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Waterford 3

10 CFR 50.90

W3F1-2014-0064

October 23, 2014

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Subject: Response to Waterford Steam Electric Station, Unit 3- Request for Additional Information Regarding a Change to the Updated Final Safety Analysis Report Clarifying Pressurizer Heaters Function for Natural Circulation (TAC No. MF3058)
Waterford Steam Electric Station, Unit 3 (Waterford 3)
Docket No. 50-382
License No. NPF-38

- REFERENCES:
1. Entergy Letter W3F1-2013-0043, Request for Review of Change to Updated Final Safety Analysis Report Clarifying Pressurizer Heaters Function for Natural Circulation at the Onset of a Loss of Offsite Power, dated November 11, 2013. (ADAMS Accession No. ML13316C052)
 2. Letter from NRC, Request for Additional Information Regarding a Change to the Updated Final Safety Analysis Report Clarifying Pressurizer Heaters Function for Natural Circulation (TAC No. MF3058) (ADAMS Accession No. ML14171A263)

Dear Sir or Madam:

In letter dated November 11, 2013 (Reference 1), Entergy Operations, Inc. (Entergy) submitted a request to amend the facility operating license. The proposed amendment will clarify that manual operator action outside of the Control Room is needed to energize the Pressurizer Heaters associated with natural circulation at the onset of a loss of offsite power in the event a specific common circuit breaker (CVCEBKR014AB-13) being open concurrently. If this specific common circuit breaker were to be open, the Switchgears 32A and 32B Supply Circuit Breakers would not close automatically at the onset of a loss of offsite power (i.e. a specific single point vulnerability does exist).

A053
NRR

In letter dated August 22, 2014 (Reference 2), NRC requested Entergy to provide additional information to support review of the requested License Amendment Request. This letter provides that response.

This correspondence contains no new commitments. If you have any questions or require additional information, please contact the Regulatory Assurance Manager, John Jarrell, at 504-739-6685.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 23, 2014.

Sincerely,

 10-23-14

MRC/LEM

- Attachments:
1. Waterford 3 Response to Request for Additional Information (TAC No.MF3058)
 2. Control Wiring Diagrams
 3. Requested Markup Copy of Operating Procedure

cc: Mr. Marc L. Dapas, Regional Administrator
U.S. NRC, Region IV
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Attachment 1 to

W3F1-2014-0064

Waterford 3 Response to Request for Additional Information

(TAC No.MF3058)

Waterford 3 Response to Request for Additional Information

In letter dated November 11, 2013 (Reference 1), Entergy Operations, Inc. (Entergy) submitted a request to amend the facility operating license. The proposed amendment will clarify that manual operator action outside of the Control Room is needed to energize the Pressurizer Heaters associated with natural circulation at the onset of a loss of offsite power in the event a specific common circuit breaker (CVCEBKR014AB-13) being open concurrently. If this specific common circuit breaker were to be open, the Switchgears 32A and 32B Supply Circuit Breakers would not close automatically at the onset of a loss of offsite power (i.e. a specific single point vulnerability does exist).

In letter dated August 22, 2014 (Reference 2), NRC requested Entergy to provide additional information to support review of the requested License Amendment Request. The specific information requested is listed below:

1. Please identify and provide an explanation for which criteria of paragraph 50.59(c)(2) of Title 10 of the Code of Federal Regulations (10 CFR) necessitated a license amendment under 10 CFR 50.90.
2. Please provide electrical schematic drawings that show how the common control circuit breaker, CVCEBKR014AB-13, affects the control power close circuitry of the Supply Circuit Breakers to Switchgears 32A and 32B.
3. In Insert 1 of Attachment 2 of the LAR, the licensee proposed to add the following clarification to the UFSAR 1 .9.26:

Part of the closing circuitry to these safety-grade circuit breakers share a specific common circuit breaker, CVCEBKR014AB-13. If CVCEBKR014AR-13 is Open at the onset of a loss of offsite power, local manual operator action in the respective train switchgear room is necessary to reenergize the Pressurizer Heaters of that train.

Please explain which alarm in the control room will help a control room operator identify whether the common circuit breaker, CVCEBKR014AB-13 is open. Provide a markup copy of the operating procedure which will then identify the need for the local manual operator action in the respective train switchgear room to reenergize the necessary Pressurizer Heaters.

RAI Question 1

Please identify and provide an explanation for which criteria of paragraph 50.59(c)(2) of Title 10 of the Code of Federal Regulations (10 CFR) necessitated a license amendment under 10 CFR 50.90.

Response 1

Entergy requested this license amendment as a result of criteria 10 CFR 50.59(c)(2)(ii), *result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the final safety analysis report (as updated)*. In accordance with the guidance in NEI 96-07 Revision 1, a specific example given under this criteria is a change that would reduce system/equipment redundancy, diversity, separation, or independence.

The license amendment request (Reference 1), notes that in contrast with Waterford 3 UFSAR 5.4.10 and 1.9.26, part of the control closing circuitry to the Switchgears 32A and 32B Supply Circuit Breakers share a specific common circuit breaker. The specific common circuit breaker powers the interlock 52z relays. The interlock 52z relays check for completion of load stripping of the circuit breakers on the respective Switchgear 32 at the onset of a loss of offsite power. IF the load stripping is complete, the interlock 52z relays close a contact in the closing circuitry to the respective Switchgears 32 A and 32B Supply Circuit Breakers to allow the circuit breakers to close automatically when the sequencer load block contact in the closing circuitry is closed. Alternatively, if the specific common circuit breaker is Open, the Switchgears 32A and 32B Supply Circuit Breakers will not close automatically at the onset of a loss of offsite power.

NUREG-0737, Clarification of TMI Action Plan Requirements, contains a position for Emergency Power Supply requirements for Pressurizer Heaters. This position is also stated in the current Waterford 3 UFSAR Section 1.9.26. Specifically, these documents state, "The required heaters and their controls shall be connected to the emergency buses in a manner that will provide redundant power supply capability." Since both trains of the pressurizer heater control are affected by a common circuit breaker, if the breaker were to be Open, operator action outside the control room would be required to close the 32A and 32B Supply Circuit Breakers to allow the Pressurizer Heaters to be energized. This configuration is a reduction in the system/equipment redundancy, diversity, separation, or independence and as a result, requires a license amendment pursuant to 10 CFR 50.90 as a result of criteria 10 CFR 50.59(c)(2)(ii).

RAI Question 2

Please provide electrical schematic drawings that show how the common control circuit breaker, CVCEBKR014AB-13, affects the control power close circuitry of the Supply Circuit Breakers to Switchgears 32A and 32B.

Response 2

Five control wiring diagrams (CWDs) are included as Attachment 2 to this letter. The five drawings are listed in Table 1 below with a description of the content of the drawing.

Table 1 – List of CWDs

Drawing Number	Title	Description
B424 Sheet 322	Volume Control Tank Level and Boric Acid Pump Interlocks	This CWD shows the common power supply, PDP 3014AB Circuit 13, that powers the 52z relays.
B424 Sheet 2346	STA Service Transformer 3A32 Feeder Interlocks	This CWD shows the wiring diagram for the 52z relay associated with the Station Service Transformer 3A32.
B424 Sheet 2396	STA Service Transformer 3B32 Feeder Interlocks	This CWD shows the wiring diagram for the 52z relay associated with the Station Service Transformer 3B32.
B424 Sheet 2348	Station Service Transformer 3A32 Feeder	This CWD shows the control circuit for Station Service Transformer 3A32 Supply Circuit Breaker.
B424 sheet 2398	Station Service Transformer 3B32 Feeder	This CWD shows the control circuit for Station Service Transformer 3B32 Supply Circuit Breaker.

RAI Question 3

In Insert 1 of Attachment 2 of the LAR, the licensee proposed to add the following clarification to the UFSAR 1 .9.26:

Part of the closing circuitry to these safety-grade circuit breakers share a specific common circuit breaker, CVCEBKR014AB-13. If CVCEBKR014AR-13 is Open at the onset of a loss of offsite power, local manual operator action in the respective train switchgear room is necessary to reenergize the Pressurizer Heaters of that train.

Please explain which alarm in the control room will help a control room operator identify whether the common circuit breaker, CVCEBKR014AB-13 is open. Provide a markup copy of the operating procedure which will then identify the need for the local manual operator action in the respective train switchgear room to reenergize the necessary Pressurizer Heaters.

Response 3

Annunciator Alarm L0804 (H-4), Isol PNL CHNL NS Power Lost, would alarm in the Control Room to alert control room operators that CVCEBKR014AB-13 is Open. The below wording has been added to operations annunciator response procedure OP-500-010, Control Room Cabinet L, so

that if this alarm is received, the operators are aware of the potential impact to the Pressurizer Heaters.

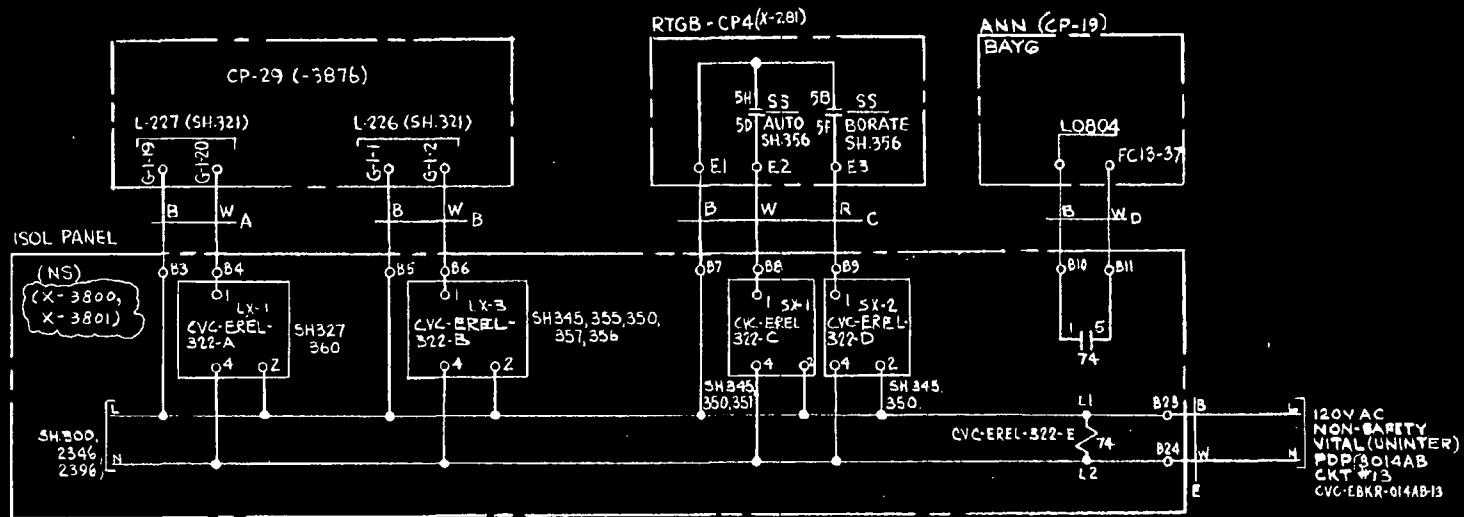
The loss of power to CVC-EBKR-014AB-13 does not de-energize Switchgear 32A and 32B from the emergency power buses if they are already connected. However, Switchgear 32A Supply, SSD-EBKR-3A-8, and Switchgear 32B Supply, SSD-EBKR-3B-9, will not automatically close to load Switchgear 32A and 32B onto the Emergency Diesel Generators if they were initially open, such as during a Loss of the 3A or 3B Bus or during Loss of Offsite Power event. Also these breakers will not be able to be closed remotely (from the Control Room) to re-energize Pressurizer Heaters. If this condition affects Pressurizer Heater availability, then refer to Technical Specification 3.4.3.1 and Technical Requirements Manual 3.4.3.1.

A markup copy of a draft revision to Emergency Operating Procedure OP-902-009, Standard Appendices, Appendix 25, Restore Pressurizer Heater Control, has been included as Attachment 3 of this letter. The various operations Emergency Operating Procedures such as LOCA, LOOP, MSLB, etc., direct operators to refer to Appendix 25 for restoring control of Pressurizer Heaters. The draft revision of Appendix 25 provides guidance that local closure of the 32A and 32B Supply Circuit Breakers may be required and also references the annunciator discussed above. Attachment 3 contains both a marked up and clean copy of the draft changes.

REFERENCES

1. Entergy letter W3F1-2013-0043, Request for Review and Approval of Change to Updated Final Safety Analysis Report Clarifying Pressurizer Heaters Function for Natural Circulation at the Onset of a Loss of Offsite Power, dated November 11, 2013. (ADAMS Accession No. ML13316C052)
2. NRC letter, Request for Additional Information Regarding A Change to the Updated Final Safety Analysis Report Clarifying Pressurizer Heaters Function for Natural Circulation, dated August 22, 2014. (ADAMS Accession No. ML14171A263)

**Attachment 2 to
W3F1-2014-0064
Control Wiring Diagrams**



This drawing was used in its entirety to scan and rasterize to produce this revision. REV 11

REV	DATE	BY	APPROVED	REV	DATE	BY	APPROVED
12	10-8-91	MM	VWC	4	6-10-77	EF	MM
11	8-8-90	TCZ	BA	MM	2-26-79	EF	MM
10	4-3-85	MM	MM	3	8-16-78	ME	MM
9	4-9-84	MM	MM	2	9-26-78	Z.R.	MM

EBASCO SERVICES INCORPORATED
DIV. I&C DR. VZ
CH. J. TYHANC
DATE NOV 2, 1976

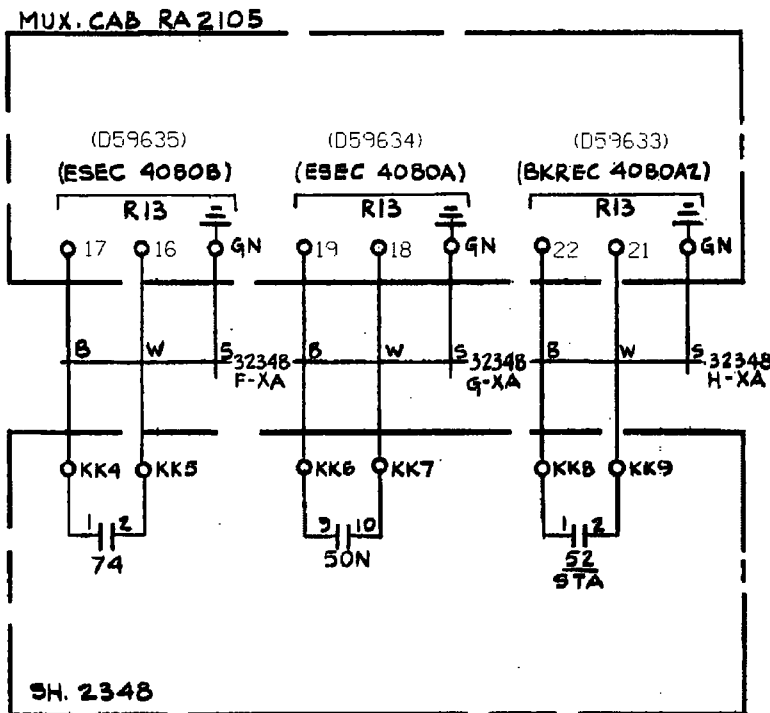
LOUISIANA POWER & LIGHT CO.
WATERFORD S. E. S. UNIT No.3
CONTROL WIRING DIAGRAM
VOLUME CONTROL TANK LEVEL AND
BORIC ACID PUMP INTERLOCKS

LOU-1564
B-424
SHEET 322
4

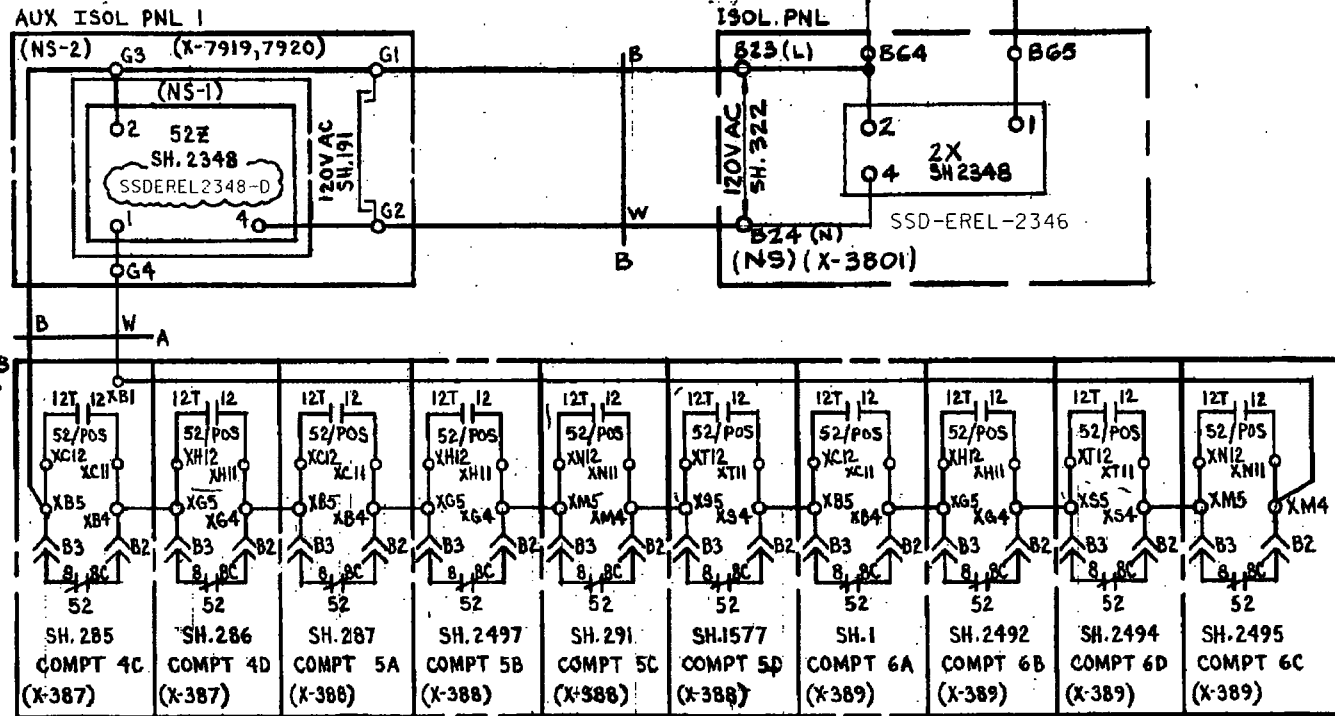
(1963)

INCORP DRN E9100357

ORIGINAL



4160V SWGR 3A3-98



480V SWGR 3A32

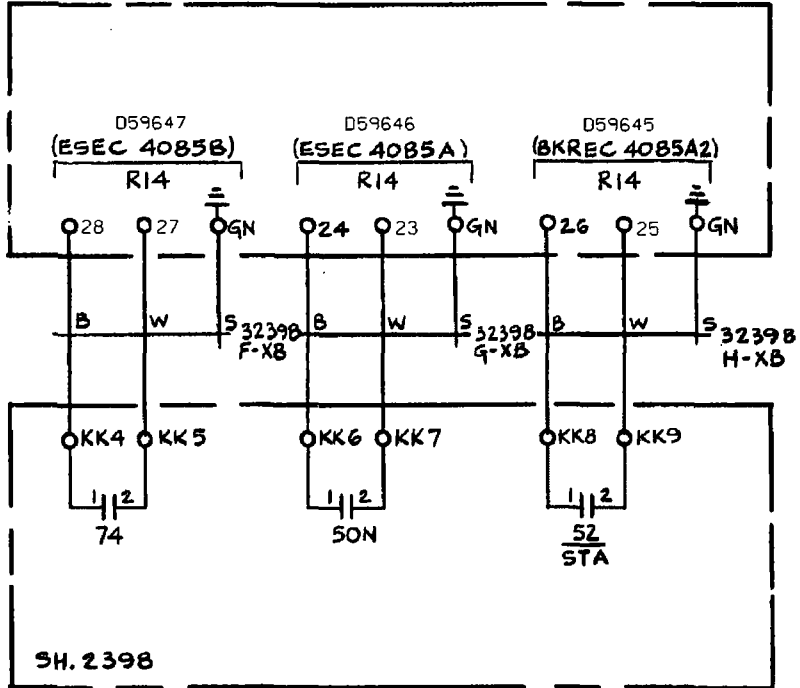
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7	5-23-11	INCORP. EC 29749	JG	DD	DD
6	9-12-95	INCORP. DRN I-9405748	THS	DD	N/A

EBASCO SERVICES INCORPORATED	
DIV. I & C DR DL	APPROVED
CH. S. LIN	<i>S. Lin</i>
DATE MAR. 24, 1982	WM <i>WM</i> <i>MB</i>

LOUISIANA POWER & LIGHT CO.
WATERFORD S. E. S. UNIT No. 3
CONTROL WIRING DIAGRAM
STA SERVICE TRANSFORMER
3A32 FEEDER INTERLOCKS

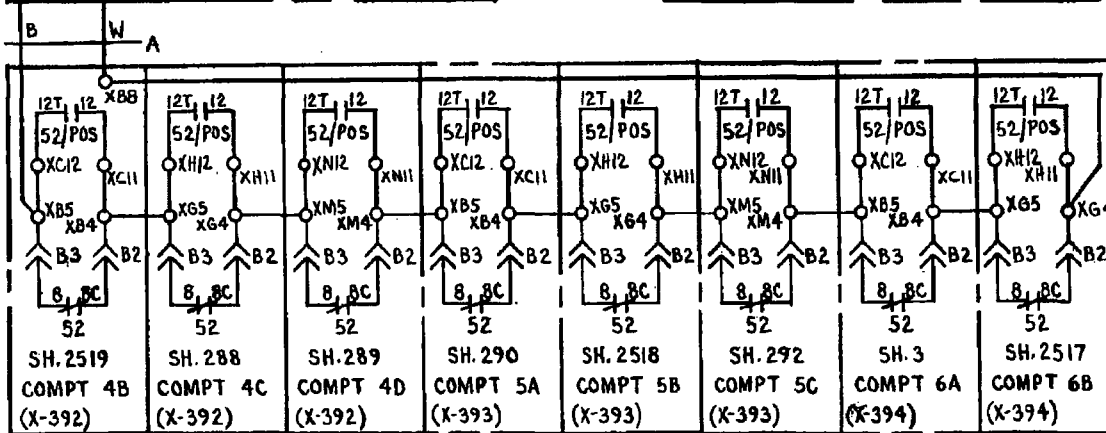
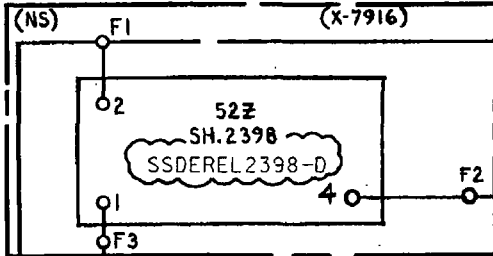
B424
 SHEET 2346

MUX. CAB RA2105



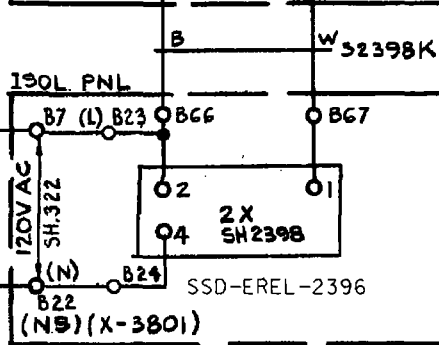
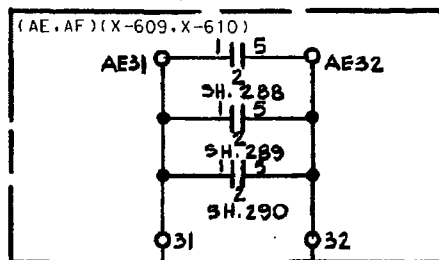
4160V SWGR 3B3-S9

AUX ISOL PNL 2



480V SWGR 3B32

AUX. PNL 4

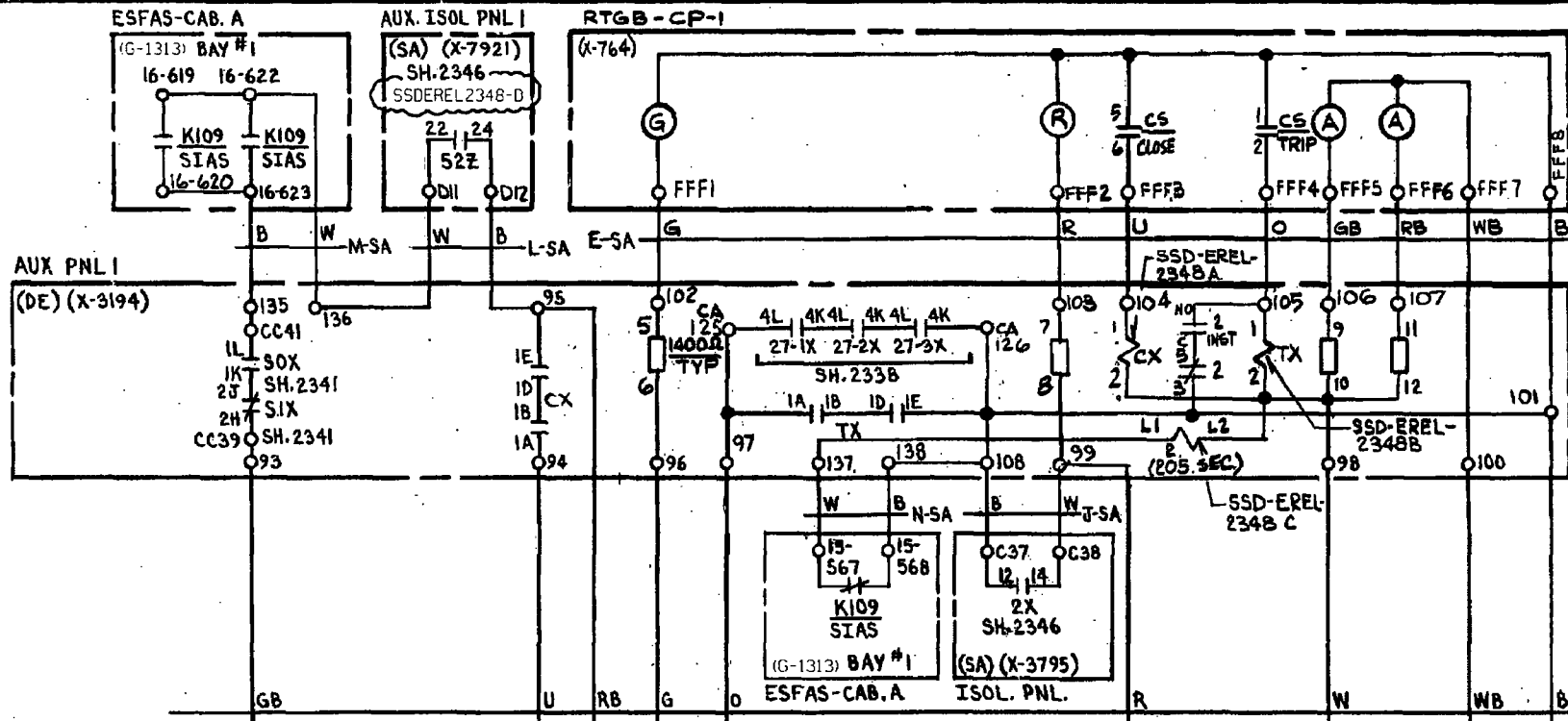


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7	5-23-11	JG	DD DD	3	10-31-89	SA	MM
6	12-5-95	ML	LLB DG	2	9-1-89	SA	MM
5	12-18-91	ML	PJB VWC	1	3-21-89	SA	MM

EBASCO SERVICES INCORPORATED
 DIV. I & C DR. DL
 CH. S. LIN
 DATE: MAR. 24, 1982

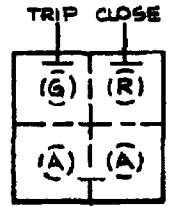
LOUISIANA POWER & LIGHT CO.
 WATERFORD S. E. S. UNIT No. 3
 CONTROL WIRING DIAGRAM
 STA SERVICE TRANSFORMER
 3B32 FEEDER INTERLOCKS

B424
 SHEET 2396



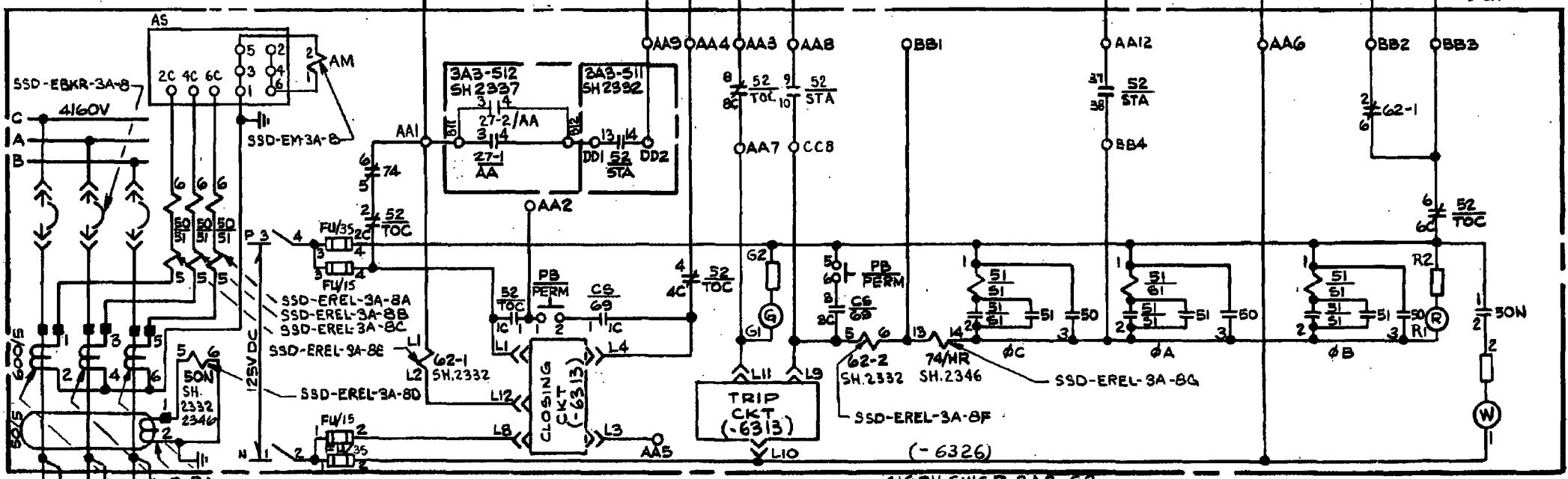
CONTRACTS	POSITION			CWD SH.
	9	12	3	
1-2	X			*
3-4			X	
5-6			X	*
7-8	X			

TYPE CMC * THIS SHEET
SPRING RETURN TO NORM



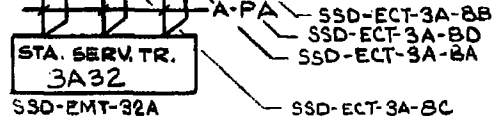
STA SERV. TRANSF
3A3Z FEEDER

NOTE:
FOR CABLES: F, G, H, K
SEE CWD 2346



52/STA	CWD
1-2	a 2346
3-4	b
5-6	a
7-8	b
9-10	a *
11-12	b
13-14	a
15-16	b
17-18	a
19-20	b
21-22	a
23-24	b
25-26	a
27-28	b
29-30	a
31-32	b
33-34	a
35-36	b
37-38	a *
39-40	b

* THIS SHEET

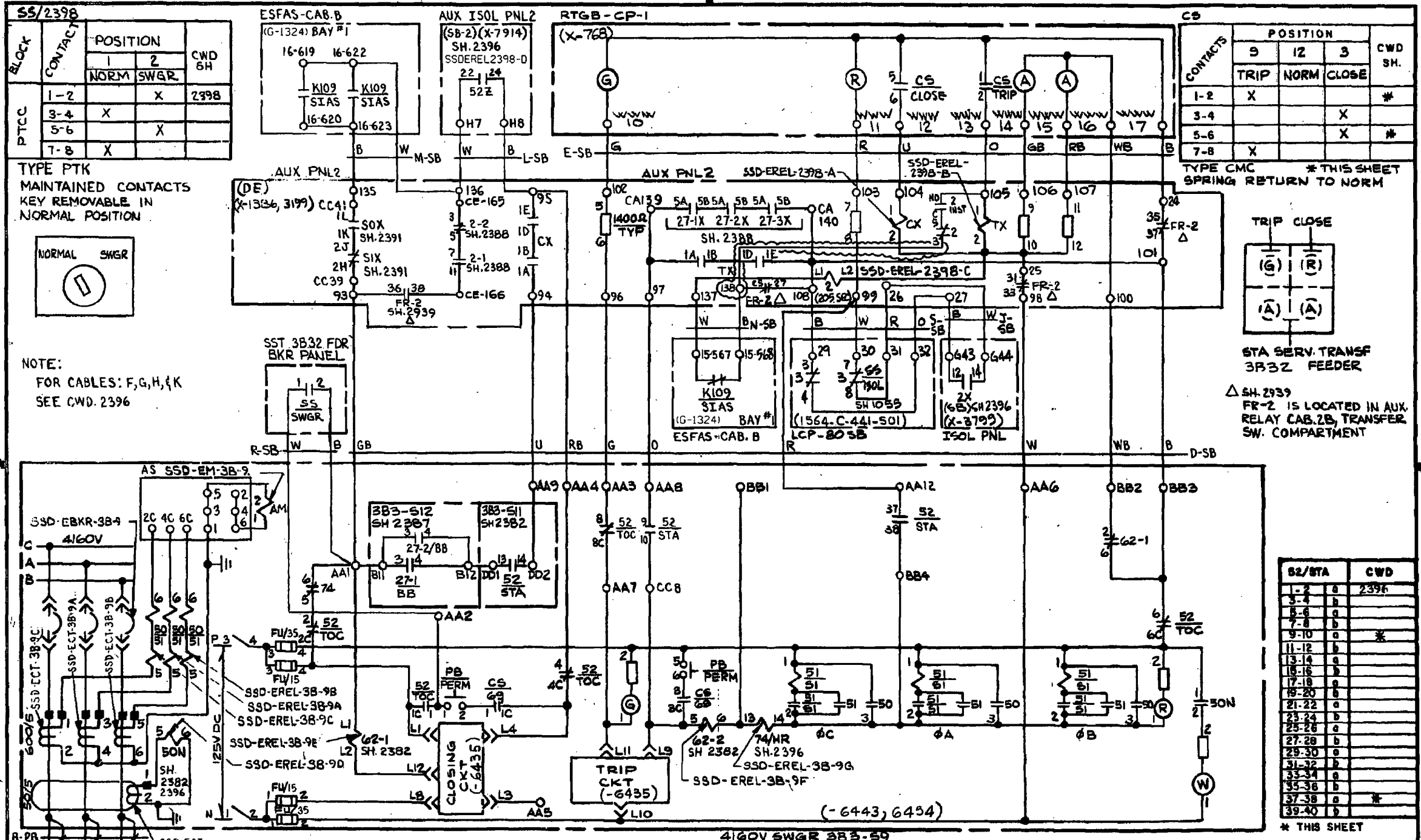


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10	1-18-96	LLB	ML DJB	7	11-27-94		
9	1-18-96	MAM	VI MM	6	8-24-83		
				5	11-4-81		

EBASCO SERVICES INCORPORATED
DIV. I & C DR. EM
CH. W. ARNHEITER
DATE APR 21 1978

LOUISIANA POWER & LIGHT CO.
WATERFORD S. E. S. UNIT No. 3
CONTROL WIRING DIAGRAM
STATION SERVICE TRANSFORMER 3A32
FEEDER

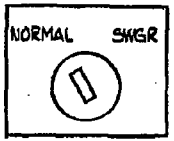
B424
SHEET 2348



SS/2398				
BLOCK	CONTACT	POSITION		CWD
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		NORM	SWGR	2398
PTCC	1-2		X	
	3-4	X		
	5-6		X	
	7-8	X		

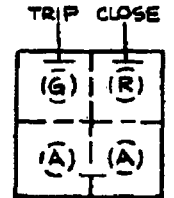
CS				
CONTACTS	POSITION			CWD
	9	12	3	
	TRIP	NORM	CLOSE	SH.
1-2	X			*
3-4			X	
5-6			X	*
7-8	X			

TYPE PTK
MAINTAINED CONTACTS
KEY REMOVABLE IN
NORMAL POSITION



NOTE:
FOR CABLES: F,G,H,K
SEE CWD. 2396

TYPE CMC *THIS SHEET
SPRING RETURN TO NORM



STA SERV. TRANS
3B32 FEEDER

Δ SH. 2399
FR-2 IS LOCATED IN AUX.
RELAY CAB. 2B, TRANSFER
SW. COMPARTMENT

52/STA	CWD
1-2	a 2396
3-4	b
5-6	a
7-8	a
9-10	a *
11-12	b
13-14	a
15-16	a
17-18	a
19-20	b
21-22	a
23-24	b
25-26	a
27-28	b
29-30	a
31-32	b
33-34	a
35-36	b
37-38	a *
39-40	b

* THIS SHEET

STA. SERV. TR. 3B32				
SSD-EMT-32B				

REV.	DATE	BY	APPROVAL	REV	DATE	BY	APPROVED
15	3-6-13	JG	DD DD	11	10-8-60	DLH	VI MM
14	5-23-11	JG	DD DD	10	10-3-87	DLH	VI MM
13	1-24-96	DD	THS PJB	9	4-17-86	DLH	VI MM

4160V SWGR 3B3-59	
EBASCO SERVICES INCORPORATED	
DIV. I & C	DR. EM
CH. V. A. NHEITER	APPROVED
DATE: APR-21-78	<i>[Signature]</i>

LOUISIANA POWER & LIGHT CO.
WATERFORD S.E.S. UNIT No.3
CONTROL WIRING DIAGRAM
STATION SERVICE TRANSFORMER 3B32
FEEDER

B424
SHEET 2398

Attachment 3 to

W3F1-2014-0064

Requested Markup Copy of Operating Procedure

25.0 Restore Pressurizer Heater Control

INSTRUCTIONS

----- NOTE -----

Pressurizer heaters shall **NOT** be restored with a LOOP concurrent with a SIAS.

1. Verify Pressurizer level is greater than 33%.
2. Monitor EDG loading to ensure EDG does not exceed 4 MW.
3. Check SEQUENCER has timed out for each energized Safety bus.

----- NOTE -----

The Security SUPS, SUPS 014AB, breaker CVC-EBKR-014AB-13 provides control power for the below feeder breakers. Without control power the breakers would require local closure. Refer to Annunciator L0804.

4. Close SST A32 FEEDER breaker.
5. Close SST B32 FEEDER breaker.
6. Place PROPORTIONAL HEATER BANKS Control switches to "ON."
7. Momentarily place each BACKUP HEATER BANKS Control switches to "OFF" and THEN to "AUTO."

End of Appendix 25

25.0 Restore Pressurizer Heater Control

INSTRUCTIONS

----- NOTE -----

Pressurizer heaters shall **NOT** be restored with a LOOP concurrent with a SIAS.

1. Verify Pressurizer level is greater than 33%.
2. Monitor EDG loading to ensure EDG does not exceed 4 MW.
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4. Close SST A32 FEEDER breaker.
5. Close SST B32 FEEDER breaker.
6. Place PROPORTIONAL HEATER BANKS Control switches to "ON."
7. Momentarily place each BACKUP HEATER BANKS Control switches to "OFF" and THEN to "AUTO."

End of Appendix 25