

2.4.2 Aborted Run. Due to an unacceptable leak rate during the posttest leak check, run III-BS-MCR6-2 was aborted. A replacement run was conducted. No test results or field data for the aborted run appear in this report.

2.4.3 Plume Opacity. Due to the absence of a visible plume, the results of the plume opacity observations are not summarized in this section. No plume opacity observations were recorded during the third test set of condition II due to darkness.

2.4.4 Single-Point Sampling Emission Rates. The CEM, VOST, and SF6 emission rates were calculated using the volumetric air flow rates (SCFM) determined during the concurrent EPA Method 23 testing.

2.4.5 Duplicate Analyses. Duplicate analyses were performed on various metals and hexavalent chromium samples. The average of the two analytical results was used in concentration and emission rate calculations. Duplicate analyses were also performed on condition II process samples.

2.4.6 Analytical Results Prefixes. Two symbols are used in the presentation of the analytical results. The symbols indicate results that have special significance and require different procedures in calculations and data interpretation. The less than symbol (<) is used to indicate that a compound was not detected and that the reported catch value is a detection limit. The estimation symbol (-) indicates values that are either an estimated maximum possible concentration (EMPC) or a positive result that is below the quantitation limit assigned to the compound.

PCDD /PCDF. The data reporting procedures outlined in EPA Method 23 were used for presenting all analytical results. A number of sample analyses yielded results for specific PCDD/PCDF isomers that were below the detection limit (BDL) or were an EMPC. These BDL and EMPC data do not meet reporting criteria given in. All BDL and EMPC results are considered as ND (not detected; zero value) in the summary tables. The PCDD/PCDF emission concentration totals therefore include only data not reported as ND in accordance with procedures described in EPA Method 23.

*No like day after operator
No. these docs on EPA methods*

is what?

this may underestimate the PCDD/PCDF emission concs.

2.2.7 Hydrogen Chloride Results. The hydrogen chloride (HCl) results presented in this report are based on the sampling and analytical procedures outlined in EPA Method 26. The EPA has acknowledged the possibility of anomalous results due to cation interference when Method 26 is used to determine HCl emissions from cement kilns. The reviewer of this data is therefore cautioned that the results presented in this report may not accurately reflect the HCl emissions. Should such interferences exist, the reported emissions could be overstated.

Possibility
NOT
Certainty.

ENTROPY

PROCESS DESCRIPTION AND OPERATION

3.1 General. Southwestern Portland Cement Company operates a cement clinker manufacturing process which uses rubber tires and hazardous waste as an alternate fuel source. The testing covered in this report was performed at the main, bypass, and clinker cooler stacks.

3.2 Source Air Flow. Figure 3-1 is an air flow schematic which shows the passage of flue gases exhausted from the cement clinker process.

3.3 Operation During Testing. Process data provided by the plant is presented in Volume II-D, Appendix G.

could this contain useful
data w/ possible interference
of test?

ENTROPY

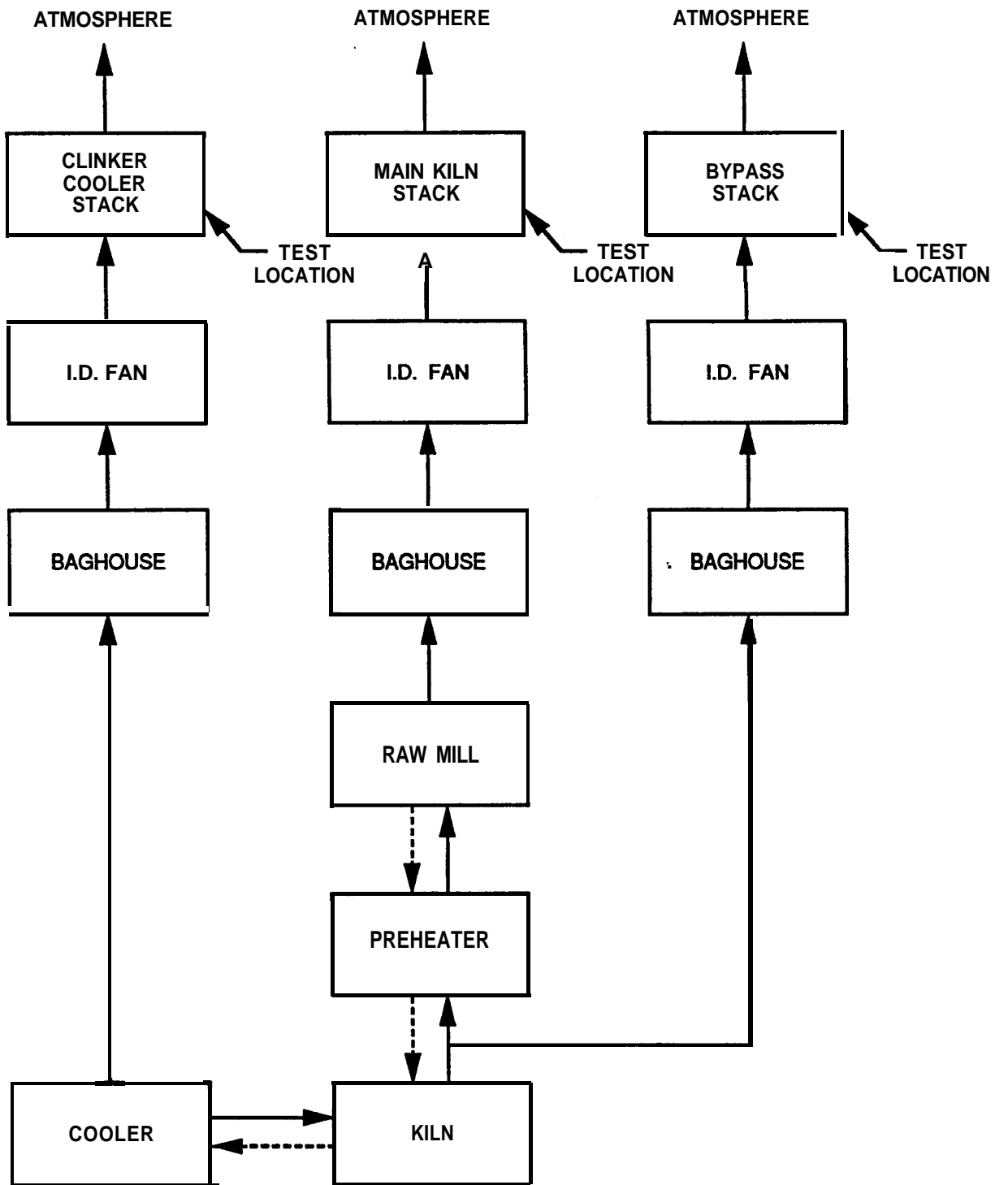


FIGURE 3-1. CEMENT CLINKER PROCESS AIR FLOW SCHEMATIC.

ENTROPY

SAMPLING AND ANALYTICAL PROCEDURES

4.1 General. All sampling and analytical procedures were those recommended by the United States Environmental Protection Agency and the Ohio Environmental Protection Agency. This section provides brief descriptions of the sampling and analytical procedures. Detailed descriptions of the procedures are provided in Volume II-D, Appendix H.

Get
w/ II

4.2 Sampling Points. The number and location of the sampling points were determined according to the procedure outlined in EPA Method 1. The main and bypass stacks cross sections were divided into 24 equal areas with six sampling points on each of four half-axes, as shown in Figures 4-1 and 4-2, respectively. As shown in Figure 4-3, the clinker stack cross section was divided into 24 equal areas with 12 sampling points on each of two axes.

4.3 Volumetric Air Flow Rates

4.3.1 Flue Gas Velocity. The flue gas velocity and volumetric flow rate were determined according to the procedures outlined in EPA Method 2. Velocity head measurements (ΔP) were made using Type S Pitot tubes conforming to the geometric specifications outlined in EPA Method 2. Accordingly, each has been assigned a coefficient of 0.84. Differential pressures were measured with Magnehelic gauges of appropriate range. Flue gas temperatures were measured with chromel-alumel thermocouples equipped with hand-held digital readouts.

4.3.2 Flue Gas Composition. Flue gas samples were collected using the multipoint, integrated sampling technique outlined in EPA Method 3.

Sample Collection. A stainless steel probe and a peristaltic pump delivering 500 to 750 mL/min of flue gas were used to fill a Tedlar bag. Moisture was removed by means of a knockout jar located prior to the pump. Sampling was of the same duration (except purges following port changes) as the pollutant emission runs.

What
else
does
this
remove?

what
volume
or
collector
time?

Sample Analysis. Analysis for carbon dioxide and oxygen was performed using an Orsat apparatus. The analytical results were used to determine the flue gas composition, molecular weight, excess air, and emissions correction factor.

(continued on page 4-5)

ENTROPY

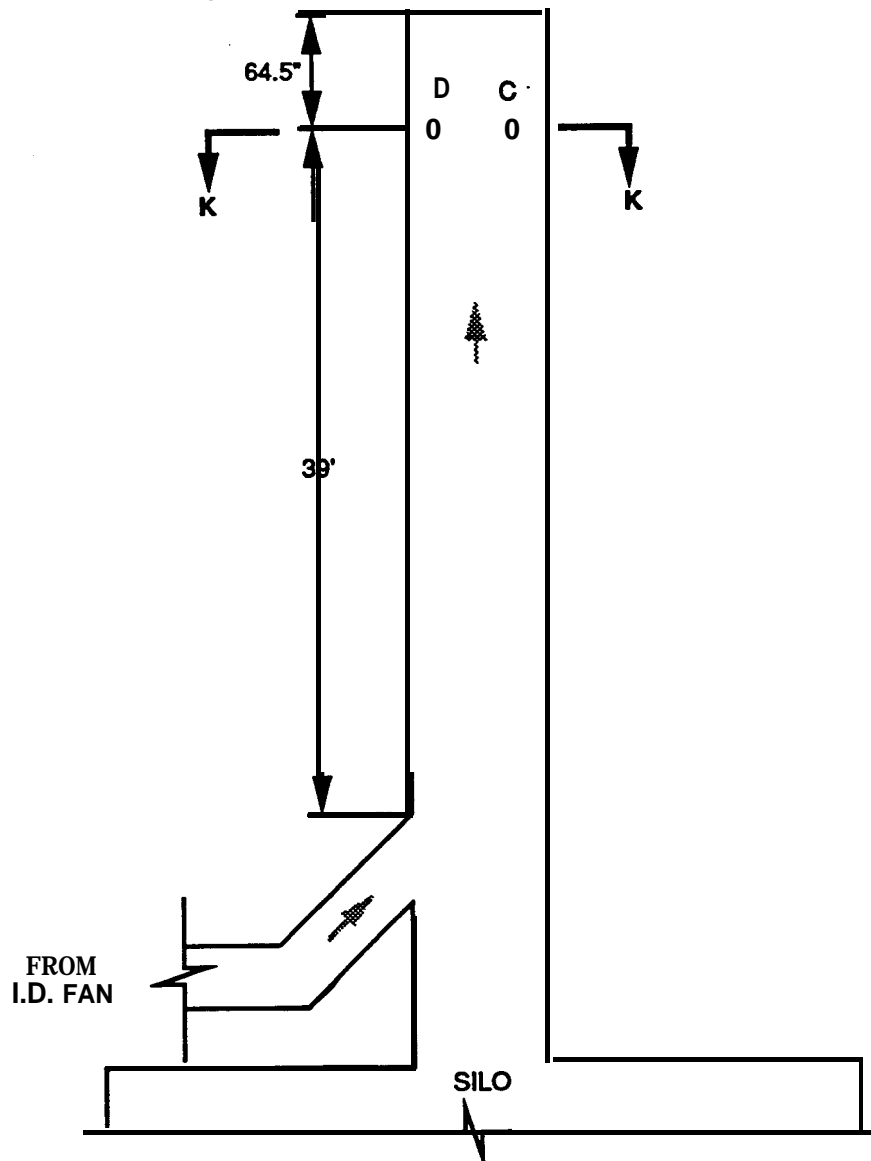
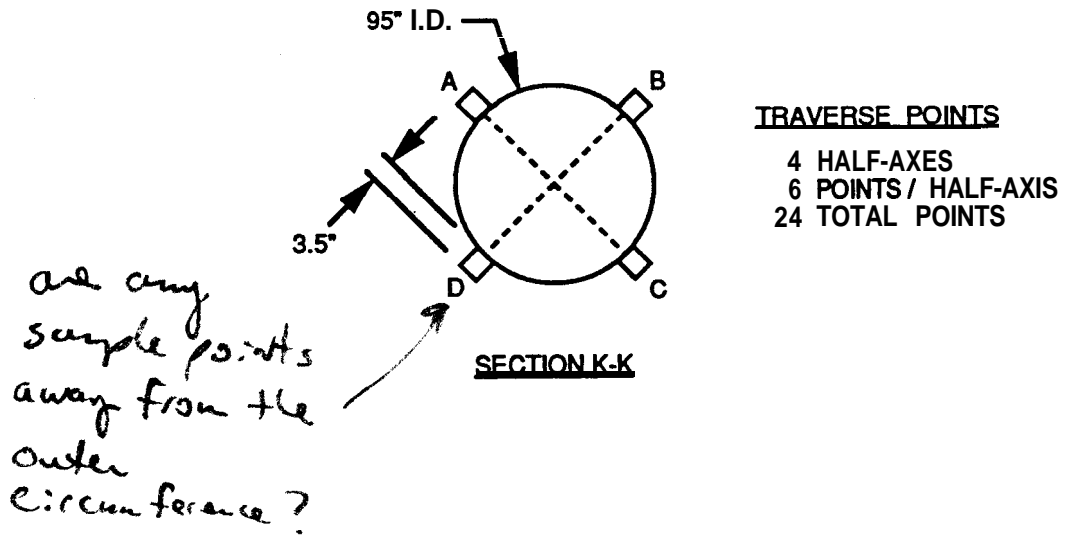
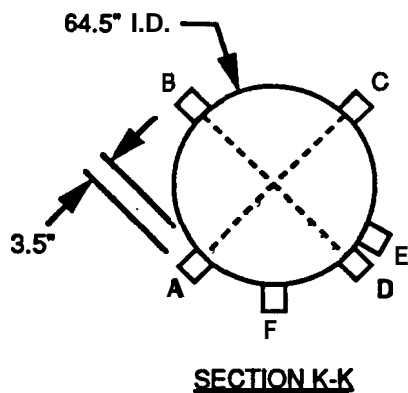


FIGURE 4-1. MAIN STACK TEST LOCATION.

ENTROPY



TRAVERSE POINTS
 4 HALF-AXES
 6 POINTS / HALF-AXIS
 24 TOTAL POINTS

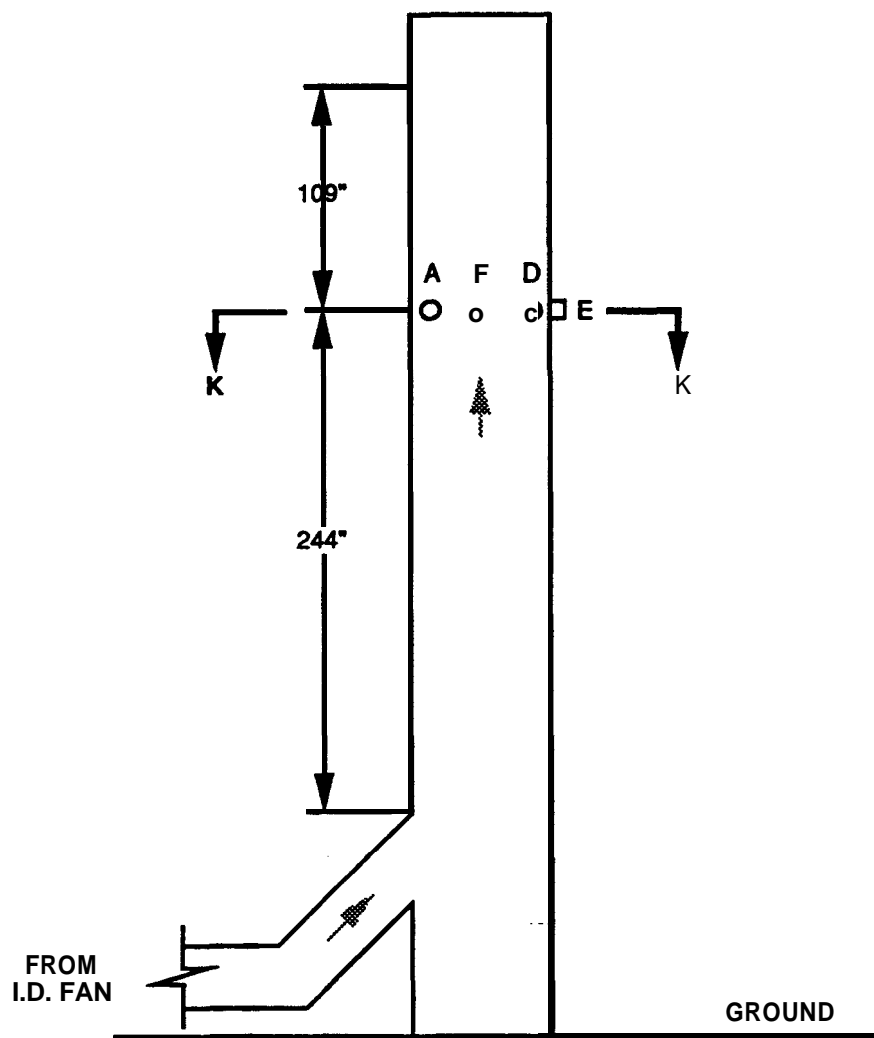
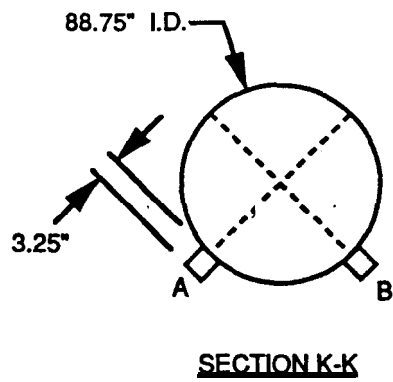


FIGURE 4-2. BYPASS STACK TEST LOCATION.

ENTROPY



TRAVERSE POINTS

2 AXES
12 POINTS / AXIS
24 TOTAL POINTS

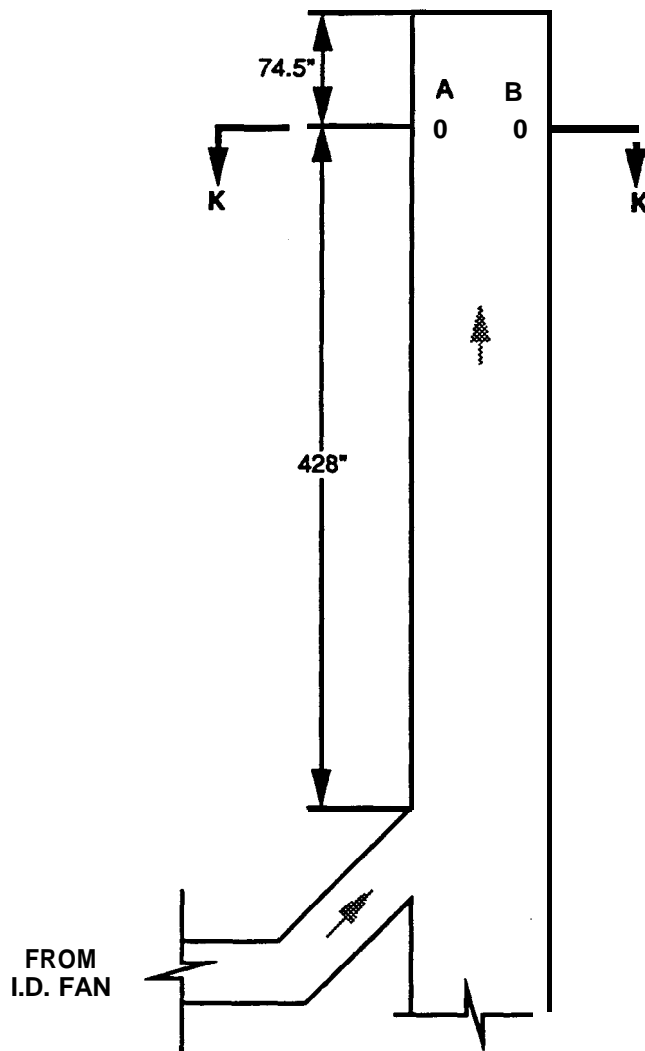


FIGURE 4-3. CLINKER STACK TEST LOCATION.

ENTROPY