



Commonwealth Edison  
1400 Opus Place  
Downers Grove, Illinois 60515

October 4, 1994

Mr. William Russell, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555

Attention: Document Control Desk

Subject: GL 92-01, "Reactor Vessel Structural Integrity" Data Update  
Byron Station Units 1 and 2  
NPF-37/66; NRC Docket Nos. 50-454/455

- References:
1. J. Bauer letter to W. Russell transmitting Commonwealth Edison Company response to NRC inquiry to GL 92-01 dated July 22, 1994
  2. R. Assa letter to D. Farrar dated June 24, 1994, requesting verification of data pertaining to GL 92-01, "Reactor Vessel Structural Integrity"

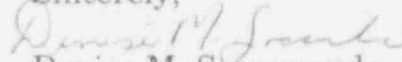
Dear Mr. Russell:

By letters dated July 2, 1992, and November 19, 1993, Commonwealth Edison Company (ComEd) provided a response to GL 92-01, Revision 1. In the above reference letter 2, the Staff requested the ComEd verify the previously supplied information by July 24, 1994, as this data will be entered into a Reactor Vessel Integrity Database.

In reference letter 1, ComEd requests that the Byron data verification/update be delayed until September, 1994 due to completion of Capsule W results. The attachment includes Byron's response to the reference 2 correspondence. In the summary tables, the changes from the data transmitted in reference 2 are clearly indicated.

Please address any comments or questions regarding this matter to this office.

Sincerely,

  
Denise M. Saccomando

Nuclear Licensing Administrator

cc: G. Dick, Byron Project Manager, NRR  
H. Peterson, Senior Resident Inspector - Byron  
B. Clayton, Branch Chief - Region III  
Office of Nuclear Facility Safety - IDNS

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Attachment

Byron Units 1 and 2  
Response to NRC Generic Letter 92-01, Revision 1

## Introduction

This report provides a response to the Generic Letter 92-01, Revision 1, closure letter recently issued by the NRC for Commonwealth Edison Company's Byron Units 1 and 2. The following is the full Data Summary Tables for Pressurized Thermal Shock and Upper-Shelf Energy. Those values that are unchanged are shown in the shaded boxes. Revised values are indicated in the unshaded boxes.

Table 2-1. Braidwood Unit 1 -- Data Summary for Pressurized Thermal Shock Calculation

Beltline Material	Heat No.	IS Neutron Fluence at 32 EF PY	IRI <sub>NET</sub> F	Method of Determin. IRT <sub>NET</sub>	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Lower Nozzle Belt Forging	5P-7016	6.82E+18 <sup>(a)</sup>	+10 <sup>(b)</sup>	Plant Specific	26	RG1.99 Table 2	0.04 <sup>(b)</sup>	0.71 <sup>(b)</sup>
Upper Shell Forging	49C344-1-1/ 49D383-1-1	3.03E+19 <sup>(a)</sup>	-30 <sup>(b)</sup>	Plant Specific	31	RG1.99 Table 2	0.05 <sup>(b)</sup>	0.73 <sup>(b)</sup>
Lower Shell Forging	49D867-1-1/ 49C813-1-1	3.03E+19 <sup>(a)</sup>	-20 <sup>(b)</sup>	Plant Specific	20	RG1.99 Table 2	0.03 <sup>(b)</sup>	0.73 <sup>(b)</sup>
WF-645 Upper Circ. Weld	H4498	6.82E+18 <sup>(a)</sup>	-30 <sup>(b)</sup>	Plant Specific	41	RG1.99 Table 1	0.03 <sup>(b)</sup>	0.50 <sup>(b)</sup>
WF-562 Middle Circ. Weld	442C11	3.03E+19 <sup>(a)</sup>	+40 <sup>(b)</sup>	Plant Specific	41	RG1.99 Table 1	0.03 <sup>(b)</sup>	0.65 <sup>(b)</sup>
WF-653 Lower Circ. Weld	31401	<1.00E+17 <sup>(a)</sup>	-40 <sup>(b)</sup>	Plant Specific	150.8	RG1.99 Table 1	0.19 <sup>(b)</sup>	0.56 <sup>(b)</sup>

NOTES:

- Fluence data are from WCAP-12685, "Analysis of Capsule U from the Commonwealth Edison Company Braidwood Unit 1 Reactor Vessel Surveillance Program," August 1990.
- Chemical compositions and initial RT<sub>NET</sub> data for all materials are from the July 2, 1992 letter from M. A. Jackson to T. E. Murley, Subject: Braidwood Station, Units 1 and 2.

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Table 2-2. Braidwood Unit 1 -- Data Summary for Upper-Shelf Energy Calculation

Beltline Material	Heat No.	Material Type	1/4T USE at 32 EFPY	1/4T Neutron Fluence at 32 EFPY	Unirrad. USE	Method of Determin. Unirrad. USE
Lower Nozzle Belt Forging	5P-7016	A 508-2	137 <sup>(a)</sup>	4.09E+18 <sup>(d)</sup>	162 <sup>(e)</sup>	Direct
Upper Shell Forging	49C344-1-1/ 49D383-1-1	A 508-3	93 <sup>(a)</sup>	1.66E+19 <sup>(d)</sup>	118 <sup>(f)</sup>	Direct
Lower Shell Forging	49D867-1-1/ 49C813-1-1	A 508-3	107 <sup>(a)</sup>	1.66E+19 <sup>(d)</sup>	136 <sup>(e)</sup>	Direct
WF-645 Upper Circ. Weld	H4498	Linde 80, SAW	75 <sup>(b)</sup>	4.09E+18 <sup>(d)</sup>	87 <sup>(e)</sup>	Direct
WF-562 Middle Circ. Weld	442011	Linde 80, SAW	55 <sup>(b)</sup>	1.66E+19 <sup>(d)</sup>	70 <sup>(e)</sup>	Direct
WF-653 Lower Circ. Weld	31401	Linde 80, SAW	--- <sup>(c)</sup>	<1.00E+17 <sup>(d)</sup>	79 <sup>(e)</sup>	Direct

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NOTES FOR TABLE 2-2:

- a. EOL USE values for the forgings were calculated using Regulatory Guide 1.99, Revision 2, Figure 2, assuming the lower limiting value of 0.1% copper for base metal.
- b. EOL USE values for the welds were calculated using Regulatory Guide 1.99, Revision 2, Figure 2, assuming the lower limiting value of 0.05% copper for welds.
- c. EOL fluence is below the limits of the Figure 2 curves defined in Regulatory Guide 1.99, Revision 2.
- d. Fluence data are from WCAP-12685, "Analysis of Capsule U from the Commonwealth Edison Company Braidwood Unit 1 Reactor Vessel Surveillance Program," August 1990.
- e. UUSE data are from the November 19, 1993 letter from T. W. Simpkin to T. E. Murley, Braidwood Station Units 1 and 2, Response to Request for Additional Information Regarding NRC Generic Letter 92-01.
- f. UUSE data for forging 49C344-1-1/49D383-1-1 is from the July 2, 1992 letter from M. A. Jackson to T. E. Murley, Subject: Braidwood Station, Units 1 and 2.

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Table 2-3. Braidwood Unit 2 -- Data Summary for Pressurized Thermal Shock Calculation

Beltline Material	Heat No.	IS Neutron Fluence at 32 EFY	IRT <sub>NDT</sub> F	Method of Determin. IRT <sub>NDT</sub>	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Lower Nozzle Belt Forging	SP-7056	6.82E+18 <sup>(a)</sup>	+30 <sup>(b)</sup>	Plant Specific	26	RG1.99 Table 2	0.04 <sup>(b)</sup>	0.90 <sup>(b)</sup>
Upper Shell Forging	49D963-1-1/ 49C904-1-1	3.03E+19 <sup>(a)</sup>	-30 <sup>(b)</sup>	Plant Specific	20	RG1.99 Table 2	0.03 <sup>(b)</sup>	0.71 <sup>(b)</sup>
Lower Shell Forging	50D102-1-1/ 50C97-1-1	3.03E+19 <sup>(a)</sup>	-30 <sup>(b)</sup>	Plant Specific	37	RG1.99 Table 2	0.06 <sup>(b)</sup>	0.75 <sup>(b)</sup>
WF-645 Upper Circ. Weld	H4498	6.82E+18 <sup>(a)</sup>	-30 <sup>(b)</sup>	Plant Specific	41	RG1.99 Table 1	0.03 <sup>(b)</sup>	0.50 <sup>(b)</sup>
WF-562 Middle Circ. Weld	442011	3.03E+19 <sup>(a)</sup>	+40 <sup>(b)</sup>	Plant Specific	41	RG1.99 Table 1	0.03 <sup>(b)</sup>	0.65 <sup>(b)</sup>
WF-696 Lower Circ. Weld	1084-18	<1.00E+17 <sup>(a)</sup>	-16 <sup>(b)</sup>	Plant Specific	54	RG1.99 Table 1	0.04 <sup>(b)</sup>	0.60 <sup>(b)</sup>

NOTES:

- Fluence data are from WCAP-12845, "Analysis of Capsule U from the Commonwealth Edison Company Braidwood Unit 2 Reactor Vessel Surveillance Program," March 1991.
- Chemical compositions and initial RT<sub>NDT</sub> data for all materials are from the July 2, 1992 letter from M. A. Jackson to T. E. Murley, Subject: Braidwood Station, Units 1 and 2.

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Table 2-4. Braidwood Unit 2 -- Data Summary for Upper-Shelf Energy Calculation

Beltline Material	Heat No.	Material Type	1/4T USE at 32 EFPY	1/4T Neutron Fluence at 32 EFPY	Unirrad. USE	Method of Determin. Unirrad. USE
Lower Nozzle Belt Forging	5P-7056	A 508-2	109 <sup>(a)</sup>	4.09E+18 <sup>(d)</sup>	128 <sup>(e)</sup>	Direct
Upper Shell Forging	49D963-1-1/ 49C904-1-1	A 508-3	94 <sup>(a)</sup>	1.66E+19 <sup>(d)</sup>	119 <sup>(f)</sup>	Direct
Lower Shell Forging	50D102-1-1/ 50C97-1-1	A 508-3	118 <sup>(a)</sup>	1.66E+19 <sup>(d)</sup>	150 <sup>(e)</sup>	Direct
WF-645 Upper Circ. Weld	H4498	Linde 80, SAW	75 <sup>(b)</sup>	4.09E+18 <sup>(d)</sup>	87 <sup>(e)</sup>	Direct
WF-562 Middle Circ. Weld	442011	Linde 80, SAW	55 <sup>(b)</sup>	1.66E+19 <sup>(d)</sup>	70 <sup>(e)</sup>	Direct
WF-696 Lower Circ. Weld	1084-18	Linde 80, SAW	--- <sup>(c)</sup>	<1.00E+17 <sup>(d)</sup>	78 <sup>(e)</sup>	Direct

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NOTES FOR TABLE 2-4:

- a. EOL USE values for the forgings were calculated using Regulatory Guide 1.99, Revision 2, Figure 2, assuming the lower limiting value of 0.1% copper for base metal.
- b. EOL USE values for the welds were calculated using Regulatory Guide 1.99, Revision 2, Figure 2, assuming the lower limiting value of 0.05% copper for welds.
- c. EOL fluence is below the limits of the Figure 2 curves defined in Regulatory Guide 1.99, Revision 2.
- d. Fluence data are from WCAP-12845, "Analysis of Capsule U from the Commonwealth Edison Company Braidwood Unit 2 Reactor Vessel Surveillance Program," March 1991.
- e. UUSE data are from the November 19, 1993 letter from T. W. Simpkin to T. E. Murley, Braidwood Station Units 1 and 2, Response to Request for Additional Information Regarding NRC Generic Letter 92-01.
- f. UUSE data for forging 49D963-1-1/49C904-1-1 is from the July 2, 1992 letter from M. A. Jackson to T. E. Murley, Subject: Braidwood Station, Units 1 and 2.

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Table 2-5. Byron Unit 1 -- Data Summary for Pressurized Thermal Shock Calculation

Beltline Material	Heat No.	IS Neutron Fluence at 32 EFPY	IRT <sub>NET</sub> F	Method of Determin. IRT <sub>NET</sub>	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Lower Nozzle Belt Forging	123J218	4.86E+18 <sup>(a)</sup>	+30 <sup>(b)</sup>	Plant Specific	31	RG1.99 Table 2	0.05 <sup>(b)</sup>	0.72 <sup>(b)</sup>
Upper Shell Forging	5P-5933	2.159E+19 <sup>(a)</sup>	+40 <sup>(b)</sup>	Plant Specific	19.14	Calculated	0.05 <sup>(b)</sup>	0.73 <sup>(b)</sup>
Lower Shell Forging	5P-5951	2.159E+19 <sup>(a)</sup>	+10 <sup>(b)</sup>	Plant Specific	26	RG1.99 Table 2	0.04 <sup>(b)</sup>	0.64 <sup>(b)</sup>
WF-501 Upper Circ. Weld	442011	4.86E+18 <sup>(a)</sup>	0 <sup>(b)</sup>	Generic	41	RG1.99 Table 1	0.03 <sup>(b)</sup>	0.63 <sup>(b)</sup>
WF-336 Middle Circ. Weld	442002	2.159E+19 <sup>(a)</sup>	-30 <sup>(b)</sup>	Plant Specific	22.33	Calculated	0.03 <sup>(b)</sup>	0.46 <sup>(b)</sup>
WF-472 Lower Circ. Weld	31401	<1.00E+17 <sup>(a)</sup>	+10 <sup>(b)</sup>	Plant Specific	164.65	RG1.99 Table 1	0.23 <sup>(b)</sup>	0.57 <sup>(b)</sup>

NOTES:

- Fluence data are from WCAP-13880, "Analysis of Capsule X from the Commonwealth Edison Company Byron Unit 1 Reactor Vessel Surveillance Program," January 1994.
- Chemical compositions and initial RT<sub>NET</sub> data for all materials are from the July 2, 1992 letter from M. A. Jackson to T. E. Murley, Subject: Byron Station, Units 1 and 2.

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Table 2-6. Byron Unit 1 -- Data Summary for Upper-Shelf Energy Calculation

Beltline Material	Heat No.	Material Type	1/4T USE at 32 EFPY	1/4T Neutron Fluence at 32 EFPY	Unirrad. USE	Method of Determin. Unirrad. USE
Lower Nozzle Belt Forging	123J218	A 508-2	119 <sup>(a)</sup>	2.92E+18 <sup>(c)</sup>	138 <sup>(e)</sup>	Direct
Upper Shell Forging	5P-5933	A 508-2	111 <sup>(a)</sup>	1.179E+19 <sup>(d)</sup>	138 <sup>(f)</sup>	Direct
Lower Shell Forging	5P-5951	A 508-2	120 <sup>(a)</sup>	1.179E+19 <sup>(d)</sup>	150 <sup>(e)</sup>	Direct
WF-501 Upper Circ. Weld	442011	Linde 80, SAW	63 <sup>(b)</sup>	2.92E+18 <sup>(d)</sup>	73 <sup>(g)</sup>	Direct
WF-336 Middle Circ. Weld	442002	Linde 80, SAW	60 <sup>(b)</sup>	1.179E+19 <sup>(d)</sup>	74 <sup>(g)</sup>	Direct
WF-472 Lower Circ. Weld	31401	Linde 80, SAW	--- <sup>(c)</sup>	<1.00E+17 <sup>(d)</sup>	72 <sup>(g)</sup>	Direct

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NOTES FOR TABLE 2-6:

- a. EOL USE values for the forgings were calculated using Regulatory Guide 1.99, Revision 2, Figure 2, assuming the lower limiting value of 0.1% copper for base metal.
- b. EOL USE values for the welds were calculated using Regulatory Guide 1.99, Revision 2, Figure 2, assuming the lower limiting value of 0.05% copper for welds.
- c. EOL fluence is below the limits of the Figure 2 curves defined in Regulatory Guide 1.99, Revision 2.
- d. Fluence data are from WCAP-13380, "Analysis of Capsule X from the Commonwealth Edison Company Byron Unit 1 Reactor Vessel Surveillance Program," January 1994.
- e. UUSE data for forgings 123J218 and 5P-5951 are from WCAP-11651, "Analysis of Capsule U from the Commonwealth Edison Co. Byron Unit 1 Reactor Vessel Radiation Surveillance Program," November 1987.
- f. UUSE data for forging 5P-5933 is from the July 2, 1992 letter from M. A. Jackson to T. E. Murley, Subject: Byron Station, Units 1 and 2.
- g. UUSE data for the welds are from the November 19, 1990 letter from T. W. Simpkin to T. E. Murley, Byron Station Units 1 and 2, Response to Request for Additional Information Regarding NRC Generic Letter 92-01.

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Table 2-7. Byron Unit 2 -- Data Summary for Pressurized Thermal Shock Calculation

Beltline Material	Heat No.	IS Neutron Fluence at 32 EFPY	IRT <sub>NOT</sub> F	Method of Determin. IRT <sub>NOT</sub>	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Lower Nozzle Belt Forging	4P-6107	6.82E+18 <sup>(a)</sup>	+10 <sup>(c)</sup>	Plant Specific	31	RG1.99 Table 2	0.05 <sup>(c)</sup>	0.74 <sup>(c)</sup>
Upper Shell Forging	49D329-1-1/ 49C297-1-1	2.192E+19 <sup>(a)</sup>	-20 <sup>(c)</sup>	Plant Specific	20	RG1.99 Table 2	0.01 <sup>(c)</sup>	0.70 <sup>(c)</sup>
Lower Shell Forging	49D330-1-1/ 49C298-1-1	2.192E+19 <sup>(a)</sup>	-20 <sup>(c)</sup>	Plant Specific	31	RG1.99 Table 2	0.05 <sup>(c)</sup>	0.73 <sup>(c)</sup>
WF-562 Upper Circ. Weld	442011	6.82E+18 <sup>(a)</sup>	+40 <sup>(c)</sup>	Plant Specific	41	RG1.99 Table 1	0.03 <sup>(c)</sup>	0.65 <sup>(c)</sup>
WF-447 Middle Circ. Weld	442002	2.192E+19 <sup>(a)</sup>	+10 <sup>(c)</sup>	Plant Specific	68	RG1.99 Table 1	0.05 <sup>(c)</sup>	0.62 <sup>(c)</sup>
WF-614 Lower Circ. Weld	31401	<1.00E+17 <sup>(b)</sup>	+40 <sup>(c)</sup>	Plant Specific	144.4	RG1.99 Table 1	0.18 <sup>(c)</sup>	0.54 <sup>(c)</sup>

NOTES:

- Fluence data are from WCAP-12431, "Analysis of Capsule U from the Commonwealth Edison Company Byron Unit 2 Reactor Vessel Surveillance Program," October 1989.
- Fluence data for weld WF-614 is from the January 17, 1986 letter from G. L. Alexander to H. R. Denton, Subject: Zion Station Units 1 and 2; Byron Station Units 1 and 2; Braidwood Station Units 1 and 2; Pressurized Thermal Shock.
- Chemical compositions and initial RT<sub>NOT</sub> data for all materials are from the July 2, 1992 letter from M. A. Jackson to T. E. Murley, Subject: Byron Station, Units 1 and 2.

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Table 2-8. Byron Unit 2 -- Data Summary for Upper-Shelf Energy Calculation

Beltline Material	Heat No.	Material Type	1/4T USE at 32 EFPY	1/4T Neutron Fluence at 32 EFPY	Unirrad. USE	Method of Determin. Unirrad. USE
Lower Nozzle Belt Forging	4P-6107	A 508-2	131 <sup>(a)</sup>	4.09E+18 <sup>(d)</sup>	155 <sup>(t)</sup>	Direct
Upper Shell Forging	49D329-1-1/ 49C297-1-1	A 508-3	117 <sup>(a)</sup>	1.66E+19 <sup>(d)</sup>	149 <sup>(f)</sup>	Direct
Lower Shell Forging	49D330-1-1/ 49C298-1-1	A 508-3	99 <sup>(a)</sup>	1.66E+19 <sup>(d)</sup>	127 <sup>(g)</sup>	Direct
WF-562 Upper Circ. Weld	442011	Linde 80, SAW	60 <sup>(b)</sup>	4.09E+18 <sup>(c)</sup>	70 <sup>(h)</sup>	Direct
WF-447 Middle Circ. Weld	442002	Linde 80, SAW	53 <sup>(b)</sup>	1.66E+19 <sup>(d)</sup>	67 <sup>(h)</sup>	Direct
WF-614 Lower Circ. Weld	31401	Linde 80, SAW	--- <sup>(c)</sup>	<1.00E+17 <sup>(e)</sup>	74 <sup>(h)</sup>	Direct

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NOTES FOR TABLE 2-8:

- a. EOL USE values for the forgings were calculated using Regulatory Guide 1.99, Revision 2, Figure 2, assuming the lower limiting value of 0.1% copper for base metal.
- b. EOL USE values for the welds were calculated using Regulatory Guide 1.99, Revision 2, Figure 2, assuming the lower limiting value of 0.05% copper for welds.
- c. EOL fluence is below the limits of the Figure 2 curves defined in Regulatory Guide 1.99, Revision 2.
- d. Fluence data are from WCAP-12845, "Analysis of Capsule U from the Commonwealth Edison Company Braidwood Unit 2 Reactor Vessel Surveillance Program," March 1991.
- e. Fluence data for weld WF-614 is from the January 17, 1986 letter from G. L. Alexander to H. R. Denton, Subject: Zion Station Units 1 and 2; Byron Station Units 1 and 2; Braidwood Station Units 1 and 2; Pressurized Thermal Shock.
- f. UUSE data for forgings 4P-6107 and 49D329-1-1/49C297-1-1 are from WCAP-12431, "Analysis of Capsule U from the Commonwealth Edison Company Byron Unit 2 Reactor Vessel Radiation Surveillance Program," October 1989.
- g. UUSE data for forging 49D330-1-1/49C298-1-1 is from the July 2, 1992 letter from M. A. Jackson to T. E. Murley, Subject: Byron Station, Units 1 and 2.
- h. UUSE data for the welds are from the November 19, 1993 letter from T. W. Simpkin to T. E. Murley, Braidwood Station Units 1 and 2, Response to Request for Additional Information Regarding NRC Generic Letter 92-01.

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## PRESSURIZED THERMAL SHOCK AND USE TABLES FOR ALL PWR PLANTS

### NOMENCLATURE

#### Pressurized Thermal Shock Table

- Column 1: Beltline material location identification.
- Column 2: Beltline material heat number; 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 3: End-of-life (EOL) neutron fluence at vessel inner wall; cited directly from inner diameter (ID) value reported in the latest submittal (GL 92-01, PTS, or P/T limits submittals).
- Column 4: Unirradiated reference temperature.
- Column 5: 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.

#### Generic

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

- Column 6: Chemistry factor for irradiated reference temperature evaluation.
- Column 7: Method of determining chemistry factor.

#### RG1.99 Table 1 or 2

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

#### Calculated

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

- Column 8: Copper content; cited directly from licensee value except when more than one value was reported. (Staff used the average value in the latter case.)
- Column 9: Nickel content; cited directly from licensee value except when more than one value was reported. (Staff used the average value in the latter case.)

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## Upper-Shelf Energy Table

- Column 1: Beltline material location identification.
- Column 2: Beltline material heat number; 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 3: Material type; plate types include A 533B-1, A 302B, A 302B Mod.; forging types include A 508-2 and A508-3; weld types include SAW welds using Linde 80, 0091, 124, 1092, ARCOS-B5 flux, Rotterdam welds using Grau Lo, SMIT 89, LW 320, and SAF 89 flux, and SMAW welds using no flux.
- Column 4: 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 Regulatory Guide 1.99, Revision 2.)
- Column 5: EOL neutron fluence at T/4 from vessel inner wall; cited directly from T/4 value or calculated by using Regulatory Guide 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).
- Column 6: Unirradiated USE
- Column 7: Method of determining unirradiated USE.

### Direct

For forgings, this indicates that the unirradiated USE was from specimens oriented in the weak direction. For welds, this indicates that the unirradiated USE was from test data.

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