ATTACHMENT 5

GSE Design Procedure B-10 Multidisciplinary Design Review

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DESIGN PROCEDURE B-10 Multidisciplinary Design Review (MDR)

1.0 OBJECTIVE

This Procedure provides the guidance for routing, performing, and documenting the Multidisciplinary Design Review (MDR) to ensure that the Modifications/Design changes to the fort Calhoun Station (FCS) are properly designed, constructed, and implemented in accordance with applicable codes, standards, rules, & regulations without any discrepancies or deficiencies by utilizing available expertise in various engineering disciplines.

This Procedure is responsive to the District's Quality Assurance (QA) Plan.

2.0 APPLICATION

A MDR can be performed on any Design Documents at the discretion of the responsible GSE Department Manager whether or not the subject Modification/Design Change involves or affects Critical Quality Elements (CQE) or Limited CQE items.

Each designated GSE Department Manager is responsible for requesting the MDR and the GSE-Nuclear Department Manager is responsible for assuring that the MDR is properly performed in a systematic manner once the Design Documents are submitted for MDR.

The MDR can be utilized as a basis for the Independent Design Verification and/or the Safety Evaluation. The MDR and the Independent Design Verification can be performed simultaneously and parallel with PRC Design Review.

No.	MDR Interdiscipline	Checklist	Items
1	Design Description	GSE-B-10-A	37
2	10CFR50.59, Safety Evaluation	GSE-B-10-B	14
3	10 CFR 50, appendix B & Pre-Operational Requirements	GSE-B-10-C	9
4	Procedural Requirements	GSE-B-10-D	7
5	Environmental Qualification	GSE-B-10-E	5
6	Engineering Analysis & Study	GSE-B-10-F	13
7	Drawings	GSE-B-10-G	10

No.	MDR Interdiscipline	Checklist	Items
8	Specifications	GSE-B-10-H	22
9	Constructability/ Operability/ Maintainability, (COM)	GSE-B-10-I	21

Each item in the checklist shall be checked as "YES", "NO", or "N/A" with reviewer's initial. Additional concerns/comments and recommended resolutions (if any) can be provided on the MDR Interdisciplinary Summary Sheet (FORM GSE-B-10-J, Sh. 2).

Each MDR interdisciplinary reviewer is responsible for performing a detailed review within his/her area of expertise to ensure all the items in each checklist and any special aspects are considered into the subject Modification/Design Change. If additional information is required in order to complete the review, each reviewer should request it from the Design Engineer through the MDR for ordinator.

The MDR Coordinator is designated by the GSE-Nuclear Department Manager to serve as a primary contact between the each MDR interdisciplinary reviewer and the Design Engineer. The MDR Coordinator is responsible for selecting the applicable MDR interdisciplines and its reviewers, and providing the procedural guidance and coordination to the MDR process so that the MDR identified concern/comment are properly resolved and incorporated into the Design Documents.

3.0 PROCEDURE

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3.1 MDR on the Original Document

Upon preparation of a Design Document, the responsible GSE Department Manager attaches the transmittal letter requesting MDR and forwards the entire Design Document to Engineering Services for the preparation of the MDR package including logging and attaching MDR Forms (For GSE-B-10-A through J). Then, the prepared MDR package is transmitted to the GSE-Nuclear Department Manager for the MDR process.

Upon completion of the MDR, the MDR Coordinator obtains all the MDR checklists from the MDR interdisciplinary reviewers and completes the MDR & MDR Interdisciplinary Summary Sheets (Form GSE-B-10-J, Sh. 1 & 2) by utilizing the MDR results, and determines the following status on the MDR Summary Sheet (Form GSE-B-10-J, Sh. 1).

- i. Document in compliance
- ii. Document in compliance except as noted
- iii. Document not in compliance

Then, the MDR Coordinator transmits the completed MDR package (Form GSE-B-10-A through J) to Engineering Services for logging and routing of the MDR package in the following manner:

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i. Document in compliance:

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The MDR package will be filed in the MR file and a copy of MDR Summary Sheet(s) (Form GSE-B-10-J, Sh. 1) will be routed to the Design Engineer, the responsible GSE Department Manager, and the GSE-Nuclear Department Manager. No further action is required.

ii. Document in compliance scept as noted:

The MDR package will be processed in the same manner as "Design in compliance" however, an additional copy of MDR Interdisciplinary summary sheel(s) (For GSE-B-10-J, Sh. 2) will be routed to the Design Engineer.

Upon receiving the MDR package, the Design Engineer reviews the MDR Concerns/Comments and provides the proper resolutions to each MDR Concern/Comment on the MDR Interdisciplinary Summary Sheet(s) (Form GSE-B-10-J, Sh. 2). Then, the responsible GSE Department Manager reviews and approves the Design Engineer's resolution and determines whether a revision to the Design Document is needed based on the MDR Concerns/Comments and the nature of the Modification/Design Change.

However, the revised Design Document does not require resubmittal for MDR.

iii. Document not in compliance:

The MDR package will be processed in the same manner as "Design in compliance except as noted" however, the document must be revised to incorporate the resolutions to each MDR Concern/Comment and the revised Design Document requires resubmittal for MDR.

The MDR concerns/comments on those Design Documents "in compliance except as noted" or "not in compliance" must be properly resolved and approved by the responsible GSE Department Manager prior to the Construction Documents issuance.

The Design Documents submitted for MDR must be "in compliance" or "in compliance except as noted" prior to the MR file closing-out.

3.2 MDR on the Revised Document

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Revised Design Documents shall be processed in the same manner as the original Design Document.

For those Design Documents revised due to the changes in the scope of the subject Modification/Design Change after the completion of the MDR, the responsible GSE Department Manager determines whether they require resubmittal for MDR based on the nature of the changes.

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MDR DESIGN DESCRIPTION CHECKLIST

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Title	:	MR:FC			
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Have	the following been addressed in the Design Package?		YES	<u>NQ</u>	<u>N/A</u>
1.	Identification of the applicable regulatory requirements? Comments:	-			
2.	Identification of the applicable Quality Assurance Category, Quality Group, Codes & Standards? Comments:	-			
3.	Basic functions of each structure, system and component involved in the modification? Comments:	-			
4.	System performance requirements such as capacity, rating and system output and a reference to a documentable source for these requirements? Comments:	-			
5.	Design conditions such as pressure, temperature, fluid chemistry and voltage and a reference to a documentable source for these requirements? Comments:	- -			_
6.	Interface requirements, including definition of the functional and physical interfaces involving structures, systems and components? Comments:			Annee	
7.	Identification of CQE or Limited CQE Components? Comments:	-			

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MDR DESIGN DESCRIPTION CHECKLIST

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Title:		MR:FC			-
Document:		Rev.:			-
			YES	<u>N0</u>	<u>N/A</u>
 Design change objective adequired to the second seco	uately specified and met?	-			
9. Systems interaction with safe Comments:	ety-related equipment?	-			_
 The interaction of this change design change documents and previously completed analysis Accident radiation levels, f Comments: 	ge document with other its effect on any s seen as, HELB Post ire hazard analysis etc.?	-			
<pre>11. Are applicable design calcul referenced? Comments:</pre>	ations included or				
12. Failure effects requirements and components including a d and accidents that they must Comments:	of structures, systems efinition of those events be designed to withstand	?			_
 Redundancy, diversity and sep structures, systems and compo Comments: 	paration requirements of onents?	_			
14. Accessibility, maintenance, inspection requirements for conditions under which they Comments:	repair & in-service the plant, including the will be performed?	-			

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Docur	nent:	Rev.:			-
15.	Structural requirements covering such items as long term load control, penetrations, rebar cuts, etc.? Comments:	-	<u>YES</u>	<u>NO</u>	<u>N//</u>
16.	Mechanical requirements such as vibration, stress shock, and reaction forces? Comments:	-		_	
17.	Electrical requirements such as source of power, voltage, raceway requirements, electrical insulation and motor requirements? Comments:	_		_	
18.	Hydraulic requirements such as NSPH, allowable pressure drops and allowable fluid velocities? Comments:	_		_	
19.	Chemistry requirements such as provisions for sampling and limitations on water chemistry? Comments:	9			
20.	If an ASME code edition, other than the original edition is used, was the necessary reconciliation documented? Comments:	_		_	
21.	Personnel requirements and limitations, including the qualifications and number of personnel available for plant operation, maintenance, testing & inspection, and permissible personnel radiation exposures for specified areas and conditions? Comments:	-			

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MDR DESIGN DESCRIPTION CHECKLIST

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			YES	NO	<u>N/A</u>
	Operations requirements under various plant conditions, such as plant start-up, normal operations plant shutdown, plant emergency operation, special or infrequent operation and system abnormal or emergency operation? Comments:	-			
	Loads, such as seismic, wind, thermal and dynamic? Comments:	-			
	Instrumentation and control requirements, including indicating instruments, controls, and alarms required for operation, testing, and maintenance. Other requirements, such as the type of instrument installed spares, range of measurement accuracy and location of indication should also be considered. Comments:	-			
	Environmental conditions anticipated during storage, construction and operation (start-up, shutdown, normal, transient and accident), such as: pressure, temperature, humidity, corrosiveness, site elevation, wind direction, nuclear radiation and duration of exposure? Comments:	-			
	Technical specification requirements? Comments:	-	-	Reference of the	
	Updated Safety Analysis Report (USAR) requirements? Comments:				

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MDR DESIGN DESCRIPTION CHECKLIST

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le:	MR:FC		
ument:	Rev.:		
	YES	NO	<u>N/</u>
ASME Section IX repair/modification requireme including design considerations? Comments:	ents,		_
Material requirements, including such items a compatibility, electrical insulation properti protective coatings and corrosion resistance? Comments:	as ies, ?		
Access and administrative control requirement plant security? Comments:	ts for		
Test requirements including in-plant tests ar conditions under which they will be performed Comments:	nd the d?		
Evaluation of capacity of plant structures for load transport, storage and installation? Comments:	or heavy		
Fire detection protection or resistance requi Comments:	irements?		-
Handling, storage & shipping requirements? Comments:		_	

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MDR DESIGN DESCRIPTION CHECKLIST

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Title:		_ MR:FC	-	-	-
Document:		_ Rev.:			-
			YES	NO	<u>N/</u>
35.	Requirements to prevent undue risk to the public? Comments:	_			
36.	Material & equipment suitability for application? Comments:				
37.	Safety requirements for preventing injury to personnel? Comments:			_	-
Revi	ewer: Date:				-
Revi	ewer: Date: Date:				-
Revi	ewer:Date:				-
Revi	ewer:Date:				
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MDR 10CFR50.59 CHECKLIST

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Titl	e:	MR:FC			
Docu	nent:	Rev.:			
			YES	NO	<u>N/A</u>
1.	Does the design package identify all references to the components contained in the USAR? Comments:				
2.	Does the design package identify all references to the components contained in the technical specifications Comments:		_		
3.	Has a 10CFR50.59 safety evaluation been completed in accordance with Standing Order G-46? Comments:				
4.	Were the following system interactions considered in the analysis? (Note: When an interaction review is appropriate, utilize expanded checklist.)				
	 a. Fire Protection/Fire Hazard b. EQ c. High Energy Line Break d. Seismic Interaction e. Electrical System Interaction f. Human Factors g. Security h. Environmental/Radiological Release i. Materials Compatibility j. Containment Integrity k. Internally & Externally Generated Missiles 				
5.	Was the impact on control room habitability reviewed? Comments:	-			

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MDR 10CFR50.59 CHECKLIST

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6.	Was the possibility for increased operator error reviewed? Comments:	-	<u>YES</u>	<u>NO</u>	<u>N/</u>
7.	Were the potential consequences of procedural errors reviewed? Comments:	-		_	
8.	Does the modification have the possibility of creating a new initiating event resulting in an accident not previously analyzed? If so, have the effects been analyzed & inherent compensating features been identified? Comments:	-			
9.	Is there an introduction of a previously unanticipated failure mechanism for safety-related equipment? Comments:	- 1 -			-
10.	Are the design limits of any safety-related equipment exceeded? Comments:	-		-	-
11.	Will a partial installation of the design package create an unreviewed safety question? Comments:				
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MDR 10CFR50.59 CHECKLIST

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			YES	NO	N/A
12.	Have the three criteria for determining an unreviewed safety issue as found in 10CFR50.59 been addressed in the package in specific detail in such a way that an independent reviewer can reach the same conclusion without recourse to additional information? Comments:	_			
13.	Is there any reduction in the margin of safety in any affected technical specification? Comments:	-			
14.	Have all commitments in USAR Appendix G been maintained? Comments:				
Revi	ewer: Date:				
Revi	ewer: Date:				
Revi	ewer: Date:				
Rev1	ewer: Date:				
Revi	ewer: Date:				
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Revi	pwpr: Date:				
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	MDR 10CFR50, APPENDIX B & PRE-OPERATIONAL CHE	CKLIS	Ι		
Titl	e:	MR:FC			-
Docu	ment:	Rev.:			_
			YES	NO	<u>N/A</u>
1.	Were QA/QC inspection requirements specified for equipment procurement? Comments:				
2.	Were receipt documentation requirements identified for equipment and material? Comments:	r			
3.	Were requirements for QA/QC specified for installation? Comments:				
4.	Is a system demonstration test/procedure specified? Comments:				
5.	Is a system pre-op test/procedure required? Comments:			_	
6.	Is a system flush procedure required? Comments:			_	
7.	Is a new system hydro or baseline test required? Comments:				

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Title		MR:FC			-
Docum	nent:	Rev.:			-
			YES	NO	<u>N/</u>
8.	Were changes to the station's ISI program identified? Comments:	_			-
9.	Were component tests identified appropriate for the modification? (See S&L modification testing checklist.) Comments:			_	
10.	Do the contents of the work outline provide sufficient detail to identify the requirements? Comments:	t			

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Reviewer:	Date:
Reviewer:	Date:

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MDR PROCEDURAL REQUIREMENTS CHECKLIST

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itle: MR		MR:FC		-
ocui	nent:	Rev.:		-
	Are the appropriate title, revision and date indicated on the B-2-2 Form? Comments:	<u>YES</u>	<u>NO</u>	<u>N/</u>
•	When 10CFR50, Appendix B Critical Quality Elements and/or interfaces with Critical Quality Elements are involved, has a detailed safety analysis been performed in accordance with S.O. G-46? Comments:		_	_
	Was the design package prepared in accordance with GSE Procedure B-2 and contain: Forms A,B,C,D, and I, Design Basis Requirements; Technical Descriptions; Drawing List per GSE Procedure B-3; Design Evaluation; Procurement Documents and Work Order? Comments:		_	_
	Are Forms E, F, or G, H, J, FC-154, and FC-142, if required, included in the package and completely filled out? Comments:		_	_
	Are the required ALARA worksheets included? Comments:	_		
	Drawing list in accordance with GSE Procedure B-3? Comments:			_

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MDR PROCEDURAL REQUIREMENTS CHECKLIST

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Title:		MR:FC			
Docu	ument:	Rev.:			
7.	Are drafts of all documents identified on Form I been included with the construction package?		YES	NO	N/A
	Comments:	-			

Reviewer:	Date:
Reviewer:	Date:

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MDR ENVIRONMENTAL QUALIFICATION CHECKLIST

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Rev.:			_
	YES	NO	<u>N/</u>
n?		_	
?			_
or			
	MR:FC Rev.: n? ? `or	MR:FC Rev.: YES n? ? `or	MR:FC Rev.: YES NO n? ? `or

Reviewer:	Date:
Reviewer:	Date:

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MDR ENGINEERING ANALYSIS & STUDY CHECKLIST

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Title:		MR:FC			
Document:		Rev.:			
1.	Does the calculation clearly identify the purpose? Comments:	-	<u>YES</u>	<u>NO</u>	<u>N/A</u>
2.	Are CQE and Limited CQE components properly identified? Comments:	-			
3	Are the requirements of GSE B-9 met? Comments:	-			
4.	Is the material presented sufficiently detailed as to objective, method, assumptions, input, references and units? Comments:	-			
5.	Was the appropriate method used in the analysis? Comments:	-			
6.	Were inputs correctly selected? Comments:	_			
7.	Was all design input properly documented? Comments:	_		_	
8.	Were all "engineering judgements" properly documented and acceptable? Comments:	-			_

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MDR ENGINEERING ANALYSIS & STUDY CHECKLIST

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Title:					-
Docu	ment:	Rev.:			_
			YES	NO	<u>N/</u>
9.	Have adjustment factors, uncertainties, and empirical correlations used been correctly applied? Comments:	_			
10. Are the results reasonable when compared to the inputs? Comments:		_			
11. Is the conclusion clearly stated and not ambiguous? Comments:		_		_	_
12. Are calculations involving Technical Specification values and associated margins of safety clearly identified? Comments:					_
13.	Do all calculations/computer runs meet the requirements of B-9 and Form GSE-B-11-1G? Comments:	-		_	-
Revi	ewer: Date:				-
Reviewer: Date:					-
Reviewer:Uate:					-
Revi	Reviewer: Date:				-
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MDR DRAWINGS CHECKLIST

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<u>YES</u>	<u>NO</u>	<u>N/A</u>
<u>YES</u>	<u>NO</u>	<u>N/A</u>
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MDR DRAWING CHECKLIST

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9.	If required, are clearances for ISI Tests and equipment maintenance removal provided? Comments:		<u>YES</u>	<u>NO</u>	N/A
10.	Other:				

Reviewer:	Date:
Reviewer:	Date:

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MDR SPECIFICATIONS CHECKLIST

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ocu	ment:	Rev.:			-
	Was the specification properly prepared, reviewed, approved and certified? Comments:		YES	<u>NO</u>	<u>N/A</u>
	Is the scope of work clearly defined? Comments:				_
	Are the necessary design documents (standards, drawings, codes, regulations, etc.) identified and clear descriptions covering exceptions to these documents identified? Comments:	-			
•	Are the design inputs properly selected and identified for the contractor's use in preparing his design? Comments:	- 1 -			
	Is there a list of certified design and conformance documents and data required from the contractor? Comments:				
	Are construction, fabrication and erection dimensions and tolerances identified? Comments:				

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MDR SPECIFICATIONS CHECKLIST

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ocur	nent:	Rev.:			-
	Are all interfaces with other systems, equipment or services identified? Comments:	_	<u>YES</u>	<u>NO</u>	<u>N/A</u>
	Are performance requirements and test acceptances provided? Comments:	-			
•	Are environmental data and qualifications properly included? Comments:	_	_	_	
0.	Are inspections and audits by purchaser identified consistent with the type and importance to safety of the equipment? Comments:	_		_	
1.	Are packaging and protection requirements for shipping and storage included? Comments:	_ g _		_	
2.	Are schedules for design data submittals, tests and delivery included? Comments:	-			
3.	Are specified parts, equipment and processes suitable for the required applications? Comments:	_			
		-			

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MDR SPECIFICATIONS CHECKLIST

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Title		MR:FC			_
Docur	nent:	Rev.:			-
14.	Are the specified materials compatible with each other and the design environmental conditions to which the material will be exposed? Comments:	r -	<u>YES</u>	<u>NO</u>	<u>N/A</u>
15.	Have adequate maintenance features and requirements been specified? Comments:	-			
16.	Are adequate identification requirements (labels or marking) specified? Comments:	-			
17.	Are requirements for record preparation, review, approval, retention, etc., adequately specified? Comments:				
18.	Are quality requirements, including use of procedures or instructions, specified? Comments:				
19.	Are requirements for a Supplier Quality Program and documentation specified? Comments:	_	-		

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Docu	ment:		Rev.:			•
20.	Are qua res bee Com	requirements for documentary evidence (records) of lity to be furnished by the supplier (e.g., test ults, certification that specific requirements have n met, or traceability to the source) specified? ments:	F 9	YES	<u>NO</u>	<u>N/</u>
21.	Are a p Com	equipment manuals required for this equipment with arts list? ments:	- n -	_	_	
22.	Are inf upd man inf Com	requirements for providing adequate vendor ormation included in the specifications? (i.e., ated drawings, installation manuals, maintenance uals, spare parts lists, and any additional ormation recommended by NPP-1) ments:	-			_
For in t	ASME the sp	Section III Components, are the following included ecification?				
Ι.	Α.	Functions and boundaries of the system covered?				
	Β.	Design requirements including overpressure protection?				_
	С.	Environmental conditions including radiation?				
	D.	Code Classification?				_
	E.	Material requirements including impact testing?				_

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MDR SPECIFICATIONS CHECKLIST

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Title		MR:FC			
Docum	ent:	Rev.:			
			YES	NO	N/A
	F. Operability requirements?				_
	G. Effective code edition, addenda and class codes?				
II.	Identification of enforcement authority for filing data report?				
III.	Filing of design specifications?				
IV.	Req. for review of design report?				
۷.	Classification of components?				
VI.	Service conditions and their significance to design and operability?				
VII.	A. Design Pressure?				
	B. Design Temperature?				
	C. Design Mech. Loads?				
VIII.	Design and service loads and service limits?				
IX.	Test Loadings?				
Χ.	Loadings:				
	A. Internal & external pressure?				
	B. Weight of component?				
	C. Superimposed loads?				

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Title	:		MR:FC			
Docum	ent:		Rev.:			
				YES	NO	<u>N/A</u>
	Ο.	Vibration and earthquake loads?				
	Ε.	Support reactions?				
	F.	Temperature effects?				
	G.	Restrained thermal expansion?				
•	Η.	Anchor & support movements?				
	Ι.	Environmental loads?				
XI.	Serv	vice load limits?				
XII.	Load	d combinations?				
XIII.	Defo	ormation limits?				
XIV.	Mate	erial Requirements:				
	Α.	Hydrostatic & service temperature limits?				
	Β.	Reductions to design stress intensity values, allowable stress or fatigue curves necessitated by environmental conditions?				
	с.	Material cladding restrictions?				
	D.	Heat tracing restrictions?				
	Ε.	Cleanliness requirements?				
	F.	Impact test requirements?				

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NO

N/A

YES

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	Rev.:	

MDR SPECIFICATIONS CHECKLIST

XIV. Material Requirements (Cont.):

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Title:

Document:

G. Corrosion/erosion allowances?

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H. Post weld test treatment requirements?

XV. Type of testing and restrictions?

XVI. Leak tightness requirements?

Comments/concerns from this review:

Reviewer:	Date:
Reviewer:	Date:

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MDR COM REVIEW CHECKLIST

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			YES	<u>N0</u>	N//
ave ONS	the following been considered in the design package? TRUCTIBILITY:				
	Are the installation procedures adequate? Comments:	_		_	\
! . .	Do the drawings provide sufficient information for completing the installation? Comments:				
١.	Do the pipe/conduit routings facilitate construction sequencing? Comments:	-			
١.	Does the design minimize rework to the existing installation? Comments:				
5.	Are the core drill/expansion anchor requirements achievable? Comments:				_
	Does the design minimize/avoid rebar cuts? Comments:	_			
	Has appropriate NDE been identified? Comments:	_			
3.	Are welding requirements achievable? Comments:				

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Docu	nent:	Rev.:			-
			YES	NO	<u>N/</u>
9.	If asbestos containing insulation will be removed, has planning for removal of ACM and methods for marking of new non-asbestos containing insulation been incorpo- rated?	ŝ	-	—	
10.	If any temporary structures (including scaffolding) needed to build the modification can be identified up front, has a proper safety analysis been done to accommodate this?		—	—	
11.	Are special requirements for tools, rigging, training, and fire protection identified? Comments:		—	—	
<u>OPER</u>	ABILITY:				
12.	Are all components accessible in relation to their operating requirements? Comments:	-		—	
13.	Are there adequate vent, test and drain points on piping systems? Sampling points? Comments:	-		—	-
14.	Are periodic operator surveillance and/or testing requirements identified? Comments:			—	
15.	Are any changes to the existing operational procedures separately identified? Comments:	-			
16.	Are provisions for ISI testing requirements included in the design? Comments:		***		

	MOR COM REVIEW CHECKLIST		GSE 3	-B-10-I of 4	
Title	9:	MR:FC			
Docur	nent:	Rev.:			
			YES	NO	<u>N/A</u>
17.	Did the ALARA review adequately address the operational aspects of the modification? Comments:	-		_	
MAIN	TAINABILITY:				
18.	Are all components accessible for required maintenance? Comments:				
19.	Is there sufficient laydown area for maintenance activities? Comments:	-		_	
20.	Has the need for special maintenance or measuring equipment been identified? Comments:	_		_	
21.	Have special preventive maintenance requirements been identified? Comments:	-			
22.	Does all new rotating equipment have sufficient guards? Comments:	_		_	
23.	Are any special post maintenance testing requirements identified? Comments:				

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Title:	MR:FC
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Reviewer:	Date:

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MULTIDISCIPL	INARY [ESIGN	REVIEW	(MDR)
	SUMMARY	SHEET		

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TITLE:		MR:F	c		
DOCUMEN	T:	R	ev.		_
ROUTING	No.: INITIATED:/_19 COMPLETED: Significant Co	ncern	/1	19	III S
<u>No.</u>	MDR Interdiscipline YES	<u>NO</u>		N/A	-
1.	Design Description				
2.	10 CFR 50.59, Safety Evaluation				
3.	10 CFR 50, Appendix B & Pre-Operational				
4.	Procedural Requirements				
5.	Environmental Qualification				
6.	Engineering Analysis & Study				
7.	Drawings				
8.	Specifications				
9.	Constructability/ Operability/ Maintainability, (COM)				
i. Docu comp	ment in ii. Document in compliance iii. Docu liance [] except as noted [] in c	ument compli	not ance	[]
Remarks					
Thi	s Design Change will []/will not [] impact the FCS D	esign	Basi	S.	
Complet	ed By: Date MDR Coordinator	:	/	/19	_

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MDR INTERDISPLINARY SUMMARY SHEET

Prepared By: MIR Coordinator	Resolved By:	Rev. Approved Bv:	Anader Astronomic CSE
: FC Routing No.:	a month Done and.	CHINELIC REATENED:	ferenced MDR Checklist No.: GSE - B - 10 -

MDR Reviewer's Concerns/Comments

MDR Reviewer's Recommendation

Design Engineer's Resolution

Remarks:

B-10.35

ATTACHMENT 6

Vendor Correspondence

Omoha Public Power District 1623 Harney Omaha. Nebraska 68102-2247 402/536-4000

Y

February 9, 1989 PED-N-89-75B

Customer Service Manager Byron Jackson Pumps Borg-Warner Industrial Products PO Box 22634 Long Beach, CA 90801

SUBJECT: Pump Performance

Reference: Contract 691-H-0428, Pump #AC-10 A, B, C & D

Dear Sir:

Please advise the undersigned by March 31, 1989 regarding the performance characteristics of a type 28 RXL-2 STG V.C.T. pump. Our NRC project manager has requested that Byron Jackson evaluate the feasibility of running one pump for extended (2-3 day minimum) operation at a flow rate of 6000 gpm.

If you have any questions please contact me at (402) 536-4654. Thank you for your efforts in resolving this matter.

Sincerely,

WALL

W. O. Weber Supervisor -Reactor Performance Analysis

WOW/1b

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Omaha Public Power District 1623 Harney Omaha, Nebraska 68102-2247 402/536-4000

February 8, 1989 PED-N-89-74B

Mr. Ram Laks KETEMA 2300 Marshall Drive Grant Prairie, Texas 75051

SUBJECT: Transient Design

Reference: Job No. 20-69-4333 Tag No. AC-4A, 4B

Dear Sir:

Design records indicate that the shutdown cooling heat exchangers referenced above should survive a hot transient event during a LOCA. However, given a mode D condition (LOCA) if the heat exchanger experiences a cooling transient (e.g. the shell side fluid has an inlet temperature of 40°F vs 95°F assumption) ill the heat exchanger be capable of performing its design function? Please

pond to the undersigned by March 31, 1989 if possible.

If you have any questions please call me at (402) 536-4654. Thank you for your efforts in resolving this matter.

Sincerely,

Wowleber

W. O. Weber Supervisor -Reactor Performance Analysis

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ATTACHMENT 7

NO SIGNIFICANT HAZARD EVALUATION AND REVISED TECHNICAL SPECIFICATIONS PAGES

DISCUSSION, JUSTIFICATION AND NO SIGNIFICANT HAZARD ANALYSIS

The proposed Technical Specification changes shown on Page 2-24 and 2-25 of the Technical Specifications concern changing the minimum operating requirements of the Raw Water Pumps so that it will be allowable to operate with one inoperable raw water pump when the river water temperature is below 60F. When the river water temperature is above 60F, all of the raw water pumps must be operable. If one of the raw water pumps is inoperable when the river water temperature is above 60F, the inoperable pump must be restored to operability within seven days.

It was discovered that there was a discrepancy between the USAR and the Technical Specifications concerning the operability requirements for the raw water pumps. Technical Specification 2.4 currently allows one pump to be inoperable indefinitely. During a postulated accident (MSLB or LOCA) with concurrent loss of off-site power and failure of a diesel generator, this could leave only one operable raw water pump. However, USAR Section 9.8.2 states that a minimum of two raw water pumps are required to supply sufficient flow to the component cooling water (CCW) heat exchangers to shut down the plant. Further studies have shown that when the river water temperature is below 60F, the flow from one raw water pump is sufficient to remove the design basis heat load of 280.0E6 Btu/hr from containment (USAR Table 9.7-2).

Basis for No Significant Hazards Determination:

This proposed amendment does not involve a significant hazards consideration because the operation of Fort Calhoun Station in accordance with this amendment would not:

- 1. Involve a significant increase in the probability or consequences of an accident previously evaluated. This change decreases the consequences of a LOCA or MSLB with concurrent loss of off-site power and failure of a diesel generator by ensuring that the CCW heat exchangers have enough heat removal capacity to maintain the containment pressure below the design basis maximum.
- 2. Create the possibility of a new or different kind of accident from any accident previously evaluated. It has been determined that a new or different type of accident is not created because no new or different modes of operation are proposed for the plant. The continued use of the same Technical Specification administration controls prevents the possibility of a new or different kind of accident.
- 3. Involve a significant reduction in a margin of safety. This change increases the minimum operability requirements of the containment cooling system and, therefore, does not involve a reduction in a margin of safety.

Based on the above considerations, OPPD does not believe that this amendment involves a significant hazards consideration.