VERMONT YANKEE NUCLEAR POWER CORPORATION

SEVENTY SEVEN GROVE STREET
RUTLAND, VERMONT 05701

REPLY TO:
ENGINEERING OFFICE
TURNPIKE ROAD
WESTBORO, MASSACHUSETTS 015
TELEPHONE 617-366-9011

B.4.2.1

WVY 78-103

December 18, 1978

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Attention: Mr. Boyce H. Grier, Director

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) I&E Letter to YAEC, dated September 29, 1978 (Bulletin No. 78-12)
(c) I&E Letter to YAEC, dated November 24, 1978 (Bulletin No. 78-12A)
(d) NEDO-21708, "Licensing Topical Report, Radiation Effects in Boiling Water Reactor Pressure Vessel Steels," by J. N. Kass, et al, General Electric Co., October, 1977
(e) ASME Boiler & Pressure Vessel Code, Section II, Part C, 1977 Edition

Dear Sir:

Subject: Vermont Yankee Reactor Pressure Vessel Weld Metal Data

I. E. Bulletin No. 78-12A requested Vermont Yankee to conduct a records search for specification of the weld material used for fabrication of our reactor pressure vessel. It further required that we provide all information available on weld materials used for each reactor vessel primary boundary ferritic weldment; specifically, Items 1c, 1d, 2a, 2b, first sentence of 2c, 3 and 4 of I. E. Bulletin 78-12.

The intent of I. E. Bulletins 78-12 and 78-12A is to provide reasonable assurance to the Commission that non-conforming weld wire was not used in the fabrication of the Vermont Yankee reactor pressure vessel. The available information indicates that out of specification weld wire was not used in the Vermont Yankee reactor vessel.

The following information which substantiates our belief that the Vermont Yankee vessel was fabricated according to specifiaation is included for your review:

-- Weld Rod and Wire Certification
-- Weld Repair Certification
-- Welding Certification
-- Welder Qualification Certification
-- Table I: A comparison of the E-8018G weld rod specification with actual weld chemistry data obtained from surveillance program tests. This shows that the specified weldment conforms to the fabrication specifications.

To obtain additional and perhaps irrelevant data will require a time consuming and costly search of General Electric and Chicago Bridge and Iron records. If, however, you require further information, we will be happy to discuss it with you.

We trust the enclosed information is satisfactory and meets the intent of I. E. Bulletin 78-12A. Should you have any questions, please contact us.

Very truly yours,

VERMONT YANKEE POWER CORPORATION

D. E. Moody
Manager of Operations

ECB/em

Enclosures

CHICAGO BRIDGE & IRON COMPANY
801 EAST SIXTH STREET, NEW CASTLE, DELAWARE 19720

Telex: 83-5464
Western Union: FAX New Cast
Area Code: 302 328-1371

DATE: OCTOBER 22, 1969

REFERENCE: BOILING WATER NUCLEAR REACTOR VESSEL
17.167' ID X 63.167 INS HDS.
MANUFACTURER'S SERIAL NO. B-4698
VERMONT YANKEE PROJECT, VERNON, VT.
GENERAL ELECTRIC CO. P.O. 205-55565-I
CB&I CONTRACT 9-6201

SUBJECT: WELD ROD AND WIRE CERTIFICATION

TO WHOM IT MAY CONCERN:

This is to certify that all weld rod and wire used in the fabrication of the above referenced vessel was within the acceptable limits of the ASME Code, Section III, 1965 Edition, with Addenda through Summer 1966, and General Electric Co. Specification 21A1115 Rev. 3, Paragraph 8.15 and also approved Chicago Bridge & Iron Company procedures which are included in Vermont Yankee Project Manual Volume II.

The types of weld rod and wire used in this contract were as follows:

SA316-E-8018G (BELTLINE SEAM WELDS)

SA233-E-7018

SA298-E-308

SA298-E-308L

SA298-E-309

SA371-ER-308L

SA371-ER-309

SB295-ENiCR-Fe-3(Inco 182)

SB304-ERNiCR-3 (Inco 82)

Linde 40 w/1% Ni or equal.

CHICAGO BRIDGE & IRON COMPANY
Don L. Mowry
DON L. MOWRY
PROJECT QUALITY ASSURANCE MANAGER
VERMONT YANKEE PROJECT

CHICAGO BRIDGE & IRON COMPANY
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CB&I CONTRACT 9-6201

SUBJECT: WELD REPAIR CERTIFICATION

TO WHOM IT MAY CONCERN:

This is to certify that any weld repair done on the above referenced vessel was performed in accordance with the ASME Code, Section III, 1965 Edition, with Addenda through Summer 1966, and General Electric Co. Specification 21A1115 Rev. 3, Paragraphs 9.3 and 9.4 and also approved CB&I Co. procedures GRP-1 Rev. 0, GRP-2 Rev. 1, GRP-3 Rev. 3, GRP-4 Rev. 0, GRP-5 Rev. 1,2 or 3, GRP-6 Rev. 0 (latest revision of above procedures included in Vermont Yankee Project Manual Volume II).

CHICAGO BRIDGE & IRON COMPANY

Don L. Mowry

DON L. MOWRY
PROJECT QUALITY ASSURANCE MANAGER
VERMONT YANKEE PROJECT

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GENERAL ELECTRIC CO. P.O. 205-55565-I
CB&I CONTRACT 9-6201

SUBJECT: WELDING CERTIFICATION

TO WHOM IT MAY CONCERN:

This is to certify that welding of the above referenced vessel was performed in accordance with the ASME Code, Section III, 1965 Edition, with Addenda through Summer 1966, and General Electric Co. Specification 21A1115 Rev. 3, Paragraph 9.3 and also approved CB&I Co. procedures

WPS-1	Rev. 1 or 2	WPS-18	Rev. 1,2,3 or 4	WPS-35	Rev.
WPS-2	Rev. 1 or 2	WPS-19	Rev. 1 or 2	WPS-36	Rev.
WPS-3	Rev. 0	WPS-20	Rev. 0	WPS-37	Rev.
WPS-4	Rev. 1 or 2	WPS-21	Rev. 1	WPS-38	Rev.
WPS-5	Rev. 0	WPS-22	Rev. 1	WPS-39	Rev.
WPS-6	Rev. 1 or 2	WPS-23	Rev. 0 or 1	WPS-40	Rev.
WPS-7	Rev. 2	WPS-24	Rev. 1,2 or 4	WPS-41	Rev.
WPS-8	Rev. 0	WPS-25	Rev. 0	WPS-42	Rev.
WPS-9	Rev. 0	WPS-26	Rev. 0	WPS-43	Rev.
WPS-10	Rev. 0	WPS-27	Rev. 2	WPS-44	Rev.
WPS-11	Rev. 1	WPS-28	Rev. 1,3,4 or 5	WPS-45	Rev.
WPS-12	Rev. 2	WPS-29	Rev. 0 or 1	WPS-46	Rev.
WPS-13	Rev. 2 or 3	WPS-30	Rev. 1 or 2	WPS-47	Rev.
WPS-14	Rev. 2	WPS-31	Rev. 0 or 1	WPS-48	Rev.
WPS-15	Rev. 0	WPS-32	Rev. 0,1 or 2	WPS-49	Rev.
WPS-16	Rev. 1 or 2	WPS-33	Rev. 1	WPS-50	Rev.
WPS-17	Rev. 2	WPS-34	Rev. 0 or 1	WPS-51	Rev.

CHICAGO BRIDGE & IRON COMPANY

SUBJECT: WELDING CERTIFICATION

WPS-52	Rev. 1	WPS-64	Rev. 0
WPS-53	Rev. 0	WPS-65	Rev. 0
WPS-55	Rev. 0	WPS-69	Rev. 0
WPS-56	Rev. 0	WPS-73	Rev. 0 or 1
WPS-58	Rev. 0	WPS-74	Rev. 1
WPS-59	Rev. 0	WPS-75	Rev. 0
WPS-60	Rev. 0		
WPS-62	Rev. 0		
WPS-63	Rev. 0		

(latest revision of above procedures included in Vermont Yankee Project Manual Volume II).

CHICAGO BRIDGE & IRON COMPANY

Don L. Mowry

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PROJECT QUALITY ASSURANCE MANAGER
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CB&I CONTRACT 9-6201

SUBJECT: WELDER QUALIFICATION CERTIFICATION

TO WHOM IT MAY CONCERN:

This is to certify that all welder qualifications for both shop and field fabrication of the above referenced vessel were performed in accordance with the ASME Code, Sections III and IX, 1965 Edition, with Addenda through Summer 1966, and General Electric Specification 21A1115 Rev. 3, Paragraph 9.0. Copies of these qualification records are on file with Chicago Bridge & Iron Company and will be furnished to General Electric Co. upon written request.

CHICAGO BRIDGE & IRON COMPANY

Don L Mowry

DON L. MOWRY
PROJECT QUALITY ASSURANCE MANAGER
VERMONT YANKEE PROJECT

TABLE I

VERMONT YANKEE REACTOR PRESSURE VESSEL
WELD METAL CHEMISTRY

Weld Metal	Reference	C (wt.%)	Cr (wt.%)	Cu (wt.%)	Mn (wt.%)	Mo (wt.%)	Ni (wt.%)	P (wt.%)	Si (wt.%)	S (wt.%)	V (wt.%)
Vermont Yankee Surveillance	(d)	0.06	0.03	0.01	1.05	0.49	0.95	0.012	0.43	0.017	<0.002
AWS-Spec. E-8018G	(e)	--	0.30* min.	--	1.00* min.	0.20* min.	0.50* min.	--	0.80* min.	--	0.10* min.

* In order to meet the alloy requirements of the G group, the weld deposit need have the minimum, as specified above, of only one of the elements listed.

REFERENCES

(d) NEDO-21708, "Licensing Topical Report, Radiation Effects in Boiling Water Reactor Pressure Vessel Steels," by J. N. Kass, et al, General Electric Co., October, 1977

(e) ASME Boiler & Pressure Vessel Code, Section II, Part C, 1977 Edition