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SHIELDS L. DALTROFF
VICE PRESIDENT
ELECTRIC PRODUCTION

April 27, 1983

Docket Nos. 50-277
50-278

Mr. John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Stolz:

Your letter of March 22, 1983, concerning the Clarification of Qualification Safety Evaluation Report, requested that within thirty days of the receipt of that letter we complete certain actions as follows:

Item 1

You should review all JCOs submitted to date to ensure that a JCO exists for all equipment which may not be qualified. The thirty (30) day response required by the current SE should address equipment items in NRC Categories I.B, II.A and IV (note that Category IV was not mentioned in the previous SER) for which justification for continued operation was not previously submitted to the NRC or Franklin. Guidelines for justification for continued operation are provided in paragraph (i) of 10 CFR 50.49. These guidelines should be utilized in developing your justification for continued operation.

A001

Response

We have reviewed and revised our Justifications for Continued Operation (JCOs) in accordance with the above guidelines. The changes have been incorporated into our revised JCO, dated April 21, 1983, which is attached. A summary of each category is provided below.

Category IB (CAT IB) - Qualification Pending Modification

Our JCO has been revised to include items in CAT IB for which a JCO has not previously been submitted. The following description is included to define which CAT IB items have been added to our JCO and which CAT IB items do not belong in CAT IB.

Franklin Research Center/Technical Evaluation Report (FRC/TER) - Cat IB Items

1) Item 12, MO-23-19 Units 2 and 3; Item 16, MO-14-12A & B, Unit 3; Item 17, MO-14-11A & B Unit 3, the preceding have been added to our JCO dated April 21, 1983. A copy of the revised JCO dated April 21, 1983 is attached.

2) Item 81, DPIS-10-121A,B,C,D Units 2 and 3 were listed in PECO September 1, 1981 submittal as having a deficiency with respect to post accident operating time and radiation. An evaluation of the system requirements indicate that the safety function of the DPIS's will be completed during initial operation of the ECCS and is not required long term post accident. Based on this change to the specified time, this item is safety qualified for its intended safety function.

3) Item 88, Units 2 and 3, Reliance Electric Motors Model CS, in CAD Analyzers. The motors are not required post accident to take a containment air sample. These motors were never scheduled for replacement, relocation or testing and are not currently scheduled for any modification. We believe this item to be incorrectly categorized.

4) Item 125, DPIS-14-81A,B,C,D, Unit 2. This differential pressure indicating switch is classified as a Cat IB item. These DPIS's were never scheduled for replacement, relocation or testing and are not currently scheduled for any modification. We believe this item to be incorrectly categorized.

5) The following CAD Analyzer Atkomatic solenoid valves are undergoing EQ testing:

SV-4777A-D; SV-4778A-D; SV-4779A-D; SV4780A-D;
SV-4782A-D; SV-4783A-D; SV-4784A-D; SV-4785A-D;
SV-4792A-D; SV-4962A-D; SV-4964A-D.

These solenoid valves provide sample gas to the CAD Analyzer. This commitment was not previously identified to the NRC. As stated in PECO's 90 day response dated September 5, 1981 to NRC's SER of June 5, 1981, PECO committed to replacing Atkomatic solenoid valves Item 41 and 42 SV-2671A-G, SV-2678A-G, and SV-2980. These are primary containment isolation valves. PECO has revised the commitment for resolution of qualification deficiencies for these items from replacement to testing. PECO has elected to extend the EQ test scope to include the CAD sample solenoid valves in addition to the isolation valves. Our JCO dated April 21, 1983, has been revised to include the CAD Analyzer solenoid valves. A copy of the revised JCO dated April 21, 1983, is attached.

Category IIA - Qualification Not Established

After a review of available environmental qualification documentation for equipment in this category, we have concluded that this equipment is qualified. As acknowledged in your letter, PECO has requested a meeting with the NRC to resolve these items.

Category IV - Documentation Not Made Available

PECO has no equipment in this category.

Item 2

The Technical Evaluation Report contains certain identified information which you have previously claimed to be proprietary.

We request that you inform us as indicated in the proprietary review section of the Safety Evaluation whether any protions of the identified pages still require proprietary protection.

Response

The summary information on the Equipment Environmental Qualification Review Sheets in the Technical Evaluation Report (TER) designated as containing proprietary information are being reviewed by GE. Copies of the proprietary sections of the TER have been submitted to GE along with the NRC's Proprietary Review Guidelines. We have requested a response from GE by April 28, 1983.

Should you require further information, please do not hesitate to contact us.

Very truly yours,

Attachments

cc: R. A. Blough
Site Inspector

Revised 4/21/83

Justification for Continued Operation
Peach Bottom Atomic Power Station
Units 2 and 3

This document supplements our September 3, 1981 response to the Safety Evaluation for the Environmental Qualification of Safety-Related Electrical Equipment at Peach Bottom Atomic Power Station, Units 2 and 3. Table 1 of the September 3, 1981 response identifies those equipment items with environmental qualification deficiencies; Table 1 is provided here as Attachment 1. For clarity, the qualification deficiencies have been subdivided into the following categories:

1. Deficiency resolved.

2. Equipment which performs its function prior to exposure to the harsh environment, and the subsequent failure of the equipment or non-essential subcomponents does not degrade other safety functions or mislead the operator.

3. Deficiency restricted to radiation.

4. Exemption from qualification up-grade.

5. Other equipment deficiencies.

Category 1

The following portion of the equipment deficiencies identified in Table 1 have been resolved by analysis:

1.	PS-14-044A,B,C,D	Units 2 and 3
2.	PS-10-120A,B,C,D,E,F,G	Units 2 and 3
3.	EPTB-003	Units 2 and 3
4.	20B10,20B11,20B12,20B13	Units 2 and 3
5.	PS-10-121A,B,C,D	Units 2 and 3
6.	OAE and OBE65	Units 2 and 3

PS-14-044A,B,C,D and PS-10-120A,B,C,D,E,F,G are pressure switches which were previously reported as deficient because documentation was not available to support their operability during post-LOCA radiation exposure. An analysis (PECO reference 126) which identifies the materials of construction and the radiation thresholds for the materials has been prepared. This analysis resolves the radiation deficiency previously reported.

EPTB-003 is a terminal block which was previously reported as deficient because documentation was not available to support its operability during

post-LOCA radiation exposure. An analysis (PECO reference 128) which identifies the generic material of construction and its radiation threshold has been prepared. This analysis resolves the radiation deficiency previously reported.

20B10,11,12,13 are 480 volt power distribution load centers which were previously reported as deficient because documentation was not available to support their operability post-LOCA or HELB. An environmental qualification report was prepared by the manufacturer for this equipment and it resolved this documentation deficiency.

DPIS-10-121A,B,C,D will perform their safety function during initial ECCS system operation which is enveloped by the test conditions. Long term operability for shutdown cooling will not be required since the system is established in a steady state condition and pump/motor startup and shutdown will be infrequent.

OAE and OBE65 heaters are required in order to maintain the process air relative humidity below the condensable level. Condensation is undesirable because it would reduce charcoal filter efficiency; however, the system is equipped with mechanical de-misters and high efficiency particulate filters which will remove .03 micron particles which perform the same function. The loss of efficiency due to charcoal filter wetting may approach 90%. Based on the FSAR analysis, the resulting plant discharge is still within plant boundary radiation levels. Also, discussions with the manufacturer indicate that the materials of construction are metallics and phenolics. Based on the preceding it is concluded that the present lack of documentation constitutes minimal risk of failure due to post-LOCA radiation exposure. An analysis has been performed by PECO to resolve the qualification deficiencies. (PECO Ref. 128.)

Category 2

This category applies to that portion of the equipment identified in Table 1 which has either a passive essential safety function or it performs its safety function prior to exposure to the harsh environment. The following equipment has a passive essential safety function:

1.	MO-10-13A,B,C,D	Units 2 and 3
2.	MO-10-154A,B	Units 2 and 3
3.	MO-14-11A,B	Units 2 and 3
4.	MO-10-34A,B	Units 2 and 3
5.	MO-14-26A,B	Units 2 and 3
6.	MO-23-20	Units 2 and 3
7.	MO-23-25	Units 2 and 3

The following equipment has an initial short duration active essential safety function:

1.	MO-10-25A,B	Units 2 and 3
2.	MO-14-12A,B	Units 2 and 3
3.	MO-23-19	Units 2 and 3
4.	SV-2671A,B,C,D,E,F,G	Units 2 and 3
5.	SV-2678A,B,C,D,E,F,G	Units 2 and 3
6.	SV-2980	Units 2 and 3

None of the active essential valve actuators identified above would be exposed to post-LOCA environmental effects within the time period that their operation would be required since they are located outside primary containment. In addition, the MO-10-25 actuators are physically separated and on redundant loops; the same is true of the MO-14-12 actuators. Therefore, a HELB is not capable of causing a common mode environment during the time period that the equipment would be required to operate. In addition, the particular deficiency for all motor operated valve actuators (MO) except MO-23-25 involves a subcomponent, the drive motor brakes. Our evaluation of this deficiency reveals that the actuator could perform its safety function despite failure of this subcomponent. Discussions with the manufacturer indicate that typical actuator drive motor stall torque is approximately 4 times greater than the static brake torque capability; therefore, it can be concluded and demonstrated by field experience that the motor can position the actuator regardless of brake failure. The solenoid valves (SV) use the force developed by process pressure to close, and coil failure would cause the valve to close thereby satisfying its safety function objective to isolate.

Category 3

The following portion of the equipment identified in Table 1 is exposed to post-LOCA radiation, however, it is not exposed to prolonged temperature changes:

1.	2A,2B,2C,2DP35	Units 2 and 3
2.	LS-23-91A,B	Unit 2
3.	OA,OB,OCV20	Common plant
4.	N3692,N3693,N3772,N3773 N3783,N3784,N3884,N3885 N3994,N3995	Units 2 and 3
5.	DPS-00014,15 DPS-20400-03 thru -20	Units 2 and 3

The RHR pump motors 2A, 2B, 2C and 2DP35 are qualified to 2.1 MR. Although these motors would be expected to survive the postulated 101 day post-LOCA dose of 33 MR, an alternate method of shutdown cooling via the main condensers could be used.

Level switches 23-91A,B automatically transfers HPCI suction from the CST to the torus on high torus level. Alternate redundant torus level indication is available to the operator from LT-8027A and B. In addition, these level transmitters provide the operator with a high level alarm.

OA, OB, and OCV20 are the Standby Gas Treatment fan drive motors. Of the three motors which are available, only one is required, therefore, the system would be expected to be operational post-LOCA. System design uses two 100% capacity redundant filter trains with capability of using a third motor/fan for either train. Post-LOCA accident environment can be considered mild except radiation dose from SGTS filters. Based on BLP 21544 the 40 year normal and post-LOCA total integrated fan dose is 4.33×10^6 rads. Due to the physical layout, the third (standby motor) dose is expected to be less than 4.33×10^6 rads. Based on the above and in consideration of the typical materials used for motor construction, the likelihood of a motor failure due to the common mode post-LOCA radiation exposure is insignificant.

GE control stations N3692 thru N3995 have had JCO's submitted to the NRC on 3/16/83 S. L. Daltroff to J. F. Stolz and on 3/23/83 S. L. Daltroff to R. C. DeYoung.

DPS-20400-03 thru -20 are control components for the HPCI and ECCS area coolers. Each ECCS pump room has redundant area coolers. Each cooler has a differential pressure switch (dps) which monitors the fan operation. Their control function is to initiate the alternate cooler in the event that the preferred fan does not start. The application of these dps is a fail safe design, i.e. failure of the dps to actuate will cause both area coolers to operate simultaneously.

Category 4

The following portion of the equipment identified in Table 1 has been exempted from a qualification up-grade based on our response to SER item 4.2:

1.	MPL 23-1,2	Units 2 and 3
2.	FT-23-82	Units 2 and 3
3.	PS-23-68A,B,C,D	Units 2 and 3
4.	PS-23-84-1	Units 2 and 3
5.	PS-23-97A,B	Units 2 and 3

The equipment in this category is the HPCI pump-turbine and associated instrumentation. The exemption from a qualification up-grade is based on the facts that (1) a fully redundant ADS system and multiple low pressure systems are available to mitigate the accident, and (2) the equipment is protected

from an adverse environment with the exception of radiation by redundant local area coolers. The area coolers maintain temperature well below the system specification limit. A qualification up-grade for an apparent radiation deficiency alone is not warranted since the successful operation of the system will prevent radiation exposure, and if core damage of the magnitude associated with the post-LOCA source terms does occur, the system's operation would be either of no benefit or minimal benefit at best.

Category 5

The following additional equipment with qualification deficiencies remains to be covered in this category.

1. 20D11,20D11A — Units 2 and 3
   20B36,20B37,20B38,20B39
   N210025A,N210025B

2. SV-4777A-D, SV-4778A-D, SV-4779A-D — Units 2 and 3
   SV-4780A-D, SV-4782A-D, SV-4783A-D
   SV-4784A-D, SV-4785A-D, SV-4792A-D
   SV-4962A-D and SV-4964A-D

Similar motor control centers (MCC) to Item 1 have been tested to temperature and pressure conditions which envelop the PBAPS requirements. This equipment would not be exposed to harsh environmental effects immediately after a LOCA, since the MCC's are located in secondary containment. In addition, the equipment enclosure is of dust tight construction; there are no vents, and compartment doors are gasketed. In the event of a HELB, RCIC can depressurize and provide the required water inventory make-up. Alternatively, ADS is available in combination with the low pressure ECCS systems and conventional plant equipment such as the condensate pumps. This conventional plant equipment is located in mild environment areas.

The Item 2 solenoid valves are required to open post-LOCA to take primary containment samples for the CAD Analyzers. Since the Peach Bottom containment is inerted and post-accident combustible gas control is maintained by oxygen deficiency, the control of combustible gas concentration in containment is relatively insensitive to the rate or extent of hydrogen generation due to metal-water reaction. Maintenance of containment gas concentrations below combustible limits is accomplished by the addition of nitrogen to limit oxygen concentration to less than 5%. Indication of hydrogen concentration is used only to determine if a level of hydrogen exists within containment such that control of oxygen concentration is needed.

Based on Safety Guide No. 7 (now Regulatory Guide 1.7) assumptions, approximately one day will elapse after a loss of coolant accident before

nitrogen addition is required. Recent evaluations submitted by the BWR Owners' Group and reviewed by the NRC staff have demonstrated that the Regulatory Guide 1.7 radiolytic oxygen generation is extremely conservative. (Refer to letter number BWROG-8224 from T. J. Dente of the BWROG to D. G. Eisenhut of the NRC dated June 21, 1982, and the letter from W. G. Council of NUSCO to W. J. Dircks of the NRC dated August 6, 1982.) This analysis shows that nitrogen addition will not be required.

WJC:LCY
4/21/83

Attachment 1

Table 1
CAT B Items

Equipment Description	Unit	Manufacturer	Component No.	Deficiency
Fan Motor	Common	GECO	0A,0B,0CV20	QT,T,P,H,R,A
Valve Actuator	2	Limitorque	MO-14-11A,B	QT,T,P,H,R,A
Valve Actuator	2	Limitorque	MO-14-12A,B	
Valve Actuator	2 & 3	Limitorque	MO-10-25A,B	(motor brake only)
Valve Actuator	3	Limitorque	MO-23-19	
Valve Actuator	2 & 3	Limitorque	MO-14-26A,B,10-154A,B	
Valve Actuator	2 & 3	Limitorque	MO-10-13A,B,C,D	
Valve Actuator	2 & 3	Limitorque	MO-23-20,10-34A,B	
Valve Actuator	2 & 3	Limitorque	MO-23-25	(motor only)
Solenoid Valve	2 & 3	Atkomatic	SV-2671A,B,C,D,E,F,G	QT,T,P,H,R,A
Solenoid Valve	2 & 3	Atkomatic	SV-2678A,B,C,D,E,F,G	
Solenoid Valve	2 & 3	Atkomatic	SV-2980	
Solenoid Valve	2 & 3	Atkomatic	SV-4777A-D,4778A-D, SV-4779A-D,4780A-D, SV-4782A-D,4783A-D, SV-4784A-D,4785A-D, SV-4792A-D,4962A-D, SV-4964A-D	QT,T,P,H,R,A
Control Switch	2 & 3	GECO	N3692,N3693,N3772, N3773	QT,P,H,R,A
Control Switch	2 & 3	GECO	N3783,N3784,N3884, N3885	
Control Switch	2 & 3	GECO	N3994,N3995	
Level Switch	2 & 3	Robertshaw	LS-23-91A,B	R,A
Pressure Switch	2 & 3	Static-O-Ring	PS-14-044A,B,C,D	R,A
Pressure Switch	2 & 3	Static-O-Ring	PS-10-120A,B,C,D,E,F,G,H	P,R,A
Pressure Switch	2 & 3	Barksdale	PS-23-68A,B,C,D	R,A
Pressure Switch	2 & 3	Static-O-Ring	PS-23-84-1	R,A
		Static-O-Ring	PS-23-97A,B	R,A
Differential Pressure Switch	Common	Dwyer	DPS-00014,15	T,P,H,R,A
Differential Pressure Switch	2 & 3	Dwyer	DPS-20400-03,04,05,06, 07,08,09,10,11,12,13, 14,15,16,17,18,19,20	
Heater	Common	American Air Filter	0A & BE65	R,T,QT,P,H,A
Terminal Block	2 & 3	GECO	EPTB-003	R,A

Equipment Description	Unit	Manufacturer	Component No.	Deficiency
Motor	2 & 3	GECO	2A,2B,2C,2DP35	R,A
Load Center	2 & 3	ITE	20B10,11,12,13	R,T,QT,P,H,A
Motor Control Center	2	Cutler Hammer	20D11A	R,T,QT,P,H,A
Motor Control Center	2 & 3	Cutler Hammer	N210025A,B,20B36,37	
Motor Control Center	2 & 3	Cutler Hammer	20B38,39,20D11	
Flow Transmitter	2 & 3	GECO	FT-23-82	QT,T,P,H,R,A
HPCI Pump/ Turbine	2 & 3	GECO	MPL23-1,2	QT,T,P,H,R,A
Differential Pressure Ind. Switch	2 & 3	Barton	PS-10-121A,B,C,D	T,A

WJC:LCY
4/22/83