

PRESSURE TESTING
LEAK LOCATION METHODS
TWO-DIRECTION METHOD

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1. GENERAL

1.01 This is a new section which describes the Two-Direction Method of leak location in cables maintained under continuous pressure. This method is applicable in the preliminary location of gas leaks in aerial, underground or buried cable and in the final location of leaks in aerial cable.

1.02 The Two-Direction Method provides an approximate correction for the pressure drop due to loss of gas through the leak during the interval of time required to take a set of pressure readings for leak location purposes.

1.03 Starting on one side of the leak, the pressures are measured along the cable toward the leak and at several points beyond. The same valves are immediately read again in the reverse order while traveling in the opposite direction along the cable. The two readings obtained at each valve point are then averaged. If the time of travel is about the same in each direction, the average pressures will approximate the values which would be obtained by simultaneous readings at all valve points.

2. PROCEDURE IN MAKING TEST

2.01 Select for the pressure measurements not less than three valve points on each side of the suspected leak location. Make an estimate of the travel time which will be required between consecutive valves for each direction of travel.

2.02 Starting on one side of the leak, read the pressure along the cable at the selected points on each side of the leak. Time each reading and allow sufficient time between readings to assure being able to take the measurements in the same interval of time on the return trip.

2.03 Upon reading the farthest valve, immediately start on the return trip, reading all valves in reverse order. Allow the same interval of time between consecutive readings as was required on the first trip.

2.04 Average the two readings at each valve and prepare a graph of pressure readings using these average values. The last valve read on the first trip will have only one reading since the return trip was started from that point.

3. EXAMPLE

3.01 Application of the Two-Direction Method is illustrated by the following example:

TWO-DIRECTION METHOD DATA SHEET

<u>Valve Location</u>	<u>Interval Between Readings</u>	<u>First Set of Readings</u>		<u>Second Set of Readings</u>		<u>Average Pressure Values to be Plotted</u>
		<u>Time</u>	<u>Pressure</u>	<u>Time</u>	<u>Pressure</u>	
Mkr No. 11	15 min.	1:00 P.M.	6.56 lbs.	2:50 P.M.	6.48 lbs.	6.52
14		1:15	6.52	2:35	6.46	6.49
18		1:25	6.47	2:25	6.43	6.45
24		1:40	6.45	2:10	6.43	6.44
27		1:45	6.49	2:05	6.47	6.48
30		1:55	6.52	—	—	6.52

3.02 In the above example the interval between consecutive readings varied from five to fifteen minutes. However, the same interval of time was allowed on each trip. The graph of pressure readings is prepared from the "Average Pressure" values shown in the right-hand column.