



H. H. HOLMES TESTING LABORATORIES, INC.

December 18, 1984

• 170 Shepard Avenue • Wheeling, Illinois 60090 • Area Code 312 • 541-4040

Tuf-Tite
8A Hillside Drive
Barrington IL 60010

Attn: Ted Meyers

Dear Sir,

The six Tuff-Tite Drop Boxes and one ~~XXXX~~ distribution sump were subjected to the following tests:

- 1) Corrosion Resistance
- 2) Punch Strength
- 3) Compressive Strength at -20°F, 72°F and 110°F
- 4) Leakage

The Tuff Tite Drop boxes were each 15 3/4 inches high with top dimensions of 11 x 11 inch and bottom dimensions of 7 x 7 inch. Each box is described in Table I along with the compressive loads applied at failure.

Three of the boxes were used to determine if any corrosive action would affect the polyethylene plastic. One box was filled with a strong acidic solution, one with a strong alkaline solution, and the last with a combination of organic solutions thought to be commonly found present. These were subjected to two weeks of accelerating conditions. At the end of this period the boxes were examined and no visible corrosion was detected to the boxes. The Type 20 PVC plastic pipe subjected to organic solution had softened and swollen, but the seal still was intact.

Also, the cast iron pipe showed signs of reaction with the acidic solution, which was expected. In all three boxes the seals also showed no deterioration or signs of leakage. A fourth box was also filled with tap water and while under compressive load, exhibited no sign of leakage at the seals or elsewhere.

One box was used to determine the Puncture Resistance which was found to have an average resistance of 530 pounds per square inch.



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TABLE I

<u>No. of 4" Holes</u>	<u>Type of Pipe</u>	<u>Total Loads at Failure</u>		
		<u>-20°F</u>	<u>72°F</u>	<u>110°F</u>
0	None	-	4420	-
2	Cast Iron & Type 35 PVC	6875	-	-
2	Plug & Type 20 PVC	-	-	1850
4	Type 40 PVC	4925	-	-
4	Plug & 35+40 PVC	-	3550	-
4	No Pipes	-	-	1990

Respectfully submitted,

A handwritten signature in cursive script, appearing to read 'Richard E. Nelson, Jr.', is written over the typed name.

Richard E. Nelson, Jr.
President

A handwritten signature in cursive script, appearing to read 'Glenn Schumacher', is written over the typed name.

Glenn Schumacher
Chemist

REN/pbs