit to the Normal Shutdown circuit. The Low Lube Oil Pressure trip and High Crankcase pressure trip are going from 2 out of 3 transmitters being used to a single sensor.

All essential plant systems and equipment will function as assumed in the Accident Analysis. There is no increase in offsite dose due to any accident previously evaluated. Therefore the proposed activity does not increase the consequences of an accident evaluated previously in the USAR.

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 modification meets the current design and licensing basis such that all affected and nonaffected systems, structures, and components, including the RPV and its internals that are important to safety meet all required operational modes and will function as assumed in the Accident Analysis. The function of the Division I and II during an accident (LOCA, LOP, and LOP/LOCA) will continue to provide backup power to its ESF (Engineering Safety Features) Buses. The ECCS systems associated with each diesel are unaffected by moving the low control air pressure sensor and low lube oil pressure trip to the normal mode of the Diesel Shutdown logic. Failure of a diesel generator due to the engine itself or one of its remaining two critical trips (Generator Differential and Overspeed) and/or malfunctions of safety related or important to safety equipment and the mitigating actions for these failures or malfunctions remain the same. As such, there is no change in the radiological consequences at the site boundary. Therefore, this modification will not increase the consequences of a malfunction of equipment important to safety evaluated previously in the USAR.

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

BASIS:

This modification meets and does not invalidate the current design and licensing basis for the following:

- Drywell and Containment isolation provisions.
- Fire hazards analysis.
- USAR Chapter 6 and 15 – Accident Analysis.
- Loss of Offsite and Onsite Power (LOP)

There are no other events postulated as a result of this modification which could create the possibility of an accident of a different type than any evaluated previously in the USAR.

Therefore this modification as previously described will not create the possibility of an accident of a different type than evaluated previously in the USAR.

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 modification meets the current design and licensing basis such that all affected and nonaffected systems, structures, and components including the Diesel and, Diesel Generator that are important to safety meet all required plant operational modes and events. This includes Loss of Power (Offsite and Onsite) concurrent with an accident such as a LOCA (Loss of Coolant Accident) and USAR Chapter 15 Accident Analysis.

With the moving of the low control air pressure sensor and Low Lube Oil Pressure trip from the Emergency to the Normal mode of the shutdown logic, the possibility of a malfunction of equipment (i.e., a diesel trip) during an accident is decreased.

There are no other postulated events which could create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the USAR. Therefore this modification as previously described will not create the possibility of a malfunction of equipment important to safety of a different type than any evaluated previously in the USAR.

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 meets and does not invalidate the current design and licensing basis for the FSAR Chapter 15 Accident Analysis. There are no other events postulated as a result of this modification which could create the possibility of a Diesel failure than any evaluated previously in the USAR.

Therefore this modification as previously described will not result in a 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:

Moving the Low Lube Oil Pressure Trip and Low Control Air Pressure sensor from the Emergency to Normal Mode Shutdown logic does not result in a departure from a method of evaluation. All evaluations utilized that are described in the FSAR are still being used for establishing the design bases and safety analyses.

If any of the above questions is checked "YES," obtain NRC approval prior to implementing the change by initiating a change to the Operating License in accordance with NMM Procedure LI-113.

**GGNS Commitment Change Evaluation
Number**

CCE 2005-002

COMMITMENT CHANGE EVALUATION FORM

Commitment Number:	P-24191, P-24192	Plant Licensing Tracking Number:	2005-0002
Source Document:	P-24191: AECM-86/0395, Attachment 1, Page 3, Item E, third sentence P-24192: AECM-86/0395, Attachment 1, Page 3, Item E, fourth sentence		
Commitment:	Deletion? <input checked="" type="checkbox"/> Revision? <input type="checkbox"/>		
Has the original commitment been implemented?			
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO, Notify Plant Licensing			

Original Commitment Description:

P-24191: Independent verification of amendments implementation checklist developed for each TS amendment.

P-24192: Hold points and final verification will be established on the checklist prior to declaring a system operable.

Revised Commitment Description:

Delete P-24191 and 24192. *with 4-12-05*

Summary of Justification for Change or Deletion:

P-24191 and P-24192 are continuing compliance commitments entered to track items identified in the source document, AECM-86/0395. This letter documented an LER written for a reportable event that resulted in the failure to revise the Daily Operating Log needed to implement a TS amendment. In the LER, MP&L informed the NRC that the plant licensing procedure "is being revised to require an independent verification of the amendment checklist" (P-24191) and that "hold points and final verifications will be established on the checklist to ensure actions are completed prior to declaring a system operable" (P-24192).

Although responsive to the event and a useful tool for implementing TS amendments, there is no regulation that requires a licensee to use an implementation checklist. The use of such a tool should be left up to the discretion of the licensee and should not be tracked as a continuing compliance commitment. Therefore, P-24191 and P-24192 should be deleted.

(Attach additional sheets if necessary)

Refer to Attachment 9.4 for a flow diagram that outlines the commitment change evaluation process.

Prepared By:	Guy Davant <i>Guy H. Davant</i> Print Name/Signature	4-11-05 Date
Management Approval:	Jerry Burford <i>Jerry Burford</i> Print Name/Signature	4-11-05 Date
Plant Licensing Management Concurrence:	<i>CA Butterm</i> Print Name/Signature	4-26-05 Date

✓	OA RECORD
RT- 614.37	
NON-OA RECORD	
INITIALS: ADBA	
NUMBER OF PAGES	4
DATE	4-22-05
RELATED DOCUMENT NUMBER	

PART I

1.1 Is the existing commitment located in the Updated Final Safety Analysis Report, Emergency Plan, Quality Assurance Program, Fire Protection Program, or Security Plan?

☐ **YES** STOP. Do not proceed with this evaluation. Instead use appropriate codified process (e.g., 10 CFR 50.71(e), 10 CFR 50.54) to evaluate commitment.

☒ **NO** Go to Part II.

PART II

2.1 Could the change negatively impact the ability of a System, Structure, or Component (SSC) to perform its safety function or negatively impact the ability of plant personnel to ensure the SSC is capable of performing its intended safety function?

☐ **YES** Go to Question 2.2.

☒ **NO** Continue with Part III. Briefly describe rationale:

These commitments does not involve operation of any plant equipment.

2.2 Perform a safety evaluation using the following 10 CFR 50.92 criteria to determine if a significant hazards consideration exists:

Does the revised commitment involve a significant increase in the probability or consequences of an accident previously evaluated?

☐ **YES** ☐ **NO**

Basis:

Does the revised commitment create the possibility of a new or different kind of accident from any previously evaluated?

☐ **YES** ☐ **NO**

Basis:

Does the revised commitment involve a significant reduction in a margin of safety?

☐ **YES** ☐ **NO**

Basis:

If any of the above questions are answered Yes, STOP. Do not proceed with the revision, OR discuss change with NRC and obtain necessary approvals prior to implementation of the proposed change. If all three questions are answered NO, go to Part III. (Attach additional sheets as necessary.)

PART III

- 3.1 Was the original commitment (e.g., response to NOV, etc.) to restore an Obligation (i.e., rule, regulation, order or license condition)?
- ☐ YES Go to question 3.2.
- ☒ NO Go to Part IV.
- 3.2 Is the proposed revised commitment date necessary and justified?
- ☐ YES Briefly describe rationale (attach additional sheets as necessary) and notify NRC of revised commitment date prior to the original commitment date.
- Rationale:**
-
- ☐ NO STOP. Do not proceed with the revision, OR apply for appropriate regulatory relief.

PART IV

- 4.1 Was the original commitment: (1) explicitly credited as the basis for a safety decision in an NRC SER, (2) made in response to an NRC Bulletin or Generic Letter, or (3) made in response to a request for information under 10 CFR 50.54(f) or 10 CFR 2.204?
- ☐ YES Go to Question 4.2.
- ☒ NO Go to Part V.
- 4.2 Has the original commitment been implemented?
- ☐ YES STOP, You have completed this evaluation. Revise the commitment and notify NRC of revised commitment in summary report.
- ☐ NO Go to Question 5.1.

PART V

- 5.1 Was the original commitment made to minimize recurrence of a condition adverse to quality (e.g., a long-term corrective action stated in an LER)?
- ☐ YES Go to Question 5.2.
- ☒ NO STOP. You have completed this evaluation. Revise the commitment. No NRC notification required.

5.2

Is the revised commitment necessary to minimize recurrence of the condition adverse to quality?
☐ YES Revise the commitment and notify NRC of revised commitment in next annual/RFO interval summary report.

☐ NO Revise commitment: no NRC notification is required:

REFERENCES

List documents (e.g., procedures, NRC submittals, etc.) affected by this change.

Doc. Number	Description
NMM Procedure ENS-LI-113	Licensing Basis Document (LBD) Control Program

**GGNS Commitment Change Evaluation
Number**

CCE 2005-003

COMMITMENT CHANGE EVALUATION FORM

Commitment Number:	P-24106	Plant Licensing Tracking Number:	CCE 2005-0003
Source Document:	AECM-86/0077.ATT.1,PG.4,IT.3		
Deletion? <input type="checkbox"/> Revision? <input checked="" type="checkbox"/>			
Has the original commitment been implemented? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO, Notify Plant Licensing			

Original Commitment Description:

Implement dose related restricted locations in the spent fuel pool per analysis documented in the source document.

Revised Commitment Description:

Implement revised dose restricted locations performed in ER-2003-0018-019. AECM 86/0077 specifically allowed in Item 5 of Attachment that deviation from the prescribed guidelines could be done as long as an evaluation of the impact was performed. The evaluation of the impact has been evaluated and documented in ER-2003-0018-019.

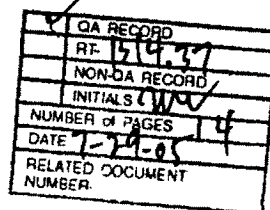
Summary of Justification for Change or Deletion:

Additional locations in rack B1 and C1 (east and south walls of SFP) that had been previously inaccessible are now accessible after removal of the underwater work table. These locations had not been analyzed for dose considerations previously due to being inaccessible at the time of the original analysis documented in AECM-86/0077. A new analysis has been performed and documented in ER-2003-0018-019 and the new dose restrictions are different than previously analyzed. Hence, the ER guidelines supersedes the restrictions listed in AECM 86/0077.

(Attach additional sheets if necessary)

Refer to Attachment 9.4 for a flow diagram that outlines the commitment change evaluation process.

Prepared By:	Paul M. Different/ <i>Paul M. Different</i> Print Name/Signature	7/7/05 Date
Management Approval:	Ken Walker <i>Ken Walker</i> Print Name/Signature	7/18/05 Date
Plant Licensing Management Concurrence:	<i>C. J. Bottomen</i> Print Name/Signature	7-28-05 Date



PART I

1.1 Is the existing commitment located in the Updated Final Safety Analysis Report, Emergency Plan, Quality Assurance Program, Fire Protection Program, or Security Plan?

☐ YES STOP. Do not proceed with this evaluation. Instead use appropriate codified process (e.g., 10 CFR 50.71(e), 10 CFR 50.54) to evaluate commitment.

☒ NO Go to Part II.

PART II

2.1 Could the change negatively impact the ability of a System, Structure, or Component (SSC) to perform its safety function or negatively impact the ability of plant personnel to ensure the SSC is capable of performing its intended safety function?

☐ YES Go to Question 2.2.

☒ NO Continue with Part III. Briefly describe rationale:

Intent of the commitment is not being changed – that is 2.5 mR/hr dose rates in areas adjacent to the spent fuel pool. The updated analysis changes the locations required to be dose restricted to meet this intent but it does not change the intent of the commitment.

2.2 Perform a safety evaluation using the following 10 CFR 50.92 criteria to determine if a significant hazards consideration exists:

Does the revised commitment involve a significant increase in the probability or consequences of an accident previously evaluated?

☐ YES ☐ NO

Basis:

Does the revised commitment create the possibility of a new or different kind of accident from any previously evaluated?

☐ YES ☐ NO

Basis:

Does the revised commitment involve a significant reduction in a margin of safety?

☐ YES ☐ NO

Basis:

If any of the above questions are answered Yes, STOP. Do not proceed with the revision, OR discuss change with NRC and obtain necessary approvals prior to implementation of the proposed change. If all three questions are answered NO, go to Part III.
(Attach additional sheets as necessary.)

PART III

3.1 Was the original commitment (e.g., response to NOV, etc.) to restore an Obligation (i.e., rule, regulation, order or license condition)?

☐ YES Go to question 3.2.

☒ NO Go to Part IV.

3.2 Is the proposed revised commitment date necessary and justified?

☐ YES Briefly describe rationale (attach additional sheets as necessary) and notify NRC of revised commitment date prior to the original commitment date.

Rationale:

--

☐ NO STOP. Do not proceed with the revision, OR apply for appropriate regulatory relief.

PART IV

4.1 Was the original commitment: (1) explicitly credited as the basis for a safety decision in an NRC SER, (2) made in response to an NRC Bulletin or Generic Letter, or (3) made in response to a request for information under 10 CFR 50.54(f) or 10 CFR 2.204?

☒ YES Go to Question 4.2.

☐ NO Go to Part V.

4.2 Has the original commitment been implemented?

☒ YES STOP, You have completed this evaluation. Revise the commitment and notify NRC of revised commitment in summary report.

☐ NO Go to Question 5.1.

PART V

5.1 Was the original commitment made to minimize recurrence of a condition adverse to quality (e.g., a long-term corrective action stated in an LER)?

☐ YES Go to Question 5.2.

☐ NO STOP. You have completed this evaluation. Revise the commitment. No NRC notification required.

- 5.2 Is the revised commitment necessary to minimize recurrence of the condition adverse to quality?
- ☐ YES Revise the commitment and notify NRC of revised commitment in next annual/RFO interval summary report.
- ☐ NO Revise commitment: no NRC notification is required:

REFERENCES

List documents (e.g., procedures, NRC submittals, etc.) affected by this change.

<u>Doc. Number</u>	<u>Description</u>
17-S-02-300	SNM Movement and Inventory Control

**GGNS Commitment Change Evaluation
Number**

CCE 2005-004

COMMITMENT CHANGE EVALUATION FORM

Commitment Number:	P-24107	Plant Licensing Tracking Number:	CC E 2005-0004
Source Document:	AECM-86/0077.ATT.1,PG.4,IT.4.B		
Commitment:	Deletion? <input type="checkbox"/>	Revision? <input checked="" type="checkbox"/>	
Has the original commitment been implemented?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO, Notify Plant Licensing	

Original Commitment Description:

The dose related restricted locations had to be filled with fuel bundles with one year of decay for Cycle 1 discharged fuel.

Revised Commitment Description:

Implement revised dose restricted locations and shield assemblies with 5 years of decay performed in ER-2003-0018-019. AECM 86/0077 specifically allowed in Item 5 of Attachment that deviation from the prescribed guidelines could be done as long as an evaluation of the impact was performed. The evaluation of the impact has been evaluated and documented in ER-2003-0018-019.

Summary of Justification for Change or Deletion:

At the time of the original dose analysis the only fuel available to use as shield assemblies was cycle discharge fuel. Obviously there are many more discharged assemblies available now that can be used for shield assemblies. ER-2003-0018-019 analyzed this and requires a shield assembly to have 5 years of decay to be placed in a dose restricted location

(Attach additional sheets if necessary)

Refer to Attachment 9.4 for a flow diagram that outlines the commitment change evaluation process.

Prepared By:	Paul M. Different/ <i>Paul M. Different</i>	7/7/05
	Print Name/Signature	Date
Management Approval:	<i>Ken Walker</i> <i>Ken Walker</i>	7/18/05
	Print Name/Signature	Date
Plant Licensing Management Concurrence:	<i>C.A. Botten</i> <i>[Signature]</i>	7-28-05
	Print Name/Signature	Date

✓	QA RECORD
RT-1814.37	
NON-QA RECORD	
INITIALS <i>AW</i>	
NUMBER of PAGES <i>14</i>	
DATE <i>7-29-05</i>	
RELATED DOCUMENT NUMBER	

PART I

1.1 Is the existing commitment located in the Updated Final Safety Analysis Report, Emergency Plan, Quality Assurance Program, Fire Protection Program, or Security Plan?

☐ **YES** **STOP. Do not proceed with this evaluation. Instead use appropriate codified process (e.g., 10 CFR 50.71(e), 10 CFR 50.54) to evaluate commitment.**

☒ **NO** **Go to Part II.**

PART II

2.1 Could the change negatively impact the ability of a System, Structure, or Component (SSC) to perform its safety function or negatively impact the ability of plant personnel to ensure the SSC is capable of performing its intended safety function?

☐ **YES** **Go to Question 2.2.**

☒ **NO** **Continue with Part III. Briefly describe rationale:**

Intent of the commitment is not being changed – that is 2.5 mR/hr dose rates in areas adjacent to the spent fuel pool. The updated analysis changes the time of decay from 1 year to 5 years required to meet this intent but it does not change the intent of the commitment.

2.2 Perform a safety evaluation using the following 10 CFR 50.92 criteria to determine if a significant hazards consideration exists:

Does the revised commitment involve a significant increase in the probability or consequences of an accident previously evaluated?

☐ **YES** ☐ **NO**

Basis:

Does the revised commitment create the possibility of a new or different kind of accident from any previously evaluated?

☐ **YES** ☐ **NO**

Basis:

Does the revised commitment involve a significant reduction in a margin of safety?

☐ **YES** ☐ **NO**

Basis:

**If any of the above questions are answered Yes, STOP. Do not proceed with the revision , OR discuss change with NRC and obtain necessary approvals prior to implementation of the proposed change. If all three questions are answered NO, go to Part III.
(Attach additional sheets as necessary.)**

PART III

3.1 Was the original commitment (e.g., response to NOV, etc.) to restore an Obligation (i.e., rule, regulation, order or license condition)?

☐ YES Go to question 3.2.

☒ NO Go to Part IV.

3.2 Is the proposed revised commitment date necessary and justified?

☐ YES Briefly describe rationale (attach additional sheets as necessary) and notify NRC of revised commitment date prior to the original commitment date.

Rationale:

☐ NO STOP. Do not proceed with the revision, OR apply for appropriate regulatory relief.

PART IV

4.1 Was the original commitment: (1) explicitly credited as the basis for a safety decision in an NRC SER, (2) made in response to an NRC Bulletin or Generic Letter, or (3) made in response to a request for information under 10 CFR 50.54(f) or 10 CFR 2.204?

☒ YES Go to Question 4.2.

☐ NO Go to Part V.

4.2 Has the original commitment been implemented?

☒ YES STOP, You have completed this evaluation. Revise the commitment and notify NRC of revised commitment in summary report.

☐ NO Go to Question 5.1.

PART V

5.1 Was the original commitment made to minimize recurrence of a condition adverse to quality (e.g., a long-term corrective action stated in an LER)?

☐ YES Go to Question 5.2.

☐ NO STOP. You have completed this evaluation. Revise the commitment. No NRC notification required.

5.2

Is the revised commitment necessary to minimize recurrence of the condition adverse to quality?

☐ YES

Revise the commitment and notify NRC of revised commitment in next annual/RFO interval summary report.

☐ NO

Revise commitment: no NRC notification is required:

REFERENCES

List documents (e.g., procedures, NRC submittals, etc.) affected by this change.

<u>Doc. Number</u>	<u>Description</u>
17-S-02-300	SNM Movement and Inventory Control

**GGNS Commitment Change Evaluation
Number**

CCE 2005-005

COMMITMENT CHANGE EVALUATION FORM

Commitment Number:	P-24109, P-29287, P-29288, P-29289	Plant Licensing Tracking Number:	CCE 2005-0065
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Source Document:	AECM-86/0089, Attachment 1, Section IV.B, paragraphs 1 and 2
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Commitment:	Deletion? <input checked="" type="checkbox"/>	Revision? <input type="checkbox"/>	
Has the original commitment been implemented? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO, Notify Plant Licensing			

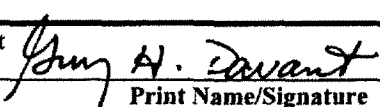
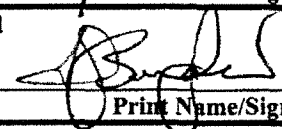

Original Commitment Description:	Guidance for justification for UFSAR commitment deletion
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Revised Commitment Description:	Delete P-24109, P-29287, P-29288, and P-29289.
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Summary of Justification for Change or Deletion:	<p>The identified commitments are continuing compliance commitments entered to track items identified in AECM-86/0089. This letter documents a response to a Notice of Violation involving "the failure to conduct 10 CFR 50.59 safety evaluations of changes incorporated into the Updated FSAR." In the response, Entergy (MP&L) agreed to perform full 50.59 Evaluations for FSAR changes and also agreed to provide "more explicit criteria on what constitutes adequate justification for commitment deletion."</p> <p>Performing 50.59 <u>Evaluations</u> for FSAR changes, as committed in the letter, goes beyond the requirements of the current 50.59 rule and imposes additional burden on the licensee with no significant increase in safety.</p> <p>Regarding the use of 50.59 to delete commitments, since the issuance of AECM-86/0089 (4/10/86), NEI developed and published NEI 99-04, <i>Guidelines for Maintaining Commitments</i>, which was endorsed by the NRC. With the advent of this document, the industry no longer uses the 50.59 process to delete commitments, whether contained in the FSAR or not. LI-110, <i>Commitment Management Program</i>, reflects information and guidance contained in NEI 99-04 and is the procedure that controls and manages commitments.</p> <p>Based on the above discussion, the identified commitments are no longer valid and should be deleted.</p>
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(Attach additional sheets if necessary)

Refer to Attachment 9.4 for a flow diagram that outlines the commitment change evaluation process.

Prepared By:	Guy Davant 	12-14-05
	Print Name/Signature	Date
Management Approval:	Jerry Burford 	12-14-05
	Print Name/Signature	Date
Plant Licensing Management Concurrence:		12-15-05
	Print Name/Signature	Date

QA RECORD	ST. 12-14-05
NON-QA RECORD	INITIALS: JWB
NUMBER of PAGES	14
DATE	12/14/05
RELATED DOCUMENT NUMBER	

PART I

1.1 Is the existing commitment located in the Updated Final Safety Analysis Report, Emergency Plan, Quality Assurance Program, Fire Protection Program, or Security Plan?

☐ **YES** STOP. Do not proceed with this evaluation. Instead use appropriate codified process (e.g., 10 CFR 50.71(e), 10 CFR 50.54) to evaluate commitment.

☒ **NO** Go to Part II.

PART II

2.1 Could the change negatively impact the ability of a System, Structure, or Component (SSC) to perform its safety function or negatively impact the ability of plant personnel to ensure the SSC is capable of performing its intended safety function?

☐ **YES** Go to Question 2.2.

☒ **NO** Continue with Part III. Briefly describe rationale:

These commitments do not involve operation of any plant equipment.

2.2 Perform a safety evaluation using the following 10 CFR 50.92 criteria to determine if a significant hazards consideration exists:

Does the revised commitment involve a significant increase in the probability or consequences of an accident previously evaluated?

☐ **YES** ☐ **NO**

Basis:

Does the revised commitment create the possibility of a new or different kind of accident from any previously evaluated?

☐ **YES** ☐ **NO**

Basis:

Does the revised commitment involve a significant reduction in a margin of safety?

☐ **YES** ☐ **NO**

Basis:

If any of the above questions are answered Yes, STOP. Do not proceed with the revision, OR discuss change with NRC and obtain necessary approvals prior to implementation of the proposed change. If all three questions are answered NO, go to Part III.

(Attach additional sheets as necessary.)

PART III

3.1 Was the original commitment (e.g., response to NOV, etc.) to restore an Obligation (i.e., rule, regulation, order or license condition)?

☐ YES Go to question 3.2.

☒ NO Go to Part IV.

3.2 Is the proposed revised commitment date necessary and justified?

☐ YES Briefly describe rationale (attach additional sheets as necessary) and notify NRC of revised commitment date prior to the original commitment date.

Rationale:

☐ NO STOP. Do not proceed with the revision, OR apply for appropriate regulatory relief.

PART IV

4.1 Was the original commitment: (1) explicitly credited as the basis for a safety decision in an NRC SER, (2) made in response to an NRC Bulletin or Generic Letter, or (3) made in response to a request for information under 10 CFR 50.54(f) or 10 CFR 2.204?

☐ YES Go to Question 4.2.

☒ NO Go to Part V.

4.2 Has the original commitment been implemented?

☐ YES STOP, You have completed this evaluation. Revise the commitment and notify NRC of revised commitment in summary report.

☐ NO Go to Question 5.1.

PART V

5.1 Was the original commitment made to minimize recurrence of a condition adverse to quality (e.g., a long-term corrective action stated in an LER)?

☐ YES Go to Question 5.2.

☒ NO STOP. You have completed this evaluation. Revise the commitment. No NRC notification required.

5.2

Is the revised commitment necessary to minimize recurrence of the condition adverse to quality?
☐ YES Revise the commitment and notify NRC of revised commitment in next annual/RFO interval summary report.

☐ NO Revise commitment: no NRC notification is required:

REFERENCES

List documents (e.g., procedures, NRC submittals, etc.) affected by this change.

<u>Doc. Number</u>	<u>Description</u>
NMM Procedure ENS-LI-113	Licensing Basis Document (LBD) Control Program