

June 15, 1994

50-334/50-412

MEMORANDUM FOR: Brian K. Grimes, Director
 Division of Operating Reactor Support

FROM: Alfred E. Chaffee, Chief
 Events Assessment Branch
 Division of Operating Reactor Support

SUBJECT: OPERATING REACTORS EVENTS BRIEFING
 JUNE 15, 1994 - BRIEFING 94-20

On June 15, 1994, we conducted an Operating Reactors Events Briefing (94-20) to inform senior managers from offices of the SECY, NRR, AEOD, OE and regional offices of selected events that occurred since our last briefing on June 8, 1994. Enclosure 1 lists the attendees. Enclosure 2 presents the significant elements of the discussed events.

Enclosure 3 contains reactor scram statistics for the week ending June 12, 1994. No significant events were identified for input into the NRC Performance Indicator Program.

ORIGINAL SIGNED BY
 EDWARD F. GOODWIN

/for/ Alfred E. Chaffee, Chief
 Events Assessment Branch
 Division of Operating
 Reactor Support

Enclosures: As stated

cc w/enclosures:
 See next page

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cc:

W. Russell, NRR (O-12G18)
F. Miraglia, NRR (O-12G18)
F. Gillespie, NRR (O-12G18)
Acting ADPR, NRR (O-12G18)
S. Varga, NRR (O-14E4)
J. Calvo, NRR (O-14A4)
G. Lainas, NRR (O-14H3)
J. Roe, NRR (O-13E4)
J. Zwolinski, NRR (O-13H24)
E. Adensam, NRR (O-13E4)
A. Thadani, NRR (O-12G18)
B. Sheron, NRR (O-7D26)
M. Virgilio, NRR (O-8E2)
S. Rosenberg, NRR (O-10E4)
C. Rossi, NRR (O-9A2)
B. Boger, NRR (O-10H3)
F. Congel, NRR (O-10E2)
D. Crutchfield, NRR (O-11H21)
W. Travers, NRR (O-11B19)
D. Coe, ACRS (P-315)
E. Jordan, AEOD (T-4D18)
G. Holahan, AEOD (T-4A9)
L. Spessard, AEOD (T-4D28)
K. Brockman, AEOD (T-4A23)
S. Rubin, AEOD (T-4D28)
M. Harper, AEOD (T-4A9)
V. McCree, EDO (O-17G21)
F. Ingram, PA (O-2G5)
E. Beckjord, RES (T-10F2)
A. Bates, SECY (O-16G15)
T. Martin, Region I
R. Cooper, Region I
S. Ebnetter, Region II
J. Johnson, Region II
S. Vias, Region II
J. Martin, Region III
E. Greenman, Region III
L. Callan, Region IV
A. Beach, Region IV
K. Perkins, Region IV/WCFO

G. Edison (PDI-3)
W. Butler (PDI-3)

bcc: Mr. Sam Newton, Manager
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Institute of Nuclear Power Operations
700 Galleria Parkway
Atlanta, GA 30339-5957



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 15, 1994

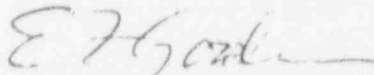
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8) Alfred E. Chaffee, Chief
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Division of Operating
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cc w/enclosures:
See next page

ENCLOSURE 1

LIST OF ATTENDEES

OPERATING REACTORS EVENTS FULL BRIEFING (94-20)

JUNE 15, 1994

<u>NAME</u>	<u>OFFICE</u>	<u>NAME</u>	<u>OFFICE</u>
E. GOODWIN	NRR	M. SLOSSON	NRR
N. FIELDS	NRR	D. O'NEAL	NRR
J. TAPPERT	NRR	R. JENKINS	NRR
T. KOSHY	NRR	C. ROSSI	NRR
T. YAMADA	NRR	C. THOMAS	NRR
K. GRAY	NRR	E. ADENSAM	NRR
J. CARTER	NRR	G. HOLAHAN	AEOD
G. DENTEL	NRR	J. BEALL	OE
S. ROSENBERG	NRR	C. YATES	SECY

TELEPHONE ATTENDANCE
(AT ROLL CALL)

Regions

Region I
Region II
Region III
Region IV

Resident Inspectors

L. Rossbach (Beaver Valley)

IIT/AIT Team Leaders

Misc.

OPERATING REACTORS EVENTS BRIEFING 94-20

LOCATION: O-10B11, WHITE FLINT
WEDNESDAY, JUNE 15, 1994 11:00 A.M.

BEAVER VALLEY,
UNITS 1 AND 2

MAIN TRANSFORMER FAULT
INITIATES DUAL UNIT REACTOR
TRIP

PRESENTED BY: EVENTS ASSESSMENT BRANCH
DIVISION OF OPERATING REACTOR
SUPPORT, NRR

BEAVER VALLEY, UNITS 1 AND 2
MAIN TRANSFORMER FAULT INITIATES DUAL UNIT REACTOR TRIP
JUNE 1, 1994

PROBLEM

DUAL UNIT REACTOR TRIP RESULTS IN UNIT 2 OPERATING IN NATURAL CIRCULATION FOR 20 MINUTES.

CAUSE

A MAIN TRANSFORMER ELECTRICAL FAULT AND SUBSEQUENT FIRE CAUSED UNIT 1 TO TRIP. UNIT 2 TRIPPED WHEN REACTOR COOLANT PUMPS TRIPPED ON UNDERFREQUENCY.

SAFETY SIGNIFICANCE

DUAL UNIT REACTOR TRIP WITH COMPLICATIONS.

DISCUSSION

- AN INTERNAL FAULT AND SUBSEQUENT FIRE CAUSED THE FAILURE OF THE UNIT 1 MAIN TRANSFORMER. THE FIRE WAS EXTINGUISHED IN ABOUT 8 MINUTES.
- TRANSFORMER FAILURE INITIATED AUTOMATIC ISOLATION OF MAIN GENERATOR RESULTING IN A UNIT 1 TURBINE TRIP/REACTOR TRIP.

CONTACT: N. FIELDS
REFERENCES: 10 CFR 50.72 #27328,
#27329, PNO-I-94-036

AIT: NO
SIGEVENT: TBD

- ALL UNIT 1 ELECTRICAL LOADS SUCCESSFULLY TRANSFERRED FROM UNIT STATION SERVICE TRANSFORMERS (USST) TO OFFSITE POWER VIA THE SYSTEM STATION SERVICE TRANSFORMERS (SSST, FIGURE 1).
- THE UNIT 1 TRANSFORMER FAULT INITIATED AN ELECTRICAL TRANSIENT THAT CAUSED BULK POWER SUPPLY VOLTAGE TO MOMENTARILY DECREASE BY 60 PERCENT FROM 138 kV TO 55.2 kV.
- UNIT 1 REACTOR COOLANT PUMP 1A, BOTH MAIN FEED PUMPS AND OTHER MISCELLANEOUS EQUIPMENT TRIPPED ON UNDERVOLTAGE/UNDERFREQUENCY.
- THE UNIT 1, NO. 2 EMERGENCY DIESEL GENERATOR (EDG) STARTED ON UNDERVOLTAGE BUT DID NOT LOAD BECAUSE THE UNDERVOLTAGE CONDITION CLEARED.
- A PHASE IMBALANCE RELAY (MONITORING EMERGENCY BUS 1AE) DELAYED THE START OF THE NO. 1 EDG UNDERVOLTAGE TIMING SEQUENCE. THE UNDERVOLTAGE CONDITION CLEARED PRIOR TO COMPLETION OF THE TIMING SEQUENCE, SO THE NO. 1 EDG DID NOT START.
- ALL UNIT 2 REACTOR COOLANT PUMPS TRIPPED RESULTING IN THE UNIT 2 REACTOR TRIP ON LOSS OF FORCED FLOW.
- THE UNIT 2 ELECTRICAL LOADS WERE SUPPLIED BY OFFSITE POWER VIA SSSTs 2A AND 2B PRIOR TO THE EVENT (FIGURE 2). THE TRANSIENT CAUSED THE ISOLATION OF SSST 2A.

- THE UNIT 2 LOADS (4KV NON-SAFETY BUSES 2A AND 2B AND EMERGENCY BUS 2AE) THAT WERE BEING SUPPLIED BY SSST 2A AUTOMATICALLY TRANSFERRED TO UNIT 2 USST 2C, BUT THE TRANSFORMER LOST POWER FOLLOWING THE UNIT 2 REACTOR TRIP. THE 2B SSST WAS UNAFFECTED BY THE TRANSIENT.
- THE UNIT 2 EDG NO. 1 STARTED AND RE-ENERGIZED ITS ASSOCIATED SAFETY BUS. REACTOR COOLANT PUMP 2C WAS STARTED WITHIN 20 MINUTES AND WAS RE-ENERGIZED USING THE 2B SSST. NORMAL OFFSITE POWER LINEUP TO BUSES 2A AND 2B WAS RESTORED VIA SSST 2A WITHIN 42 MINUTES.
- CONTROL ROOM ISOLATION/PRESSURIZATION ON SPURIOUS RAD MONITOR ACTUATION AS A RESULT OF THE ELECTRICAL TRANSIENT ON EMERGENCY BUS 2AE.

FOLLOWUP

- ALL THREE RESIDENT INSPECTORS WERE ON SITE AND MONITORED PLANT AND OPERATOR RESPONSE TO THE EVENT.
- TELEPHONE CONFERENCE BETWEEN NRR, AEOD, REGION I AND THE LICENSEE WAS HELD ON JUNE 3, 1994, TO CONSIDER UNIT 2 RESTART ISSUES.

REV. 3 (1-85)

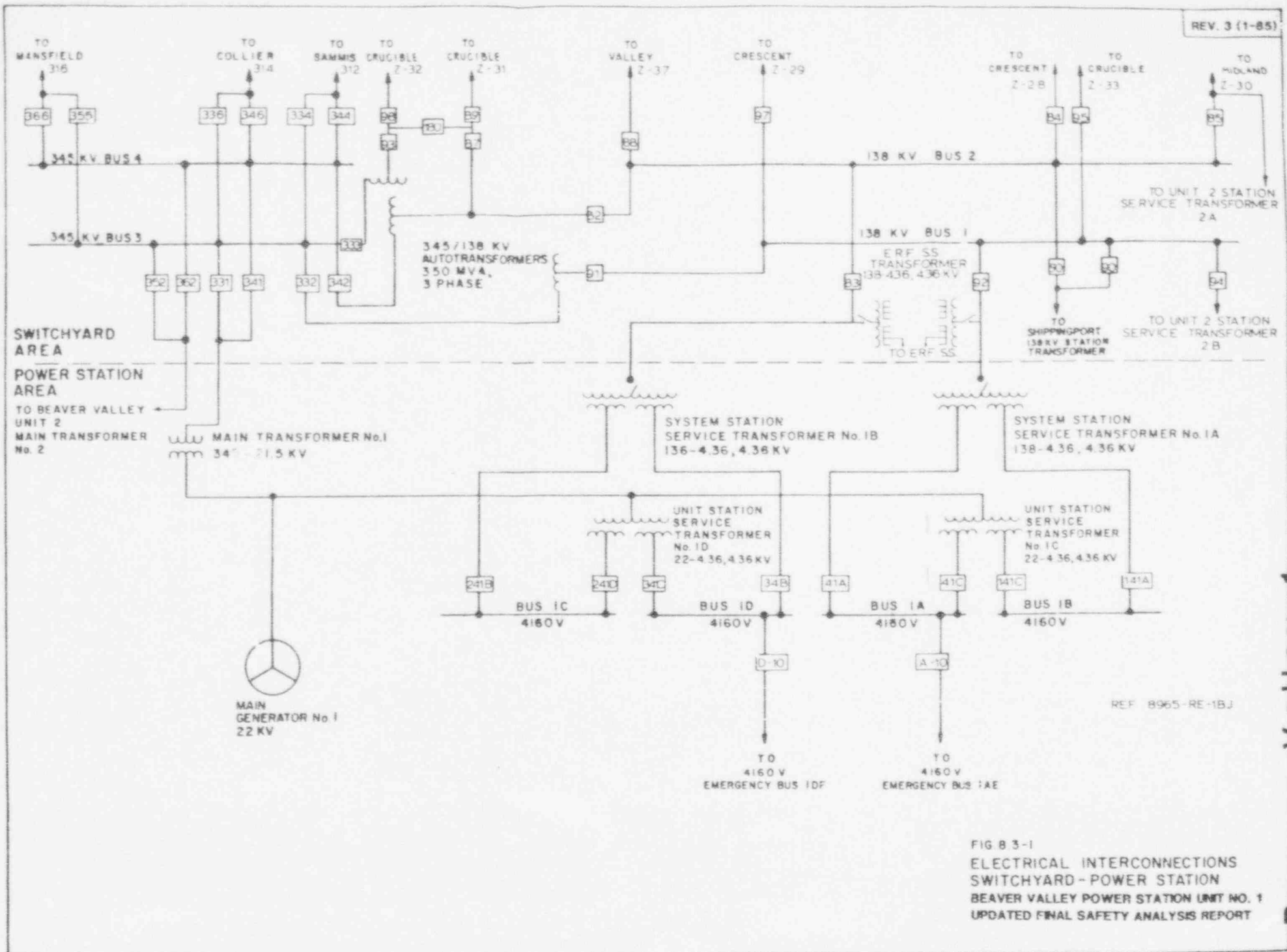


FIG B 3-1
 ELECTRICAL INTERCONNECTIONS
 SWITCHYARD-POWER STATION
 BEAVER VALLEY POWER STATION UNIT NO. 1
 UPDATED FINAL SAFETY ANALYSIS REPORT

Beaver Valley

REF B965-RE-1BJ

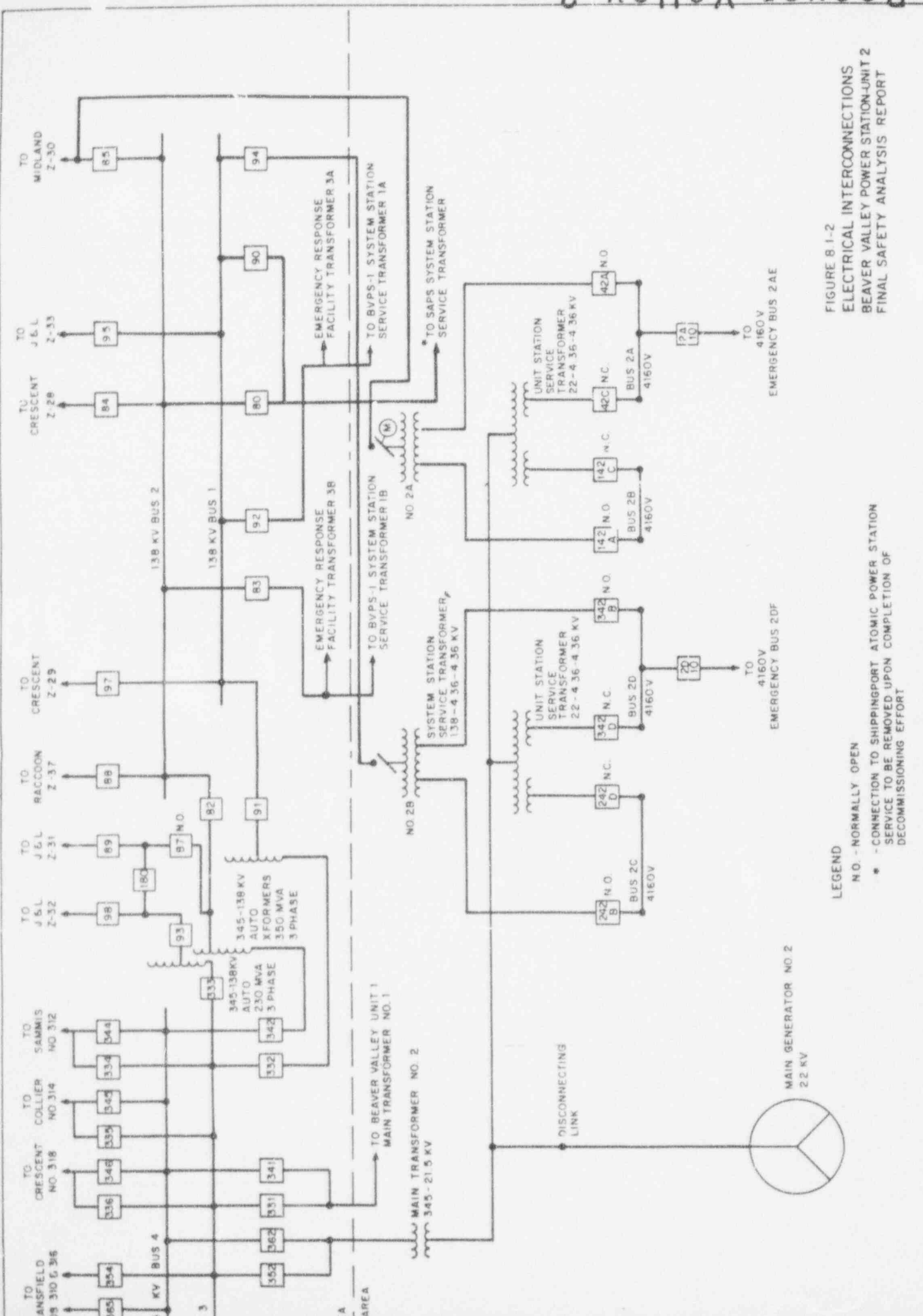


FIGURE B 1-2
ELECTRICAL INTERCONNECTIONS
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT

LEGEND
 N.O. - NORMALLY OPEN
 * - CONNECTION TO SHIPPINGPORT ATOMIC POWER STATION SERVICE TO BE REMOVED UPON COMPLETION OF DECOMMISSIONING EFFORT

BEAVER VALLEY 2

REACTOR SCRAM

Reporting Period: 06/06/94 to 06/12/94

<u>DATE</u>	<u>PLANT & UNIT</u>	<u>POWER</u>	<u>TYPE</u>	<u>CAUSE</u>	<u>COMPLICATIONS</u>	YTD ABOVE <u>15%</u>	YTD BELOW <u>15%</u>	YTD TOTAL
06/06/94	SAINT LUCIE 1	97	SA	External	NO	4	0	4

Note: Year To Date (YTD) Totals Include Events Within The Calendar Year Indicated By The End Date Of The Specified Reporting Period

COMPARISON OF WEEKLY SCRAM STATISTICS WITH INDUSTRY AVERAGES

PERIOD ENDING
06/12/94

SCRAM CAUSE	NUMBER OF SCRAMS	PERIOD ENDING 06/12/94				
		1994 WEEKLY AVERAGE (YTD)	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE	1991* WEEKLY AVERAGE	1990* WEEKLY AVERAGE
POWER GREATER THAN OR EQUAL TO 15%						
EQUIPMENT FAILURE*	0	1.42	1.83	2.62	2.88	3.38
DESIGN/INSTALLATION ERROR*	0	0.09	0.04	-	-	-
OPERATING ERROR*	0	0.26	0.27	0.23	0.58	0.48
MAINTENANCE ERROR*	0	0.39	0.52	0.40	-	-
EXTERNAL*	1	0.17	0.13	-	-	-
OTHER*	0	0.00	0.02	0.23	-	-
Subtotal	1	2.33	2.81	3.48	3.46	3.86
POWER LESS THAN 15%						
EQUIPMENT FAILURE*	0	0.30	0.38	0.40	0.29	0.40
DESIGN/INSTALLATION ERROR*	0	0.04	-	-	-	-
OPERATING ERROR*	0	0.13	0.13	0.13	0.15	0.08
MAINTENANCE ERROR*	0	0.00	0.02	0.06	-	-
EXTERNAL*	0	0.00	0.04	-	-	-
OTHER*	0	0.00	-	0.06	-	-
Subtotal	0	0.47	0.57	0.65	0.44	0.48
TOTAL	1	2.80	3.38	4.13	3.90	4.34

SCRAM TYPE	NO. OF SCRAMS	PERIOD ENDING 06/12/94				
		1994 WEEKLY AVERAGE (YTD)	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE	1991 WEEKLY AVERAGE	1990 WEEKLY AVERAGE
TOTAL AUTOMATIC SCRAMS	1	2.15	2.44	3.06	3.25	3.21
TOTAL MANUAL SCRAMS	0	0.64	0.94	1.02	0.65	1.19

TOTALS MAY DIFFER BECAUSE OF ROUNDING OFF

* Detailed breakdown not in database for 1991 and earlier

- EXTERNAL cause included in EQUIPMENT FAILURE

- MAINTENANCE ERROR & DESIGN/INSTALLATION ERROR causes included in OPERATING ERROR

- OTHER cause included in EQUIPMENT FAILURE 1991 and 1990

NOTES

- * 1. PLANT SPECIFIC DATA BASED ON INITIAL REVIEW OF 50.72 REPORTS FOR THE WEEK OF INTEREST. PERIOD IS MIDNIGHT SUNDAY THROUGH MIDNIGHT SUNDAY. SCRAMS ARE DEFINED AS REACTOR PROTECTIVE ACTUATIONS WHICH RESULT IN ROD MOTION, AND EXCLUDE PLANNED TESTS OR SCRAMS AS PART OF PLANNED SHUTDOWN IN ACCORDANCE WITH A PLANT PROCEDURE. THERE ARE 111 REACTORS HOLDING AN OPERATING LICENSE.
2. PERSONNEL RELATED PROBLEMS INCLUDE HUMAN ERROR, PROCEDURAL DEFICIENCIES, AND MANUAL STEAM GENERATOR LEVEL CONTROL PROBLEMS.
3. COMPLICATIONS: RECOVERY COMPLICATED BY EQUIPMENT FAILURES OR PERSONNEL ERRORS UNRELATED TO CAUSE OF SCRAM.
4. "OTHER" INCLUDES AUTOMATIC SCRAMS ATTRIBUTED TO ENVIRONMENTAL CAUSES (LIGHTNING), SYSTEM DESIGN, OR UNKNOWN CAUSE.

OEAB SCRAM DATA

Manual and Automatic Scrams for 1987	-----	435
Manual and Automatic Scrams for 1988	-----	291
Manual and Automatic Scrams for 1989	-----	252
Manual and Automatic Scrams for 1990	-----	226
Manual and Automatic Scrams for 1991	-----	206
Manual and Automatic Scrams for 1992	-----	212
Manual and Automatic Scrams for 1993	-----	175
Manual and Automatic Scrams for 1994	--(YTD 06/12/94)--	65