



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

March 30, 1994

Docket No. 50-410

Mr. B. Ralph Sylvia  
Executive Vice President, Nuclear  
Niagara Mohawk Power Corporation  
301 Plainfield Road  
Syracuse, New York 13212

Dear Mr. Sylvia:

SUBJECT: GENERIC LETTER (GL) 92-01, REVISION 1, "REACTOR VESSEL STRUCTURAL INTEGRITY," NINE MILE POINT NUCLEAR STATION, UNIT 2 (TAC NO. M83487)

By letter dated July 2, 1992, Niagara Mohawk Power Corporation (NMPC) 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 NMPC 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 data base designated Reactor Vessel Integrity Database (RVID). The RVID contains the following tables: A pressure-temperature limit table for BWRs and an upper-shelf energy (USE) table for PWRs and BWRs. Enclosure 1 provides the pressure-temperature table, Enclosure 2 provides the USE table for your facility, and Enclosure 3 provides a key for the nomenclature used in the tables. The tables include the data necessary to perform USE and pressure-temperature limit 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 data are provided in the tables.

We request that NMPC verify that the information 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 NRC staff will consider NMPC's actions related to GL 92-01, Revision 1, to be complete.

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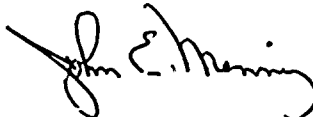
Mr. B. Ralph Sylvia

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March 30, 1994

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,



John E. Menning, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
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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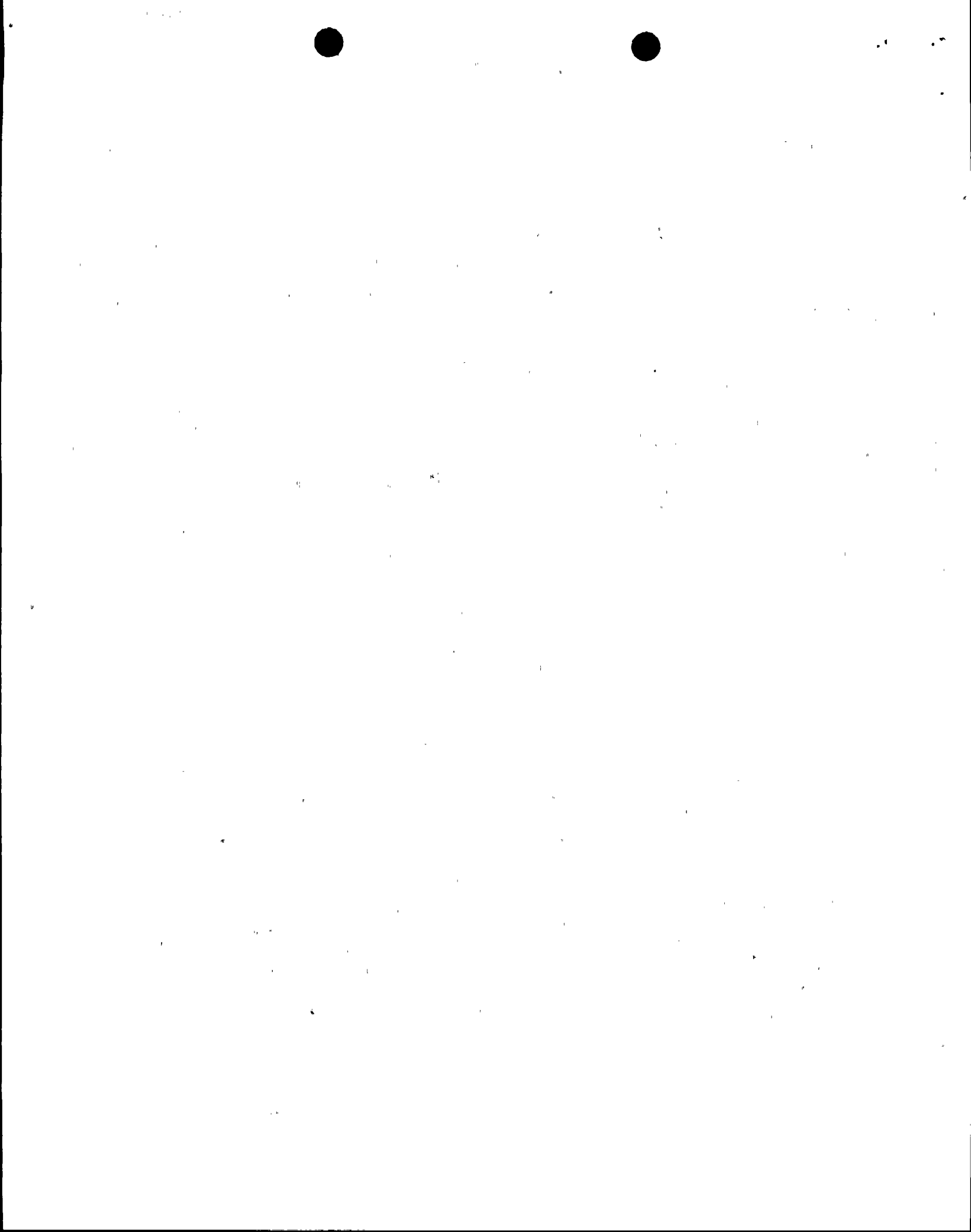
## Summary File for Pressure-Temperature Limits

Plant Name	Beltline Ident.	Heat No. Ident.	ID Neut. Fluence at EOL/EPY	IRT <sub>act</sub>	Method of Determin. IRT <sub>act</sub>	Chemistry Factor	Method of Determin. CF	XCu	XNI
Nine Mile Point 2 EOL: 10/21/2026	#2 Shell Ring	C3065-1	1.72E18	-10°F	Plant Specific	37	Table	0.06	0.63
	#2 Shell Ring	C3121-2	1.72E18	0°F	Plant Specific	58	Table	0.09	0.65
	#2 Shell Ring	C3147-1	1.72E18	0°F	Plant Specific	74.45	Table	0.11	0.63
	#1 Shell Ring	C3147-2	1.72E18	0°F	Plant Specific	74.45	Table	0.11	0.63
	#1 Shell Ring	C3066-2	1.72E18	-20°F	Plant Specific	44	Table	0.07	0.64
	#1 Shell Ring	C3065-2	1.72E18	10°F	Plant Specific	37	Table	0.06	0.63
	#2 Shell Axial Welds BD/BF	5P5657	1.72E18	-60°F	Plant Specific	95	Table	0.07	0.71
	#2 Shell Axial Welds BD/BF	5P5657	1.72E18	-60°F	Plant Specific	54	Table	0.04	0.89
	#1 Shell Axial Welds BA/BC	5P6214B	1.72E18	-50°F	Plant Specific	27	Table	0.02	0.82
	#1 Shell Axial Welds BA/BC	5P6214B	1.72E18	-40°F	Plant Specific	20	Table	0.01	0.70
	Circ. Weld	4P7465 (S)	1.72E18	-60°F	Plant Specific	27	Table	0.02	0.82
	Circ. Weld	4P7465 (T)	1.72E18	-60°F	Plant Specific	27	Table	0.02	0.80
	Circ. Weld	4P7216 (S)	1.72E18	-50°F	Plant Specific	82	Table	0.06	0.85
	Circ. Weld	4P7216 (T)	1.72E18	-80°F	Plant Specific	54	Table	0.04	0.83

Reference for Nine Mile Point 2

Fluence, chemical composition, and IRT data are from July 2, 1992, letter from C. D. Terry (NMPCo) to USNRC Document Control Desk, subject: Generic Letter 92-01, Revision 1, Reactor Vessel Structural Integrity, 10 CFR 50.54(f)

NOTE: Nine Mile Point 2 has a margin that is specially calculated:  $M = 2 \cdot \sqrt{(CF \cdot ff/M)^2 + 100}$





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## Summary File for Upper Shelf Energy

Plant Name	Beltline Ident.	Heat No.	Material Type	USE at EOL/EPY	1/4T Neutron Fluence at EOL/EPY	Unirrad. USE	Method of Determin. Unirrad. USE
Nine Mile Point 2 EOL: 10/21/2026	#2 Shell Ring	C3065-1	A 5338-1	83	1.18E18	94	Direct
	#2 Shell Ring	C3121-2	A 5338-1	63	1.18E18	71	Direct
	#2 Shell Ring	C3147-1	A 5338-1	67	1.18E18	70	Direct
	#1 Shell Ring	C3147-2	A 5338-1	76	1.18E18	86	Direct
	#1 Shell Ring	C3066-2	A 5338-1	71	1.18E18	80	Direct
	#1 Shell Ring	C3065-2	A 5338-1	74	1.18E18	83	Direct
	#2 Shell Axial Welds BD/BF	5P5657	Linde 124, SAW	74	1.18E18	85	Direct
	#2 Shell Axial Welds BD/BF	5P5657	Linde 124, SAW	78	1.18E18	88	Direct
	#1 Shell Axial Welds BA/BC	5P62148	Linde 124, SAW	78	1.18E18	88	Direct
	#1 Shell Axial Welds BA/BC	5P62148	Linde 124, SAW	85	1.18E18	96	Direct
	Circ. Weld	4P7465 (S)	Linde 124, SAW	90	1.18E18	102	Direct
	Circ. Weld	4P7465 (T)	Linde 124, SAW	97	1.18E18	110	Direct
	Circ. Weld	4P7216 (S)	Linde 124, SAW	78	1.18E18	89	Direct
	Circ. Weld	4P7216 (T)	Linde 124, SAW	87	1.18E18	98	Direct

Reference for Nine Mile Point 2

USE, chemical composition, and fluence data are from July 2, 1992, letter from C. D. Terry (NMPCo) to USNRC Document Control Desk, subject: Generic Letter 92-01, Revision 1, Reactor Vessel Structural Integrity, 10 CFR 50.54(f)



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 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).



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.

Equiv. 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.





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 E. Menning, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
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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