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VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

W. L. STEWART
VICE PRESIDENT
NUCLEAR OPERATIONS

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November 28, 1984

Mr. James P. O'Reilly
Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30323

Serial No. 645
NO/JHL/lms
Docket No. 50-338
License No. NPF-4

Dear Mr. O'Reilly:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT NO. 1
RESPONSE TO I.E. BULLETIN 82-02

Enclosed is the response to I.E. Bulletin 82-02, "Degradation of Threaded Fasteners in the Reactor Coolant Pressure Boundary of PWR Plants" for North Anna Unit No. 1. Specifically, this information is in response to items 4.b and 4.c. Per the telephone conversation between Mr. R. J. Hardwick (Vepco) and Mr. S. A. Elrod (NRC), on November 26, 1984, an extension until November 27, 1984 was granted to respond to the bulletin.

Pursuant to Section 182a, Atomic Energy Act of 1954 as amended, the information contained in the enclosure is true and accurate to the best of my knowledge and belief.

Very truly yours,

W. L. Stewart

Enclosure

cc: Mr. R. C. DeYoung, Director
Office of Inspection and Enforcement
Washington, D. C. 20555

Mr. M. W. Branch
NRC Resident Inspector
North Anna Power Station

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IE11

RESPONSE TO ITEM 4.b & 4.c OF IEB 82-02: DEGRADATION OF THREADED FASTENERS IN THE REACTOR COOLANT PRESSURE BOUNDARIES OF PWR PLANTS

The following information is being submitted as required by Action Items 4.b and 4.c of IEB 82-02 for North Anna Unit 1. All other items have been previously answered and submitted. Stud inspection for North Anna Unit 2 was submitted July 28, 1983.

4.b For Action Item 2 of IEB 82-02 all threaded fasteners identified in the response to Action Item 3 of IEB 82-02 were inspected - at least visually. Where it was necessary to remove threaded fasteners for maintenance, the fasteners were either reinspected as required prior to reuse or replaced. See Supplement 1 for the identification of the fasteners inspected.

4.c The results of the inspections performed on the items referred to in Supplement 1 are provided in Supplement 2.

All stud corrosion observed was localized pitting and scaling with the exception of MOV-1700 which exhibited wastage on 8 out of 24 closure studs.

The total staff time spent to prepare a written response for Item 4.b and 4.c for North Anna Unit 1 was 60 hours.

The radiation exposure attributed to the initial and subsequent visual inspection was 600 mR excluding NDT inspections.

SUPPLEMENT 1

IDENTIFICATION OF RCPB BOLTING MATERIAL WITHIN THE SCOPE DEFINED IN IEB 82-02

BASIS

(1) Steam Generator and Pressurizer manway closures
(2) Valve bonnets and pump flange connections in piping 6" or greater

BOLTING MATERIAL TO BE CONSIDERED

		UNIT 1
1.	Loop Stop Valves	
	A Loop T_H	MOV-1590
	T_C	MOV-1591
	B Loop T_H	MOV-1592
	T_C	MOV-1593
	C Loop T_H	MOV-1594
	T_C	MOV-1595
2.	Loop Stop Bypass Valves	
	A Loop	MOV-1585
	B Loop	MOV-1586
	C Loop	MOV-1587
3.	Reactor Cooling Pump Casing And Seal Housing	1A RCP
		1B RCP
		1C RCP
4.	Steam Generator Manway Bolting (Primary side only)	1A
		1B
		1C
5.	Pressurizer Manway Bolting	1-RC-E-2
6.	Residual Heat Removal System Isolation Valves	MOV-1720A
		MOV-1720B
		MOV-1700
		MOV-1701
7.	S.I. Accumulator Discharge to the Loops	
	SI-TK-1A (ATc)	1-SI-127
		1-SI-125
	SI-TK-1B (BTc)	1-SI-144
		1-SI-142
	SI-TK-1C (CTc)	1-SI-161
		1-SI-159

		UNIT 1
8.	Safety Injection to Loops	
	A Loop Tc	1-SI-83
		1-SI-195
	B Loop Tc	1-SI-86
		1-SI-197
	C Loop Tc	1-SI-89
		1-SI-199
	Header to Loops	MOV-1890C
		MOV-1890D
	A Loop T_H	1-SI-99
		1-SI-209
	B Loop T_H	1-SI-206
		1-SI-95
	C Loop T_H	1-SI-211
		1-SI-103
		1-SI-213
		1-SI-207
	Header to Loops	MOV-1890A
		MOV-1890B
9.	Pressurizer Safety Valves	SV-1551A
		SV-1551B
		SV-1551C

SUPPLEMENT 2

RESULTS OF THREADED FASTENER INSPECTION UNIT 1

BOLTING MATERIAL	MATERIAL EXAMINED IN PLACE/REMOVED	INSPECTION RESULTS
1. Loop Stop Valves		
"A" Loop T_H MOV-1590	IN PLACE	Packing leakage was noted. The packing was adjusted and fasteners cleaned satisfactorily. No fastener damage was noted by visual inspection.
"A" Loop T_C MOV-1591	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
"B" Loop T_H MOV-1592	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
"B" Loop T_H MOV-1593	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
"C" Loop T_H MOV-1594	IN PLACE	Packing leakage was noted. The packing was adjusted and fasteners cleaned satisfactorily. No fastener damage was noted by visual inspection.
"C" Loop T_H MOV-1595	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
2. Loop Stop Bypass Valves		
"A" Loop MOV-1585	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
"B" Loop MOV-1586	IN PLACE	No valve leakage was noted. Fastener damage by corrosion was noted (rust, cause unknown). All fasteners were replaced.
"C" Loop MOV-1587	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.

SUPPLEMENT 2

RESULTS OF THREADED FASTENER INSPECTION UNIT 1

BOLTING MATERIAL	MATERIAL EXAMINED IN PLACE/REMOVED	INSPECTION RESULTS
3. Reactor Coolant Pump Casing and Seal Housing		
"1A" RCP	IN PLACE	No leakage nor fastener damage was noted by visual inspection.
"1B" RCP	IN PLACE	No leakage nor fastener damage was noted by visual inspection.
"1C" RCP	IN PLACE	No leakage nor fastener damage was noted by visual inspection.
4. Steam Generator Manway Bolting (Primary Side Only)		
"1A"	REMOVED	The fasteners were removed and inspected visually and by magnaflux inspection IAW 2210 and 2211 of ASME XI. No problems with boric acid degradation was noted.
"1B"	REMOVED	
"1C"	REMOVED	
5. Pressurizer Manway Bolting		
1-RC-E-2	IN PLACE	No leakage nor fastener damage was noted by visual inspection.
6. Residual Heat Removal System Isolation Valves		
1-RH-MOV-1720A	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
1-RH-MOV-1720B	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.

SUPPLEMENT 2
RESULTS OF THREADED FASTENER INSPECTION UNIT 1

BOLTING MATERIAL	MATERIAL EXAMINED IN PLACE/REMOVED	INSPECTION RESULTS
6. (cont.)		
1-RH-MOV-1700	REMOVED	Body to bonnet leakage and stud degradation was noted. The body to bonnet gasket was replaced and all studs replaced.
1-RH-MOV-1701	IN PLACE	Packing leakage was noted. The packing was replaced and fasteners cleaned. No fastener degradation was noted.
7. S. I. Accumulator Discharge to the Loops		
SI-TK-1A (AT_C)		
1-SI-127	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
1-SI-125	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
SI-TK-1B (BT_C)		
1-SI-144	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
1-SI-142	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
SI-TI-1C (CT_C)		
1-SI-161	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.
1-SI-159	IN PLACE	No valve leakage nor fastener damage was noted by visual inspection.

SUPPLEMENT 2

RESULTS OF THREADED FASTENER INSPECTION UNIT 1

BOLTING MATERIAL	MATERIAL EXAMINED IN PLACE/REMOVED	INSPECTION RESULTS
8. Safety Injection to Loops		
"A" Loop T_H		
1-SI-99	IN PLACE	No valve leakage nor fastener damage was noted.
1-SI-209	IN PLACE	No valve leakage nor fastener damage was noted.
1-SI-206	IN PLACE	No valve leakage nor fastener damage was noted.
"B" Loop T_H		
1-SI-95	IN PLACE	No valve leakage nor fastener damage was noted.
1-SI-211	IN PLACE	No valve leakage nor fastener damage was noted.
"C" Loop T_H		
1-SI-103	REMOVED	Boric acid was present from a source other than the valve. The studs were cleaned and visually inspected satisfactorily.
1-SI-213	IN PLACE	No valve leakage nor fastener damage was noted.

SUPPLEMENT 2

RESULTS OF THREADED FASTENER INSPECTION UNIT 1

BOLTING MATERIAL	MATERIAL EXAMINED IN PLACE/REMOVED	INSPECTION RESULTS
1-SI-207	IN PLACE	No valve leakage nor fastener damage was noted
Header to Loops		
MOV-1890A	IN PLACE	No valve leakage nor fastener damage was noted
MOV-1890B	IN PLACE	No valve leakage nor fastener damage was noted
"A" Loop T_c		
1-SI-83	IN PLACE	No valve leakage nor fastener damage was noted.
1-SI-195	IN PLACE	No valve leakage nor fastener damage was noted.
"B" Loop T_c		
1-SI-86	IN PLACE	Body to bonnet leakage and stud degradation was noted. The body to bonnet gasket was replaced and all studs replaced.
1-SI-197	IN PLACE	Body to bonnet leakage and stud degradation was noted. The body to bonnet gasket was replaced and all studs replaced.
"C" Loop T_c		
1-SI-89	IN PLACE	No valve leakage nor fastener damage was noted.

SUPPLEMENT 2

RESULTS OF THREADED FASTENER INSPECTION UNIT 1

BOLTING MATERIAL	MATERIAL EXAMINED IN PLACE/REMOVED	INSPECTION RESULTS
1-SI-199	IN PLACE	No valve leakage nor fastener damage was noted.
Header to Loops		
MOV-1890C	IN PLACE	A slight packing leak was noted. The packing was replaced. No stud degradation was noted.
MOV-1890D	IN PLACE	No valve leakage nor fastener damage was noted.
Pressurizer Safety Valves		
SV-1551A	REMOVED/IN PLACE	No valve leakage nor fastener damage was noted.
SV-1551B	REMOVED/IN PLACE	No valve leakage nor fastener damage was noted.
SV-1551C	REMOVED/IN PLACE	No valve leakage nor fastener damage was noted.