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February 18, 1987
ST-HL-AE-1705
File No.: G3.3

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Revised Response to NRC IE Bulletin 77-07

Houston Lig ting & Power Company is revising the response to IE Bulletin No. 77-07, " Containment Electrical Penetration Assemblies at Nuclear Power Plants Under Construction," which was transmitted to the NRC by letter dated January 31, 1978. The Bulletin is concerned with the occurrence of electrical shorts between conductors within a containment low voltage penetration assembly. As indicated in the earlier response, all of the information requested was not available at the time. Listed below are the items from the Bulletin along with the associated response.

Item 1.0 Do you have containment electrical penetrations that are of the G. E. Series 100, or are other wise similar in that they depend upon an epoxy sealant and a dry nitrogen pressure environment to ensure that the electrical and pressure characteristics are maintained so as to ensure the functional capability as required by the plant's safety analysis report; namely, (1) to ensure adequate functioning of electrical safety-related equipment and (2) to ensure containment leak tightness? If you do use penetrations of this type at your facility describe the manufacturer and model number of these units.

Response 1.0 STP electrical penetration suppliers are (a) Westinghouse Electric Corporation and (b) Conax Buffalo Corporation. Westinghouse penetrations are manufactured using an epoxy sealant (silicon filled) and have a cavity to provide a dry nitrogen environment, similar to G.E. Series 100 penetrations. Westinghouse recommends, but does not require, that nitrogen pressure be maintained in the penetration cavity during

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normal operation. Conax penetrations are manufactured using a resilient thermoplastic sealant (polysulfone) and are provided with a cavity for nitrogen pressurization. Conax has not established requirements or recommendations regarding the maintenance of nitrogen pressure during normal operation. Both manufacturers have qualified their penetrations for LOCA and post-LOCA conditions without internal nitrogen pressure.

Westinghouse penetrations are used for instrument, control, low voltage power and medium voltage power applications. The Conax Buffalo penetrations are used for instrument applications. A listing of penetrations has been included as an attachment to this letter.

Item 1.1 If you do not have penetration assemblies of the type(s) referenced in Item 1.0 above, describe the type(s) of penetrations, e.g., manufacturer and model number now in use or planned for use in safety systems at your facility.

Response 1.1 Refer to Response 1.0 above.

Item 1.2 Do the transition connector pins imbedded in the epoxy as discussed in Item 1.0 above, have an insulation jacket?

Response 1.2 The Westinghouse penetration transition connector pins are coated with an insulation varnish to provide an insulating jacket in the space used for monitoring leakage. In the seal area, the bare pins are embedded in the epoxy. Conax provides continuous Kapton insulated solid conductors through the seal area and through the cavity.

Item 2.0 For those penetrations referenced in Item 1 above, has the manufacturer's prescribed nitrogen pressure been maintained at all times during shipping, storage and installation?

Response 2.0 The manufacturer's prescribed nitrogen pressure monitoring frequency has been maintained during shipping, storage, and installation. Periods during storage in which the pressure dropped below allowable levels were of a sufficiently short duration so as to be acceptable to the manufacturer. Upon receipt and after installation, the penetrations are leak rate tested and re-pressurized.

Item 3.0 Is there a need, as determined by either the vendor or yourself, to maintain penetrations pressurized during normal operation, to assure functionability during a LOCA.

Response 3.0 Although both Westinghouse and Conax have qualified their penetrations for an accident environment without pressurization, Westinghouse recommends that the nitrogen pressure be maintained during normal operation. These penetrations will be pressurized at STP during operation. For consistency the Conax penetrations will also be pressurized. Annunciation is provided to alarm on low pressure (approximately 15 psig or less).

Item 3.1 What measures have you taken to ensure that penetrations of this type will perform their design function under LOCA conditions? (design reviews, analyses or tests)?

Response 3.1 Both manufacturers have qualified their penetrations to IEEE 323-1974 by type test. In addition, the penetrations meet the requirements of IEEE 317-1976.

Item 3.2 Are the measures that provide this assurance adequate to satisfy the Commission's regulations (GDC 4, Appendix A to Part 50; QA Criteria, Appendix B to Part 50)?

Response 3.2 These measures are adequate to satisfy the commission's regulations (GDC 4, of 10CFR50 Appendix A and QA Criteria, 10CFR50 Appendix B).

If you should have any questions on this matter, please contact Mr. S. M. Head at (512) 972-8392

J. H. Goldberg
Group Vice President, Nuclear

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Units 1 & 2
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Containment Electrical Penetration

Westinghouse Penetrations-Serial Numbers (Unit 1)

800801	790617	790620	790602
800916	790625	790619	790603
800917	790901	790618	790701
800918	790706	790708	790709
790733	790715	790710	790903
790705	790716	790711	790910
790734	790735	790712	790907
790406	790905	790713	790909
790405	790406	790412	790902
790703	790407	790601	790903
790704	790408	790702	
790714	790409	790707	
790904	790410	790411	

Conax Penetrations-Assembly Number (Unit 1)

7H60-10000-01 (two penetrations)
7H60-10001-01

Westinghouse Penetrations - Serial Numbers (Unit 2)

842101	800131	800202	800324
842102	800132	800203	800325
842103	800410	800204	800528
842104	800411	800302	800529
800305	800511	800303	800526
800206	800512	800304	800530
800510	800513	800308	800322
800201	800514	800309	800527
800306	800311	800133	800802
800207	800127	800134	800803
800307	800128	800205	
800515	800129	800310	
800525	800130	800323	

Conax Penetration - Assembly Number (Unit2)

7H60-10000-01 (two penetrations)
7H60-10001-01

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter	)	
	)	
Houston Lighting & Power	)	Docket Nos. 50-498
Company, et al.,	)	50-499
	)	
South Texas Project	)	
Units 1 and 2	)	

AFFIDAVIT

J.H. Goldberg, being duly sworn, hereby deposes and says that he is Group Vice President, Nuclear of Houston Lighting & Power Company; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached Revised Response to NRC IE Bulletin 77-07; is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge and belief.

J. H. Goldberg
Group Vice President, Nuclear

STATE OF TEXAS)
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Subscribed and sworn to before me, a Notary Public in and for the State of Texas this 18th day of February, 1987.

Beverly J. Fite

Notary Public in and for the
State of Texas

My commission expires:

BEVERLY J. ...
Notary Public, State of Texas
My Commission Expires 10/17/88

NOTARY PUBLIC STATE OF TEXAS

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