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August 17, 1989

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Dresden Nuclear Power Station Units 2 and 3
4kV Undervoltage Setpoint
Energized Electrical Equipment List
NRC Docket Nos. 50-237 and 50-249

References (a): Letter from Cordell Reed to T.E. Murley dated April 21, 1989.

(b): Letter from J.A. Silady to T.E. Murley dated March 28, 1988.

Dear Dr. Murley:

As committed to during a meeting held on March 20, 1989 with your staff and documented in the Reference (a) letter, Commonwealth Edison has completed a list of normally energized safety related electrical equipment, other than motors, for Dresden Station. The list is included as Attachment A to this letter. Attachment B provides a summary of the methodology used to prepare the equipment list.

As discussed with members of your staff during the March meeting, CECo continues to believe that sustained plant operation at grid voltages as low as 75% is not a credible scenario. Furthermore, CECo believes that the plant as currently designed will be able to respond to degraded voltage events, if necessary, for the following reasons:

- A Loss of Coolant Accident postulated to occur under degraded voltage conditions would result in automatic bus load shedding within seconds and subsequent ECCS operation powered by the emergency diesel generators.

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- A transient event under degraded voltage conditions will be mitigated by systems which are initiated by DC circuits, e.g., HPCI, Isolation Condenser, Relief Valves.

- Procedures are currently in place to trip offsite power to any bus with a severely degraded voltage condition, thereby placing the bus on its associated emergency diesel generator. Similar procedures have been implemented at all CECo nuclear stations.

CECo believes that the measures currently in place adequately address the degraded voltage issue for Dresden Station and that the current setpoints, which are consistent with the Reference (b) amendment request, are technically justified. The completed actions therefore provide a basis for the Staff to proceed with the License Amendment for Dresden Station.

Please contact this office should further information be required.

Very truly yours,

C. Reed

Cordell Reed
Senior Vice President

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Attachments

cc: A.B. Davis - Regional Administrator, Region III
G.M. Holahan - Assistant Director, NRR
S.G. DuPont - Senior Resident Inspector, Dresden
B.L. Siegel - Project Manager, NRR

ATTACHMENT A

DRESDEN ENERGIZED ELECTRICAL EQUIPMENT LIST

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 4KV ELECTRICAL

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
4	SWITCHGEAR	GE	MC-4.76
39	4KV BREAKER*	GE	AMH-4.76-250-OD AMH-4.76-750-OD
4	POTENTIAL TRANSFORMERS**	GE	643X94

* Breaker includes CT's and overcurrent protection relays. Overcurrent relay types are GE IAC & IAC-51A bus tie diff relays are GE IJD-53C.

** Undervoltage relays connected to the potential transformers are GE 1AV.

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 480V ELECTRICAL

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
2	SWITCHGEAR	GE	AKD-5
2	4KV:480V TRANSFORMER	GE	AK-2A
2	POTENTIAL TRANSFORMER	GE	AK-2A
36	480V BREAKER	GE	AK-2A-25 AK-2A-75
10	MOTOR CONTROL CENTER (MCC)	GE	7700[1,2,3,4,5]
186	MOTOR STARTER	GE	7700[1]
3	BREAKER FOR STARTER	GE	7700[2]
	CONTROL RELAY	GE	CR120B03322 CR120AO1122AA HGA
2	125 VDC BATTERY CHARGER	POWER CONVERSION PRODUCTS	35-130-200
7	480-120/208 TRANSFORMER	GE	7700[3]

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 480V ELECTRICAL

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
1	STANDBY LIQUID CONTROL HEATER	LATER	LATER
3	DISTRIBUTION PANEL	GE	7700[4]
6	POTENTIAL TRANSFORMER	GE	7700[5]

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 120V ELECTRICAL

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
4	ELECTRICAL PROTECTION ASSEMBLY	GE	DWG 47E52374
1	INSTRUMENT BUS	WESTINGHOUSE	6CF643663
28	INSTRUMENT BUS BREAKERS	WESTINGHOUSE	6CF643663
2	24/48V BATTERY CHARGERS	GOULD	DWG 50-1-E
1	ATWS RPT INVERTER (DIV 1)	LATER	LATER
2	CONTROL TRANSFORMER	GE	7700^5

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 120V ELECTRICAL

NOTES:

1. GE Model 7700 MCC subcomponents include motor starter contactors:
   CR109C022
   CR109D022
   CR106E004
   CR106F004

2. GE Model 7700 MCC subcomponents includes circuit breakers:

TEF 136M1025	TED 134070	TEC 36007
TEF 136m1003	TED 134035	
TEF 136M1010	TED 134040	
TEF 136M1005	TEF 136100	
THEF 136020	TEF 136050	
THEF 136070	TEF 136040	
TED 136100	THEF 136040	
TED 134030	TFJ 236150	

3. GE Model 7700 MCC subcomponets include distribution transformers:
   9T56Y1798
   9T22Y4223

4. GE Model 7700 MCC subcomponents include distribution panels:
   TQL 32030
   TEF 136030
   TEF 136020

5. GE Model 7700 MCC subcomponents include control transformers:
   9T56Y1803
   9T56Y1805
   9T56Y1806

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: CONTROL ROD DRIVE

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
4	SDV LEVEL SWITCH	FCI	FR72-4HTRDLL

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: DIESEL GENERATOR

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
7	RELAY	AGASTAT GE CR120 GE HGA	EPIN002
2	CIRCUIT BREAKER	LATER	LATER
1	TRANSFORMER	LATER	LATER
1	CONTROL RELAY	LATER	LATER
1	COOLING WATER IMMERSION HEATER	WIEGAND	TM6XX

UNIT 2

LIST OF EQUIPMENT
SUMMARY

SYSTEM: STANDBY LIQUID CONTROL

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
1	RELAY	LATER	LATER

SYSTEM: PROCESS RADIATION MONITOR

8	RELAY	GE	CR120

UNIT 2

LIST OF EQUIPMENT
SUMMARY

SYSTEM: PROCESS INSTRUMENTATION

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
1	POWER SUPPLY	GE	570062DAAC1
1	PIC	YOKOGAWA	LATER
1	E/P	FISHER	546
2	ATS PANELS & PS	NUTHERM	LATER

SYSTEM: ATWS RECIRC PUMP TRIP

2	24VDC POWER SUPPLY	LATER	LATER

SYSTEM: CNMT. PRESS & TORUS LEVEL INSTR

2	24VDC POWER SUPPLY	LATER	LATER

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: PRIMARY CONTAINMENT ISOLATION

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
19	RELAY	GE	CR120 HFA
		AGASTAT	LATER
14	SOLENOID	ASCO	NP-1 206-382-3VF HT831614 S19879
		VERSA PROD	VGS-4522/4422 VPS-2402

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: N_2 INERTING

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
6	SOLENOID	ASCO	8320A19 LB-831454

SYSTEM: PRESSURE SUPPRESSION

2	SOLENOID	ASCO	NP8344A75V

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: RADWASTE

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
3	SOLENOID	ASCO	HT2831614 8316104

SYSTEM: INSTRUMENT AIR

3	SOLENOID	ASCO	8300C9F WP8300C9RF

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: DRYWELL AIR SAMPLING

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
6	SOLENOID	ASCO	8302C4RF 8302A-19

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: CONTAINMENT ATMOSPHERE MONITOR

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
8	RECTIFIER	TARGET ROCK	½ SMS-S-1
4	RADIATION MONITOR	GE	368X428AAG003
		GEN ATOMIC	RP-2C
4	RECORDER	GE	LATER
		TRACOR WESTRONICS	D4E2
12	RELAY	AGASTAT	EGP
		GE	CR120
		GE	CR120BO6422

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: ACAD

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
2	POWER SUPPLY	LATER	LATER
4	SQ ROOT EXTRACTOR	ROCHESTER INSTR	PSC-330
4	FLOW CONTROLLER	ROSEMONT	3212
9	ELECTRONIC TRIP	ROCHESTER INSTR	PTA-214
5	SOLENOID	ASCO	HB8302A81V 8321A5 HB8302A81V

SYSTEM: PROCESS COMPUTER

4	ISOLATOR	MOORE IND	SCT

UNIT 2

LIST OF EQUIPMENT

SUMMARY

SYSTEM: CONTROL ROOM HVAC

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
24	RELAY	AGASTAT WESTINGHOUSE	7032AD A4660A AR880A AR440A AR660A
		AGASTAT POTTER & BRUMFIELD	GPI MDR-131-1
8	SOLENOID	ASCO	NP8321A5E NP8320A184V NP831654V
1	AIR FILTRATION UNIT HEATER	LATER	LATER

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 4KV ELECTRICAL

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
4	SWITCHGEAR	GE	MC-4.76
40	4KV BREAKER*	GE	AMH-4.76-250-OD AMH-476-750-OD
4	POTENTIAL TRANSFORMERS**	GE	643X94

* Breaker includes CT's and overcurrent protection relays. Overcurrent relays are GE IAC and IAC-51. Bus tie differential relays are GE IJD-53C.

** Undervoltage relays connected to the potential transformers are GE 1AV.

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 480V ELECTRICAL

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
2	SWITCHGEAR	GE	AKD-5
35	480V BREAKER	GE	AK-2A-25 AK-2A-75
2	4KV:480V TRANSFORMER	GE	AK-2A
2	POTENTIAL TRANSFORMER	GE	AK-2A
9	MOTOR CONTROL CENTER (MCC)	GE	7700[1,2,3,4]
160	MOTOR STARTER	GE	7700[1,2]
5	480V-120/208V TRANSFORMER	GE	7700[3]
4	DISTRIBUTION PANEL	GE	7700[4]
2	120V BREAKERS	GE	7700[2]
3	CONTROL RELAY	GE	HGA
6	POTENTIAL TRANSFORMER	GE	7700[5]
2	125V BATTERY CHARGER	POWER CONVERSION PRODUCTS	35-130-200
2	LOCAL STARTER PNL	GE	7700[1]
1	STANDBY LIQUID CONTROL TANK HEATER		

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 480V ELECTRICAL

NOTES:

1. GE Model 7700 MCC subcomponents include motor starter contractors:
   CR109C022
   CR109D022
   CR106E004
   CR106F004

2. GE Model 7700 MCC subcomponents include circuit breakers:
   TEF 136M1025
   TEF 136M1003
   TEF 136M1010
   TEF 136M1005
   THEF 136020
   THEF 136070
   TED 136100
   TED 134030
   TED 134070
   TED 134035
   TED 134040
   TEF 136100
   TEF 136050
   TEF 136040
   THEF 136040
   TFJ 236150
   TEC 36007

3. GE Model 7700 Mcc subcomponents include distribution transformers:
   9T56Y1798
   9T22Y4223

4. GE Model 7700 MCC subcomponents include distribution panels:
   TQL 32030
   TEF 136030
   TEF 136020

5. GE Model 7700 MCC subcomponents include control transformers:
   9T56Y1803
   9T56Y1805
   9T56Y1806

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: 120 VAC ELECTRICAL

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
1	INSTRUMENT BUS	WESTINGHOUSE	6CF643663
28	INSTRUMENT BUS BREAKER	WESTINGHOUSE	6CF643663
4	ELECTRICAL PROTECTION ASSEMBLY	GE	DWG 47E52374
1	INSTRUMENT BUS AUTO TRANSFER SWITCH	LATER	LATER
2	24/48V BATTERY CHARGER	GOULD	DWG 50-1-E

SYSTEM: PROCESS INSTRUMENTATION

2	ATS PANELS & POWER SUPPLY	NUTHERM	LATER
2	POWER SUPPLY	KEPCO	PCX-72-03

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: CONTAINMENT ISOLATION SYSTEM

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
27	RELAY	GE	CR120 CR120A04 HFA
		AGASTAT	LATER
3	ISOLATOR	MOORE IND	SCT
32	SOLENOID	ASCO	WP8300C9RF 8316C14 HT831614 S19879 8300C9F 8320A-19 8320A19 8302C4RF 83028RF NP1 HV206-380-3F 206-832-3VF LB831454
		VERSA PRODUCTS	VPW-2402

SYSTEM: PRESSURE SUPPRESSION SYSTEM

2	SOLENOID	ASCO	NP-1 8344A75V
2	RELAY	GE	CR120

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: RECIRCULATION

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
12	RELAY	AGASTAT	ETR14I3002 ETR1413A002 EGP1002

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: PROCESS RADIATION MONITORING

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
10	RELAY	GE	CR120

SYSTEM: LPCI

1	POWER SUPPLY	GE/MAC	570062DAAC1
1	REGULATOR	GE/MAC	543-11
1	SIGNAL CONVERTER	MOORE	LATER
1	CONTROLLER	GE/MAC	540

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: DIESEL GENERATOR

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
2	CIRCUIT BREAKER	LATER	LATER
1	TRANSFORMER	LATER	LATER

UNIT 3

LIST OF EQUIPMENT

SUMMARY

SYSTEM: POST LOCA H_2 AND O_2 MONITORING SYSTEM

NUMBER	ITEM DESCRIPTION	MANUFACTURER	MODEL NO
2	RECORDER	TRACOR WESTRONICS	LATER
SYSTEM: ATWS			
2	POWER SUPPLY	LATER	LATER
2	ISO CONV	LATER	LATER
SYSTEM: ACAD			
1	RELAY	GE	120A01122AA
10	SOLENOID	ASCO HB8302A81V	8321A5 83215

ATTACHMENT B

ENERGIZED EQUIPMENT REVIEW PROCEDURE

DRESDEN SAFETY RELATED ELECTRICAL PROJECT

REVIEW PROCEDURE

I Obtain current revision of Dresden Station Units 2 and 3 safety related key diagrams and schematics.

II Tabulate the list of drawings including drawing number and revision.

III Organize the drawings sequentially on stick files.

IV Review each drawing and categorize the equipment as follows:

A. The Green category includes:

1. Non safety related equipment
2. Equipment only energized for a LOCA or for surveillance testing
3. Motors
4. DC equipment
5. Resistors and indicating lights
6. Equipment supplied by regulated power supplies which are designed to supply adequate voltage even under design basis degraded voltage conditions.
7. Motor heaters and switchgear heaters.

B. The Red category is equipment excluded from the Green category which satisfies one of the following:

1. Safety related class 1E equipment which is normally energized.
2. Safety related class 1E equipment which may be energized under transient conditions.

V Show the equipment category by placing a green line on the equipment, circuit, or drawing title block for the green category. Draw a red line on equipment for the red category. For drawings containing red category equipment, place a red line on the drawing title block.

VI After the drawing review is completed tabulate the red category items.

The tabulation includes;

- Equipment number
- Equipment description
- Drawing number
- System designation

The manufacturer and model number will be supplied by CECo and added to the tabulation.

VII Compare the tabulation to the Master Equipment List (MEL) to assure items identified on the list are safety related. For any item removed from the list, change the red line on the drawing to green.

VIII Complete classification of component forms for items not listed in the MEL to determine if they are safety related.

IX Perform an independent review of the following tasks.

- List of inputs
- Review of drawings and equipment list
- Comparison with the MEL
- Classification of component forms

X Prepare a summary report which gives observations, conclusions and the equipment tabulation (list). Perform an independent review of the the summary report.