

S.H.
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The Light company

Houston Lighting & Power P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

September 4, 1980
ST-HL-AE-517
SFN: V-0100

Darrell G. Eisenhut
Division of Project Management
Nuclear Regulatory Commission
Washington, D. C. 20555

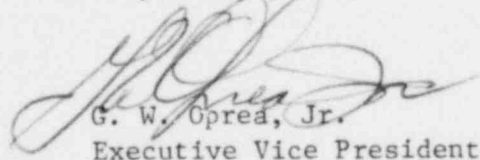
Dear Mr. Eisenhut:

South Texas Project
Units 1&2
Docket Nos. STN 50-498, STN 50-499
Response to NRC Request for Information
on the Use of Category I
Masonry Walls

On May 12, 1980, Houston Lighting & Power Company received from your office a generic information request (reference: ST-HL-AE-426) concerning the use of Category I Masonry Walls employed by plants under CP and OL review. Attached are HL&P's responses to the subject questions. Masonry walls have been located on construction drawings; however, design is not complete and no walls have been constructed.

Should further information be required, please contact Mr. L. R. Jacobi at (713) 481-7217.

Very truly yours,


G. W. Oprea, Jr.
Executive Vice President

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MEP/pjb
Attachment

SEND DRAWINGS to:
TERA (return to REG
files after filming)

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THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

September 2, 1980
ST-HL-AE-517
SFN: V-0100

cc: Director, Division of Reactor Construction Inspection
Office of Inspection and Enforcement
Nuclear Regulatory Commission

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Attachment 1

Question (1): Are there any concrete masonry walls being used in any of the Category I structures of your plant? If the answer is "No" to this question there is no need to answer the following questions.

Response: Yes, the South Texas Project (STP) does incorporate masonry walls in Category I structures.

Question (2): Indicate the loads and load combinations to which the walls were design to resist. If load factors other than one (1) have been employed, please indicate their magnitudes.

Response: The load combination tables for concrete masonry walls employed by STP are in accordance with the attached Tables:

Attachment 2: RCB - Concrete Internal Structures

Attachment 3: Concrete Category I Structures

Question (3): In addition to complying with the applicable requirements of SRP Sections 3.5, 3.7 and 3.8, is there any other code, such as the "Uniform Building Code" or the "Building Code Requirements for Concrete Masonry Structures" (proposed by the American Concrete Institute) which was or is being used to guide the design of these walls? Please identify and discuss any exceptions or deviations from the SRP requirements or the aforementioned codes.

Response: The applicable requirements are complied with from SRP Sections 3.5, 3.7 and 3.8. The allowable stresses used for the design of Category I Concrete Masonry Walls are in accordance with Uniform Building Code (1973).

Question (4): Indicate the method that you used to calculate the dynamic forces in masonry walls due to earthquake, ie., whether it is a code's method such as Uniform Building Code, or a dynamic analysis. Identify the code and its effective date if the code's method has been used. Indicate the input motion if a dynamic analysis has been performed.

Response: The seismic forces on Category I concrete Masonry Walls employed by STP are based on appropriate floor response spectra obtained from the seismic analysis of the Category I Building in which the wall is located.

Question (5): How were the masonry walls and the piping/equipment supports attached to them designed? Provide enough numerical examples including details of reinforcement and attachments to illustrate the methods and procedures used to analyze and design the walls and the anchors needed for supporting piping/equipment (as applicable).

Response: At present, there are no safety related piping/equipment supports attached to concrete masonry walls.

Attachment 1 (con't)

Question (6): Provide plan and elevation views of the plant structures showing the location of all masonry walls for your facility.

Response: The plan and elevation of plant structures showing location of currently available Category I masonry walls are shown on the drawings listed in Attachment 4. Basically, there are two types of Category I concrete masonry walls:

- (a) The reinforced concrete masonry wall.
- (b) Knockout Panels: these are reinforced/unreinforced concrete masonry wall with steel plates/stiffener on both sides of the masonry wall.

ATTACHMENT 2
LOAD COMBINATION FOR MASONRY WALLS
IN REACTOR CONTAINMENT BUILDING

LOADS

CATEGORY	LOADING CONDITION	NO.	D	L	T _o	R _o	E _o	E _{ss}	T _a	R _a	P _a	Y	H	STRENGTH
SERVICE	NORMAL	1	1.0	1.0										
		*2	1.0	1.0	1.0	1.0								
	SEVERE ENVIRONMENTAL	3	1.0	1.0			1.0							
		*4	1.0	1.0	1.0	1.0	1.0							
		5	1.0				1.0							
NON-SERVICE	ABNORMAL	6	1.0	1.0	1.0	1.0			1.0	1.0	1.5			
	ABNORMAL/SEVERE ENVIRONMENTAL	7	1.0	1.0	1.0	1.0	1.25		1.0	1.0	1.25	1.0		
	EXTREME ENVIRONMENTAL	8	1.0	1.0	1.0	1.0		1.0						
	ABNORMAL/EXTREME ENVIRONMENTAL	9	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	

Notes:

- a) Loads not applicable to a particular system under consideration may be deleted.
- b) If for any load combination the effect of any load, other than 'D' which reduces the total load, shall be deleted from the combination.
- * c) The values of load factors in these combinations are multiplied by a factor of 0.75 to account for T_o and R_o.
- ** d) Based on Uniform Building (1973).

ATTACHMENT 3
LOAD COMBINATION FOR MASONRY WALLS
IN CATEGORY I STRUCTURES

LOADS

CATEGORY	LOADING CONDITION	NO.	D	L	T _o	R _o	E _o	W	R _{so}	V _t	H	T _s	R _s	F _s	V	H	STRENGTH **		
SERVICE	NORMAL	1	1.0	1.0															
		**2	1.0	1.0	1.0	1.0													
	SEVERE ENVIRONMENTAL	3	1.0	1.0			1.0												
		4	1.0	1.0				1.0											
		*5	1.0	1.0	1.0	1.0	1.0												
		*6	1.0	1.0	1.0	1.0		1.0											
		7	1.0					1.0											
		8	1.0						1.0										
POS SERVICE	ABNORMAL	9	1.0	1.0	1.0	1.0						1.0	1.0	1.5					
	ABNORMAL/SEVERE ENVIRONMENTAL	10	1.0	1.0	1.0	1.0	1.25					1.0	1.0	1.25	1.0				
	EXTREME ENVIRONMENTAL	11	1.0	1.0	1.0	1.0					1.0								
		12	1.0	1.0	1.0	1.0				1.0									
		13	1.0	1.0	1.0	1.0						1.0							
	ABNORMAL/EXTREME ENVIRONMENTAL	14	1.0	1.0	1.0	1.0				1.0			1.0	1.0	1.0	1.0	1.0		

Notes:

- a) Loads not applicable to a particular system under consideration may be deleted.
- b) If for any load combination, the effect of any load other than 'D' which reduces the
- * c) The values of load factors in these combinations are multiplied by a factor 0.75 to account for T_o and R_o.
- ** d) Based on Uniform Building Code (1973).

ATTACHMENT 4
LIST OF DRAWINGS

REACTOR CONTAINMENT BUILDING

<u>DWG. NO.</u>	<u>TITLE</u>
1-C-1501-6	Internal-Plan @ EL. (-) 11'-3"
1-C-1502-7	Internal-Plan @ EL. (-) 11'-3"
1-C-1505-6	Internal-Plan @ EL. (-) 2'-0"
1-C-1506-6	Internal-Plan @ EL. (-) 2'-0"
1-C-1513-4	Internal-Plan @ EL. 37'-3"
1-C-1517-3	Internal-Plan @ EL. 52'-0"
1-C-1527-5	Internal-Section A:A
1-C-1531-5	Internal-Section C:C
1-C-1536-5	Internal-Section D:D
1-C-1540-7	Internal-Misc. Elevations
1-C-1541-4	Internal-Misc. Elevations
1-C-1548-7	Internal-Elev. Secondary Shield Wall
1-C-1561-2	Internal-Floor Drain Plan @ EL. (-) 11'-3"
1-C-1565-5	Internal-Sections
1-C-1575-4	Internal-Misc. Sections and Details

FUEL HANDLING BUILDING

1-C-3001-6	Foundation Plan @ EL. (-) 29'-0"
1-C-3003-7	Floor Plan @ EL. 21'-11"
1-C-3006-4	Plan @ EL. 52'-0"
1-C-3046-1	Elevation L-L
1-C-3047-2	Elevation M-M
1-C-3050-4	Section E-E
1-C-3064-5	Plan, Sections and Details
1-C-3078-2	Embedded Plate Sections
1-C-3096-7	Knock-Out Panel and Opening Detail

MECHANICAL AND ELECTRICAL AUX. BUILDING

1-C-4003-3	Foundation Plan at EL. 10'0" (Sht. 3 of 12)
1-C-4005-5	" " " (Sht. 5 of 12)
1-C-4006-6	" " " (Sht. 6 of 12)
1-C-4008-4	" " " (Sht. 8 of 12)
1-C-4009-6	" " " (Sht. 9 of 12)
1-C-4018-4	Floor Plan at EL. 29'-0" U.N (Sht. 6 of 12)
1-C-4023-4	Floor Plan at EL. 29'-0" (Sht. 11 of 12)
1-C-4026-3	Floor Plan at EL. 41'-0" (Sht. 2 of 12)
1-C-4029-3	Floor Plan at EL. 41'-0" (Sht. 5 of 12)
1-C-4032-4	Floor Plan at EL. 41'-0" (Sht. 8 of 12)
1-C-4033-3	Floor Plan at EL. 41'-0" (Sht. 9 of 12)

MECHANICAL AND ELECTRICAL AUX. BUILDING (CONT.)

1-C-4044-3	Plan at EL. 60'-0" (Sht. 8 of 12)
1-C-4081-5	Wall Sections and Elevations
1-C-4085-5	Wall Sections and Elevations
1-C-4086-6	"
1-C-4101-4	"
1-C-4102-4	"
1-C-4103-6	"
1-C-4106-2	"
1-C-4108-2	"
1-C-4112-1	"
1-C-4122-3	"
1-C-4191-3	Reference Plan @ EL. 23'-0" and 29'-0"
1-C-4192-2	Reference Plan @ EL. 35'-0" and 41'-0"
1-C-4193-2	Reference Plan @ EL. 60'-0"
1-C-4269-5	Section E-E
1-C-4270-2	Wall Sections and Elevations
1-C-4275-3	"
1-C-4287-1	"
1-C-4296-2	"