

Docket File
PI-22

UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

April 14, 1994

Docket Nos. 50-237, 50-249
50-373, 50-374
and 50-254, 50-265

Mr. D. L. Farrar, Manager
Nuclear Regulatory Services
Commonwealth Edison Company
Executive Towers West III, Suite 500
1400 OPUS Place
Downers Grove, Illinois 60515

Dear Mr. Farrar:

SUBJECT: GENERIC LETTER (GL) 92-01, REVISION 1, "REACTOR VESSEL STRUCTURAL INTEGRITY," DRESDEN, UNITS 2 AND 3, QUAD CITIES, UNITS 1 AND 2, LASALLE, UNITS 1 AND 2, (TAC NOS. M83458, M83459, M83474, M83475, M83502, AND M83503)

By letters dated July 1, 1992, October 9, 1992, September 24, 1993, and October 22, 1993, Commonwealth Edison Company (CECo) provided its response to GL 92-01, Revision 1. The NRC staff has completed its review of your responses. Based on its review, the staff has determined that CECo has 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 database designated Reactor Vessel Integrity Database (RVID). Enclosure 1 provides the pressure temperature tables, Enclosure 2 provides the Upper Shelf Energy (USE) tables for your facilities, and Enclosure 3 provides a key for the nomenclature used in the tables. The tables include the data necessary to perform USE, pressure-temperature limit and RT_{pts} evaluations. These data were taken from your responses to GL 92-01 and previously docketed information. The information in the RVID for your facilities 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.

As a result of our GL 92-01 review, the NRC staff has identified one open issue for your plant. The initial RT_{NDT} values determined by General Electric's (GE) initial methodology have not been validated and the BWR Owners Group report, GE-NE-523-109-0893, entitled, "Basis for GE RT_{NDT} Estimation Method," did not resolve the issue. GE is in the process of validating its methodology for resolving the initial RT_{NDT} determination issue and will

DF 01
111

180024

9404210164 940414
PDR ADOCK 05000237
PDR

NRC FILE CENTER COPY

April 14, 1994

document the result in a topical report. The BWR Owners Group is obtaining approval from its members to provide the GE topical report to the NRC staff for its review and approval. We request that you submit within 30 days a commitment to the BWR Owners Group effort or a schedule for a plant-specific analysis to resolve this issue. Further, we request that you provide confirmation of the plant-specific applicability of the topical report, NEDO-32205, Revision 1, (as specified in Appendix B of that report) and submit a request for approval of the topical report as the basis for demonstrating compliance with 10 CFR Part 50, Appendix G, Paragraph IV.A.1. We further request that you verify that the information you have provided for your facilities has been accurately entered in the database. If no comments are made in your response to the last request, the staff will use the information in the tables for future NRC assessments of your reactor pressure vessel.

Once you have (1) confirmed the applicability of the topical report, NEDO-32205, Revision 1, to your plants, (2) submitted the request for approval, and (3) provided your commitment to the BWR Owners Group effort or a satisfactory schedule for providing a plant-specific analysis, the staff will consider your actions related to GL 92-01, Revision 1, to be complete. Plant-specific licensing actions will be initiated to resolve these issues.

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:
John F. Stang, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Enclosures:

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

cc w/enclosures:

See next page

DISTRIBUTION

JRoe
JStang
BClayton, RIII

Docket File
JZwolinski
AGody
CHawes(3)

NRC & Local PDRs
JDyer
OGC
DMcDonald

PDIII-2 r/f
CPatel
ACRS(10)
SSheng

OFC	LA:PDIII-2 *	PM:PDIII-2 *	PM:PDIII-2 *	PM:PDIII-2 *	D:PDIII-2	
NAME	CHAWES	JSTANG	AGODY, Jr.	CPATEL	JDYER <i>for</i>	
DATE	04/05/94	04/05/94	04/08/94	04/05/94	4 / 14 / 94	/ / 94
COPY	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO

* See previous concurrence.

Mr. D. L. Farrar
Commonwealth Edison Company

Dresden Nuclear Power Station
Unit Nos. 2 and 3

cc:

Michael I. Miller, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60690

Mr. G. Spedl
Plant Manager
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, Illinois 60450-9765

U. S. Nuclear Regulatory Commission
Resident Inspectors Office
Dresden Station
6500 North Dresden Road
Morris, Illinois 60450-9766

Chairman
Board of Supervisors of
Grundy County
Grundy County Courthouse
Morris, Illinois 60450

Regional Administrator
U. S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Mr. D. L. Farrar
Commonwealth Edison Company

Quad Cities Nuclear Power Station
Unit Nos. 1 and 2

cc:

Mr. Stephen E. Shelton
Vice President
Iowa-Illinois Gas and
Electric Company
P. O. Box 4350
Davenport, Iowa 52808

Michael I. Miller, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60690

Mr. Richard Bax
Station Manager
Quad Cities Nuclear Power Station
22710 206th Avenue North
Cordova, Illinois 61242

Resident Inspector
U. S. Nuclear Regulatory Commission
22712 206th Avenue North
Cordova, Illinois 61242

Chairman
Rock Island County Board
of Supervisors
1504 3rd Avenue
Rock Island County Office Bldg.
Rock Island, Illinois 61201

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Regional Administrator
U. S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Mr. D. L. Farrar
Commonwealth Edison Company

cc:

Phillip P. Steptoe, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60603

Assistant Attorney General
100 West Randolph Street
Suite 12
Chicago, Illinois 60601

Resident Inspector/LaSalle, NPS
U. S. Nuclear Regulatory Commission
Rural Route No. 1
P. O. Box 224
Marseilles, Illinois 61341

Chairman
LaSalle County Board of Supervisors
LaSalle County Courthouse
Ottawa, Illinois 61350

Attorney General
500 South 2nd Street
Springfield, Illinois 62701

Chairman
Illinois Commerce Commission
Leland Building
527 East Capitol Avenue
Springfield, Illinois 62706

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Regional Administrator
U. S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

LaSalle Station Manager
LaSalle County Station
Rural Route 1
P.O. Box 220
Marseilles, Illinois 61341

LaSalle County Station
Unit Nos. 1 and 2

Robert Cushing
Chief, Public Utilities Division
Illinois Attorney General's Office
100 West Randolph Street
Chicago, Illinois 60601

Michael I. Miller, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60690

LaSalle Station Manager
LaSalle County Station
Rural Route 1
P. O. Box 220
Marseilles, Illinois 61341

Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL/EFPY	IRT _{max}	Method of Determin. IRT _{max}	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Dresden 2 EOL: 1/10/2006	Lower Int. Shell	B4065-1	3.6E17	20°F ¹	Plant specific	155.4	Table	0.23	0.52
	Lower Int. Shell	B5764-1	3.6E17	10°F ¹	Plant specific	65	Table	0.10	0.49
	Lower Int. Shell	B4030-1	3.6E17	6°F ¹	Plant specific	143	Table	0.20	0.55
	Lower Int. Shell	B4030-2	3.6E17	-2°F ¹	Plant specific	143	Table	0.20	0.55
	Lower Shell	A9128-2	3.6E17	10°F ¹	Plant specific	131	Table	0.20	0.45
	Lower Shell	B3990-2	3.6E17	12°F ¹	Plant specific	116.9	Table	0.18	0.42
	Lower Shell	A9128-1	3.6E17	10°F ¹	Plant specific	131	Table	0.20	0.45
	Lower Int. Shell Axial Welds	PQ1092C-2	3.6E17	40°F	Plant specific	93.4	Table	0.18	0.18
	Lower Int. Shell Axial Welds	1P0661	3.6E17	-38°F ¹	Plant specific	162.1	Table	0.19	0.63
	Lower Int. Shell Axial Welds	1P0815	3.6E17	-22°F ¹	Plant specific	122.2	Table	0.12	0.52
	Lower Shell Axial Welds	PQ1092C-2	3.6E17	40°F	Plant specific	93.4	Table	0.18	0.18
	Lower Shell Axial Welds	1P0815	3.6E17	-14°F ¹	Plant specific	159.2	Table	0.25	0.48
	Lower Int. to Lower Circ. Weld	71249	3.6E17	-10°F ¹	Plant specific	167.3	Table	0.21	0.62

Reference for Dresden 2

The IRT for electroslag welds (heat number PQ 1092C-2) is from September 24, 1993 letter to NRC (Response to GL 92-01 RA1).

Chemical composition, IRT, and fluence data are from July 1, 1992, letter from W. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2

¹Additional information required to confirm value.

Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL/EFPY	IRT _{max}	Method of Determin. IRT _{max}	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Dresden 3 EOL: 1/12/2011	Lower Int. Shell	A0237-1	5.1E17	10°F	Plant specific	151.05	Table	0.23	0.49
	Lower Int. Shell	B5118-1	5.1E17	10°F	Plant specific	146.15	Table	0.22	0.49
	Lower Int. Shell	C1290-2	5.1E17	10°F	Plant specific	103.95	Table	0.15	0.49
	Lower Shell	C1256-2	5.1E17	-10°F	Plant specific	73	Table	0.11	0.50
	Lower Shell	B5159-2	5.1E17	0°F	Plant specific	153.15	Table	0.24	0.47
	Lower Shell	C1182-2	5.1E17	10°F	Plant specific	147.5	Table	0.22	0.50
	Lower Int. and Lower Shell Axial Welds	PQ1300	5.1E17	40°F	Plant specific	159.65	Table	0.30	0.33
	Lower Int. to Lower Shell Circ. Welds	299L44	5.1E17	0°F ¹	Plant specific	209.6	Table	0.29	0.72

Reference for Dresden 3

The IRT for electrosag welds (heat number PQ-1300) is from September 24, 1993 letter to NRC (Response to GL 92-01 RA1).

Chemical composition, IRT, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2

¹Additional information required to confirm value.

Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL/EFPY	IRT _{max}	Method of Determin. IRT _{max}	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Quad Cities 1 EOL: 12/14/2012	Lower Int. Shell	C1505-2	3.5E17	-20°F	Plant specific	126.4	Table	0.18	0.52
	Lower Int. Shell	C1498-2	3.5E17	-30°F	Plant specific	118.5	Table	0.17	0.50
	Lower Int. Shell	A0931-1	3.5E17	-30°F	Plant specific	95.95	Table	0.14	0.51
	Lower Shell	B5524-1	3.5E17	0°F ¹	Plant specific	179.65	Table	0.27	0.57
	Lower Shell	A0610-1	3.5E17	-20°F	Plant specific	143.3	Table	0.21	0.51
	Lower Shell	C1485-2	3.5E17	-30°F	Plant specific	152.5	Table	0.23	0.50
	Lower Int. and Lower Shell Axial Welds	PQ1300	3.5E17	40°F	Plant specific	159.65	Table	0.30	0.33
	Lower Int. and Lower Shell Axial Welds	PQ2563	3.5E17	40°F	Plant specific	272	Table	0.35	1.00
	Lower Int. to Lower Shell Circ. Weld	72445	3.5E17	-28°F ¹	Plant specific	122	Table	0.10	0.60
	Lower Int. to Lower Shell Circ. Weld	406L44	3.5E17	-10°F ¹	Plant specific	164	Table	0.22	0.58

Reference for Quad Cities 1

The IRT for electroslog welds (heat numbers PQ-1300 and PQ-2563) is from September 24, 1993 letter to NRC (Response to GL 92-01 RAI)

Chemical composition, IRT, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2

¹Additional information required to confirm value.

Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL/EPY	IRT _{max}	Method of Determin. IRT _{max}	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Quad Cities 2 EOL: 12/14/2012	Lower Int. Shell	C2753-2	4.9E17	10°F	Plant specific	51	Table	0.08	0.50
	Lower Int. Shell	C2868-1	4.9E17	10°F	Plant specific	51	Table	0.08	0.48
	Lower Int. Shell	C3307-2	4.9E17	10°F	Plant specific	82	Table	0.12	0.55
	Lower Shell	C1516-2	4.9E17	6°F ¹	Plant specific	108.2	Table	0.16	0.46
	Lower Shell	C1501-2	4.9E17	-10°F	Plant specific	123.55	Table	0.18	0.49
	Lower Shell	C1722-2	4.9E17	10°F ¹	Plant specific	97.3	Table	0.14	0.54
	Lower Int. and Lower Shell Axial Welds	PQ-1300	4.9E17	40°F	Plant specific	159.65	Table	0.30	0.33
	Lower Int. to Lower Shell Circ. Weld	S-3986	4.9E17	-42°F	Plant specific	68	Table	0.05	0.96

Reference for Quad Cities 2

The IRT for electroslag welds (heat number PQ-1300) is from September 24, 1993 letter to NRC (Response to GL 92-01 RA1).

Chemical composition, IRT, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2

¹Additional information required to confirm value.

Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL/EPFY	IRT _{max}	Method of Determin. IRT _{max}	Chemistry Factor	Method of Determin. CF	X _{Cu}	X _{Ni}
LaSalle 1 EOL: 5/17/2022	Lower Shell G-5603-1	C5978-1	3.9E17	14°F ¹	Plant specific	73.8	Table	0.11	0.58
	Lower Shell G-5603-2	C5978-2	3.9E17	23°F ¹	Plant specific	73.9	Table	0.11	0.59
	Lower Shell G-5603-3	C5979-1	3.9E17	10°F	Plant specific	83.9	Table	0.12	0.66
	Lower Int. Shell G-5604-1	C6345-1	3.9E17	-20°F	Plant specific	103.95	Table	0.15	0.49
	Lower Int. Shell G-5604-2	C6318-1	3.9E17	-20°F	Plant specific	81.2	Table	0.12	0.51
	Lower Int. Shell G-5604-3	C6345-2	3.9E17	-20°F	Plant specific	103.95	Table	0.15	0.51
	Middle Shell G-5605-1	A5333-1	3.9E17	-10°F	Plant specific	81.8	Table	0.12	0.54
	Middle Shell G-5605-2	B0078-1	3.9E17	-10°F	Plant specific	104.5	Table	0.15	0.50
	Middle Shell G-5605-3	C6123-2	3.9E17	-10°F	Plant specific	93	Table	0.13	0.68
	Middle Shell Axial Welds 3-308A/C	305424	3.9E17	-50°F	Plant specific	200.2	Table	0.30	0.64
	Middle Shell Axial Welds 3-308A/C	1P3571	3.9E17	-30°F ¹	Plant specific	241	Table	0.37	0.75
	Lower Int. Shell Axial Welds 4-308A/C	305414	3.9E17	-50°F	Plant specific	203.75	Table	0.33	0.59
	Lower Int. Shell Axial Welds 4-308A/C	12008	3.9E17	-50°F	Plant specific	208.7	Table	0.28	0.74
	Lower Shell Axial Welds 2-307A/C	21935	3.9E17	-50°F	Plant specific	177.2	Table	0.21	0.68

¹Additional information required to confirm value.

Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL/EFPY	IRT _{max}	Method of Determin. IRT _{max}	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
	Lower Shell Axial Welds 2-307A/C	12008	3.9E17	-50°F	Plant specific	249	Table	0.27	1.00
	Middle to Lower Int. Shell Circ. Weld 6-308	6329637	3.9E17	-50°F	Plant specific	239	Table	0.24	1.00
	Lower to Lower Int. Shell Circ. Weld 1-313	AP6519	3.9E17	-60°F	Plant specific	83.8	Table	0.18	0.06

Reference for LaSalle 1

Chemical composition, IRT, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2

Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL/EFPY	IRT _{max}	Method of Determin. IRT _{max}	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
LaSalle 2 EOL: 12/16/2023	Lower Shell 21-1	C9425-2	4.2E17	30°F ¹	Plant specific	81.2	Table	0.12	0.51
	Lower Shell 21-2	C9425-1	4.2E17	32°F ¹	Plant specific	81.2	Table	0.12	0.51
	Lower Shell 21-3	C9434-2	4.2E17	10°F	Plant specific	58	Table	0.09	0.51
	Lower Int. Shell, 22-1	C9481-1	4.2E17	10°F	Plant specific	73	Table	0.11	0.50
	Lower Int. Shell, 22-2	C9404-2	4.2E17	52°F ¹	Plant specific	44	Table	0.07	0.49
	Lower Int. Shell, 22-3	C9601-2	4.2E17	10°F	Plant specific	81	Table	0.12	0.50
	Lower Int. Shell Axial Welds BA, BB, BC	3P400	4.2E17	-50°F	Plant specific	27	Table	0.02	0.89
	Lower Shell Axial Welds BD, BE, BF	3P4966	4.2E17	-26°F ¹	Plant specific	41	Table	0.03	0.90
	Circ. Weld AB	5P6771	4.2E17	-34°F ¹	Plant specific	54	Table	0.04	0.95
Reference for LaSalle 2									
Chemical composition, IRT, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2									

¹Additional information required to confirm value.

83

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
Dresden 2 EOL: 1/10/2006	Lower Int. Shell	B4065-1	A 302B	EMA ²	2.5E17	EMA ²	
	Lower Int. Shell	B5764-1	A 302B	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell	B4030-1	A 302B	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell	B4030-2	A 302B	EMA ²	2.5E17	EMA ²	---
	Lower Shell	A9128-2	A 302B	EMA ²	2.5E17	EMA ²	---
	Lower Shell	B3990-2	A 302B	EMA ²	2.5E17	EMA ²	---
	Lower Shell	A9128-1	A 302B	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell Axial Welds	PQ1092C-2	Flux unknown, ESW	EMA ²	2.5E17	EMA ²	
	Lower Int. Shell Axial Welds	1P0661	Flux unknown, SAW	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell Axial Welds	1P0815	Flux unknown, SAW	EMA ²	2.5E17	EMA ²	---
	Lower Shell Axial Welds	PQ1092C-2	Flux unknown, ESW	EMA ²	2.5E17	EMA ²	---
	Lower Shell Axial Welds	1P0815	Flux unknown, SAW	EMA ²	2.5E17	EMA ²	---
	Lower Int. to Lower Circ. Weld	71249	Flux unknown, SAW	EMA ²	2.5E17	EMA ²	---
<u>Reference for Dresden 2</u> Chemical composition, UUSE, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2							

²Licensee must confirm applicability of Topical Report NEDO-32205, Rev. 1

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
Dresden 3 EOL: 1/12/2011	Lower Int. Shell	A0237-1	A 302B Mod.	EMA ²	3.5E17	EMA ²	---
	Lower Int. Shell	B5118-1	A 302B Mod.	EMA ²	3.5E17	EMA ²	---
	Lower Int. Shell	C1290-2	A 302B Mod.	EMA ²	3.5E17	EMA ²	---
	Lower Shell	C1256-2	A 302B Mod.	EMA ²	3.5E17	EMA ²	---
	Lower Shell	B5159-2	A 302B Mod.	EMA ²	3.5E17	EMA ²	
	Lower Shell	C1182-2	A 302B Mod.	EMA ²	3.5E17	EMA ²	---
	Lower Int. and Lower Shell Axial Welds	Pq1300	Flux unknown, ESW	EMA ²	3.5E17	EMA ²	
	Lower Int. to Lower Shell Circ. Welds	299L44	Flux unknown, SAW	EMA ²	3.5E17	EMA ²	---
<u>Reference for Dresden 3</u> Chemical composition, UUSE, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECO) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2							

²Licensee must confirm applicability of Topical Report NEDO-32205, Rev. 1

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
Quad Cities 1 EOL: 12/14/2012	Lower Int. Shell	C1505-2	A 302B Mod.	EMA ²	2.4E17	EMA ²	---
	Lower Int. Shell	C1498-2	A 302B Mod.	EMA ²	2.4E17	EMA ²	---
	Lower Int. Shell	A0931-1	A 302B Mod.	EMA ²	2.4E17	EMA ²	---
	Lower Shell	B5524-1	A 302B Mod.	EMA ²	2.4E17	EMA ²	
	Lower Shell	A0610-1	A 302B Mod.	EMA ²	2.4E17	EMA ²	---
	Lower Shell	C1485-2	A 302B Mod.	EMA ²	2.4E17	EMA ²	---
	Lower Int. and Lower Shell Axial Welds	PQ1300	Flux unknown, ESW	EMA ²	2.4E17	EMA ²	---
	Lower Int. and Lower Shell Axial Welds	PQ2563	Flux unknown, ESW	EMA ²	2.4E17	EMA ²	---
	Lower Int. to Lower Shell Circ. Weld	72445	Flux unknown, SAW	EMA ²	2.4E17	EMA ²	---
	Lower Int. to Lower Shell Circ. Weld	406L44	Flux unknown, SAW	EMA ²	2.4E17	EMA ²	---
<u>Reference for Quad Cities 1</u> Chemical composition, UUSE, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2							

²Licensee must confirm applicability of Topical Report NEDO-32205, Rev. 1

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
Quad Cities 2 EOL: 12/14/2012	Lower Int. Shell	C2753-2	A 302B Mod.	EMA ²	3.4E17	EMA ²	---
	Lower Int. Shell	C2868-1	A 302B Mod.	EMA ²	3.4E17	EMA ²	---
	Lower Int. Shell	C3307-2	A 302B Mod.	EMA ²	3.4E17	EMA ²	---
	Lower Shell	C1516-2	A 302B Mod.	EMA ²	3.4E17	EMA ²	
	Lower Shell	C1501-2	A 302B Mod.	EMA ²	3.4E17	EMA ²	---
	Lower Shell	C1722-2	A 302B Mod.	EMA ²	3.4E17	EMA ²	---
	Lower Int. and Lower Shell Axial Welds	PQ-1300	Flux unknown, ESW	EMA ²	3.4E17	EMA ²	
	Lower Int. to Lower Shell Circ. Weld	S-3986	Flux unknown, SAW	EMA ²	3.4E17	EMA ²	
<u>Reference for Quad Cities 2</u> Chemical composition, UUSE, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2							

²Licensee must confirm applicability of Topical Report NEDO-32205, Rev. 1

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
LaSalle 1 EOL: 5/17/2022	Lower Shell G-5603-1	C5978-1	A 533B-1	EMA ²	2.5E17	EMA ²	---
	Lower Shell G-5603-2	C5978-2	A 533B-1	EMA ²	2.5E17 ²	EMA ²	---
	Lower Shell G-5603-3	C5979-1	A 533B-1	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell G-5604-1	C6345-1	A 533B-1	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell G-5604-2	C6318-1	A 533B-1	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell G-5604-3	C6345-2	A 533B-1	EMA ²	2.5E17	EMA ²	---
	Middle Shell G-5605-1	A5333-1	A 533B-1	EMA ²	2.5E17	EMA ²	---
	Middle Shell G-5605-2	B0078-1	A 533B-1	EMA ²	2.5E17	EMA ²	---
	Middle Shell G-5605-3	C6123-2	A 533B-1	EMA ²	2.5E17	EMA ²	---
	Middle Shell Axial Welds 3-308A/C	305424	Linde 1092, SAW	EMA ²	2.5E17	EMA ²	---
	Middle Shell Axial Welds 3-308A/C	1P3571	Linde 1092, SAW	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell Axial Welds 4-308A/C	305414	Linde 1092, SAW	EMA ²	2.5E17	EMA ²	---
	Lower Int. Shell Axial Welds 4-308A/C	12008	Linde 1092, SAW	EMA ²	2.5E17	EMA ²	---

²Licensee must confirm applicability of Topical Report NEDO-32205, Rev. 1

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
	Lower Shell Axial Welds 2-307A/C	21935	Linde 1092, SAW	EMA ²	2.5E17	EMA ²	---
	Lower Shell Axial Welds 2-307A/C	12008	Linde 1092, SAW	EMA ²	2.5E17	EMA ²	---
	Middle to Lower Int. Shell Circ. Weld 6-308	6329637	Linde 1092, SAW	EMA ²	2.5E17	EMA ²	---
	Lower to Lower Int. Shell Circ. Weld 1-313	AP6519	Linde 1092, SAW	EMA ²	2.5E17	EMA ²	---
<u>Reference for LaSalle 1</u> Chemical composition, UUSE, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2							

²Licensee must confirm applicability of Topical Report NEDO-32205, Rev. 1

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
LaSalle 2 EOL: 12/16/2023	Lower Shell 21-1	C9425-2	A 533B-1	EMA ²	2.9E17	EMA ²	---
	Lower Shell 21-2	C9425-1	A 533B-1	EMA ²	2.9E17	EMA ²	---
	Lower Shell 21-3	C9434-2	A 533B-1	EMA ²	2.9E17	EMA ²	---
	Lower Int. Shell, 22-1	C9481-1	A 533B-1	EMA ²	2.9E17	EMA ²	---
	Lower Int. Shell, 22-2	C9404-2	A 533B-1	EMA ²	2.9E17	EMA ²	---
	Lower Int. Shell, 22-3	C9601-2	A 533B-1	EMA ²	2.9E17	EMA ²	---
	Lower Int. Shell Axial Welds BA,BB,BC	3P400	Linde 124, SAW	EMA ²	2.9E17	EMA ²	---
	Lower Shell Axial Welds BD,BE,BF	3P4966	Linde 124, SAW	EMA ²	2.9E17	EMA ²	---
	Circ. Weld AB	5P6771	Linde 124, SAW	EMA ²	2.9E17	EMA ²	---
<u>Reference for LaSalle 2</u> Chemical composition, UUSE, and fluence data are from July 1, 1992, letter from M. A. Jackson (CECo) to T. E. Murley (USNRC), subject: Dresden Station Units 2 and 3; Quad Cities Station Units 1 and 2; LaSalle County Station Units 1 and 2							

²Licensee must confirm applicability of Topical Report NEDO-32205, Rev. 1

Nomenclature and Tables

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

NOMENCLATURE

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.