EXAMINATION AND MEASUREMENTS OF CORRUGATED POLYETHYLENE (TYPE S) PIPE

Five random samples of 18-inch diameter Corrugated PE (Type S) Pipe were measured for wall thickness comparison (Table 1). The samples had annular corrugations and were obtained from the San Francisco area in the Fall of 1994.

The interior surface was observed to be irregular, having an undulating surface with a measured amplitude of 0.015 inches from crest to crest and a spacing of approximately 2-1/2 c-c. The crest of the uneven surface being between the position where the inner liner was fused to the corrugated outer shell. This irregularity of the surface would suggest a Manning's roughness coefficient in excess of published values. Also, the varying wall dimensions would indicate a potential variation in structural performance.

Note that the measured thicknesses for the corrugated outer shell (measurements A, F and K) are nearly three times thicker than the inner liner (measurements C, H and M).

Measurements were taken on December 19, 1994 with a Mitutoyo dial caliper, accurate to 0.001 inches.

Representation of a Typical Cross-Section Measured

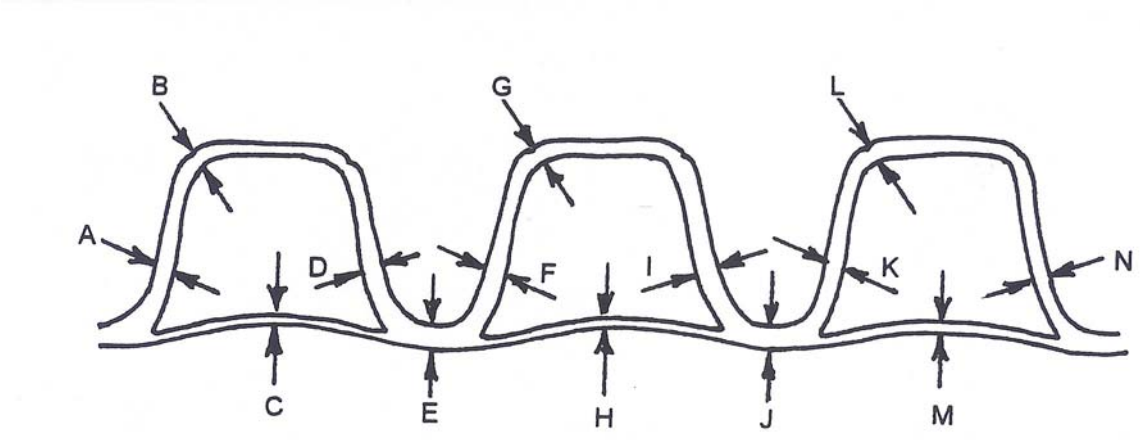

Table 1

	A	B	**C**	D	E	F	G	**H**	I	J	K	L	**M**	N
#1	.109	.074	**.042**	.198	.139	.133	.090	**.044**	.190	.143	.133	.086	**.039**	.185
#2	.125	.101	**.057**	.184	.177	.124	.077	**.057**	.194	.183	.137	.082	**.059**	.182
#3	.181	.119	**.043**	.145	.145	.168	.130	**.041**	.133	.139	.207	.120	**.048**	.135
#4	.119	.079	**.043**	.191	.143	.138	.082	**.045**	.178	.142	.125	.082	**.040**	.183
#5	.121	.083	**.044**	.176	.156	.118	.063	**.050**	.179	.152	.114	.073	**.050**	.169

CONCLUSION:

The documented measurements above indicate that the inner liner (shown in bold print) is extremely thin and both the wall thickness and liner thickness varies considerably.

The thin liner provides for limited resistance to abrasion. The above listed thin and/or varying cross-sections can have a significant effect on performance, as evidenced by buckling, splits and deflections observed in field installations.