



MIDDLE SOUTH
UTILITIES SYSTEM

LOUISIANA
POWER & LIGHT

142 DELARONDE STREET
NEW ORLEANS, LOUISIANA

• P.O. BOX 8008
70174-8008

• (504) 388-2345

December 3, 1984

W3P84-3343
3-A1.01.04
A4.05

Director of Nuclear Regulation
Attention: Mr. G. W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Knighton:

Subject: Waterford 3 SES
Docket No. 50-382
Construction Appraisal Team Findings 6.2 and 6.3 -
Masonry Wall Deficiencies

References: 1. LP&L letter W3K84-0842 dated April 11, 1984
2. LP&L letter W3P84-2862 dated October 12, 1984
3. LP&L letter W3P84-3164 dated November 8, 1984

In reference 1, LP&L committed to a program to review design adequacy and as-built conditions for the Waterford 3 masonry block walls.

In reference 2 and 3, LP&L provided information packages to clarify various aspects of the masonry walls.

Dr. P.T. Kuo and Mr. Frank Rinaldi requested further clarification via a telephone conference on November 28, 1984. The information requested is enclosed as Attachment 1 (3 pages).

Additionally please be advised that Item 3 of the reference 3 letter erroneously identified Wall S-22 to be rebuilt. Please note that the wall to be rebuilt is S-24.

Very truly yours,

K.W. Cook

Nuclear Support & Licensing Manager

8412100157 841203
PDR ADOCK 05000382
A PDR

KWC:KLB:sms

Attachment

cc: J.T. Collins, NRC Region IV
D.M. Crutchfield, NRC-NRR
J.H. Wilson, NRC-NRR
NRC Resident Inspectors Office

INPO Records Center (D.L. Gillispie)
E.L. Blake
W.M. Stevenson
P.T. Kuo
F. Rinaldi

8001
11

For the case in unequal moments on each side of penetration, 6" ϕ pipe at Wall S1 is analyzed.

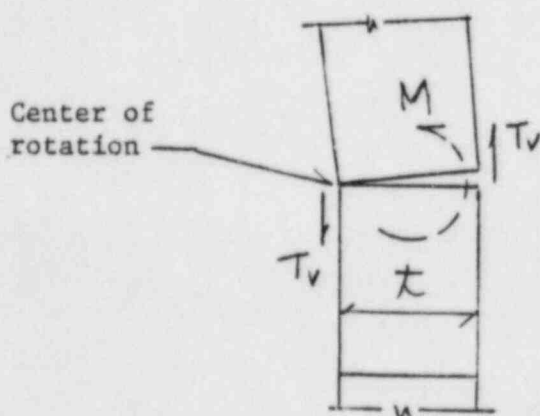
The weakest location of the block wall is at the joint which bounds the blocks together horizontally and vertically.

The failure modes of joint are:

- (1) Tension forces associated with the induced moment tends to open the joint up in a vertical direction.
- (2) Shear force pushes the block off the wall.

Condition 1.

Due to the nature of the block wall, the geometry at failure under condition 1 is as follows:



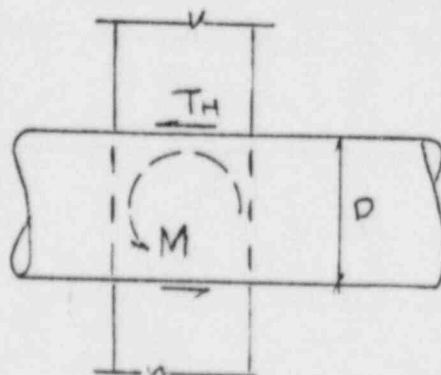
$$T_v = \frac{M}{t} \approx \frac{M}{6}$$

Where M: the induced moment
t: thickness of one wythe

This condition has been analyzed on Sh. 42.4 & Sh. 42.5.

Condition 2

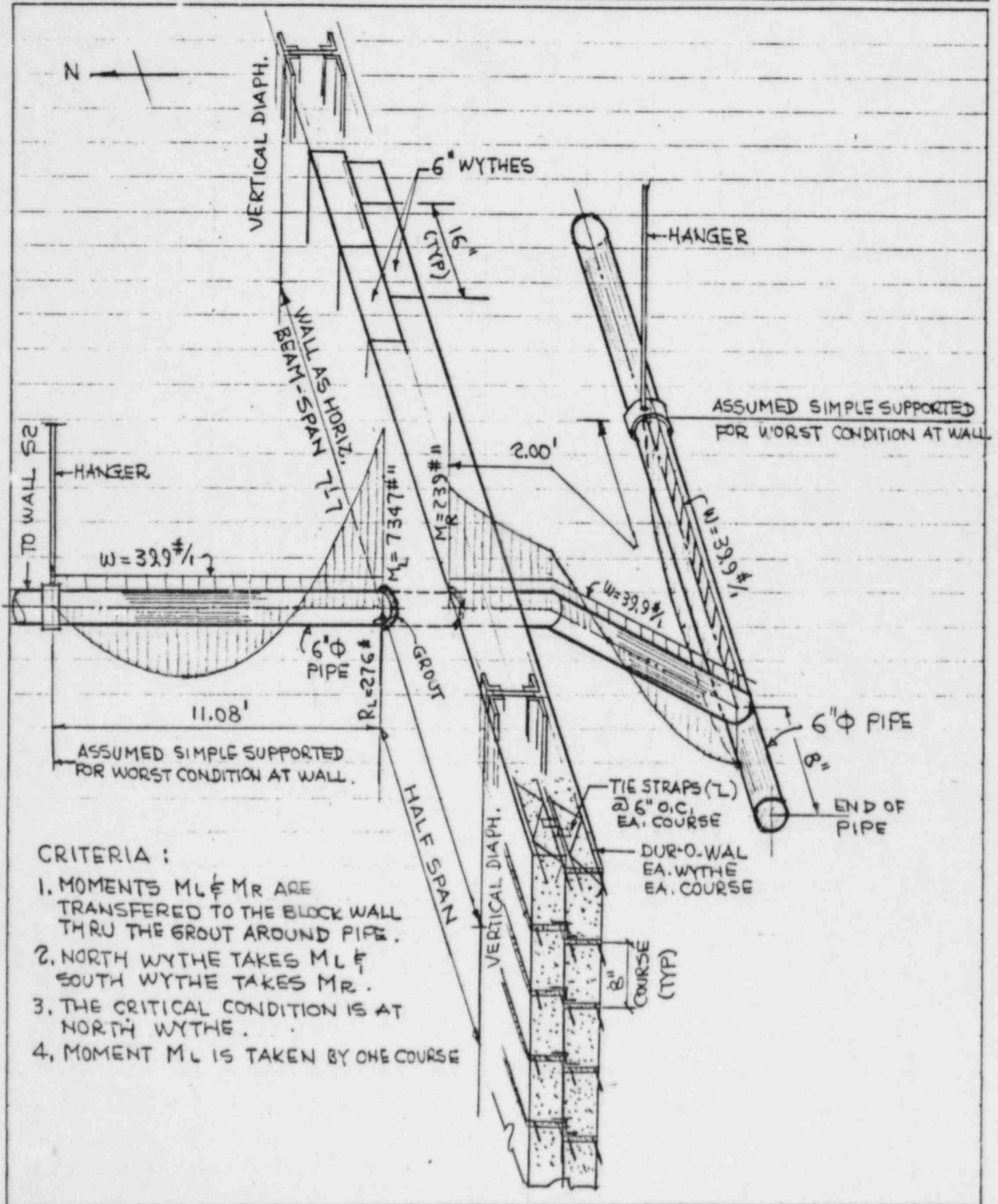
By the same analogy, assume the force T_H acting in a horizontal direction tends to push the block off the wall. This condition has been analyzed on Sh. 42.4



$$T_H = \frac{M}{D} \approx \frac{M}{6}$$

The analysis for this 6" ϕ drainage pipe represents the worst case of pipe that penetrates through the block wall.

The analysis of wall as a whole to resist all loading conditions has been specified beginning on Sheet 1 of 42. (See paragraph 1.5, 1.6, 1.7 & 1.8) detail calculations for these specified forces & moments are shown on Sh. 4 of 42, & Sh. 11 of 42, for wall S1.

BY A. LEON DATE 11/28/84SHEET 1 OF 2CHKD. BY G.W. DATE 11/29/84OFS NO. _____ DEPT. NO. 653CLIENT LP & LPROJECT WATERFORD SES IIISUBJECT CLARIFICATION OF STRESSES ORIGINATED FOR 6" PIPE THRU WALL S1

BY A. LEON DATE 11/28/84SHEET 2 OF 2CHKD. BY G.W. DATE 11/29/84OFS NO. _____ DEPT. NO. 653CLIENT LP&LPROJECT WATERFORD SES IIISUBJECT CLARIFICATION OF STRESSES ORIGINATED FOR 6" Ø PIPE THRU WALL S1