SOUTH CAROLINA ELECTRIC & GAS COMPANY
POST OFFICE 764
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O. W. DIXON, JR.
VICE PRESIDENT
NUCLEAR OPERATIONS

January 31, 1985

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Virgil C. Summer Nuclear Station
Docket No. 50/395
Operating License No. NPF-12
Generic Letter 84-24
Compliance to 10CFR50.49

Dear Mr. Denton:

In response to Generic Letter 84-24, "Certification of Compliance to 10CFR50.49, Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants," South Carolina Electric and Gas Company (SCE&G) hereby submits the information requested by the Staff on the status of compliance with 10CFR50.49.

SCE&G has in place and is implementing an Environmental Qualification Program that satisfies the requirements of 10CFR50.49 and Operating License Condition 2.C(8) for the Virgil C. Summer Nuclear Station. The plant also has at least one (1) path to safe shutdown using qualified equipment. Equipment within the scope of 10CFR50.49, as listed in the letter from O. W. Dixon, Jr. to H. R. Denton dated May 17, 1983, is now qualified. Furthermore, NRC IE Bulletins and Notices identified in Generic Letter 84-24 have been reviewed and,where applicable, actions have been taken to address concerns identified by these documents.

Supplement 5 to the Virgil C. Summer Nuclear Station Safety Evaluation Report, dated November 1982, noted the four (4) remaining items requiring qualification to be in accordance with NUREG 0588 requirements. The May 17, 1983, letter indicated Reactor Vessel Level Indication System (RVLIS) equipment which also needed further test reports to document qualification and to comply with NRC requirements now outlined in 10CFR50.49. The qualification of these items has now been completed and SCE&G submits as Attachment II to this letter the required updated component worksheets used in the justification of the environmental qualification. Attachment I contains a brief identification of each of these items.

Add: Shields, ELD

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SCE&G is therefore in compliance with the provisions of NUREG-0588 for safety-related electrical equipment exposed to a harsh environment and has satisfied the requirements of License Condition 2.C(8) and 10CFR50.49. Records are available and are being maintained describing the methods used for the qualification of the electrical equipment.

The statements and matters set forth in this letter are true and correct to the best of my knowledge, information and belief.

If you have any questions, please advise.

Very truly yours,

O. W. Dixon, Jr.

AMM/OWD/gj

cc: V. C. Summer
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ATTACHMENT 1

ITEMS FROM TABLE 3-2 OF SUPPLEMENT 4 OF THE SER

Item 1 - Veritrak Pressure Transmitter - This Westinghouse supplied Reactor Coolant System Wide Range Pressure Transmitter has been qualified for harsh environment; however, a recent modification to the Virgil C. Summer Nuclear Station has relocated this transmitter from the Reactor Building to the mild environment of the Fuel Handling Building. The Barton Model 763 Reactor Coolant System Wide Range Pressure Transmitter was also relocated from the Reactor Building to the mild environment of the Diesel Generator Building.

Item 2 - Crosby Position Indication Switches - These switches have been replaced with an Acoustical Valve Monitoring System manufactured and qualified by Technology for Energy, Inc. The necessary components from this system have been qualified for harsh environment conditions.

Item 4 - Hydrogen Recombiner - The Westinghouse hydrogen recombiner has now been qualified for harsh environment.

Item 6 - Core Subcooling Monitor System - Components in the Core Subcooling Monitor System that have been qualified for harsh environments were supplied by Conax Corporation, Combustion Engineering and the Veam Division of Litton. These components include electrical connectors, electrical penetrations, and mineral insulation cable for the core exit thermocouple system.

Reactor Vessel Level Indication System (RVLIS) - RVLIS components qualified for harsh environments include resistance temperature detectors manufactured by MINCO, high volume sensors and differential pressure switches, both manufactured by ITT Barton.

ATTACHMENT II

PURCHASE ORDER NO.	TYPE OF EQUIPMENT	MANUFACTURER	MODEL NO. OR ID	LOCATION BUILDING AND ROOM	LOCATION TAG NUMBER	ABNORMAL OR ACCIDENT ENVIRONMENT	ENVIRONMENT TO WHICH QUALIFIED	OPERABILITY REQUIREMENTS	OPERABILITY DEMONSTRATED	ACCURACY OR RESPONSE TIME REQUIREMENTS	ACCURACY OR RESPONSE TIME DEMONSTRATED	QUALIFICATION REPORT AND METHOD
10001	Reactor Coolant System Wide Range Pressure Transmitter	Barton	763 a,c Ldt 2	DBC	IPT-402-RC	Temp: 65°F - 104°F Press: Atmospheric RH: 20% - 90% Spray: NA TID: 500 RADS 40 yrs. Submergence: No	DBE Conditions Temp: 380°F Press: 75 psig RH: 100% Spray: 1.14% Boric Acid, 0.17% NaOH TID: 5×10^7 RADS Submergence: No a,b,c	4 months post DBE	4 months post DBE	± 2½%	Max. error ± 1% mild envir.	Report: NS-TMA-2184 Anderson to Stolz Method: Test & Analysis Qualified Life: 20 yrs. (By Analysis) Aging Time: NA Aging Temp: NA DR-2W
10001	Reactor Coolant System Pressure Wide Range Transmitter	Veritrak	76PH2	FB	IPT-403-RC	LOCA Conditions Temp: 65°F - 104°F Press: Atmospheric RH: 20% - 90% Spray: NA TID: 1.2×10^6 RADS 6 months Submergence: No	DBE Conditions Temp: 420°F Press: 57 psig RH: 100% Spray: 2500 PPM Boron in Water Buffered with NaOH to Yield a PH of 10,7 TID: 5×10^7 RADS Submergence: No	4 months post DBE	4 months post DBE	± 2½%	± 1% mild envir.	Report: WCAP-8587, EQDP-ESE-1B; WCAP-8687, Supplement 2-E01B Method: Test & Analysis Qualified Life: 14 yrs. @ 104°F

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PURCHASE ORDER NUMBER	TYPE OF EQUIPMENT	MANUFACTURER	MODEL NO. OR ID	LOCATION: BUILDING AND ROOM	LOCATION: TAG NUMBER	ABNORMAL OR ACCIDENT ENVIRONMENT	ENVIRONMENT TO WHICH QUALIFIED	OPERABILITY REQUIREMENTS	OPERABILTIY DEMONSTRATED	ACCURACY OR RESPONSE TIME REQUIREMENTS	ACCURACY OR RESPONSE TIME DEMONSTRATED	QUALIFICATION REPORT AND METHOD
10001	Main Steam Pressure Transmitter	Barton	[763 Lot 2] a,c	ABb	IPT-474, 475, 476-MS	MSB Conditions (IBf) Temp: 282°F Figure 25 Press: 2.3 psig Figure 3.6-10 RH: 100% Spray: NA TID: 1 x 10^5 RADS 6 months Submergence: No SLB Conditions (ABb) Temp: 123°F Figure 29 Press: 0.1 psig RH: 100% Spray: NA TID: 3.7 x 10^5 RADS 6 months Submergence: No	[DBE Conditions Temp: 380°F, Press: 75 psig RH: 100% Spray: 1.14% Boric Acid, 0.17% NaOH TID: 5x10^7 RADS Submergence: No a,b,c]	5 minutes (short-term trip) 4 months (long-term display)	4 months post-DBE	+ 10% for 5 min., + 25% 5 min. to 4 mo.	[Max. error 0-5 min.: 8%, 5 min. to 4 mo.: 15% a,b,c]	Report: NS-TMA-2184 Anderson to Stolz Method: Test & Analysis Qualified Life: 30 years (By Analysis) Aging Time: NA Aging Temp: NA DR-2W
				IBf	IPT-484, 485, 486-MS							
				IBf	IPT-494, 495, 496-MS							
10001	Hydrogen Recombiner	Westinghouse Sturtevant	Type A	RBE	XHR0004A XHR0004B	LOCA Conditions Temp: 267°F Figure 6.2-7 Press: 44.7 psig Figure 6.2-1 RH: 100% Spray: Note 1 TID: 6.2 x 10^7 RADS 1 year Submergence: No	[LOCA Conditions Temp: 309°F Press: 62 psig RH: 100% Spray: 2500 PPM Boron as Boric Acid with NaOH to give pH of 10 TID: 2x10^8 RADS Submergence: No a,b,c]	4 months post-LOCA	12 months post-LOCA	NA	NA	Report: WCAP-8587, EQDP-SP-1 Method: Test & Analysis Qualified Life: 40 yrs. + 1 yr. post-LOCA

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Revision 4

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PURCHASE ORDER NO.	TYPE OF EQUIPMENT	MANUFACTURER	MODEL NO. OR ID	------LOCATION------ BUILDING AND ROOM	TAG NUMBER	ABNORMAL OR ACCIDENT ENVIRONMENT	ENVIRONMENT TO WHICH QUALIFIED	OPERABILITY REQUIREMENTS	OPERABILITY DEMONSTRATED	ACCURACY OR RESPONSE TIME REQUIREMENTS	ACCURACY OR RESPONSE TIME DEMONSTRATED	QUALIFICATION REPORT AND METHOD
/0001	RVLIS Resistance Temperature Detectors	MINCO	S8809/ S8810	RB	ITE-1313-RC thru ITE-1319-RC ITE-1323-RC ITE-1324-RC ITE-1326-RC thru ITE-1329-RC	LOCA Conditions Temp: 267°F Figure 6.2-7 Press: 44.7 psig Figure 6.2-1 RH: 100% Spray: Note 1 TID: 2.7×10^7 RADS 6 months Submergence: No MSB Conditions Temp: 324°F Figure 6.2-5a Press: 47.1 psig Figure 6.2-4 RH: 100% Spray: Note 1 TID: 2.4×10^7 RADS 6 months Submergence: No	DBE CONDITIONS Temp: 420° F Press: 75 psig RH: 100% Spray: 24 hrs. @ 10.7 PH TID: 1.6×10^8 RADS Submergence: No	4 months post DBE	4 months post DBE	± 5.0°F	± 1.0°F	Report: WCAP-8687 Supplement 2-E42A Rev. 0 and WCAP-8587 EQDP-ESE-42 Rev. 0 Method: Test Qualified Life: 10 yrs. @ 122°F
/0001	RVLIS High Volume Sensors	ITT Barton	353	RB	LIS-1310-RC thru LIS-1312-RC and LIS-1320-RC thru LIS-1322-RC	LOCA Conditions Temp: 267°F Figure 6.2-7 Press: 44.7 psig Figure 6.2-1 RH: 100% Spray: Note 1 TID: 2.7×10^7 RADS 6 months Submergence: No MSB Conditions Temp: 324°F Figure 6.2-5a Press: 47.1 psig RH: 100% Spray: Note 1 TID: 2.4×10^7 RADS 6 months Submergence: No	DBE Conditions Temp: 420°F Press: 75 psig RH: 100% Spray: 24 hrs. @ 10.7 PH TID: 7.0×10^7 RADS Submergence: No	4 months post DBE	4 months post DBE	N/A	N/A	Report: WCAP-8687 Supplement 2-E48A Rev. 0 and WCAP-8587 EQDP-ESE-48 Rev. 0 Method: Seq. Test Qualified 10 yrs. @ [illegible]°F

PURCHASE ORDER NO.	TYPE OF EQUIPMENT	MANUFACTURER	MODEL NO. OR ID	------LOCATION------ BUILDING AND ROOM	TAG NUMBER	ABNORMAL OR ACCIDENT ENVIRONMENT	ENVIRONMENT TO WHICH QUALIFIED	OPERABILITY REQUIREMENTS	OPERABILITY DEMONSTRATED	ACCURACY OR RESPONSE TIME REQUIREMENTS	ACCURACY OR RESPONSE TIME DEMONSTRATED	QUALIFICATION REPORT AND METHOD
10001	RVLIS Differential Pressure Switches	ITT Barton	581	WPA	ILS-1320-RC ILS-1321-RC ILS-1322-RC and	LOCA Conditions Temp: 104°F Press: Atmospheric RH: 90% Spray: N/A TID: 1.4×10^7 RADS 6 months Submergence: N/A	DBE Conditions Temp: 420°F Press: 4.2 psig RH: 100% Spray: 24 hrs. @ 10.7 PH TID: 7×10^7 RADS Submergence: N/A	4 months post DBE	4 months post DBE	N/A	N/A	Report: WCAP-8687 Supplement 2-E49A Rev. 0 and WCAP-8587 EQDP-ESE-49 Rev. 0 Method: Seq. Test Qualified Life: 10 yrs. @ 122°F
				FB	ILS-1310-RC ILS-1311-RC ILS-1312-RC	MSB Conditions Temp: 220°F Figure Press: 4.2 psig RH: 100% Spray: N/A TID: 1.1×10^7 RADS 6 months Submergence: N/A						
Q368133	Valve Flow Monitoring Sys. Transient Shield (1) and Sensors (2)	Technology for Energy Corp. (TEC)	160-2 (1) 2273 AM1 (2)	RB	XPN-7297-MI	LOCA Conditions Temp: 267°F* Figure 6.2-7 Press: 44.7 psig *Figure 6.2-1 RH: 100% Spray: Note 1 TID: 2.7×10^7 RADS 6 months Submergence: No	DBE Conditions Temp: 510°F for Trans. SH. 700°F for Sensors Press: 85 psig RH: 100% Spray: 33 days @ 4.5-7.5 PH TID: 2.22×10^8 RADS Submergence: No	30 days post DBE	> 30 days post DBE	N/A	N/A	Report: 517-TR-03 Method: Seq. Test Qualified Life: 3.9 yrs. @ 50°C (122°F)
						MSB Conditions Temp: 324°F *600 (Sensors) Figure 6.2-5a Press: 47.1 psig Figure 6.2-4 RH: 100% Spray: Note 1 TID: 2.4×10^7 RADS 6 months Submergence: No						

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PURCHASE ORDER NO.	TYPE OF EQUIPMENT	MANUFACTURER	MODEL NO. OR ID	LOCATION: BUILDING AND ROOM	LOCATION: TAG NUMBER	ABNORMAL OR ACCIDENT ENVIRONMENT	ENVIRONMENT TO WHICH QUALIFIED	OPERABILITY REQUIREMENTS	OPERABILITY DEMONSTRATED	ACCURACY OR RESPONSE TIME REQUIREMENTS	ACCURACY OR RESPONSE TIME DEMONSTRATED	QUALIFICATION REPORT AND METHOD
Q345497	Mineral Insul. Cable for In-Core T/C Sys.	Combustion Engineering	N/A	RB	N/A	LOCA Conditions Temp: 267°F Figure 6.2-7 Press: 44.7 psig Figure 6.2-1 RH: 100% Spray: Note 1 TID: 7.6×10^7 RADS 6 months Submergence: No MSB Conditions Temp: 324°F Figure 6.2-5a Press: 47.1 psig Figure 6.2-4 RH: 100% Spray: Note 1 TID: 2.4×10^7 RADS 6 months Submergence: No LOCA Conditions Temp: 267°F Figure 6.2-7 Press: 44.7 psig Figure 6.2-1 RH: 100% Spray: Note 1 TID: 2.7×10^7 RADS 6 months Submergence: No MSB Conditions Temp: 324°F Figure 6.2-5a Press: 47.1 psig RH: 100% Spray: Note 1 TID: 2.4×10^7 RADS 6 months Submergence: No	DBE Conditions Temp: 450°F Press: 72 psig RH: 100% Spray: 11 to 8 PH TID: 2.2×10^8 RADS	30 days post DBE	30 days post DBE	Signal Error ±22°F	Signal Error ±22°F	Reports: CE-NPSD-230-P CE-NPSD-275-P Method: Seq. Test Qualified Life: 40 yrs. Aging Time: 312.1 hrs. Aging Temp: 350°F

PURCHASE ORDER NO.	TYPE OF EQUIPMENT	MANUFACTURER	MODEL NO. OR ID	LOCATION BUILDING AND ROOM	LOCATION TAG NUMBER	ABNORMAL OR ACCIDENT ENVIRONMENT	ENVIRONMENT TO WHICH QUALIFIED	OPERABILITY REQUIREMENTS	OPERABILITY DEMONSTRATED	ACCURACY OR RESPONSE TIME REQUIREMENTS	ACCURACY OR RESPONSE TIME DEMONSTRATED	QUALIFICATION REPORT AND METHOD
Q362977	Electrical Connectors	VEAM/Litton	CIR Type !	RB	Various	LOCA Conditions Temp: 267°F Figure 6.2-7 Press: 44.7 psig Figure 6.2-1 RH: 100% Spray: Note 1 TID: 2.7×10^7 RADS 6 months Submergence: No MSB Conditions Temp: 324°F Figure 6.2-5a Press: 47.1 psig RH: 100% Spray: Note 1 TID: 2.4×10^7 RADS 6 months Submergence: No	DBE Conditions Temp: 340°F Press: 105 psig RH: 100% Spray: 30 days @ 9.5-10.5 PH TID: 1.1×10^8 RADS Submergence:	30 days post DBE	30 days post DBE	N/A	N/A	Report: VEAM #0063 Method: Test & Analysis Qualified Life: 40 yrs.
Q355796	Electrical Penetration	Conax	7641-21002* 7641-10000* !	RB	XRP-102-ES XRP-103-ES	LOCA Conditions Temp: 267°F Figure 6.2-7 Press: 44.7 psig Figure 6.2-1 RH: 100% Spray: Note 1 TID: 2.7×10^7 RADS 6 months Submergence: No MSB Conditions Temp: 324°F Figure 6.2-5a Press: 47.1 psig RH: 100% Spray: Note 1 TID: 2.4×10^7 RADS 6 months Submergence: No	DBE Conditions Temp: 475°F Press: 70 psig RH: 100% Spray: 24 hrs. @ 10.5 PH TID: 2.25×10^8 RADS Submergence: No	30 days post DBE	30 days post DBE	N/A	N/A	Report: IPS-353.1 IPS-1146 IPS-325 IPS-1089 Method: Test & Analysis Qualified Life: 40 yrs.

*21002 --- Feedthrough
10000 --- Penetration

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