



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 6, 1994

Docket No. 50-458

Entergy Operations, Inc.
River Bend Station
ATTN: Mr. John R. McGaha, Jr.
Vice President - Operations
Post Office Box 220
St. Francisville, Louisiana 70775

Dear Mr. McGaha:

SUBJECT: GENERIC LETTER (GL) 92-01, REVISION 1, "REACTOR VESSEL STRUCTURAL INTEGRITY," RIVER BEND STATION (TAC NO. M83503)

By letter dated July 2, 1992, Gulf States Utilities (GSU) provided its response to GL 92-01, Revision 1. The NRC staff has completed its review of your response. Based on its review, the staff has determined that you have provided the information requested in GL 92-01.

The GL is part of the staff's program to evaluate reactor vessel integrity for pressurized water reactors (PWRs) and boiling water reactors (BWRs). The information provided in response to GL 92-01, including previously docketed information, is being used to confirm that licensees satisfy the requirements and commitments necessary to ensure reactor vessel integrity for their facilities.

A substantial amount of information was provided in response to GL 92-01, Revision 1. These data have been entered into a computerized data base designated Reactor Vessel Integrity Database (RVID). The RVID contains the following tables: a pressurized thermal shock (PTS) table for PWRs, a pressure-temperature limit table for BWRs and an upper-shelf energy (USE) table for PWRs and BWRs. Enclosures 1 and 2 provide, respectively, the pressure-temperature limit table and the USE table for your facility. Enclosure 3 provides a key for the nomenclature used in these tables. The tables include the data necessary to perform USE, pressure-temperature limit, and RT_{pts} evaluations. These data were taken from your response to GL 92-01 and previously docketed information. The information in the RVID for your facility will be considered accurate at this point in time and will be used in the staff's assessments related to vessel structural integrity. References to the specific source of the data are provided in the tables.

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We request that you verify that the information you have provided for your facility has been accurately entered in the data base. No response is necessary unless an inconsistency is identified. If no comments are received within 30 days from the date of this letter, the staff will consider your actions related to GL 92-01, Revision 1, to be complete.

The information requested by this letter is within the scope of the overall burden estimated in GL 92-01, Revision 1, "Reactor Vessel Structural Integrity, 10 CFR 50.54(f)." The estimated average number of burden hours is 200 person-hours for each addressee's response. This estimate pertains only to the identified response-related matters and does not include the time required to implement actions required by the regulations. This action is covered by the Office of Management and Budget Clearance Number 3150-0011, which expires June 30, 1994.

Sincerely,

Original Signed By
Robert G. Schaaf, Acting Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Pressure-Temperature Limit Table
- 2. Upper-Shelf Energy Table
- 3. Nomenclature Key

cc w/enclosures:
See next page

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Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL	IRT _{max}	Method of Determin. IRT _{max}	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
River Bend EDL: 8/29/2025	#2 shell plates	C3138-2	6.64E18	9°F	Plant specific	51	Table	0.08	0.63
	#2 shell plates	C3054-1	6.64E18	-20°F	Plant specific	58	Table	0.09	0.70
	#2 shell plates	C3054-2	6.64E18	2°F	Plant specific	58	Table	0.09	0.70
	Axial Welds	492L4871/ A421B27AE	6.64E18	-60°F	Plant specific	54	Table	0.04	0.95
	Axial Welds	492L4871/ A421B27AF	6.64E18	-50°F	Plant specific	41	Table	0.03	0.98
	Axial Welds	5P6756	6.64E18	-50°F	Plant specific	122	Table	0.09	0.92

Reference for River Bend

Chemical composition, fluence, and IRT data are from July 2, 1992, letter from W. H. Odell (GSUCo) to USHRC Document Control Desk, subject: River Bend--Unit 1, Docket No. 50-458 (Only #2 shell plates are in the neutron active zone)

Summary File for Upper Shelf Energy

Plant Name	Beltline Ident.	Heat No.	Material Type	1/4T USE at EOL	1/4T Neutron Fluence at EOL	Unirrad. USE	Method of Determin. Unirrad. USE
River Bend EOL: 8/29/2025	#2 Shell Plate	C3138-2	A 5338-1	67	4.8E18	79	Direct
	#2 Shell Plate	C3054-1	A 5338-1	78	4.8E18	93	Direct
	#2 Shell Plate	C3054-2	A 5338-1	80	4.8E18	95	Direct
	Axial Welds	492L4871	SMAW	132	4.8E18	157	Direct
	Axial Welds	492L4871	SMAW	110	4.8E18	130	Direct
	Axial Welds	5P6756	SAW	78	4.8E18	98	Direct
<p><u>Reference for River Bend</u></p> <p>Chemical composition, fluence, and UUSE data are from July 2, 1992, letter from W. H. Odell (GSUCo) to USNRC Document Control Desk, subject: River Bend--Unit 1, Docket No. 50-458</p>							

PRESSURE-TEMPERATURE LIMIT TABLES AND USE TABLES FOR ALL BWR PLANTSNOMENCLATURE

Pressure-Temperature Limits Table

- Column 1: Plant name and date of expiration of license.
 Column 2: Beltline material location identification.
 Column 3: Beltline material heat number; for some welds that a single-wire or tandem-wire process has been reported, (S) indicates single wire was used in the SAW process, (T) indicates tandem wire was used in the SAW process.
 Column 4: End-of-life (EOL) neutron fluence at vessel inner wall; cited directly from inner diameter (ID) value or calculated by using Regulatory Guide (RG) 1.99, Revision 2 neutron fluence attenuation methodology from the quarter thickness (T/4) value reported in the latest submittal (GL 92-01, PTS, or P/T limits submittals).
 Column 5: Unirradiated reference temperature.
 Column 6: Method of determining unirradiated reference temperature (IRT).

Plant-Specific

This indicates that the IRT was determined from tests on material removed from the same heat of the beltline material.

MTEB 5-2

This indicates that the unirradiated reference temperature was determined from following MTEB 5-2 guidelines for cases where the IRT was not determined using American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section III, NB-2331, methodology.

Generic

This indicates that the unirradiated reference temperature was determined from the mean value of tests on material of similar types.

- Column 7: Chemistry factor for irradiated reference temperature evaluation.
 Column 8: Method of determining chemistry factor

Table

This indicates that the chemistry factor was determined from the chemistry factor tables in RG 1.99, Revision 2.

Calculated

This indicates that the chemistry factor was determined from surveillance data via procedures described in RG 1.99, Revision 2.

Column 7: Unirradiated USE.

EMA

This indicates that the USE issue may be covered by the approved equivalent margins analysis in the BWR Owners Group Topical Report: NEDO-32205, Revision 1.

Column 8: Method of determining unirradiated USE

Direct

For plates, this indicates that the unirradiated USE was from a transverse specimen. For welds, this indicates that the unirradiated USE was from test date.

65%

This indicates that the unirradiated USE was 65% of the USE from a longitudinal specimen.

Generic

This indicates that the unirradiated USE was reported by the licensee from other plants with similar materials to the beltline material.

NRC generic

This indicates that the unirradiated USE was derived by the staff from other plants with similar materials to the beltline material.

10, 30, 40, or 50 °F

This indicates that the unirradiated USE was derived from Charpy test conducted at 10, 30, 40, or 50 °F.

Surv. Weld

This indicates that the unirradiated USE was from the surveillance weld having the same weld wire heat number.

Equip. to Surv. Weld

This indicates that the unirradiated USE was from the surveillance weld having different weld wire heat number.

Sister Plant

This indicates that the unirradiated USE was derived by using the reported value from other plants with the same weld wire heat number.

Blank

indicates that there is insufficient data to determine the unirradiated USE. These licensees will utilize Topical Report NEDO-32205, Revision 1 to demonstrate USE compliance to Appendix G, 10 CFR Part 50.

Column 9: Copper content; cited directly from licensee value except when more than one value was reported. (Staff used the average value in the latter case.)

No Data

This indicates that no copper data has been reported and the default value in RG 1.99, Revision 2, will be used by the staff.

Column 10: Nickel content; cited directly from licensee value except when more than one value was reported. (Staff used the average value in the latter case.)

No Data

This indicates that no nickel data has been reported and the default value in RG 1.99, Revision 2, will be used by the staff.

Upper Shelf Energy Table

- Column 1: Plant name and date of expiration of license.
Column 2: Beltline material location identification.
Column 3: Beltline material heat number; for some welds that a single-wire or tandem-wire process has been reported, (S) indicates single wire was used in the SAW process. (T) indicates tandem wire was used in the SAW process.
Column 4: Material type; plate types include A 533B-1, A 302B, A 302B Mod., and forging A 508-2; weld types include SAW welds using Linde 80, 0091, 124, 1092, ARCOS-B5 flux, Rotterdam welds using Graw Lo, SMIT 89, LW 320, and SAF 89 flux, and SMAW welds using no flux.
Column 5: EOL upper-shelf energy (USE) at T/4; calculated by using the EOL fluence and either the copper value or the surveillance data. (Both methods are described in RG 1.99, Revision 2.)

EMA

This indicates that the USE issue may be covered by the approved equivalent margins analysis in the BWR Owners Group Topical Report: NEDO-32205, Revision 1.

- Column 6: EOL neutron fluence at T/4 from vessel inner wall; cited directly from T/4 value or calculated by using RG 1.99, Revision 2 neutron fluence attenuation methodology from the ID value reported in the latest submittal (GL 92-01, PTS, or P/T limits submittals).