

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8803170023 DOC. DATE: 88/03/10 NOTARIZED: NO DOCKET #
 FACIL: 50-260 Browns Ferry Nuclear Power Station, Unit 2, Tennessee 05000260
 AUTH. NAME AUTHOR AFFILIATION
 GRIDLEY, R. Tennessee Valley Authority
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Discusses seismic qualification of miscellaneous steel & forwards Civil Engineering Branch Instruction CEB-C1.102.

DISTRIBUTION CODE: D030D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5+5
 TITLE: TVA Facilities - Routine Correspondence

NOTES: G.Zech 3 cy. 1 cy. ea to: Ebnetter, Axelrad, S. Richardson, 05000260
 B.D. Liaw, K. Barr, OI.

	RECIPIENT		COPIES		
	ID CODE/NAME	LTR	ENCL		
	JAMERSON, C	1	1		
	MORAN, D	1	1		
INTERNAL:	ACRS	1	1	ADM/LFMB	1 0
	AEOD	1	1	OGC 15-B-18	1 0
	<u>REG FILE</u> 01	1	1		
EXTERNAL:	LPDR	1	1	NRC PDR	1 1
	NSIC	1	1		
NOTES:		9	9		

R
I
D
S
/
A
D
D
S

R
I
D
S
/
A
D
D
S

TOTAL NUMBER OF COPIES REQUIRED: LTR 21 ENCL 19

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
5N 157B Lookout Place

MAR 10 1988

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of)
Tennessee Valley Authority) Docket Nos. 50-260

BROWNS FERRY NUCLEAR PLANT (BFN) - SEISMIC QUALIFICATION OF MISCELLANEOUS STEEL

This letter describes the BFN program for the seismic qualification of miscellaneous steel. This letter supplements the information provided by section III.3.9 of revision 1 to the Browns Ferry Nuclear Performance Plan that was transmitted by S. A. White's letter dated July 1, 1987.

Enclosure 1 to this letter describes the BFN program for resolving this issue. Enclosure 2 to this letter is the interim operability criteria for miscellaneous steel. TVA requests your review of this program and the issuance of a written statement documenting the programs acceptability.

Please refer any questions regarding this submittal to M. J. May, Manager, BFN Site Licensing, (205) 729-3570.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

M. F. Ray for
R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 2

8803170023 880310
PDR ADOCK 05000260
P DCD

Do 30
1/1

U.S. Nuclear Regulatory Commission

MAR 10 1988

cc (Enclosures):

Mr. K. P. Barr, Acting Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. G. G. Zech, Assistant Director
for Projects
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Browns Ferry Resident Inspector
Browns Ferry Nuclear Plant
Route 12, P.O. Box 637
Athens, Alabama 35611

ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY BROWNS FERRY NUCLEAR PLANT UNIT 2 MISCELLANEOUS STEEL

This report gives TVA's plan to demonstrate the adequacy of miscellaneous steel.

Issue

A corrective action report identified discrepancies between the as-constructed condition and design drawings for miscellaneous steel framing that was used for supporting pipes. Additionally, there was not adequate assurance that the miscellaneous steel framing was analyzed to confirm structural adequacy.

Background

Miscellaneous steel was installed based on typical framing details which were intended primarily for engineered and field-routed piping supports although HVAC, conduit, and cable tray supports may have been attached. This typical framing is not part of the plant's main structural support framing or structural features such as stairways or equipment access platforms.

Corrective Action Report 85-059 identified weld and steel details that were not on drawings. Investigation of this CAR identified generic deficiencies that included installation of miscellaneous steel without documentation on drawings, modifications to steel without drawing update, load changes, or additions that were not evaluated and no engineering documentation for miscellaneous steel framing details.

Resolution

To address the concerns regarding miscellaneous steel framing, an evaluation program was initiated to review miscellaneous steel consistent with the IE Bulletin 79-14 and torus piping programs. The present scope of this program includes approximately 350 miscellaneous steel frames.

For each of the frames that are being evaluated, a walkdown for attachments will be performed. Using loads from the appropriate program, the miscellaneous steel structures will be qualified to design criteria requirements and modifications will be prioritized based on an interim operability criteria similar to that used for large bore pipe supports. Miscellaneous steel which does not meet the design criteria, but is within the interim operability criteria, will be modified to meet the design criteria before restart from the next refueling outage. The miscellaneous steel which does not meet the interim operability criteria will be modified to meet the design criteria unless specifically requested and approved by NRC on a case by case basis before restart. A comparison of operability and design criteria is given in table 1.

The Long-Term Torus Integrity Program has been completed. The framing which supports the piping analyzed under the torus program has 75 supports and is being evaluated to determine its as-constructed acceptability.

Any modifications to the torus framing will be evaluated for generic implications to the entire scope of miscellaneous steel framing.

The balance of the miscellaneous steel will be evaluated concurrently with the IE Bulletin 79-14 program. As support loads are developed for the IE Bulletin 79-14 program, the associated miscellaneous steel will be evaluated.

The FSAR commits that systems supported by miscellaneous steel remain functional under seismic loadings. The design criteria for miscellaneous steel are consistent with the requirements of the FSAR.

Licensing Issues

Issue:

The schedule for the evaluation of the miscellaneous steel will be consistent with the ongoing IE Bulletin 79-14 program. Modifications will be prioritized based on an interim operability criteria.

Justification:

The use of the operability criteria to prioritize modifications is acceptable, since the structural adequacy and system function will be maintained. The piping analyzed under the torus program provides a critical case evaluation, since the loads changed significantly due to the Mark I hydrodynamic loads. Modifications resulting from the walkdown and structural adequacy reviews will be evaluated for generic implications.

The miscellaneous steel qualification program is comprehensive and assures that the steel framing is acceptable. Modifications required to meet design criteria will be implemented before start up after the next refueling outage.

TABLE 1
 BROWNS FERRY UNIT 2
 MISC. STEEL
 CRITERIA COMPARISON CHART

<u>ADDRESSES</u>	<u>DESIGN CRITERIA</u>	<u>OPERABILITY CRITERIA</u>	<u>REMARKS</u>
ALLOWABLE STRESS TENSION & BENDING	$0.9F_y$	SMALLER OF $1.2F_y$ OR $0.7F_u$	SIMILAR TO PIPE SUPPORT OPER- ABILITY CRITERIA
ALLOWABLE STRESS COMPRESSION, AXIAL & BENDING	$0.9F_y$	$0.9F_{cr}$	SIMILAR TO PIPE SUPPORT OPERABILITY CRITERIA
ALLOWABLE STRESS SHEAR	$0.4F_y$	SMALLER OF $0.72F_y$ OR $0.42F_u$	SIMILAR TO PIPE SUPPORT OPERABILITY CRITERIA
ALLOWABLE BOLT STRESS (TENSION)	F_y	GREATER OF $0.7F_u$ OR F_y OF BOLT	SIMILAR TO PIPE SUPPORT OPERABILITY CRITERIA
ALLOWABLE CONCRETE EXPANSION ANCHORS FACTOR OF SAFETY WEDGE AND SHELL TYPE	WEDGE TYPE 4 SHELL TYPE 5 FOR TENSION 4 FOR SHEAR	ALL TYPES 2	SIMILAR TO PIPE SUPPORT OPERABILITY CRITERIA