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SUBJECT: Forwards revised reactor vessel pressure-temp limits,per 830328 request,Info updates 780322 application.

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VASSALLO,D.B. Operating Reactors Branch 2

SUBJECT: Forwards revised reactor vessel pressure-temp limits,per 850320 request.Info updates 780322 application.

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	NRR/DSI/METB	1	1	NRR/DSI/RAB	1	1
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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

April 20, 1983

Director of Nuclear Reactor Regulation
Attention: Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Gentlemen:

Your letter of March 28, 1983 requested information on our application of March 22, 1978. That application provided revised reactor vessel pressure-temperature limits. The attachment to this letter provides the information requested.

Very truly yours,

T. E. Lempges
Vice President Nuclear Generation

TEL/MGM:bd

A001

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT UNIT NO. 1

DOCKET 50-220
DPR-63

Revised Reactor Vessel Pressure-Temperature Limits

1. Request

Identify the limiting reactor vessel belt line component (plate or weld) for the Nine Mile Point Unit 1 (NMP-1) reactor vessel.

Response

The limiting component for the Nine Mile Point Unit 1 reactor vessel is the weld material.

2. Request

Provide the weight percent copper (Cu), phosphorus (P) and nickel (Ni) contained in the limiting component.

Response

Our letter of January 31, 1978 provided the requested information for the Nine Mile Point Unit 1 reactor vessel. The attached table from that letter summarizes the chemical analysis of the electrodes used on the Nine Mile Point Unit 1 reactor vessel welds. This indicated that the maximum copper content is less than 0.05 percent and phosphorus is less than 0.022 percent. The nickel content of the electrodes is also included in this table.

3. Request

Provide the bases for the revised curve you submitted. The bases should discuss the expected change in the RT_{NDT}, considering the projected neutron fluence for the Cu, Ni and P content of the limiting component. The data that support the bases should be from material that has been irradiated in commercial light water reactors and is similar to that in the NMP-1 limiting component.

Response

Revised Figure 3.2.2.c of our application of March 22, 1978 was derived using the formula of regulatory position C.1a of Regulatory Guide 1.99, Revision 1, April 1977 based on the maximum Cu and P concentrations as described in response to 2 above. Nickel content does not enter into the formula for calculating the Nil Ductivity Transition Temperature shift as presented in the Regulatory Guide.

Chemical Analysis
C-E Deposited All Weld Metal - Electrode Types E8018C-3 - E8018G
And Core Wire Used to Manufacture Electrodes
Time Period - 2/19/63 to 11/6/69

Size	R-No.	D-No.	Si	S	P	Mn	C	Ni	Mo	V	Cu	Lot No.
3/32	1379		.05	.018	.013	.24	.034					
		3250	.45	.016	.020	1.02	.109	1.32	.26			
		3276	.41	.015	.015	1.00	.088	1.13	.31			
3/32	1766		.05	.010	.009	.22	.029			.006		
			.27	.015	.021	.98	.088	1.00	.24			
1/8	1390		.05	.023	.008	.22	.028			.011		
		3247	.55	.016	.017	1.10	.094	1.28	.30			
		3262	.49	.018	.016	.93	.087	1.12	.32			
		3300	.39	.011	.015	1.12	.092	1.13	.27			1357
		3329	.46	.014	.020	1.10	.089	1.17	.34			
1/8	1813		.05	.018	.007	.27	.034			.001		
		4710	.26	.017	.022	.98	.086	1.01	.28			
1/8	2025		.05	.014	.007	.23	.035			.006		
		5048	.29	.014	.008	1.03	.065	1.04	.28			EBDG
		5272	.59	.011	.008	1.34	.071	1.32	.31			JOLG
5/32	1383		.05	.013	.003	.25	.039					
		3177	.36	.015	.016	.93	.056	1.10	.22			
5/32	1401		.05	.016	.005	.26	.034					
		3216	.61	.012	.015	1.24	.080	1.11	.26			
		3249	.45	.014	.014	.97	.076	1.09	.31			
		3307	.46	.014	.020	.98	.078	1.18	.29			1331
5/32	1735		.05	.011	.011	.24	.025			.005		
		4711	.33	.017	.022	.72	.075	.93	.27			
5/32	1697		.05	.012	.005	.21	.034			.004		
		4622	.24	.012	.011	.90	.072	1.04	.30			
5/32	1767		.05	.010	.010	.28	.029			.006		
		4729	.23	-	.020	1.24	.077	-	-			
		4820	.20	.014	.009	.82	.068	.96	.28			
		5118	.43	.012	.008	1.19	.058	1.49	.34			
5/32	1631		.05	.016	.005	.25	.028			.009		
		5000	.36	.017	.013	.93	.064	1.06	.31			EBFE
3/16	1391		.05	.018	.008	.22	.025			.008		
		3251	.48	.018	.012	.99	.069	1.10	.28			
[illegible]	1814		.05	.015	.008	.25	.038			.001		
		4728	.24	.016	.019	.97	.10	1.03	.29			
		4712	.32	.016	.020	1.08	.11	1.13	.28			

Chemical Analysis

C-E Deposited All Weld Metal - Electrode Types E8018C-3 - E8018C
And Core Wire Used to Manufacture Electrodes
Time Period - 2/19/63 to 11/6/69

Size	R-No.	D-No.	Si	S	P	Mn	C	Ni	Mo	V	Cu	Lot No.
3/16	1742		.05	.013	.007	.23	.027			.005		
		4626	.34	.013	.010	1.01	.070	1.14	.34			
3/16	1866		.05	.017	.011	.20	.026			.005		
		5005	.17	.015	.008	.81	.064	1.04	.26			EOAG
1/4	1384		.05	.020	.005	.21	.023			.006		
		3252	.53	.018	.013	.94	.067	1.10	.36			
		3297	.50	.016	.013	1.04	.085	1.18	.30			1333
1/4	1736		.05	.012	.011	.21	.025			.005		
		4627	.49	.014	.012	1.17	.086	1.09	.34			
		4713	.20	.017	.021	.91	.090	1.02	.28			
1/4	1942		.05	.015	.001	.22	.034			.006		
		4971	.29	.011	.009	.95	.086	.92	.27			DAGG
		4972	.20	.012	.008	.84	.063	.98	.25			DAGG
5/32	2031		.05	.016	.005	.23	.003			.005		
		5158	.48	.011	.009	1.26	.062	1.46	.34			HOKG
1/4	2079		.05	.013	.006	.23	.031			.004		
		5159	.45	.010	.009	1.30	.081	1.49	.35			HAEG
3/32	2043		.06	.014	.006	.23	.032			.006		
		5181	.49	.011	.010	1.40	.074	1.75	.36			HBEG
1/4	2092		.05	.016	.008	.24	.043			.005		
		5274	.43	.010	.008	1.25	.081	1.29	.30			JBFG
3/16	2032		.05	.016	.005	.21	.034			.004		
		5508	.45	.011	.007	.99	.076	.94	.24	.004	.02	
5/32		5509	.44	.011	.007	.95	.073	.90	.22	.004	.02	
3/16	2506		.06	.008	.005	.25	.034					
5/32		7676	.37	.013	.010	.98	.077	.94	.29	.009	.04	KACI

Analysis for copper levels in the core wire and deposited weld metal was not performed by C-E during this time period. The wire supplier analyzed for copper but could not identify with the heats submitted although they did state that 99% of the wire contained less than .02% copper and very little scrap was used during this period.

Therefore, since 100% of core wire copper is transferred across the arc and none was added through the electrode coating, it is safe to assume that all the deposited welds contained .02 or less copper during this period. 0.05