Intracompany
Correspondence

S-28
50-348/364-CIVP
2/13/92

Staff Exh. 28

Alabama Power

NS-87-0241

Gen. 1197

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Subject: Evaluation for Continued Operation-
Limitorque MOV Motor Power Lead Splices
In Environmental Qualification Scope

Date: July 30, 1987

To: Mr. J. D. Woodard

From: W. G. Hairston, III
At: Vice President,
Nuclear Generation

Enclosures 1 and 2 compile a justification for continued operation (JCO) developed by Bechtel to assist FNP in their evaluation of splices utilized in certain environmentally qualified (EQ) Limitorque MOV motor power leads. The Unit 1 evaluation to determine if terminal strips exist has been completed. The Unit 2 evaluation for terminal strips has not been completed. This JCO assumes the Unit 2 valves that have not been inspected do not contain terminal strips. No deficiencies are known regarding motor power cables terminated on terminal strips; therefore, they are not included. Also not included in the enclosed JCO are MOV 3660, 3872A and 3872B. The JCO also assumes no potential deficiencies exist on MOV 3660.

The evaluation methodology was based on the location of the valve operators and the resulting severity of the design basis accident environmental conditions. For valve operators located inside the Containment (CTMT) or Main Steam Valve Room (MSR), an operability analysis was performed by evaluating the normal plant operation position of each valve, and the required accident mitigation and post accident positioning. For valve operators located outside the CTMT and MSR, the design basis accident environmental conditions are less severe with the primary concern being only radiation degradation due to post LOCA recirculated fluids, as valve operator temperatures are expected to be within normal operating design considerations. Valve operators outside the CTMT and MSR were evaluated by analyzing the environmental effects on the motor power lead splices. The splice material and configuration assumed in this evaluation is the worse case expected at FNP.

As a result of this evaluation it has been determined that the required safety functions within the scope of this evaluation can be expected to be performed by the valves considered or by alternate means during a design basis event.

The Bechtel evaluation has divided the subject valves into four groups. The valves in Group 2 are located in the main steam valve room or containment and do not require post accident operation. Seven of the Group 2 valves are included in Emergency Response Procedures and could be repositioned during the accident. This evaluation assumes these valves do not reposition because an alternate means of performing these functions exists as described below.

NUCLEAR REGULATORY COMMISSION

Docket No. 50-348/364 Official Exh. No. STF-28

In the matter of APC

Staff IDENTIFIED 2/11/92

Applicant RECEIVED 2/13/92

Intervenor REJECTED

Contractor DATE

Other Witness

Reporter L Estep

The post accident venting system consists of the instrument air supply to containment (MOV 3536) and the post accident vent from containment (MOV 3530). FSAR Section 6.2.5 identifies operation of the post accident venting system for combustible gas control in containment. MOV 3536 and MOV 3530 may be assumed to remain in the closed position with no long term post accident operation requirement. This is justified since the post accident venting system is a backup to the redundant post LOCA hydrogen recombiners.

The recombiner system incorporates several design features intended to assure the capability of the system to be operable in the event of an accident. Among these are: (1) seismic category I design, (2) protection from missile and jet impingement and (3) redundancy to the extent that no single component failure disables both recombiners.

As stated in NUREG-0117 Supplement 4 (Farley Nuclear Plant SER), "redundant ... recombiners in the containment are the primary means of post-accident combustible gas control. In addition the post-accident venting system is provided as a backup system for the redundant hydrogen recombiners."

The Emergency Response Procedures (ERPs) instruct the operator to verify both post LOCA hydrogen recombiners are in service if containment hydrogen concentration is less than 4%. FSAR Table 15.4-11 shows the total hydrogen accumulated in containment for the maximum credible accident will not reach 4% for 100 days. Since the post accident venting system is a backup system and the ERPs instruct the operator to place the post accident LOCA hydrogen recombiners in service, opening MOV 3536 and MOV 3530 is not required.

The post LOCA hydrogen analyzer sample flow path isolation valves (MOV 3528A, B and C, and MOV 3835 A and B) are normally locked in the closed position. Subsequent long term operations for the purpose of placing the hydrogen analyzers in service is addressed in the emergency response procedures. However, these long term operations are not essential to mitigate design bases events.

Manual post accident containment atmosphere sampling capability is provided via a system which is not dependent on the post LOCA hydrogen analyzer flow path. Emergency response procedures provide for obtaining and analyzing grab samples if the post LOCA hydrogen analyzers are not functional.

Group 3 valves in Unit 1 include MOV 3046. This valve receives a Phase B actuation signal. The post accident operation of this valve has been evaluated to be short term only in the case of design basis events. This is consistent with the post accident profiles submitted to the NRC.

A copy of this evaluation should be placed in the Environmental Qualification Central File under Limitorque MOVs.

W. G. Hairston, III

WGH,III/BDM:dst-D60

Enclosure

cc: Mr. W. B. Shipman
Mr. J. E. Garlington
Mr. D. H. Jones
Mr. K. C. Gandhi
File: A-5001 IEB 79-01B

ENCLOSURE 1

Bechtel Eastern Power Corporation
Engineers — Constructors
15740 Shady Grove Road
Gaithersburg, Maryland 20877-1454
301—258-3000

JUL 30 1987

In reply refer to AP-13217

Mr. W. G. Hairston, III
Alabama Power Company
600 North 18th Street
Post Office Box 2641
Birmingham, Alabama 35291-0400

Dear Mr. Hairston:

Joseph M. Farley Nuclear Plant Units 1 and 2
Bechtel Job 7597-011
EQ Motor Operated Valve Splices - Justification for Continued Operation (87-0-4441)
Bechtel Files A-78, E-91
AP-13217

This letter supplements our letter AP-13202 dated July 29, 1987.

Attachment 1 was forwarded by APCO on July 30, 1987. Based on Attachment 1 we have expanded Tables 5, 6, 7 and 8. These expanded tables are included as Attachment 2. It is noted that all valves added to tables 5 thru 8 fall under Groups 1, 2, or 3 and justifications made in AP-13202 for these groups of valves are valid.

Please note for valves where the actual connection (terminal block or splice) has not been verified, we have assumed the connection to be a splice (indicated by a "Blank" in the table).

If you have any questions or comments, please contact us.

Yours very truly,

K. C. Gandhi
Project Engineer

KCG/AJD/DGB:sg
Enclosures
As stated above
cc J. R. Crane, w/1
J. D. Woodard, w/1
J. E. Garlington, w/1
R. G. Berryhill, w/1

All Limitorque MOV's that do --NOT-- have Terminal Blocks for Motor Leads

Master List of EQ IPRS Numbers
Unit 2

AUXILIARY IPRS	GENERIC NAME		Manufact.	Model	System Name
02E14V003	V00 TB 00		LIMITORQUE	SMB-000-5	CONTAINMENT COOLING AND PURGE
02E14V007	V00 TB 00	1" GLOBE VALVE	LIMITORQUE	SMB-000-5	CONTAINMENT COOLING AND PURGE
02E15V001B	V00 TB 00		LIMITORQUE	SMB-000	PENETRATION ROOM FILTRATION SYSTEM
02E15V001A	V00 TB 00		LIMITORQUE	SMB-000	PENETRATION ROOM FILTRATION SYSTEM
02E15V001B	V00 TB 00		LIMITORQUE	SMB-000-2	PENETRATION ROOM FILTRATION SYSTEM
02E15V001C	V00 TB 00		LIMITORQUE	SMB-000-2	PENETRATION ROOM FILTRATION SYSTEM
02E21V764	V00 TB 00		LIMITORQUE	SMB-00	CHEMICAL AND VOLUME CONTROL/SAFETY
02E22V001A	V00 TB 00	2-1/2" GATE VALVE	LIMITORQUE	SMB-00	REACTOR CAVITY POST LOCA DILUTION
02E22V0018	V00 TB 00	2-1/2" GATE VALVE	LIMITORQUE	SMB-00	REACTOR CAVITY POST LOCA DILUTION
02E23V022A	V00 TB 00	3/4" GLOBE VALVE	LIMITORQUE	SMB-000	POST ACCIDENT CONTAINMENT CONDUST
02E23V022B	V00 TB 00	3/4" GLOBE VALVE	LIMITORQUE	SMB-000	POST ACCIDENT CONTAINMENT CONDUST
02E23V022C	V00 TB 00	3/4" GLOBE VALVE	LIMITORQUE	SMB-000	POST ACCIDENT CONTAINMENT CONDUST
02E23V003	V00 TB 00	6" GATE VALVE	LIMITORQUE	SMB-00-10	POST ACCIDENT CONTAINMENT CONDUST
02E23V023B	V00 TB 00		LIMITORQUE	SMB-000	POST ACCIDENT CONTAINMENT CONDUST
02E23V024A	V00 TB 00		LIMITORQUE	SMB-000	POST ACCIDENT CONTAINMENT CONDUST
02E23V024B	V00 TB 00		LIMITORQUE	SMB-000	POST ACCIDENT CONTAINMENT CONDUST
02E23V025A	V00 TB 00	3/8" GLOBE VALVE	LIMITORQUE	SMB-000	POST ACCIDENT CONTAINMENT CONDUST
02N23V011A	V00 TB 00	4" S/C GLOBE VALVE	LIMITORQUE	SMB-1	AUXILIARY FEEDWATER
02N23V011B	V00 TB 00	4" S/C GLOBE VALVE	LIMITORQUE	SMB-1	AUXILIARY FEEDWATER
02P16V0104	V00 TB 00		LIMITORQUE	SMB-00-15	SERVICE WATER
02P16V010B	V00 TB 00		LIMITORQUE	SMB-00	SERVICE WATER
02P16V044A	V00 TB 00		LIMITORQUE	SMB-00-10	SERVICE WATER
02P16V044B	V00 TB 00		LIMITORQUE	SMB-00-10	SERVICE WATER
02P16V044D	V00 TB 00		LIMITORQUE	SMB-00-10	SERVICE WATER
02P16V043A	V00 TB 00		LIMITORQUE	SMB-00-10	SERVICE WATER
02P16V043B	V00 TB 00		LIMITORQUE	120700-10	SERVICE WATER
02P16V043C	V00 TB 00		LIMITORQUE	SMB-00-10	SERVICE WATER
02P16V043D	V00 TB 00		LIMITORQUE	SMB-00-10	SERVICE WATER

...21 Limitorque MOV's that --HAVE-- Terminal Blocks for Motor Leads. This is 23 of 51 inspected.

Master List of EQ TPNS Numbers
Unit 2

TPNS	AUXILIARY TPNS	GENERIC NAME	Manufact.	Model	System Name
2E11MOV8701A	02E11V001A	VMO TB YES BUCHANAN	LIMITORQUE	SMB-2	SAFEGUARD SYSTEMS, S
2E11MOV8702A	02E11V001B	VMO TB YES BUCHANAN	LIMITORQUE	SMB-2	SAFEGUARD SYSTEMS, S
2E13MOV8817A	02E13V012A	VMO TB YES BUCHANAN	LIMITORQUE	SMB-1	CONTAINMENT SPRAY ST
2E13MOV8817B	02E13V012B	VMO TB YES BUCHANAN	LIMITORQUE	SMB-1	CONTAINMENT SPRAY ST
2E13MOV8820B	02E13V005B	VMO TB YES BUCHANAN	LIMITORQUE	SMB-0	CONTAINMENT SPRAY ST
2E13MOV8827A	02E13V004A	VMO TB YES BUCHANAN	LIMITORQUE	SMB-2	CONTAINMENT SPRAY ST
2E13MOV8827B	02E13V004B	VMO TB YES BUCHANAN	LIMITORQUE	SMB-2	CONTAINMENT SPRAY ST
2E14MOV3310B	02E14V004	VMO TB YES BUCHANAN 3" GLOBE VALVE	LIMITORQUE	SMB-000-5	CONTAINMENT COOLING
2E21LCV0115B	02E21V336A	VMO TB YES BUCHANAN	LIMITORQUE	SMB-0	CHEMICAL AND VOLUME
2E21LCV0115D	02E21V336B	VMO TB YES BUCHANAN	LIMITORQUE	SMB-0	CHEMICAL AND VOLUME
2E23MOV3528B	02E23V022B	VMO TB YES BUCHANAN 3/4" GLOBE VALVE	LIMITORQUE	SMB-000	POST ACCIDENT CONTAIN
2E23MOV3835B	02E23V025B	VMO TB YES BUCHANAN 3/4" GLOBE VALVE	LIMITORQUE	SMB-000	POST ACCIDENT CONTAIN
2W23MOV3350C	02W23V011C	VMO TB YES BUCHANAN 4" S/C GLOBE VALVE	LIMITORQUE	SMB-1	AUXILIARY FEEDWATER
2P16MOV3023C	02P16V046C	VMO TB YES BUCHANAN	LIMITORQUE	SMB-00-10	SERVICE WATER
2P16MOV3131	02P16V001	VMO TB YES 6" GATE VALVE	LIMITORQUE	SMB-00	SERVICE WATER
2P16MOV3134	02P16V072	VMO TB YES	LIMITORQUE	SMB-00	SERVICE WATER
2P16MOV3135	02P16V071	VMO TB YES BUCHANAN	LIMITORQUE	SMB-00	SERVICE WATER
2P16MOV3441A	02P16V207A	VMO TB YES BUCHANAN 10" GATE VALVE	LIMITORQUE	SMB-00-10	SERVICE WATER
2P16MOV3441B	02P16V207B	VMO TB YES BUCHANAN 10" GATE VALVE	LIMITORQUE	SMB-00	SERVICE WATER
2P16MOV3441D	02P16V207D	VMO TB YES BUCHANAN 10" GATE VALVE	LIMITORQUE	SMB-00-10	SERVICE WATER
2P17MOV3046	02P17V097	VMO TB YES 6" GATE VALVE	LIMITORQUE	SMB-00-25	COMPONENT COOLING W
2P17MOV3052	02P17V082	VMO TB YES	LIMITORQUE	SMB-00-25	COMPONENT COOLING W
2P17MOV3182	02P17V099	VMO TB YES BUCHANAN	LIMITORQUE	SMB-00-25	COMPONENT COOLING W

Attachment 1 to AP-13217

Sheet 2 of 2

TABLE 5 MOV OPERATIONS FOR UNIT 2 E Q PROGRAM [illegible] CTMT OR MOV WITH SPLICES

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO [illegible]	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P.S. OPERATION	P&ID	ELEM DWG	REMARKS	TERM
MOV3019A-A	CTMT CLR SW INLET	2223	N	NO	Y	N	5083/1	7613	OPENS ON SI SIGNAL	SPLICE
MOV3019B-A	CTMT CLR SW INLET	2223	N	NO	Y	N	5083/1	7613	OPENS ON SI SIGNAL	SPLICE
MOV3019C-B	CTMT CLR SW INLET	2223	N	NO	Y	N	5083/1	7613	OPENS ON SI SIGNAL	
MOV3019D-B	CTMT CLR SW INLET	2223	N	NO	Y	N	5083/1	7613	OPENS ON SI SIGNAL	
MOV3023A-A	CTMT CLR SW DISC	2223	N	NO	N	N	5083/1	7629		SPLICE
MOV3023B-A	CTMT CLR SW DISC	2223	N	SO	N	N	5083/1	7629		SPLICE
MOV3023D-B	CTMT CLR SW DISC	2223	N	NO	N	N	5083/1	7629		SPLICE
MOV3024A-A	CTMT CLR SW DISC	2223	N	NC	Y	N	5083/1	7613	OPENS ON SI SIGNAL	SPLICE
MOV3024B-A	CTMT CLR SW DISC	2223	N	NC	Y	N	5083/1	7613	OPENS ON SI SIGNAL	SPLICE
MOV3024C-B	CTMT CLR SW DISC	2223	N	NC	Y	N	5083/1	7613	OPENS ON SI SIGNAL	SPLICE
MOV3024D-B	CTMT CLR SW DISC	2223	N	NC	Y	N	5083/1	7613	OPENS ON SI SIGNAL	SPLICE
MOV7310A-B	CTMT TO ATMOS DIFF	2180	N	NO	Y		5010/2	7609	CLOSES ON CIAS	SPLICE
MOV3361A-A	PENTRN ROOM FILT SYS	2317	N	NO	N	N	5022	7793		SPLICE
MOV3361B-B	PENTRN ROOM FILT SYS	2317	N	NO	N	N	5022	7793		SPLICE
MOV3362A-A	PENTRN ROOM FILT SYS	2317	N	NO	Y	N	5022	7701	OPENS ON CIAS (PHASE B)	SPLICE
MOV3362B-B	PENTRN ROOM FILT SYS	2317	N	NO	Y	N	5022	7701	OPENS ON CIAS (PHASE B)	SPLICE
MOV3739A-A	SMPL PT 1/2 DISC	2223	N	LC	N	Y	5019	7626		
MOV3739B-B	SMPL PT 3/4 DISC	2223	N	LC	N	Y	5019	7626		SPLICE
MOV3740-B	P ACCDT CTMT VENT OUTLET	2223	N	LC	N		5019	7626		
MOV3745A-A	P ACCDT SMPL FAN DISC	2223	N	LC	N	Y	5019	7626		SPLICE
MOV3745B-B	P ACCDT SMPL FAN DISC	2223	N	LC	N	Y	5019	7626		SPLICE
MOV8100-B	RCP SEAL LEAKOFF TO SW HX	2223	N	NO	Y	N	5070/1	7636	CLOSES ON CIAS	
MOV8104-B	BORIC ACID INJ SYS	2177	N	NC	N		5070/2	7601		SPLICE
MOV8105-B	SEAL INJ FILT INLET	2173	N	NO	N		5070/2	7610		
MOV8107-A	CHG PUMP TO REGEN HX	2223	N	NO	Y		5070/2	7600	TCB 85-03, CLOSES ON SI	

TABLE 5 MOV OPERATORS FOR UNIT 2 I & M PROGRAM OUTSIDE CTMT OR RCB WITH SPECIFIC [illegible]

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO STM ENVIR	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P & CMPLSN	P&ID REF	ELEM DIAG	REMARKS
[illegible]	CHG PUMP TO REGEN HX	2223	N	MO	Y		5030/2	2600	IEB 85 03, CLOSES ON SI
[illegible]	CHG PUMP MINIFLOW	2101	N	MO	N		5030/2	2600	IEB 85 03
[illegible]	CHG PUMP MINIFLOW	2126	N	MO	N		5030/2	2600	IEB 85 03
[illegible]	CHG PUMP MINIFLOW	2173	N	MO	N		5030/2	2600	IEB 85 03
[illegible]	CHG PUMP SUCTION HDR	2175	N	LO	N	Y	5030/2	2606	IEB 85 03
[illegible]	CHG PUMP SUCTION HDR	2175	N	LO	N	Y	5030/2	2606	IEB 85 03
[illegible]	CHG PUMP SUCTION HDR	2175	N	LO	N	Y	5030/2	2606	IEB 85 03
[illegible]	CHG PUMP SUCTION HDR	217[illegible]	N	LO	N	Y	5030/2	2606	IEB 85 03
[illegible]	CHG PUMP DISC HDR	2101	N	LO	N	Y	5030/2	2707	IEB 85 03
[illegible]	CHG PUMP DISC HDR	2175	N	LO	N	Y	5030/2	2707	IEB 85 03
[illegible]	CHG PUMP DISC HDR	2175	N	LO	N	Y	5030/2	2606	IEB 85 03
[illegible]	CHG PUMP DISC HDR	2173	N	LO	N	Y	5030/2	2606	IEB 85 03
[illegible]	RHR HX DISC TO CHG PUMP	2128	N	LC	N		5041	2570	
[illegible]	RHR HX DISC TO CHG PUMP	2128	N	LC	N		5041	2980	
[illegible]	BIT DISC	2223	N	NC	Y		5030/1	2614	IEB 85 03
[illegible]	BIT DISC	2223	N	NC	Y		5030/1	2614	IEB 85 03, OPENS ON SI SIGNAL
[illegible]	BIT INLET	2172	N	NC	Y		5030/1	2614	IEB 85 03, OPENS ON SI SIGNAL
[illegible]	BIT INLET	2172	N	NC	Y		5030/1	2614	IEB 85 03, OPENS ON SI SIGNAL
[illegible]	RHR PUMP INLET-RWST	2131	N	NO	N	N	5030/2	7644	
[illegible]	RHR PUMP INLET RWST	2128	N	NO	N	N	5030/2	7644	
[illegible]	CTMT SUMP OUTLET-RHR	2131	N	NC	Y	Y	5030/2	7132	ENCAPSULATED, OPENS ON RWST LO-LO LVL CONCURRENT WITH SI SIGNAL
[illegible]	CTMT SUMP OUTLET RHR	2129	N	NC	Y	Y	5030/2	7134	ENCAPSULATED, OPENS ON RWST LO-LO LVL CONCURRENT WITH SI SIGNAL
[illegible]	CTMT SUMP OUTLET-RHR	2131	N	NC	Y	Y	5030/2	7773	OPENS ON RWST LO-LO LVL CONCURRENT WITH SI SIGNAL
[illegible]	CTMT SUMP OUTLET-RHR	2129	N	NC	Y	Y	5030/2	7773	OPENS ON RWST LO-LO LVL CONCURRENT WITH SI SIGNAL
[illegible]	CTMT SPRAY PUMP DISC	2111	N	NC	Y		5030/3	7500	OPENS ON CTMT SPRAY SIGNAL

TABLE 3 MOV OPERATORS FOR UNIT 2 I E B PROGRAM OUTSIDE CTMT OR MSR WITH SPLICES

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO STM ENVIR	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P & OPERAB	ALL D REF	ELEV REF	REMARKS
[illegible]	CTMT SUMP OUTLET SPRAY	2113	N	NC	N	Y	5030/3	2438	ENCAPSULATED
[illegible]	CTMT SUMP OUTLET SPRAY	2124	N	NC	N	Y	5030/3	2180	ENCAPSULATED
[illegible]	HHSI TO RCS HOTLEG	2108	N	LC	N		5030/1	2282	
[illegible]	HHSI TO RCS COLDLEG	2106	N	NC	N		5030/1	2487	
[illegible]	HHSI TO RCS HOTLEG	2223	N	LC	N		5030/1	2282	
[illegible]	LHSI CROSSOVER	2223	N	NO	N		5030/2	2571	
[illegible]	LHSI CROSSOVER	2223	N	NO	N		5030/2	2571	
[illegible]	LHSI TO RCS COLDLEG	2223	N	NO	N		5030/2	2487	
[illegible]	LHSI TO RCS COLDLEG	2223	N	NO	N		5030/2	2487	
[illegible]	LHSI TO RCS HOTLEG	2223	N	LC	N	Y	5030/2	2282	

TABLE 6 MOV OPERATORS FOR UNIT 2 E Q PROGRAM - INSIDE CTMT OR MSR (NO SF_CTS)

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO STM LN BRK	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P A OPERN	PLI D REF	ESTB REF	REMARKS	TERM
MOV3212A-B	MN FD WTR CHK VLV	MSR	Y	NO	N	N	5073	7677	AUTO CLOSE SIGNAL ON MFWP TRIP	
MOV3212B-B	MN FD WTR CHK VLV	MSR	Y	NO	N	N	5073	7677	AUTO CLOSE SIGNAL ON MFWP TRIP	
MOV3212C-B	MN FD WTR CHK VLV	MSR	Y	NO	N	N	5073	7677	AUTO CLOSE SIGNAL ON MFWP TRIP	
MOV3278-A	CTMT LEAK RATE TEST	MSR	Y	NC	N	N	5010	7677	NOMLY LIMIT SWITCH	
MOV3279-B	CTMT LEAK RATE TEST	MSR	Y	NC	N	N	5010	7677	N ONLY LIMIT SWITCH	
MOV3350A-A	AFW TO SG	MSR	Y	LO	N	N	5007	7677	IEB 85-03	SPLICE
MOV3350B-A	AFW TO SG	MSR	Y	LO	N	N	5007	7677	IEB 85-03	
MOV3520A-A	SMPL PT 1 TO H2 ANALYZER	CTMT	Y	LC	N	N	5019	7695		
MOV3520B-A	SMPL PT 2 TO H2 ANALYZER	CTMT	Y	LC	N	N	5019	7695		SPLICE
MOV3520C-B	SMPL PT 3 TO H2 ANALYZER	CTMT	Y	LC	N	N	5019	7695		SPLICE
MOV3530-B	P ACCDT CTMT VENT PURGE	CTMT	Y	LC	N	N	5019	7695		SPLICE
MOV3536-B	INSTR AIR SPLY TO CTMT AT CTMT	CTMT	Y	LC	N	N	5019	7695		
MOV3875A-A	P A SMPL H2 ANALY RETURN	CTMT	Y	LC	N	N	5019	7695		SPLICE

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TABLE 7 MOV OPERATORS FOR UNIT 2 [illegible] PROGRAM - IN CTMT [illegible]

TERM

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO STM ENVIR	NORMAL POSITION	SAFETY SIGNAL	LOAD TERM P & [illegible]	[illegible]	ELEM DWG	REMARKS
MOV[illegible]C-A	CTMT CLR SW DISC	CTMT	Y	NC	Y	N	3001/1	7670	SIS TO OPEN
MOV8117-A	RCP SEAL LEAKOFF TO SW HE	CTMT	Y	NO	Y	N	3030/1	7562	CIS PHASE A TO CLOSE
MOV[illegible]A	ACCUM TANK DISC	CTMT	Y	LO	Y	N	3030/2	7951	SIS TO OPEN
MOV[illegible]B	ACCUM TANK DISC	CTMT	Y	LO	Y	N	3030/2	7957	SIS TO OPEN
MOV[illegible]C	ACCUM TANK DISC	CTMT	Y	LO	Y	N	3030/2	7959	SIS TO OPEN

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TABLE 8 MOV OPERATORS FOR UNIT-2 [illegible]

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO STM [illegible]	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P A [illegible]	[illegible] REF.	ELEM. [illegible]	REMARKS	TERM
[illegible] A	CTMT AIR SAMPLE	CTMT	T	NO	T	T	5010/2	7600	CIS PHASE A [illegible] CLOSE. SAMPLE [illegible] POST ACCIDENT	SPLICE
[illegible]-A	REAC CAV [illegible] FAN DISC	CTMT	T	NO	[illegible]	T	5010	7200	AUTO OPEN SIGNAL [illegible] AFTER SIS	SPLICE
[illegible] B	REAC CAV [illegible] FAN DISC	CTMT	T	NO	T	T	5010	7200	AUTO OPEN SIGNAL [illegible] AFTER SIS	SPLICE

ENCLOSURE 2

Bechtel Eastern Power Corporation
Engineers — Constructors
15740 Shady Grove Road
Gaithersburg, Maryland 20877-1454
301—258-3000

JUL 2 9 1987

In reply refer to AP-13202

Mr. W. G. Hairston, III
Alabama Power Company
600 North 18th Street
Post Office Box 2641
Birmingham, Alabama 35291-0400

Dear Mr. Hairston:

Joseph M. Farley Nuclear Plant Units 1 and 2
Bechtel Job 7597-011
EQ Motor Operated Valve Splices - Justification for Continued Operation (87-0-4441)
Bechtel Files E-91, A-78
AP-13202

In a telephone call on July 27, 1987 APCo (Mr. J. E. Garington) requested Bechtel provide justification of continued operation for EQ motor operated valves (those specifically listed in Appendix A to Attachment 1) that use a splice connection between the motor power leads and the field conductors.

The requested justification for continued operation is attached.

If you have any questions or comments, please contact us.

Yours very truly,

K. C. Gandhi
Project Engineer

KCG/AJD/DGB:rah
Encl: As stated above
cc: J. R. Crane, w/1
J. D. Woodard, w/1
J. E. Garlington, w/1
R. G. Berryhill, w/1

SUBJECT: Evaluation of splices used on motor power leads for Safety Related Motor Operated Valves in the scope of the Environmental Qualification Program.

1.0 INTRODUCTION

The list of motor valves evaluated is contained in Appendix A. For this evaluation the motor operated valves have been divided into four groups. These four groups are:

a. GROUP 1

Motor operated valves that are not located inside the containment or the main steam valve room. These valves are listed in Table 1 (Unit 1) and Table 5 (Unit 2).

b. GROUP 2

Motor operated valves that are located inside the containment or the main steam valve room that do not require post event operation. (No repositioning required). These valves are listed in Table 2 (Unit 1) and Table 6 (Unit 2).

c. GROUP 3

Motor operated valves located inside the containment or main steam valve room that require short term post event operation. These valves are listed in Table 3 (Unit 1) and Table 7 (Unit 2).

d. GROUP 4

Motor operated valves located inside the containment or main steam valve room that require long term post event operation. These valves are listed in Table 4 (Unit 1) and Table 8 (Unit 2).

2.0 DESCRIPTION OF THE SPLICE

The splice evaluated is a bolted ring tongue forme a "V" configuration enclosed by T95 tape. (See Figure 1). This type splice is the worst case configuration suspected at FNP.

3.0 ANALYSIS

a. GROUP 1

For this group of valves radiation is the only environmental parameter that needs to be considered in the evaluation. Temperature, pressure, and humidity are all considered to be in the normal operating range.

T95 Tape has been qualified to 200 MRADS (Okonite Test Report NQRN-3 Rev. 1). Radiation levels in areas under consideration are less than 200 MRADS.

Based on the above there is every reason to believe that the motor operated valves would operate as required.

b. GROUP 2

For this group of valves the motor starter power contacts are all normally open and there is no reason to change the state of these contacts (manual or automatic) during or after an event. Since motor power contacts are open, there is no potential available to cause valve repositioning or malfunction.

c. GROUP 3

Valves in this group receive automatic actuation signals as a result of an event(s). On receipt of the automatic signal these valves stroke to their safety position and remain in that position. These valves are not required to be repositioned during or after the event. Considering the above, power is applied to the motor and the splice under consideration for a very short period of time (approximately 30 seconds). When the valve(s) reaches its safety position the valve starter contacts are opened and remain open thus eliminating any voltage in the area of the splice. Therefore, no potential exists to cause the valve to reposition or malfunction.

Considering the moisture resistance of T95 tape and the motor operator enclosure, coupled with the short length of time that power is required to the valve operator; it is reasonable to believe that these valves will stroke to their required safety position on demand.

d. GROUP 4

Repositioning of these valves is required at approximately 5 minutes or longer after an event.

Due to the length of time that these splices could be exposed to a harsh environment it is recommended that the actual configuration of the splice be determined and evaluated for acceptability.

4.0 CONCLUSIONS

a. GROUP 1

Since the valves in this group are only subjected to post LOCA radiation and not subject to temperatures, pressures and humidity above the plant normal design conditions and T95 tape has been qualified to 200 MRADS, it is reasonable to believe that these valves will perform their intended safety function on demand.

b. GROUP 2

Valves in this group will not malfunction regardless of the condition of the motor pigtail splice since there is no potential in the area of the splice to cause the valve to reposition or malfunction.

c. GROUP 3

It is reasonable to believe that the valves in this group will stroke to their required safety position based on the following:

- Moisture resistance of the motor enclosure.
- Moisture resistance of the T95 tape.

- Existing qualification data on T95 tape.
- The short period of time (Approx. 30 seconds). That power is required to the valve to perform its safety function (and correspondingly the same period of time that splice must perform without malfunction.)
- Valve does not have to be repositioned after initial stroke to its safety position.

The valves in this group will not reposition or malfunction after reaching their safety related position since there is no potential in the area of the splice.

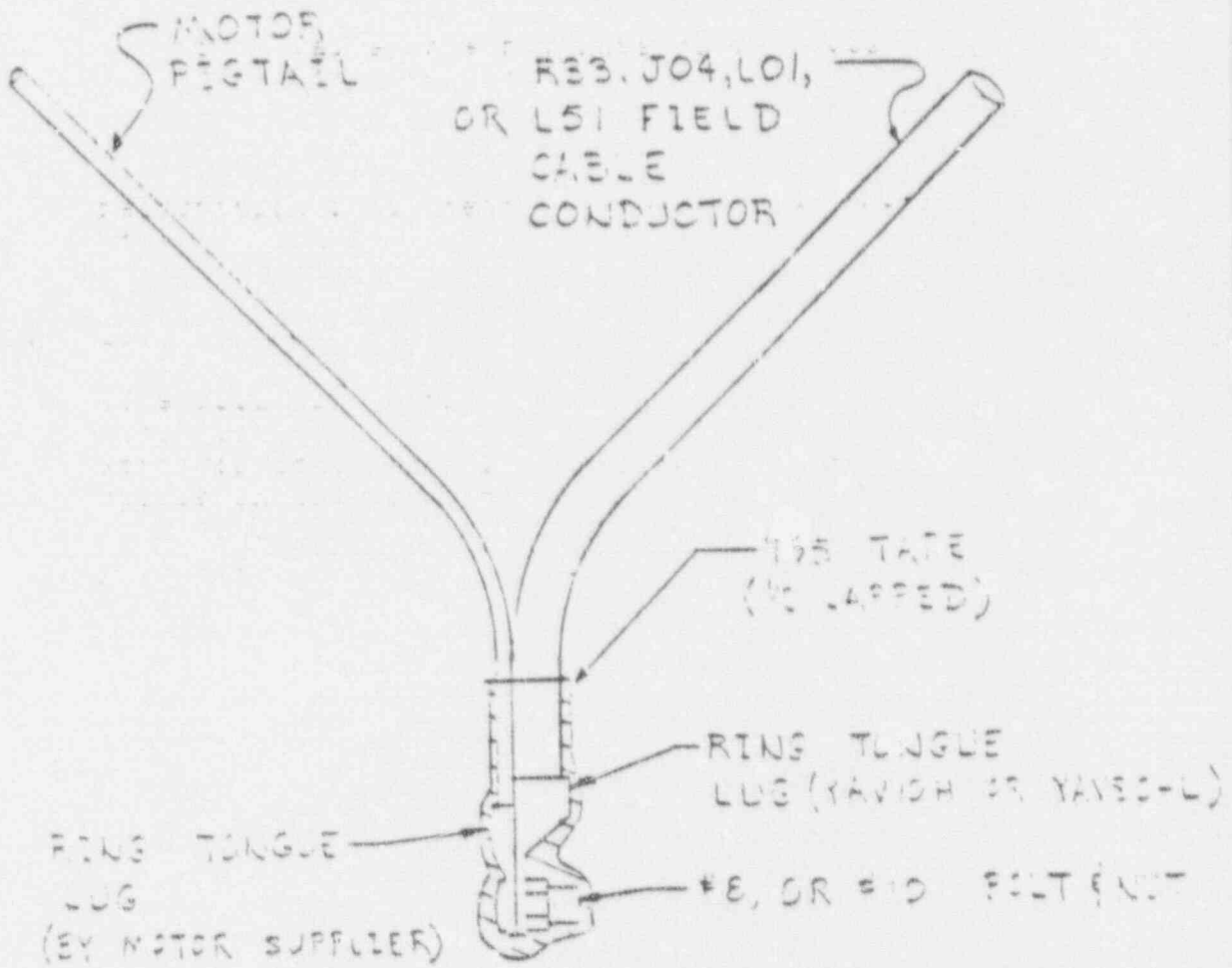
d. GROUP 4

If a field inspection shows that splices for this group of valves are not in accordance with an approved detail for E.Q. splices, the existing splice should be further evaluated or remade in accordance with an approved detail as soon as practicable.

CALCULATION SHEET

JOB NO	CALC NO	REV NO	SHEET NO
ORIGINATOR	DATE	CHECKED	DATE

FIGURE 1



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Master List of EQ TPMS Motors
Unit 1

Record Number	EPMS	Component Tag	Generic Valve		Manufact.	Model		System Name
377	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
353	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CONTAINMENT COOLING AND PURGE
384	[illegible]	[illegible]	[illegible]	1" GLOBE VALVE	[illegible]	[illegible]		CONTAINMENT COOLING AND PURGE
385	[illegible]	[illegible]	[illegible]	1" GLOBE VALVE	[illegible]	[illegible]		CONTAINMENT COOLING AND PURGE
432	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		PENETRATION ROOM FILTRATION SYSTEM
433	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		PENETRATION ROOM FILTRATION SYSTEM
434	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		PENETRATION ROOM FILTRATION SYSTEM
437	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		PENETRATION ROOM FILTRATION SYSTEM
536	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
537	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
593	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
573	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
570?	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
596	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
595	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
594?	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
482	[illegible]	[illegible]	[illegible]	3" GATE VALVE	[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
585	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
607	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
608	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
575	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
590	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
576	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		REACTOR CAVITY POST LOCA DILUTION SYSTEM
639	[illegible]	[illegible]	[illegible]	2-1/2" GATE VALVE	[illegible]	[illegible]		REACTOR CAVITY POST LOCA DILUTION SYSTEM
640	[illegible]	[illegible]	[illegible]	2-1/2" GATE VALVE	[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
667	[illegible]	[illegible]	[illegible]	3/4" GLOBE VALVE	[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
668	[illegible]	[illegible]	[illegible]	3/4" GLOBE VALVE	[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
669	[illegible]	[illegible]	[illegible]	3/4" GLOBE VALVE	[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
666	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
665	[illegible]	[illegible]	[illegible]	3" GATE VALVE	[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
696	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
700	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
721	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
786	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
781	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
675	[illegible]	[illegible]	[illegible]	3/8" GLOBE VALVE	[illegible]	[illegible]		POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
677	[illegible]	[illegible]	[illegible]	3/8" GLOBE VALVE	[illegible]	[illegible]		AUXILIARY FEEDWATER
922	[illegible]	[illegible]	[illegible]	6" STOP-CHECK GLOBE VALVE	[illegible]	[illegible]		AUXILIARY FEEDWATER
923	[illegible]	[illegible]	[illegible]	6" STOP CHECK GLOBE VALVE	[illegible]	[illegible]		AUXILIARY FEEDWATER
924	[illegible]	[illegible]	[illegible]	6" STOP CHECK GLOBE VALVE	[illegible]	[illegible]	1575 BE	SERVICE WATER
1121	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		SERVICE WATER
1125	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		SERVICE WATER
1178	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		SERVICE WATER
1132	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		SERVICE WATER
1138	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		SERVICE WATER
1144	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		SERVICE WATER
1168	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		SERVICE WATER

APPENDIX A SHT 1 of 3

Master List of [illegible] Numbers
Unit 1

Record Number	TPNS	Ident. TPNS	Generic Name		Manufact.	Model	System Name
1132	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1136	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1142	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1158	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1150	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1097	[illegible]	[illegible]	[illegible]	4" GATE VALVE	[illegible]	[illegible]	SERVICE WATER
1178	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1176	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1272	[illegible]	[illegible]	[illegible]	4" GATE VALVE	[illegible]	[illegible]	COMPONENT COOLING WATER
1243	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	COMPONENT COOLING WATER
1240	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	COMPONENT COOLING WATER
1215	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	CONTAINMENT LEAK RATE TEST SYSTEM
1217	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	CONTAINMENT LEAK RATE TEST SYSTEM

APPENDIX-A SHT 2 OF 3

Master List of 10 IPMS Numbers
Unit 2

Record Number	[illegible]	Auxiliary IPMS	Generic Name		Manufact.	Model	System Name
335	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	CONTAINMENT COOLING AND PURGE
289	[illegible]	[illegible]	[illegible]	1" GLOBE VALVE	[illegible]	[illegible]	CONTAINMENT COOLING AND PURGE
397	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	PENETRATION ROOM FILTRATION SYSTEM
398	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	PENETRATION ROOM FILTRATION SYSTEM
401	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	PENETRATION ROOM FILTRATION SYSTEM
402	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	PENETRATION ROOM FILTRATION SYSTEM
548	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	CHEMICAL AND VOLUME CONTROL/SAFETY INJECTION
617	[illegible]	[illegible]	[illegible]	2 1/2" GATE VALVE	[illegible]	[illegible]	REACTOR CAVITY POST LOCA DILUTION SYSTEM
618	[illegible]	[illegible]	[illegible]	2 1/2" GATE VALVE	[illegible]	[illegible]	REACTOR CAVITY POST LOCA DILUTION SYSTEM
626	[illegible]	[illegible]	[illegible]	3/4" GLOBE VALVE	[illegible]	[illegible]	POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
627	[illegible]	[illegible]	[illegible]	3/4" GLOBE VALVE	[illegible]	[illegible]	POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
628	[illegible]	[illegible]	[illegible]	3/4" GLOBE VALVE	[illegible]	[illegible]	POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
635	[illegible]	[illegible]	[illegible]	6" GATE VALVE	[illegible]	[illegible]	POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
668	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
675	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
678	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
630	[illegible]	[illegible]	[illegible]	3/4" GLOBE VALVE	[illegible]	[illegible]	POST ACCIDENT CONTAINMENT COMBUSTIBLE GAS CONTROL
873	[illegible]	[illegible]	[illegible]	6" S/C GLOBE VALVE	[illegible]	SMB-1	AUXILIARY FEEDWATER
878	[illegible]	[illegible]	[illegible]	6" S/C GLOBE VALVE	[illegible]	SMB-1	AUXILIARY FEEDWATER
1128	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1122	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1126	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1286	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1298	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1875	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1285	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1289	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER
1287	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	SERVICE WATER

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APPENDIX-A SHT 3 OF 3

LEGEND FOR TABLES 1 THRU' 8

LEGEND FOR NORMAL POSITION

NC - Normally Closed
NO - Normally Open
LO - Valve in Open Position with
Operator Contro' Power or
Motor Power Adm' stratively
Removed.
LC - Valve in Closed Position with
Operator Control Power or Motor
Power Administratively Removed.

GENERAL LEGEND

N - No
Y - Yes
CTMT - Containment Building
MSR - Main Steam Valve Room
SIS - Safety Inje tion Signal
CIS - Containment Isolation Signal

TABLE-1 MOV OPERATORS FOR UNIT 1 [illegible] OUTSIDE CONT [illegible] WITH SPLICES

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO STM ENVIR	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P.A. OPERATION	[illegible] REF	[illegible] REF	REMARKS	TERM
MOV1810A-A	CTMT CLR SW INLET	273	N	NO	Y	N	5083/1	7813	OPENS ON SI SIGNAL	SPLICE
MOV1810B-A	CTMT CLR SW INLET	273	N	NO	Y	N	5083/1	7813	OPENS ON SI SIGNAL	SPLICE
MOV1810C-B	CTMT CLR SW INLET	273	N	NO	Y	N	5083/1	7813	OPENS ON SI SIGNAL	SPLICE
MOV1810D-B	CTMT CLR SW INLET	273	N	NO	Y	N	5083/1	7813	OPENS ON SI SIGNAL	SPLICE
MOV1027A-A	CTMT CLR SW DISC	273	N	NO	N	N	5083/1	7829		SPLICE
MOV1027B-A	CTMT CLR SW DISC	273	N	NO	N	N	5083/1	7829		SPLICE
MOV1027C-B	CTMT CLR SW DISC	273	N	NO	N	N	5083/1	7829		SPLICE
MOV1027D-B	CTMT CLR SW DISC	273	N	NO	N	N	5083/1	7829		SPLICE
MOV1024A-A	CTMT CLR SW DISC	273	N	NC	Y	N	5083/1	7813	OPENS ON SI SIGNAL	SPLICE
MOV1024B-A	CTMT CLR SW DISC	273	N	NC	Y	N	5083/1	7813	OPENS ON SI SIGNAL	SPLICE
MOV1024C-B	CTMT CLR SW DISC	273	N	NC	Y	N	5083/1	7813	OPENS ON SI SIGNAL	SPLICE
MOV1024D-B	CTMT CLR SW DISC	273	N	NC	Y	N	5083/1	7813	OPENS ON SI SIGNAL	SPLICE
MOV1057-A	CCW INLET RCP TH BARR	273	N	NO	Y	N	5082/2	7825	8 ONLY LIMIT SWITCH, CLOSES ON CIAS	SPLICE
MOV3114-B	RCP MTR CLR SW DISC	273	N	NO	Y	N	5083/2	7836	8 ONLY LIMIT SWITCH, CLOSES ON SI SIGNAL (880# 2)	SPLICE
MOV3115-B	RCP MTR CLR SW INLET	273	N	NO	Y	N	5083/2	7836	8 ONLY LIMIT SWITCH, CLOSES ON SI SIGNAL (880# 8)	SPLICE
MOV3102-A	CCW DISC RCP TH BARR	273	N	NO	Y	N	5082/2	7818	8 ONLY LIMIT SWITCH, CLOSES ON CIAS (PHASE B)	SPLICE
MOV3310A-B	CTMT TO ATMOS DIFF	188	N	NO	Y		5810/2	7888	CLOSED ON CIAS	SPLICE
MOV3361A-A	PENTRN ROOM FILT SYS	317	N	NO	N	N	5022	7283		SPLICE
MOV3361B-B	PENTR ROOM FILT SYS	317	N	NO	N	N	5022	7283		SPLICE
MOV3362A-A	PENTRN ROOM FILT SYS	317	N	NO	Y	N	5022	7281	OPENS ON CIAS (PHASE B)	SPLICE
MOV3362B-B	PENTRN ROOM FILT SYS	317	N	NO	Y	N	5022	7281	OPENS ON CIAS (PHASE B)	SPLICE
MOV3219A-A	SMPL PT 1/2 DISC	273	N	LC	N	Y	5019	7628		SPLICE
MOV3230A-B	SMPL PT 3/4 DISC	273	N	LC	N	Y	5019	7628		SPLICE
MOV3740-B	P ACCDT CTMT VENT OUTLET	273	N	LC	N		5019	7628		SPLICE
MOV3745A-A	P ACCDT SMPL FAN DISC	273	N	LC	N	Y	5019	7628		

TABLE 3 [illegible] UNIT 1 [illegible] LIST OF MOVS WITH SPLICES

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO CSS ENVIR	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P & OPERATION	PCI B DWG REF	ELEM 912	REMARKS	TERM
MOV3743B-B	D ACCUM SMPL TAN DISC	273	N	LC	N	Y	5919	7826		SPLICE
MOV8100 B	RCP SEAL LEAKOFF TO SW HX	273	N	MO	Y	N	5919/1	7838	CLOSES ON CIAS	SPLICE
MOV8104 B	BORIC ACID INJ SYS	172	N	MC	N		5919/2	7881		SPLICE
MOV8105 A	SEAL INJ FILT INLET	173	N	MO	N		5919/2	7818		SPLICE
MOV8107 A	CHG PUMP TO REGEN HX	273	N	MO	Y		5919/2	7808	IEB 85-03, CLOSES ON SI	SPLICE
MOV8108 B	CHG PUMP TO REGEN HX	273	N	MO	Y		5919/2	7808	IEB 85-03, CLOSES ON SI	SPLICE
MOV8109A B	CHG PUMP MINIFLOW	181	N	MO	N		5919/2	7808	IEB 85-03	SPLICE
MOV8109B B	CHG PUMP MINIFLOW	178	N	MO	N		5919/2	7808	IEB 85-03	SPLICE
MOV8109C B	CHG PUMP MINIFLOW	173	N	MO	N		5919/2	7838	IEB 85-03	SPLICE
MOV8801B B	BIT DISC	273	N	MC	Y		5919/1	7818	IEB 85-03, OPENS ON SI SIGNAL	SPLICE
MOV8803A A	BIT INLET	172	N	MC	Y		5919/1	7818	IEB 85-03, OPENS ON SI SIGNAL	SPLICE
MOV8803B B	BIT INLET	172	N	MC	Y		5919/1	7818	IEB 85-03, OPENS ON SI SIGNAL	SPLICE
MOV8811A A	CTMT SUMP OUTLET-RHR	131	N	MC	Y	Y	5919/2	7132	ENCAPSULATED, OPENS ON RWST LO-LO LVL CONCURRENT WITH SI SIGNAL	SPLICE
MOV8884 B	HHSI TO RCS HOTLEG	164	N	LC	N		5919/1	7782		SPLICE
MOV8885 B	HHSI TO RCS COLDLEG	198	N	MC	N		5919/1	7687		SPLICE
MOV8886 A	HHSI TO RCS HOTLEG	273	N	LC	N		5919/1	7782		SPLICE

TABLE 3 MOV OPERATORS FOR UNIT 1 E Q PROGRAM - IN CTMT OR HARSH LONG TERM P A 3

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO STM ENVIR	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P A	ICERN REF	P&ID REF	ELEM REF	REMARKS	TERM
MOV1046 B	CCW DISC RCP TH BARR	CTMT	Y	NO	Y	N		5007/2	7818	CIS PHASE B TO CLOSE	SPLICE
MOV3191-A	RCP MTR CLR SW DISC	CTMT	Y	LO	Y	N		5003/7	7612	CIS PHASE A TO CLOSE	SPLICE
MOV3319B-A	CTMT TO ATMOS DIFF	CTMT	Y	NO	Y	N		5018/7	7888	CIS PHASE A TO CLOSE	SPLICE
MOV8112-A	RCP SEAL LEAKOFF TO RD HX	CTMT	Y	NO	Y	N		5019/1	2587	CIS PHASE A TO CLOSE	SPLICE

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 5 MOV OPERATORS FOR UNIT 2 E & Q PROGRAM - OUTSIDE CTMT OR MCR WITH SPLICES

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO S/R ENVIR	NORMAL POSITION	SAFETY SIGNAL	LONG TERM ? & OPERATION	FCI D REF	ELEM REF	REMARKS	TERM
MOV1819A-A	CTMT CLR SW INLET	2223	N	NO	T	N	5083/1	2813	OPENS ON SI SIGNAL	SPLICE
MOV1819B-B	CTMT CLR SW INLET	2223	N	NO	T	N	5083/1	2813	OPENS ON SI SIGNAL	SPLICE
MOV1823A-B	CTMT CLR SW DISC	2223	N	NO	N	N	5083/1	2829		SPLICE
MOV1823B-A	CTMT CLR SW DISC	2223	N	NO	N	N	5083/1	2829		SPLICE
MOV1823D-B	CTMT CLR SW DISC	2223	N	NO	N	N	5083/1	2829		SPLICE
MOV1824A-A	CTMT CLR SW DISC	2223	N	NC	T	N	5083/1	2813	OPENS ON SI SIGNAL	SPLICE
MOV1824B-A	CTMT CLR SW DISC	2223	N	NC	T	N	5083/1	2813	OPENS ON SI SIGNAL	SPLICE
MOV1824C-B	CTMT CLR SW DISC	2223	N	NC	T	N	5083/1	2813	OPENS ON SI SIGNAL	SPLICE
MOV1824D-B	CTMT CLR SW DISC	2223	N	NC	T	N	5083/1	2813	OPENS ON SI SIGNAL	SPLICE
MOV3310A-B	CTMT TO ATMOS DIFF	2188	N	NO	T		5018/2	2884	CLOSES ON CIAS	SPLICE
MOV3361A-A	PENTRN ROOM FILT SYS	2317	N	NO	N	N	5022	2283		SPLICE
MOV3361B-B	PENTRN ROOM FILT SYS	2317	N	NO	N	N	5022	2283		SPLICE
MOV3362A-A	PENTRN ROOM FILT SYS	2317	N	NO	T	N	5022	2281	OPENS ON CIAS (PHASE B)	SPLICE
MOV3362B-B	PENTRN ROOM FILT SYS	2317	N	NO	T	N	5022	2281	OPENS ON CIAS (PHASE B)	SPLICE
MOV3739B-B	SMPL PT 3/8 DISC	2223	N	LC	N	T	5019	2828		SPLICE
MOV3743A-A	P ACCDT SMPL FAN DISC	2223	N	LC	N	T	5019	2828		SPLICE
MOV3745B-B	P ACCDT SMPL FAN DISC	2223	N	LC	N	T	5019	2828		SPLICE
MOV8104-B	BORIC ACID INJ SYS	2172	N	NC	N		5078/2	2801		SPLICE

TABLE 8 MOV OPERATORS FOR UNIT -2 E Q PROGRAM - INSIDE CTMT OR H/R AND SI [illegible]

MOV NUMBER	FUNCTION	LOCATION	EXPOSED TO SUB ENVIR	NORMAL POSITION	SAFETY SIGNAL	LONG TERM P.O.	ORIGIN REF	PEI D	FIFN REF	REMARKS	TERM
MOV1350A A	AFW TO SG	R/B	Y	IO	N	N		5887	7677	SER 85-03	SPLICE
MOV1350B A	AFW TO SG	R/B	Y	IO	N	N		5887	7677	SER 85-03	SPLICE
MOV1520A A	SMPL PT 1 TO H2 ANALYZER	CTMT	Y	IC	N	N		5819	7675		SPLICE
MOV1520B A	SMPL PT 2 TO H2 ANALYZER	CTMT	Y	IC	N	N		5819	7675		SPLICE
MOV1520C B	SMPL PT 3 TO H2 ANALYZER	CTMT	Y	IC	N	N		5819	7675		SPLICE
MOV1510 B	P ACCDT CTMT VENT OUTLET	CTMT	Y	IC	N	N		5819	7675		SPLICE
MOV1015A B	P B SMPL H2 ANALY RETURN	CTMT	Y	IC	N	N		5819	7675		SPLICE

NO VALUES HAVE BEEN IDENTIFIED FOR UNIT #2
