5.1.1.3 Point Sampling Times. Since the sampling rate of the train is held constant by the critical orifice, it is necessary to calculate specific sampling times for each point in order to obtain a proportional sample. If all sampling can be completed in a single day,

it is necessary to calculate the point sampling times only once. If sampling occurs over several days, recalculate the point sample times each day using velocity traverse data obtained earlier in the day. Determine the average of the Δp values obtained during the velocity traverse (Figure 306A–2). Calculate the sampling times for each point using Equation 306A–1. Convert the decimal parts of minutes to seconds. If the stack diameter is less than 12 in., use 7.5 minutes in place of 5 minutes in the equation and 16 sampling points.

Minutes at point
$$n = \frac{\sqrt{Point n \Delta p}}{\left(\sqrt{\Delta p}\right)_{avg}} \times 5$$
 minutes Eq. 306A–1

Where:

n=Sampling point number.

 Δp =Velocity head measured by Type-S pitot tube, in. H₂O

5.1.1.4 Preparation of Sampling Train. Assemble the sampling train as shown in Figure 306A–1. Secure the nozzle-liner assembly to the sheath to prevent slipping when sampling. Before charging, rinse the first mason jar impinger with either 0.1 N sodium hydroxide (NaOH) or 0.1 N sodium bicarbonate (NaHCO₃); discard the solution. Put 250 ml of 0.1 N NaOH or 0.1 N NaHCO₃ absorbing solution into the first mason jar impinger. Similarly, rinse the second mason jar impinger and leave empty. Put silica gel into the third mason jar impinger until the impinger is half full. Place the impingers into an ice bath and check to ensure that the lids are tight.

5.1.1.5 Train Leak Check Procedure. Wait until the ice has cooled the impingers before sampling. Next, seal the nozzle with a finger covered by a piece of clear plastic wrap and turn on the pump. The vacuum in the line between the pump and the critical orifice must be at least 15 in. Hg. Observe any leak rate on the dry gas meter. The leak rate should not exceed 0.02 cfm.

5.1.2 Sampling Train Operation.

5.1.2.1 Record all pertinent process and sampling data on the data sheet (see Figure 306A-3). Ensure that the process operation is suitable for sample collection.

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