1.0 Scope and Application.

Method 1 - Sample And Velocity Traverses For Stationary Sources

NOTE: This method does not include all of the specification1 (p)-0.e(quipment and 1 (p)-0.upplie1 (p)-0.) ar procedures (

in a knojn direction is selected, and the cross-section of the stack is divided into a number of equal areas.

points is determined from Figure 1-1m

scrubbers, or (2) in stacks having tangential inlets or other duct configurations which tend to induce swirling; in these instances, the presence or absence of cyclonic flow at the sampling location must be

Use a minimum of 40 traverse points for circular duc (f) -0.2 0.1 (in) ( ) -0.2and ( ) -0.242 points ( ) -0.2for

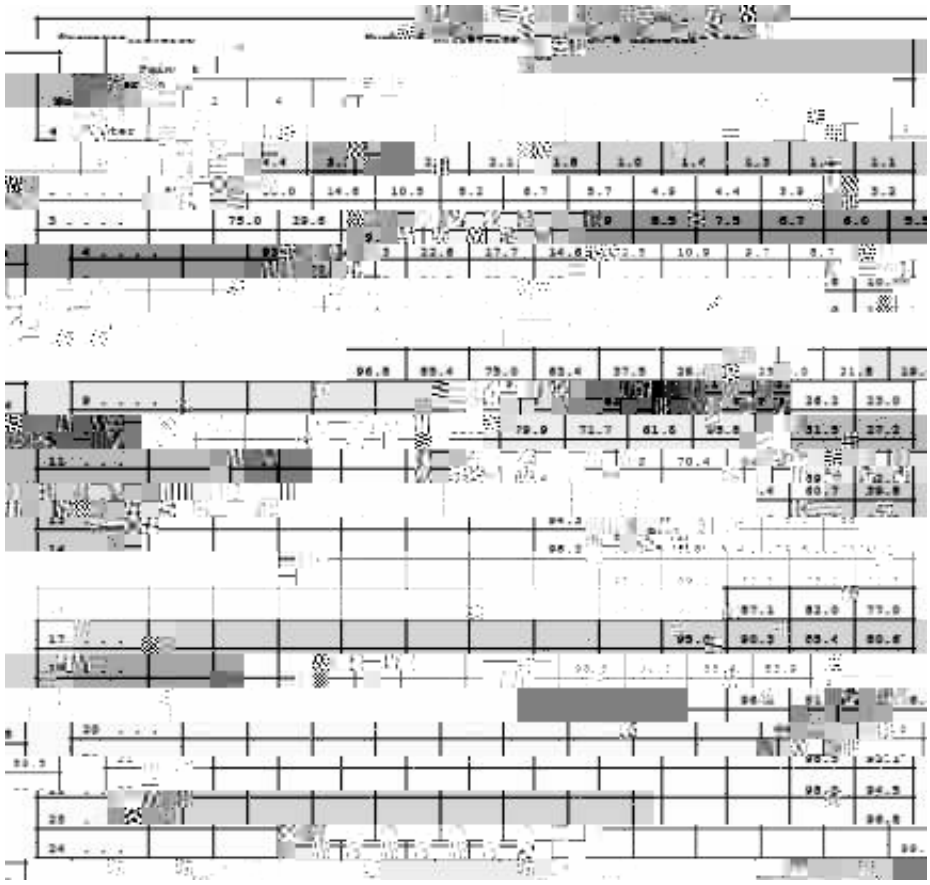
of the test section.

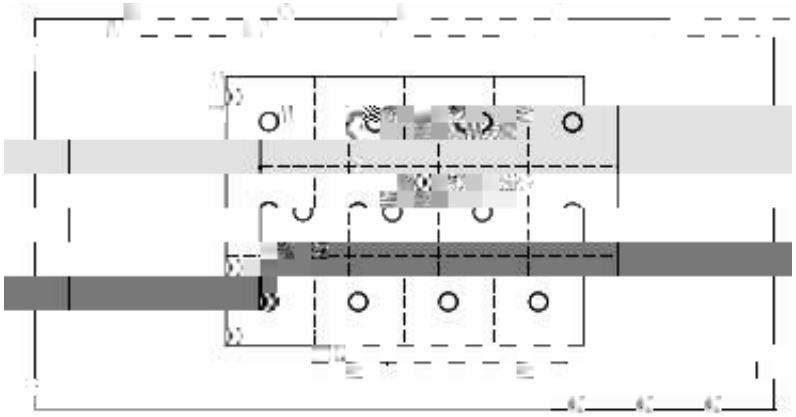
W = width.

Y_i

The measurement location is acceptable if R_{avg}

TABLE 1-1. CROSS-SECTION LAYOUT FOR





MethoQ 2 - Determination Of Stack Gas Velocity AnQ Volumetric Flow Rate (Type S Pitot Tube)

NOTE: This methoQ Qoes not incluQe all of the spcifications (, equipent anQ supies) anQ procedures (

4.0 Interferences. [Reserved]

5.0 Safety.

5.1 Disclaimer.

This method may involve hazardous materials, operations, and equipment. This test method may not

before and after

6.7.1 Standard Pitot Design.

6.7.1.1 Hemispherical (shown in Figure 2-5), ellipsoidal, or conical tip.

6.7.1.2 A minimum of six diameters straight run (based upon D, the external diameter of the tube) between the tip and the static pressure holes.

6.7.1.3 A minimu2 ( ) -0. 0 -15 .2 (in)2 (2 ( ) -0. 0 -15 (e) -0.4 (ig) -0.3 (ht) -0.2 ( ) -0.2 (d) -0.2 (ia) 0.1 (m)0.

Because the eanoeeter level and zero eay drift due to vibrations and teeperasture changes, eake periodic checks during the traverse (at least once per hour). Record all necessary data on a fore sieilar to that shown in

10.1.3.2 Level and zero the manometer. Switch on the fan, and allow the flow to stabilize. Seal the Type S Pitot Tube entry port.

10.1.3.3 Ensure that the manometer is level and zeroed. Position2 (I)-0.the

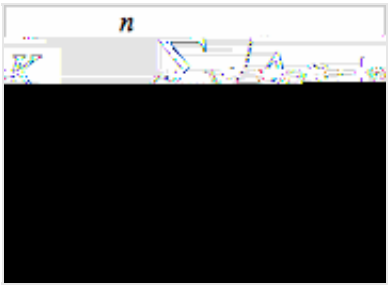
The coefficients so obtained will be valid so long as the pitot tube thermocouple combination is used by itself or with other components in an interference-free arrangement (Figures 2-4, 2-7, and 2-8).

10.1.4.1.3 For Type S Pitot Tube combinations with complete Probe assemblies, the calibration point should be locate (a) 0.1(l) -0.1 2 (c) -0elb(a) 0.1 b(l) -0.1b(a) 0.1 (t) -0.2 (he) -0.4 ( ) -0.24 (r) 0.3(e) -0.4 (a)

3600 = Conversion Factor, sec/hr.

18.0 = Molecular weight of water, g/g-mole (lb/lbmole).

12.2 Calcjlate T as follows:



Eq. 2-1

14.0 Pollution Prevention. [Reserved]

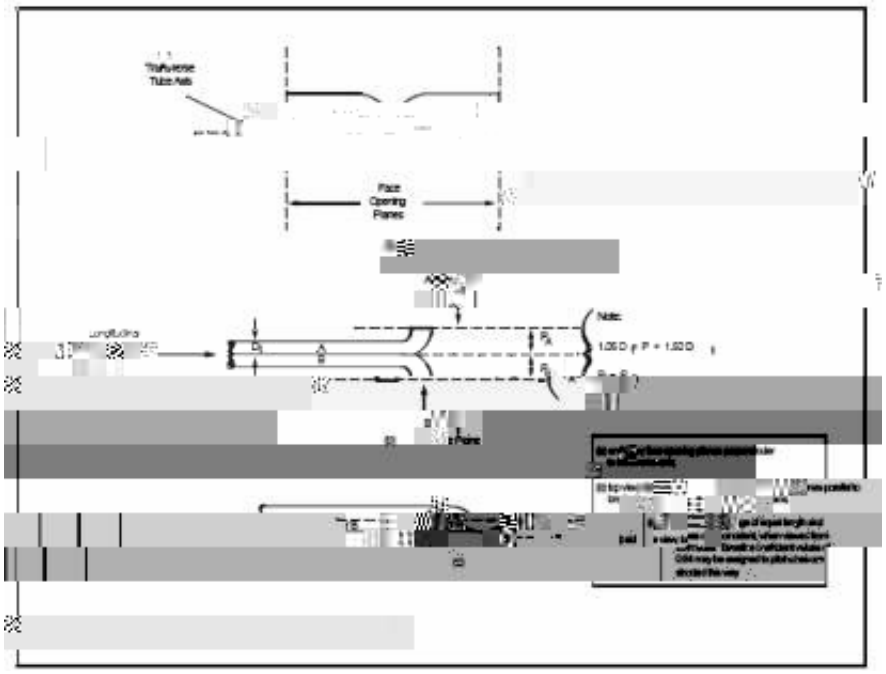
15.0 Waste Management. [Reserved]

16.0 References.

Tubes. U.S. Environmental Protection Agency, Emission Measurement Branch, Research Triangle Park, NC. November 1976.

13. Vollaro, R.F. An Evaluation of Single-Velocity calibration Technique as a Means of Determining Type S

Figure 2-2. Properly Constructed Type S Pitot Tube.



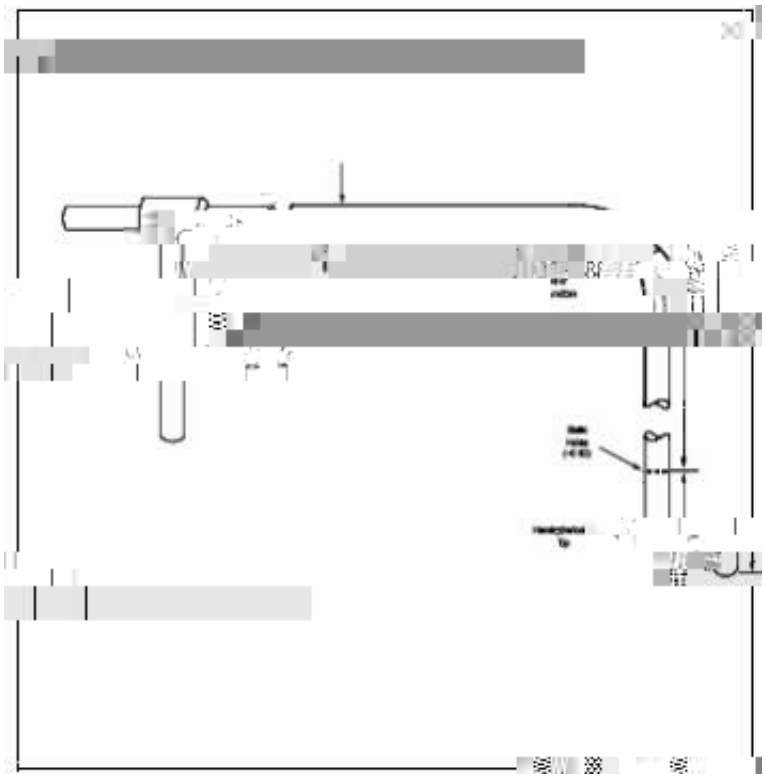
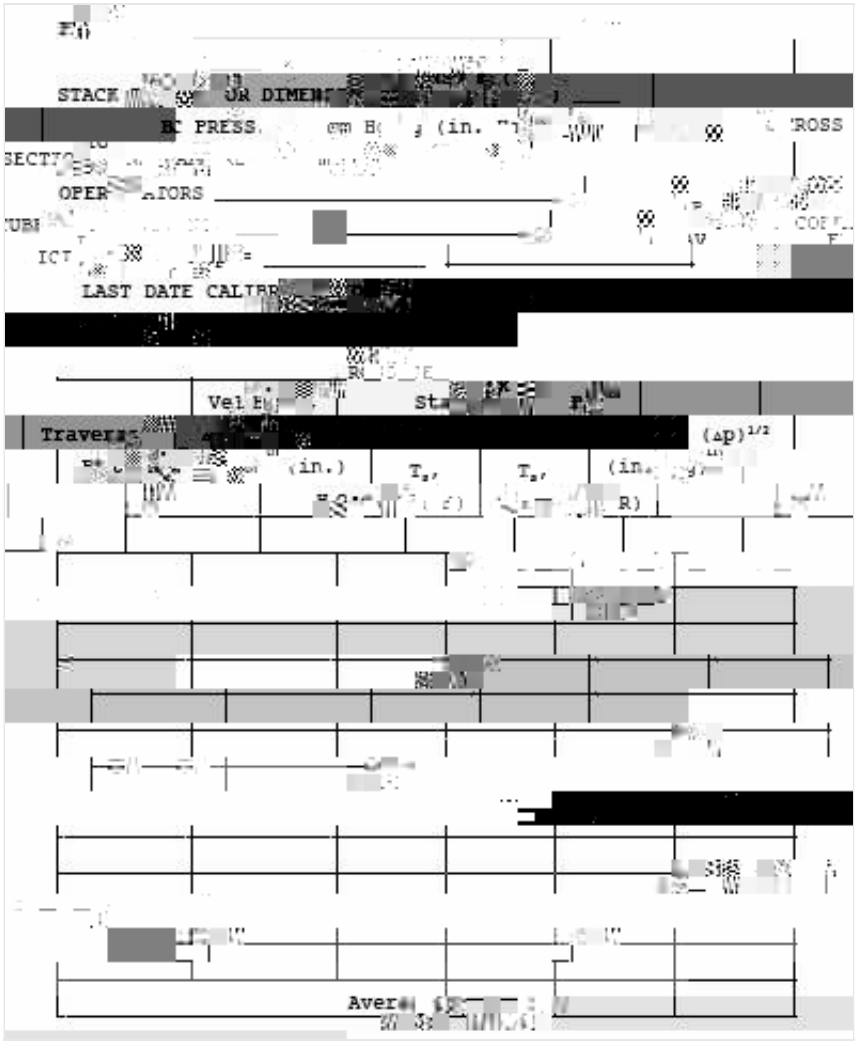


Figure 2-6. Velocity traverse data.



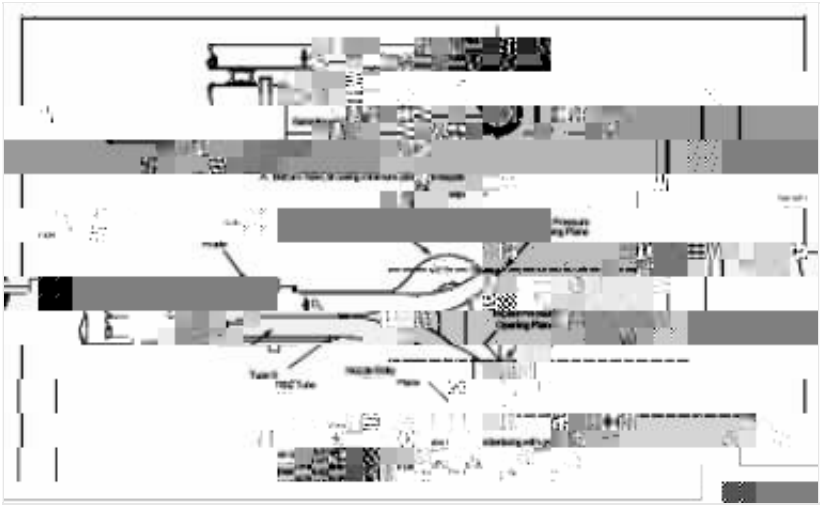
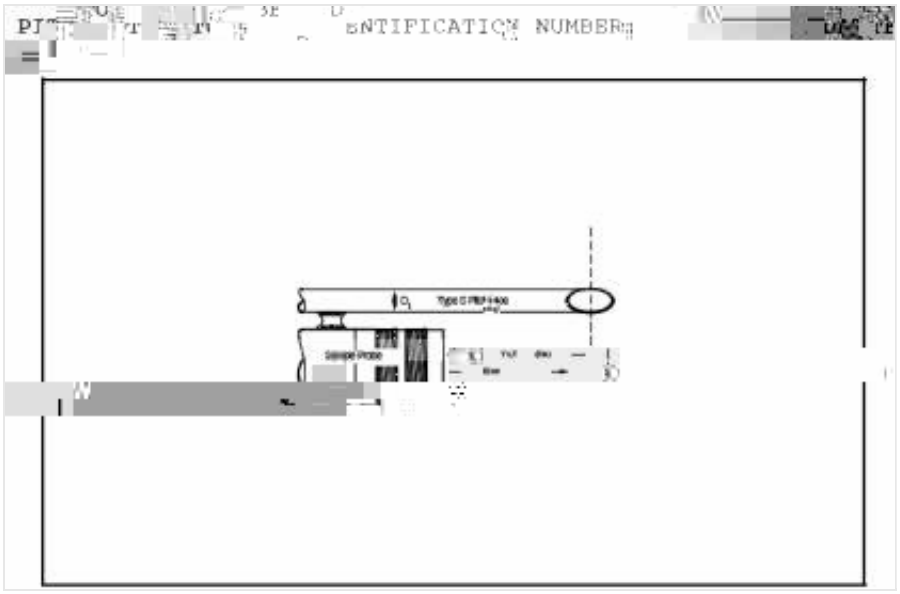


Figure 2-8. Minimum pitot-sample Probe separation needed to prevent interferen6e; D_t between 0.48 and 0.95 6m (3/16 and 3/8 in).



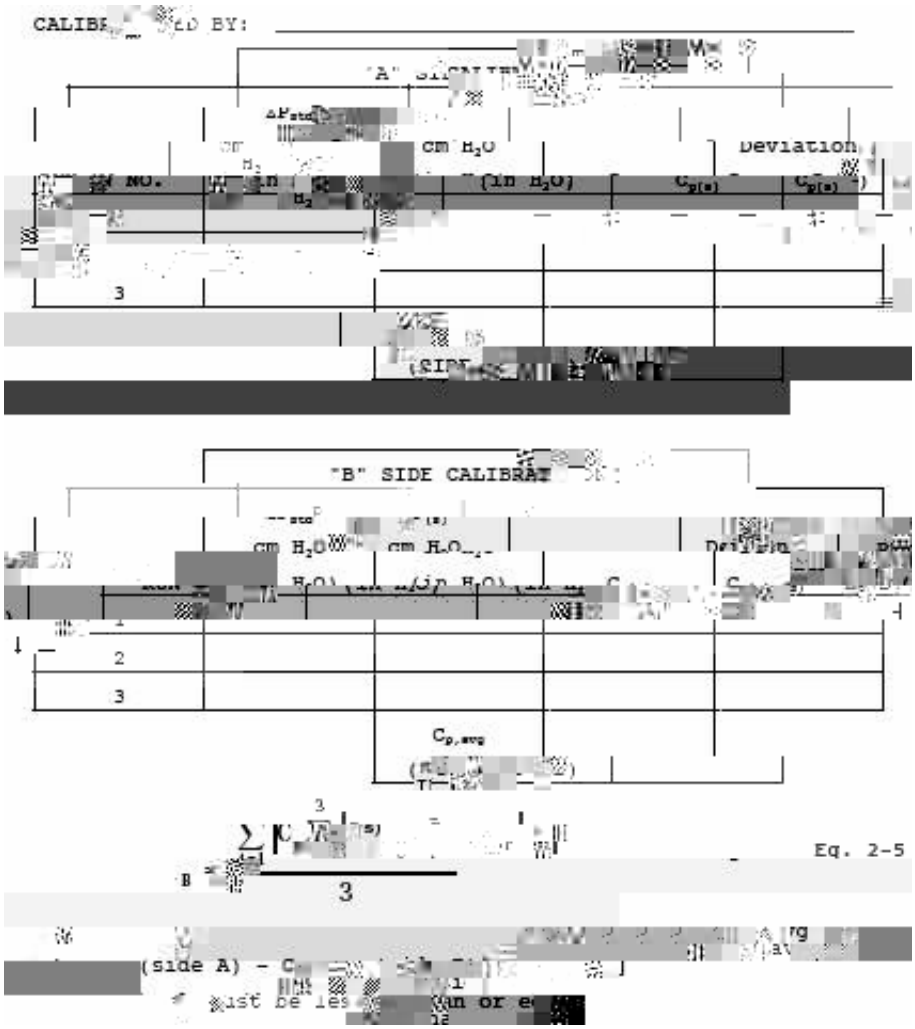
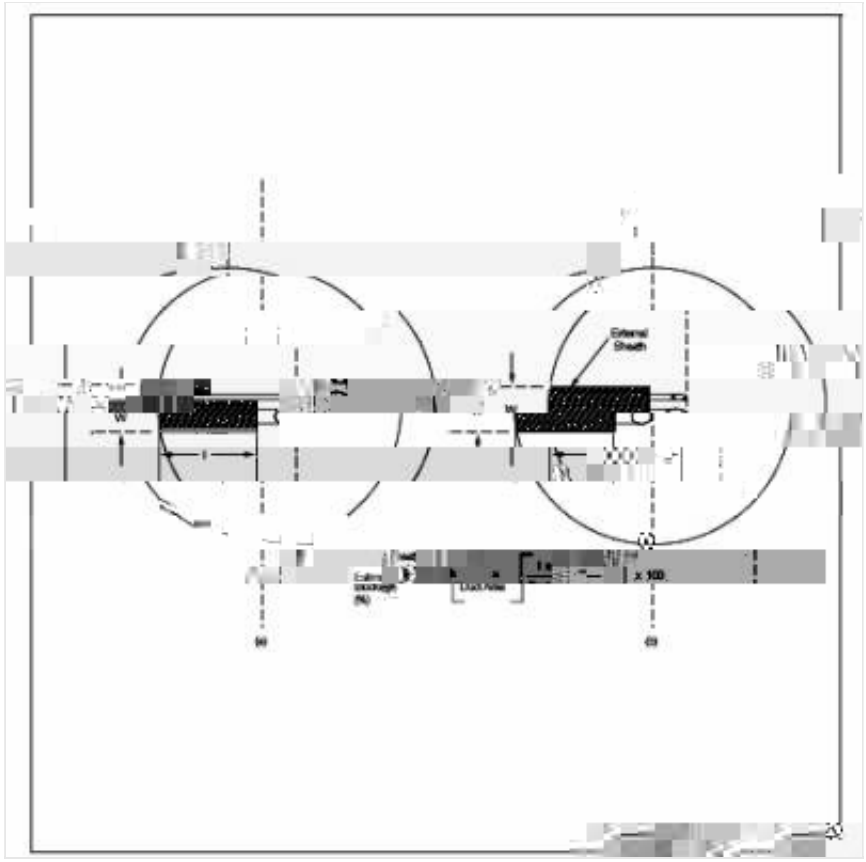


Figure 2-10. Projected-area models for typical Type S Pitot Tube.


External Sheath