

FIGURE 1.2
THREE-PHASE SLURRY REACTOR TYPES

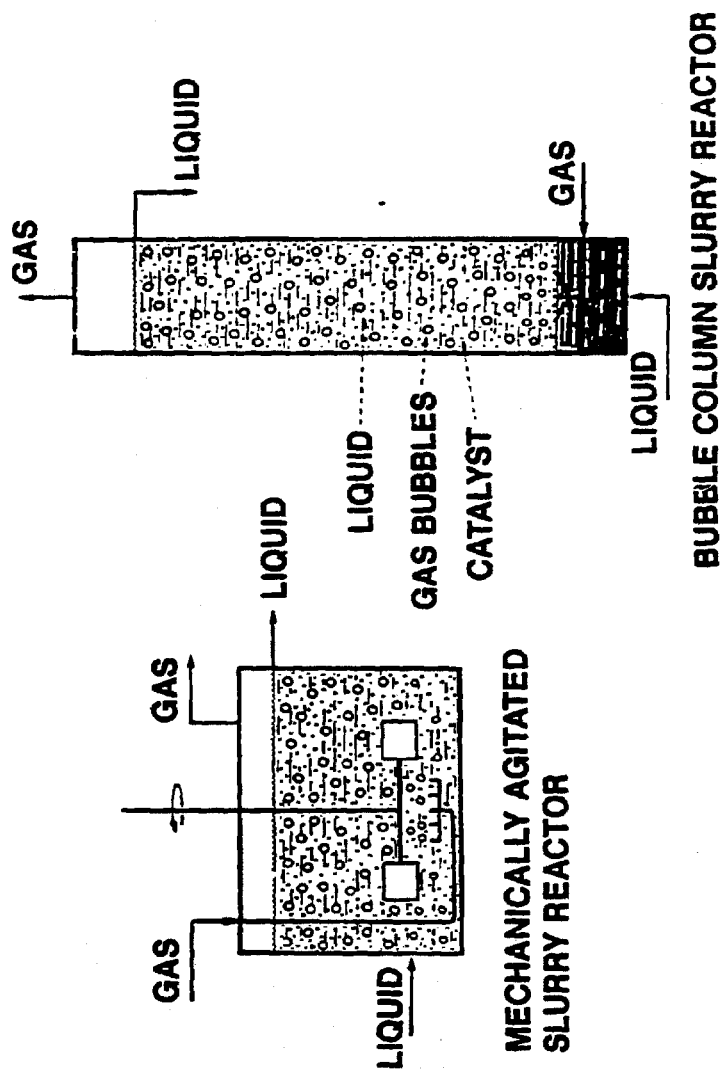


FIGURE 3.1
12.7 AND 30.5 CM COLUMN SCHEMATIC

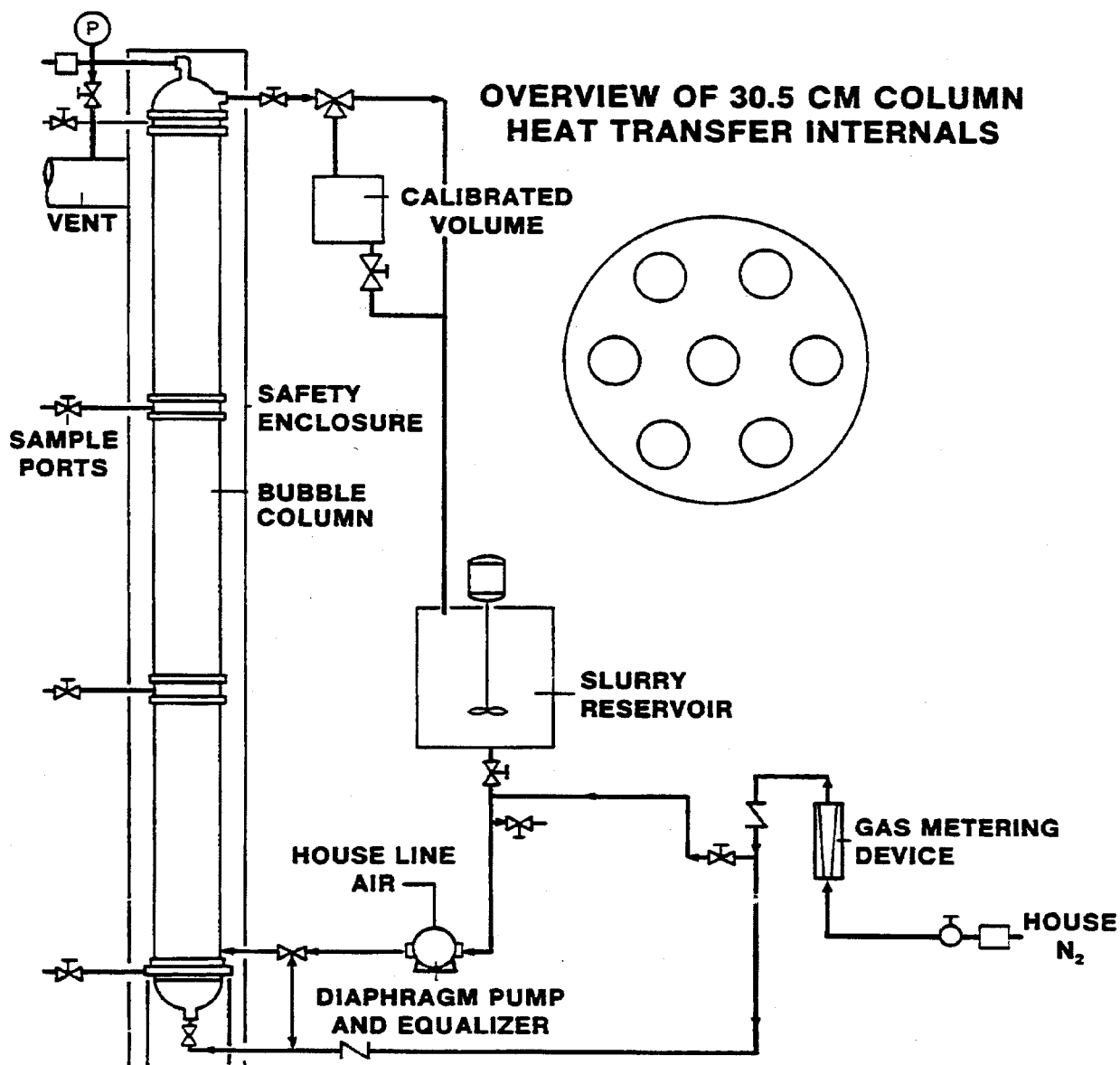


FIGURE 5.2.1
METHOD 2
GAS HOLDUP ANALYSIS

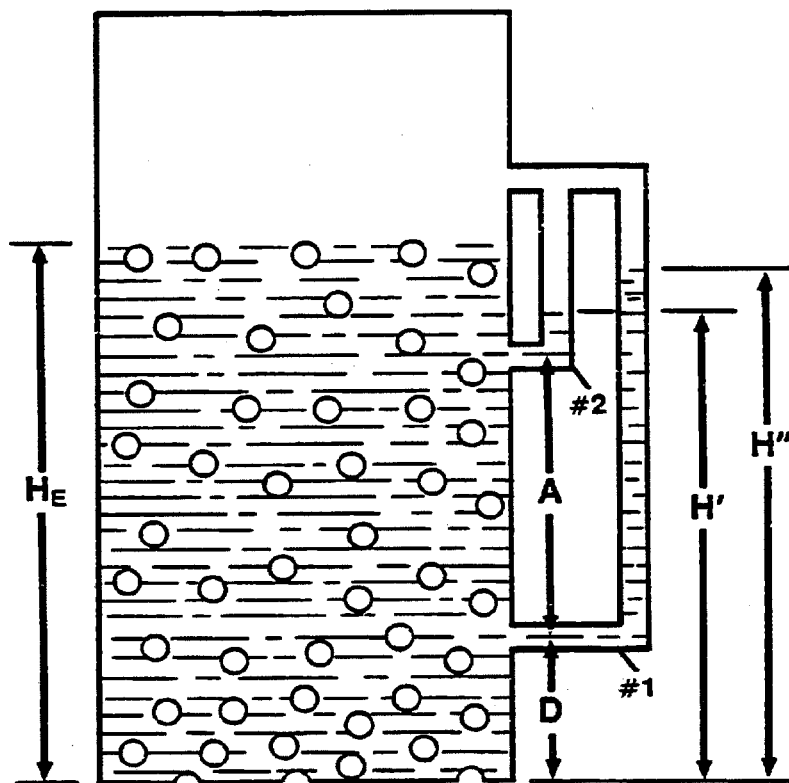


FIGURE 5.2.2
METHOD 3
GAS HOLDUP ANALYSIS

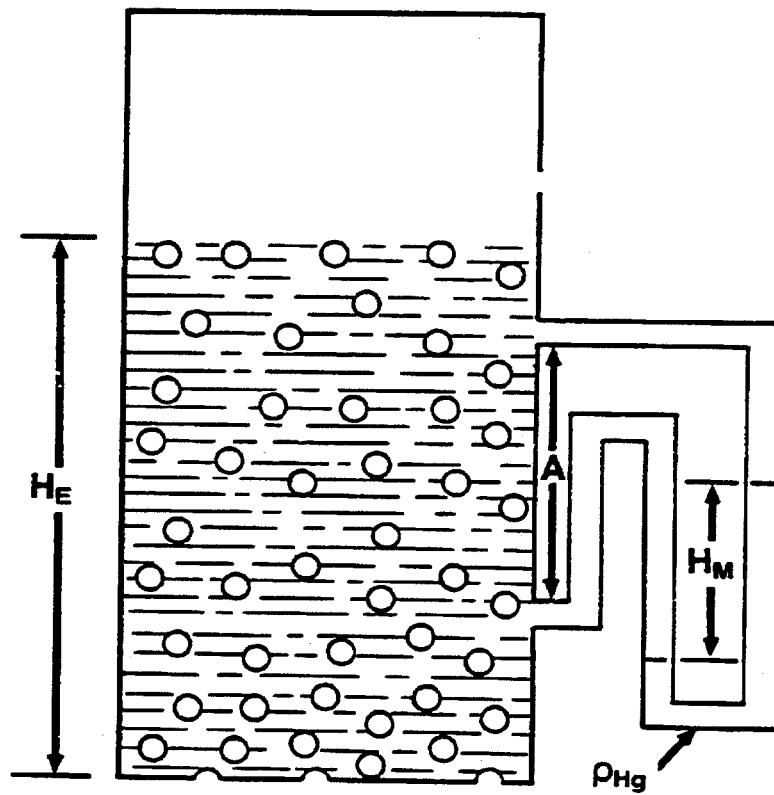
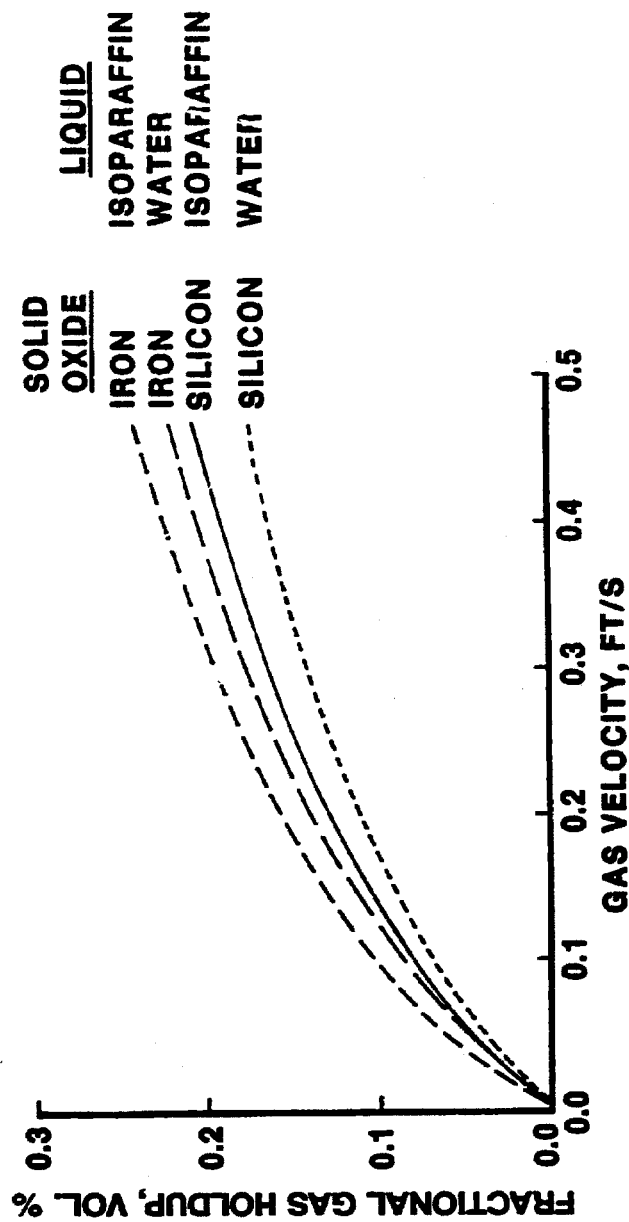


FIGURE 5.4
GAS HOLDUP VS. GAS VELOCITY FOR
DIFFERENT SOLIDS/LIQUIDS

5" COLD FLOW SIMULATOR



Note: (1) The results are based upon experimental data and (2) the data are based upon a nominal 20% solids loading of 49 micron particles.

FIGURE 6.2.1
BUBBLE SIZE ANALYSIS SYSTEM

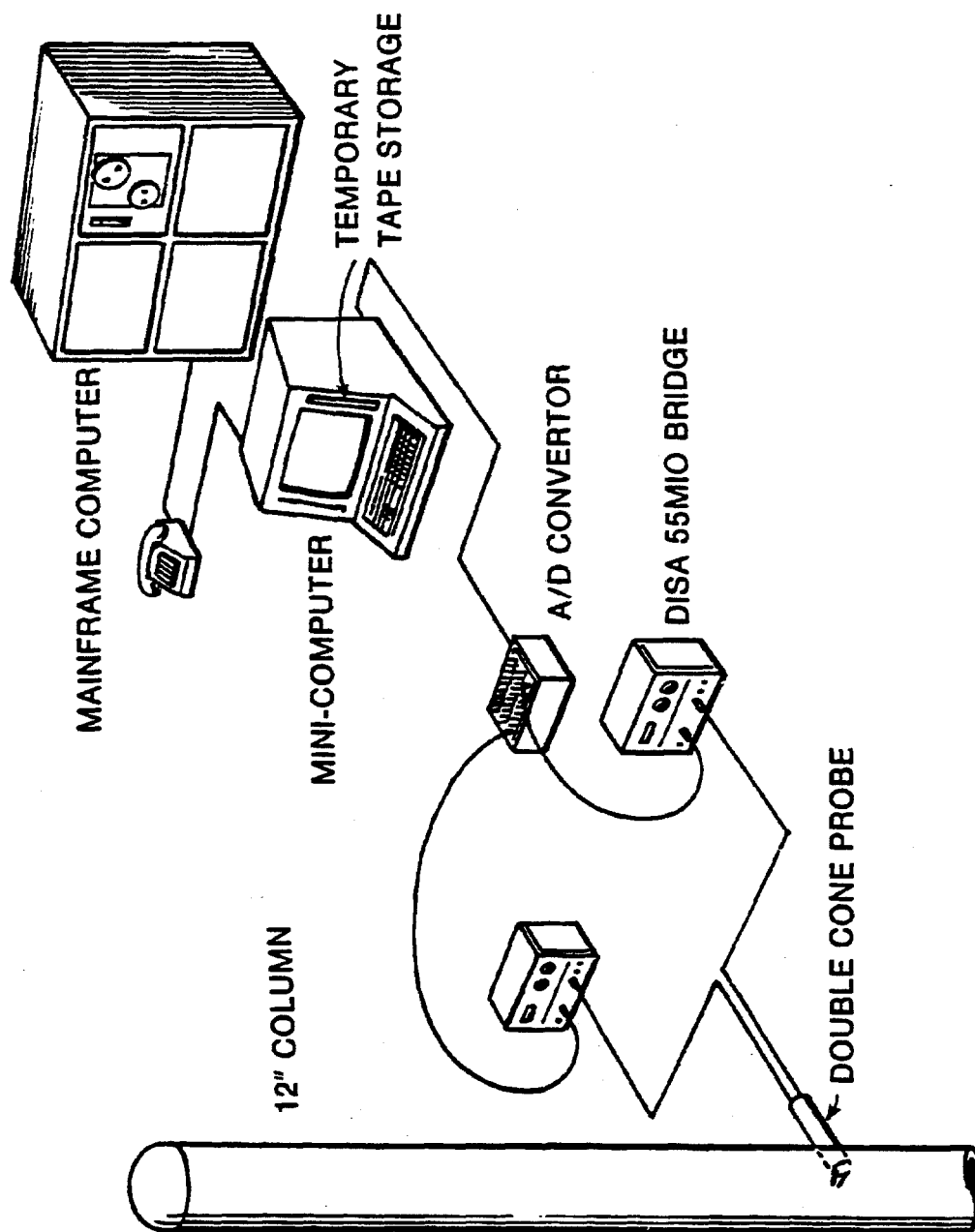


FIGURE 6.2.2
BUBBLE DIAMETER
DOUBLE CONE PROBE

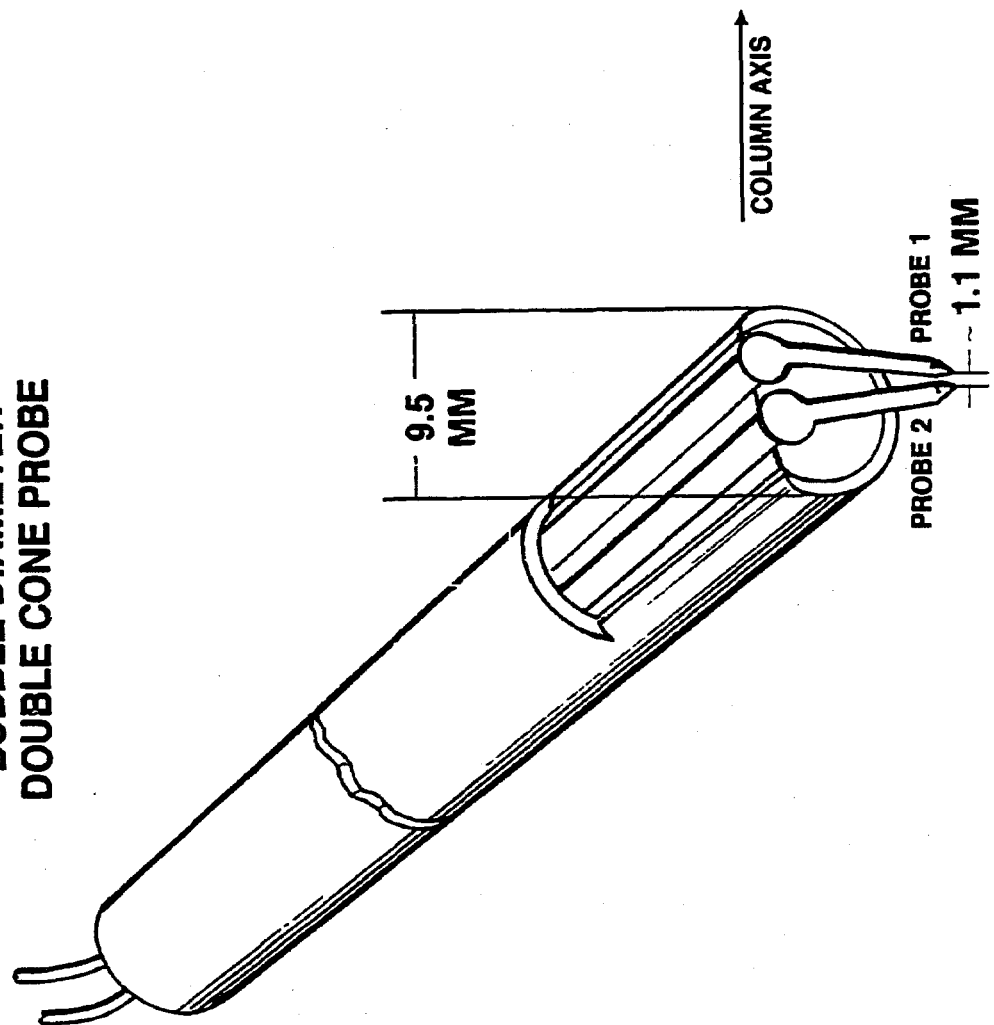


FIGURE 6.2.3
BUBBLE TRACE FROM DOUBLE CONE PROBE

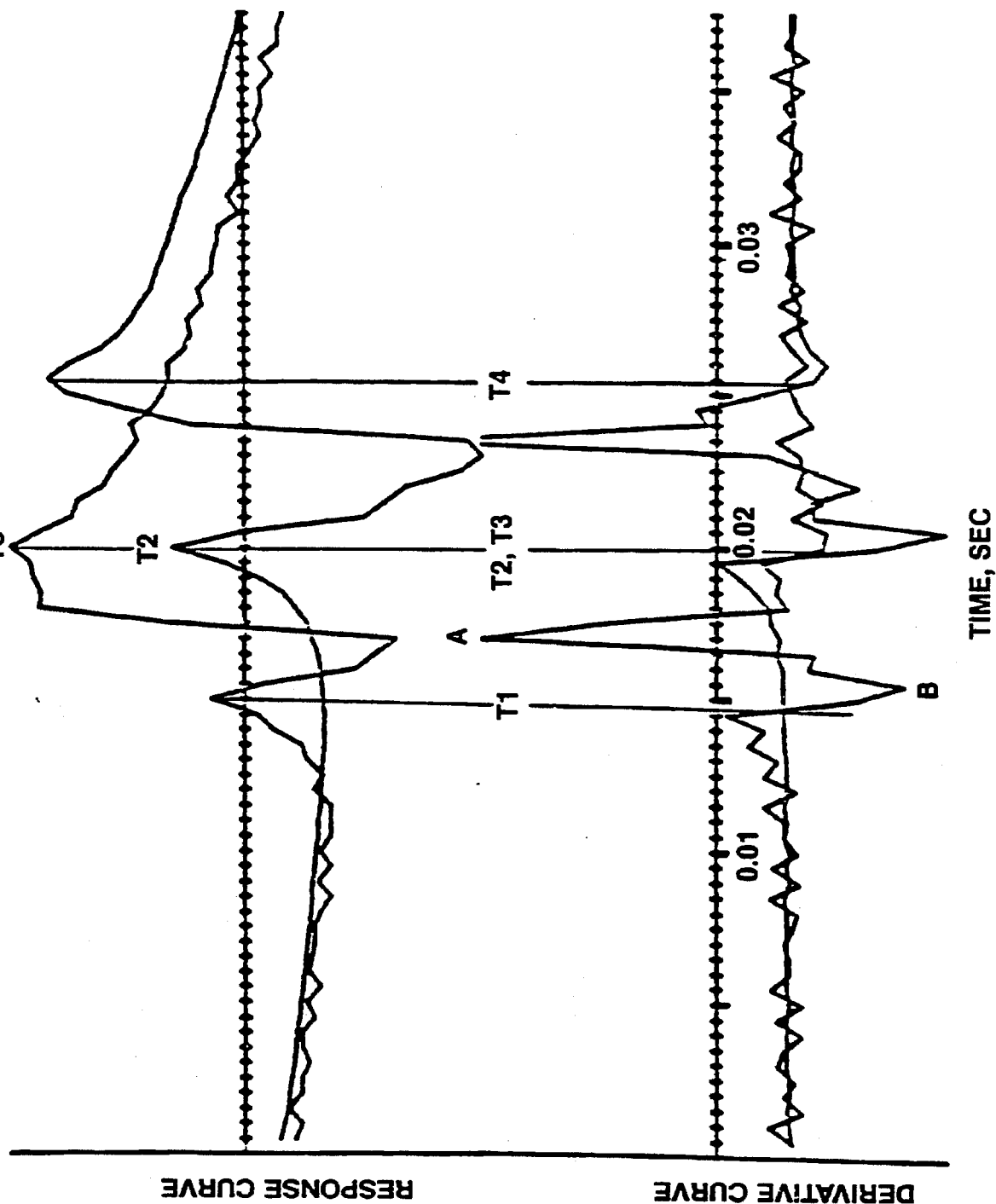


FIGURE 6.2.4
CALIBRATION CHAMBER

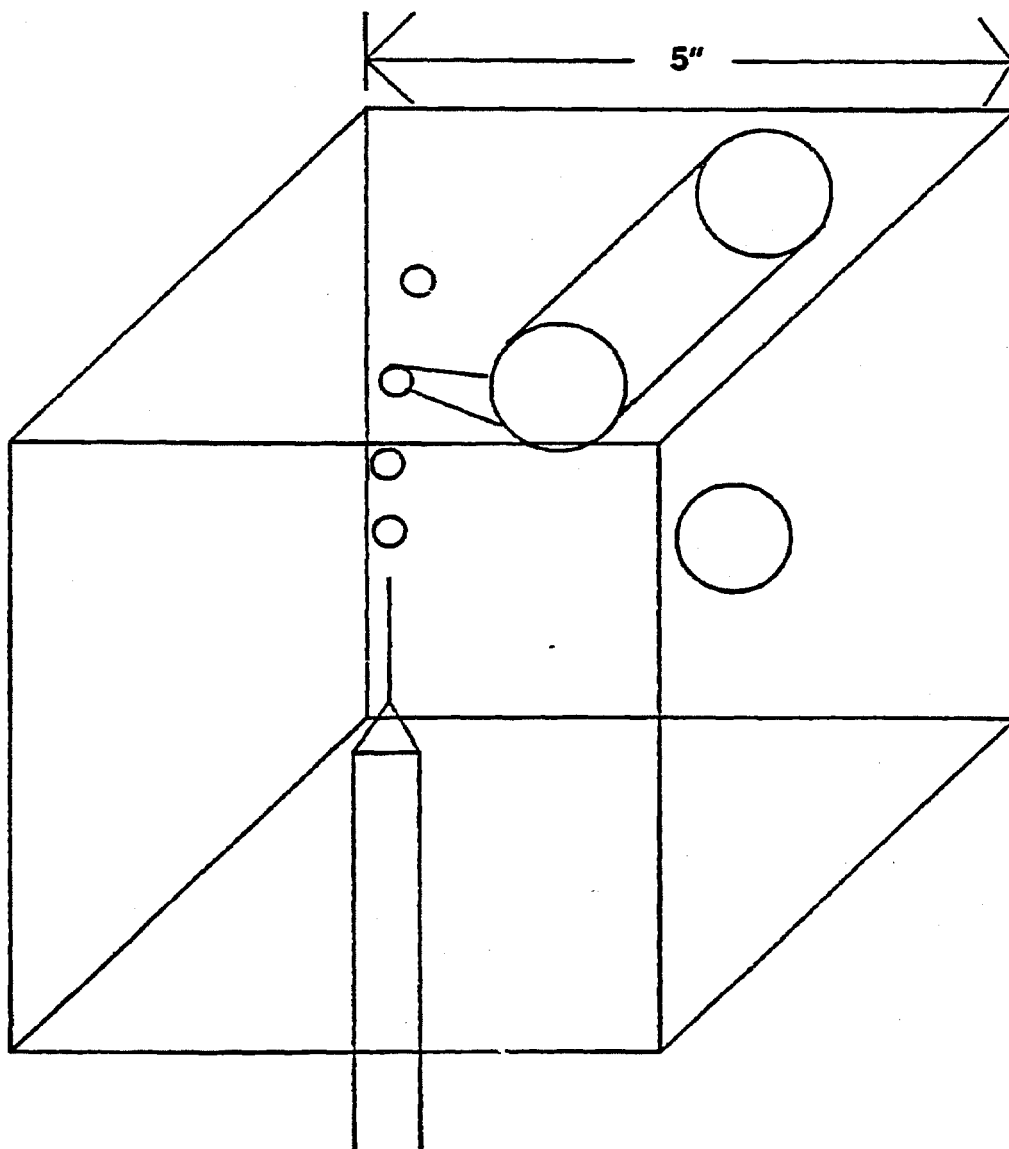


FIGURE 7.3.1
5 INCH COLD FLOW SIMULATOR
GAS/LIQUID MASS TRANSFER COEFFICIENTS
WATER, AIR

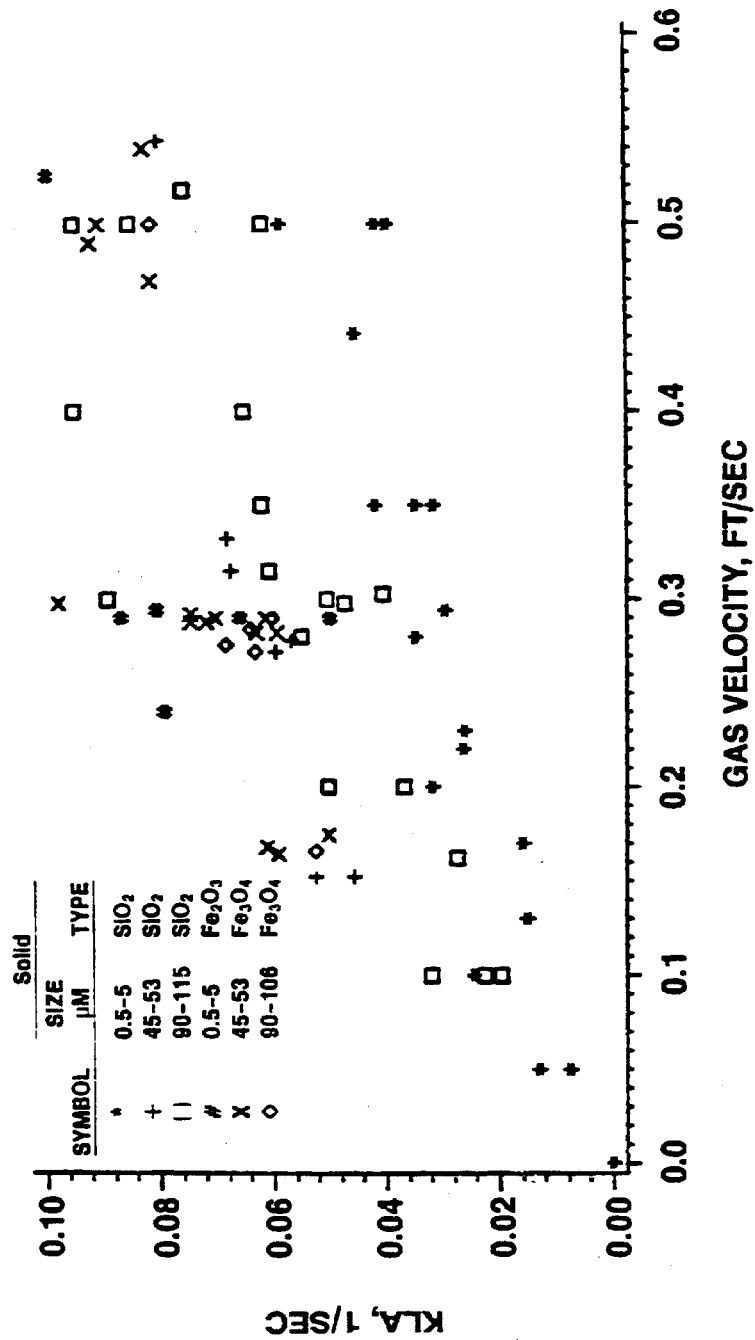


FIGURE 8.0.1
5 INCH COLD FLOW SIMULATOR
DISPERSION COEFFICIENT VS. GAS VELOCITY
FOR WATER-AIR SYSTEM
PREVIOUS WORKERS

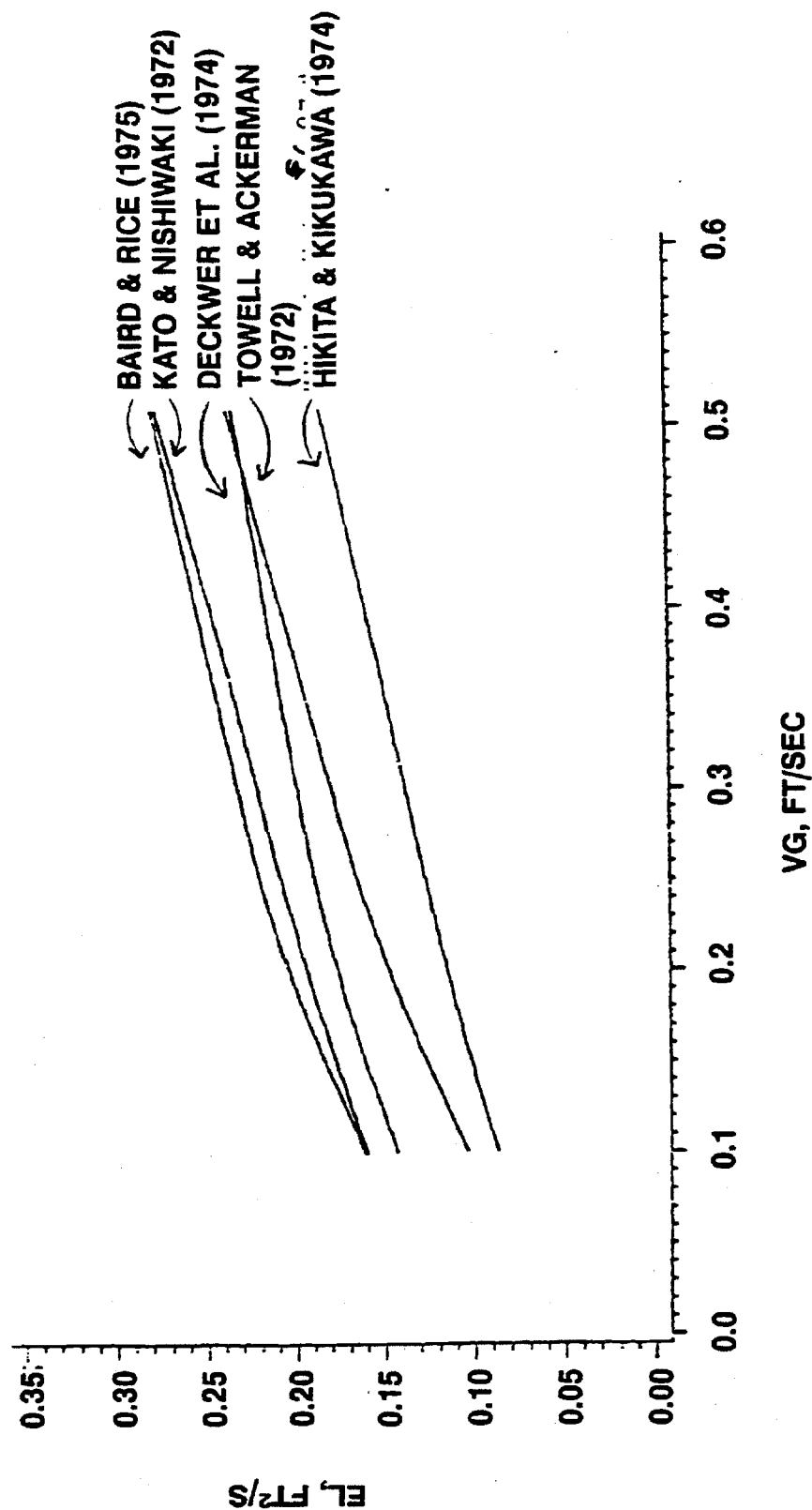


FIGURE 8.2.1
AUTOMATED LIQUID
DISPERSION SYSTEM

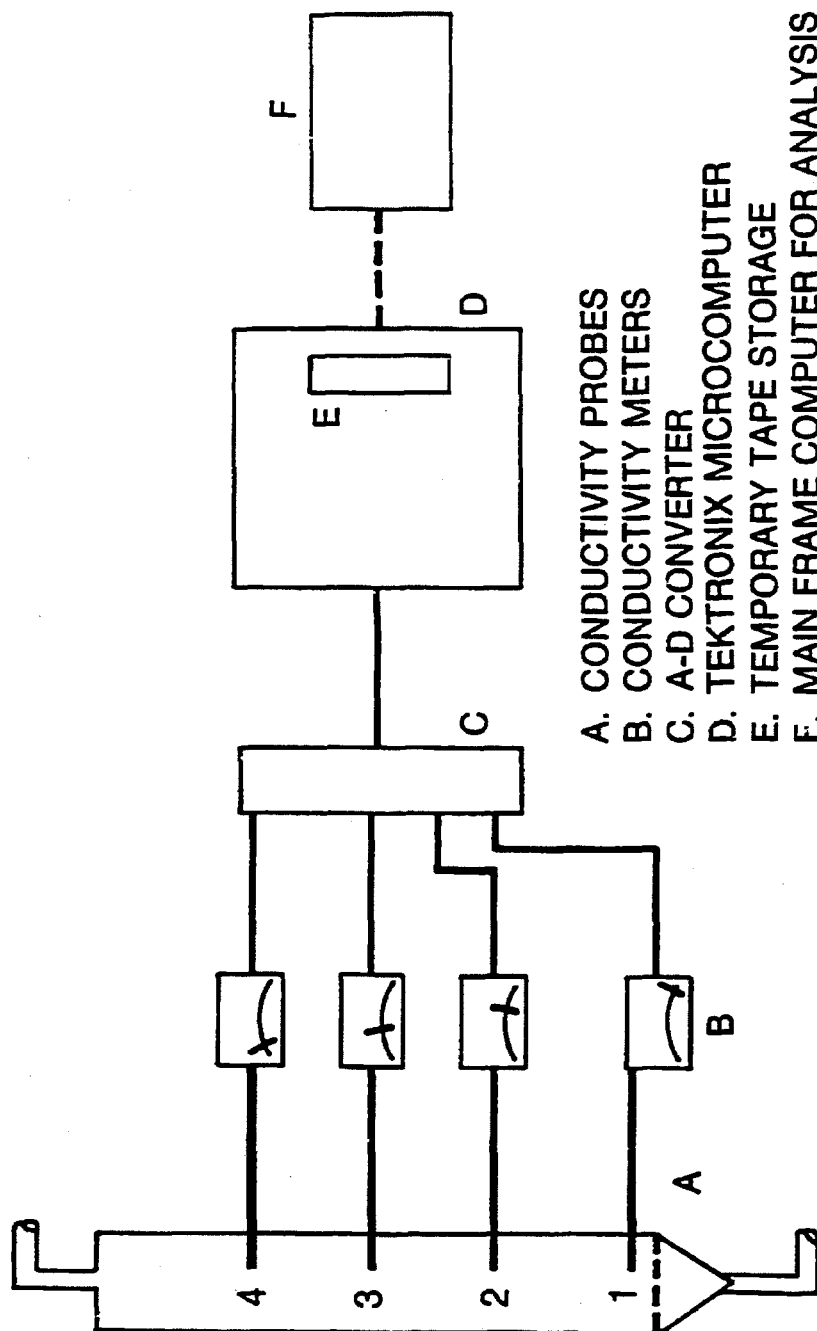


FIGURE 8.2.2
5 INCH COLD FLOW SIMULATOR
NORMALIZED CONCENTRATION VS. TIME CURVES
AT 3.5 INCHES FOR 48 INCH BED
ANALYTICAL SOLUTION FOR 2.0-2.2 INCH INJECTION

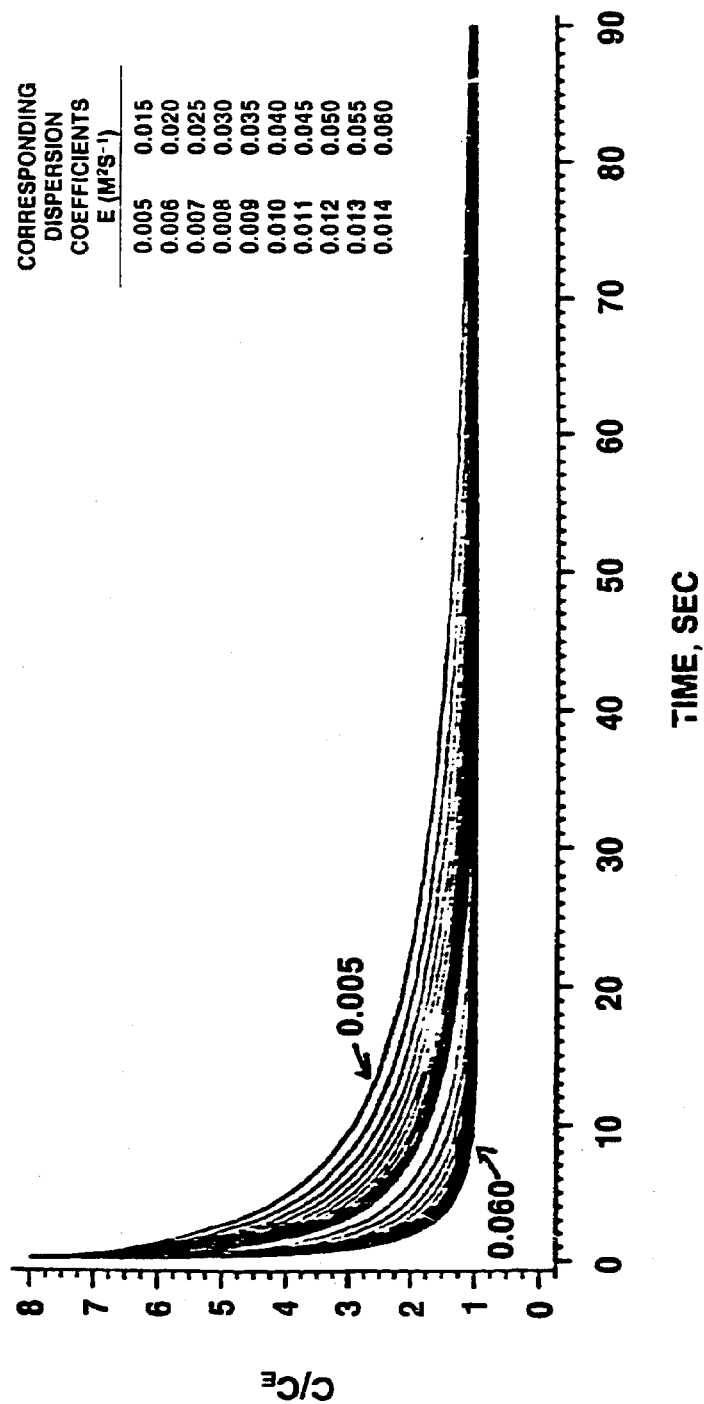


FIGURE 8.2.3
5 INCH COLD FLOW SIMULATOR
 NORMALIZED CONCENTRATION VS. TIME CURVES
 AT 14.75 INCHES FOR 48 INCH BED
 ANALYTICAL SOLUTION FOR 2.0-2.2 INCH INJECTION

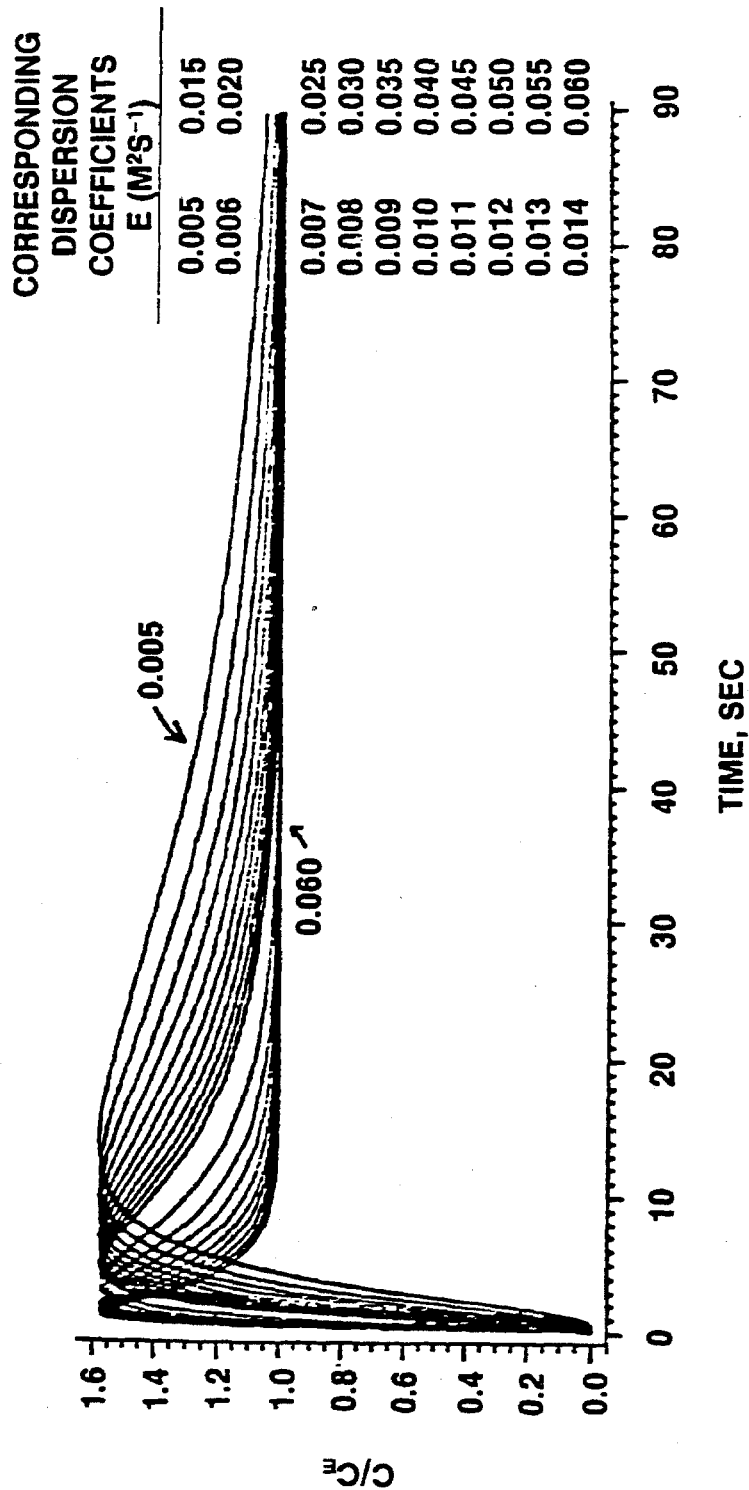


FIGURE 8.2.4
5 INCH COLD FLOW SIMULATOR
NORMALIZED CONCENTRATION VS. TIME CURVES
AT 29.75 INCHES FOR 48 INCH BED
ANALYTICAL SOLUTION FOR 2.0-2.2 INCH INJECTION

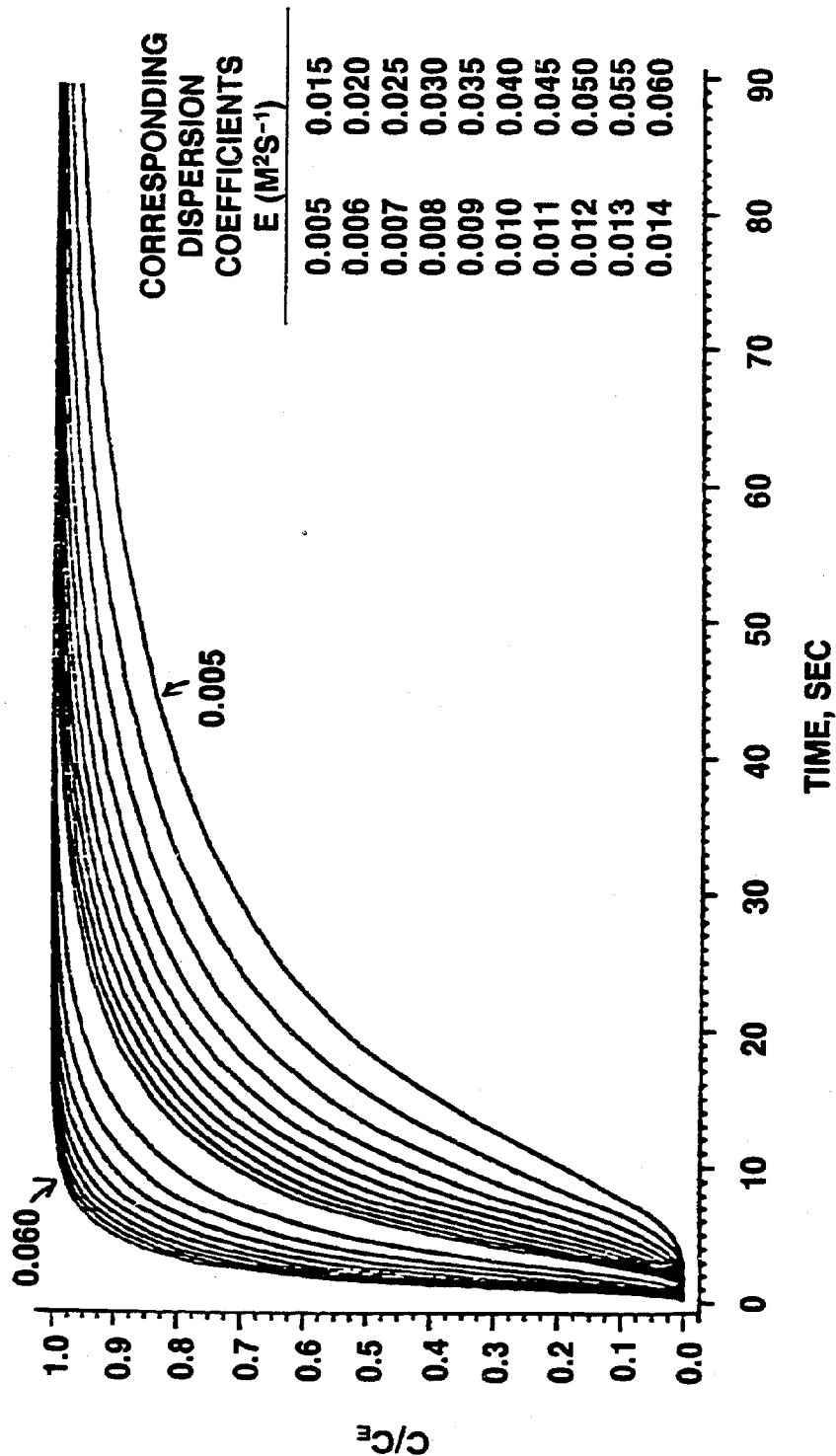


FIGURE 8.2.5
5 INCH COLD FLOW SIMULATOR
NORMALIZED CONCENTRATION VS. TIME CURVES
AT 44.58 INCHES FOR 48 INCH BED
ANALYTICAL SOLUTION FOR 2.0-2.2 INCH INJECTION

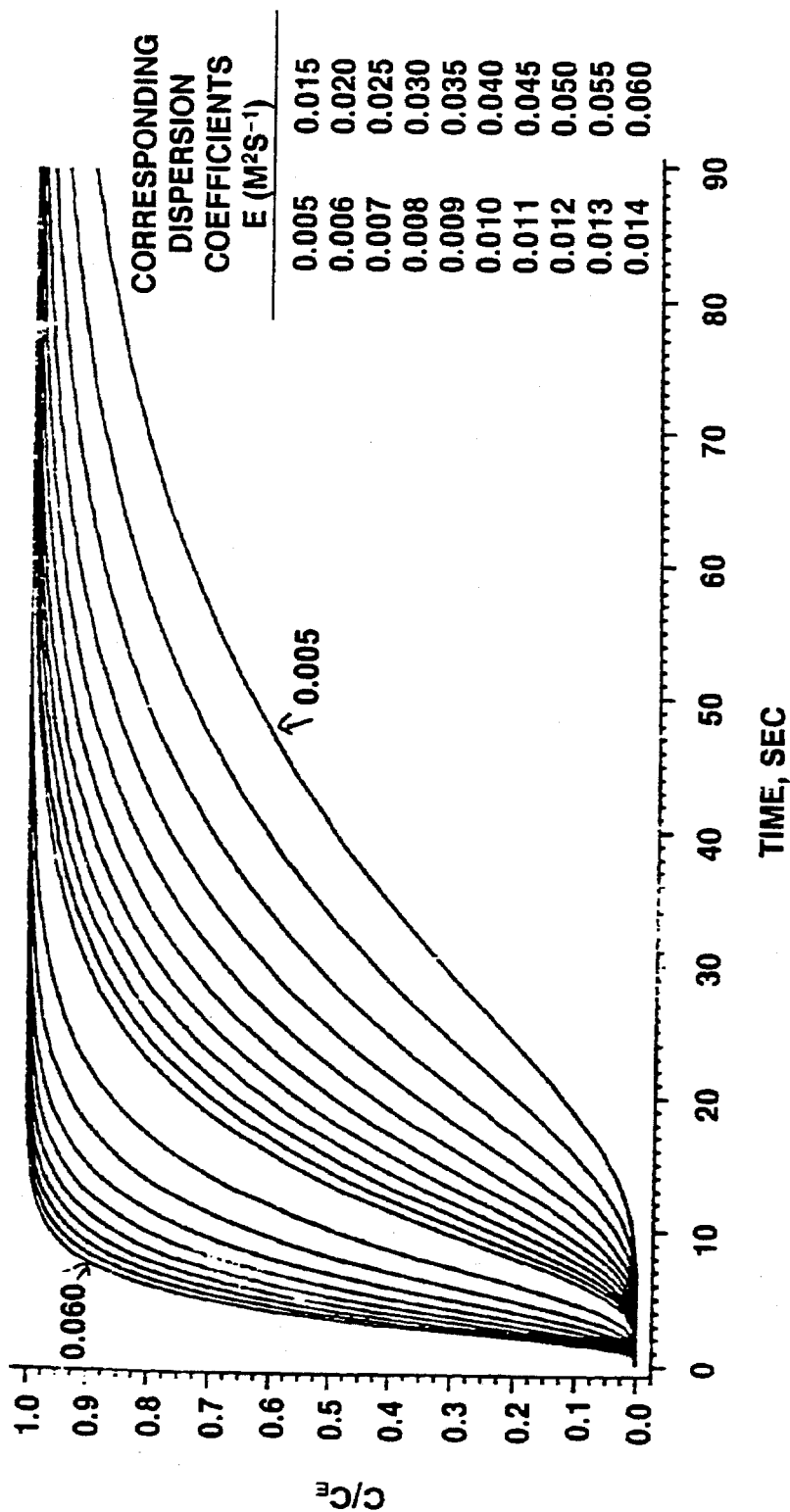


FIGURE 8.2.6
CONDUCTIVITY PROBES

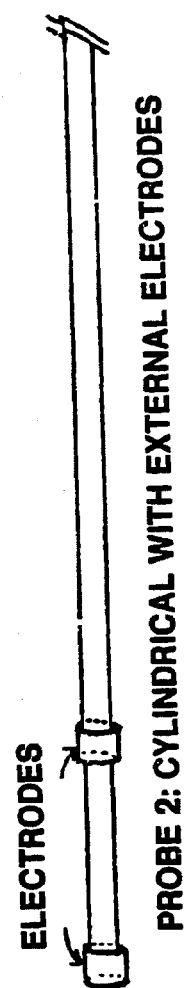
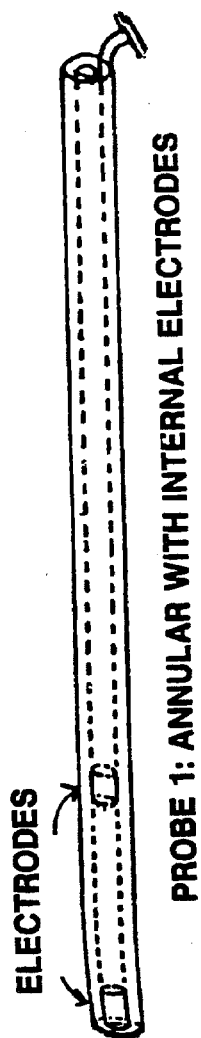


FIGURE 8.2.7 LIQUID DISPERSION COEFFICIENT EXPERIMENTS

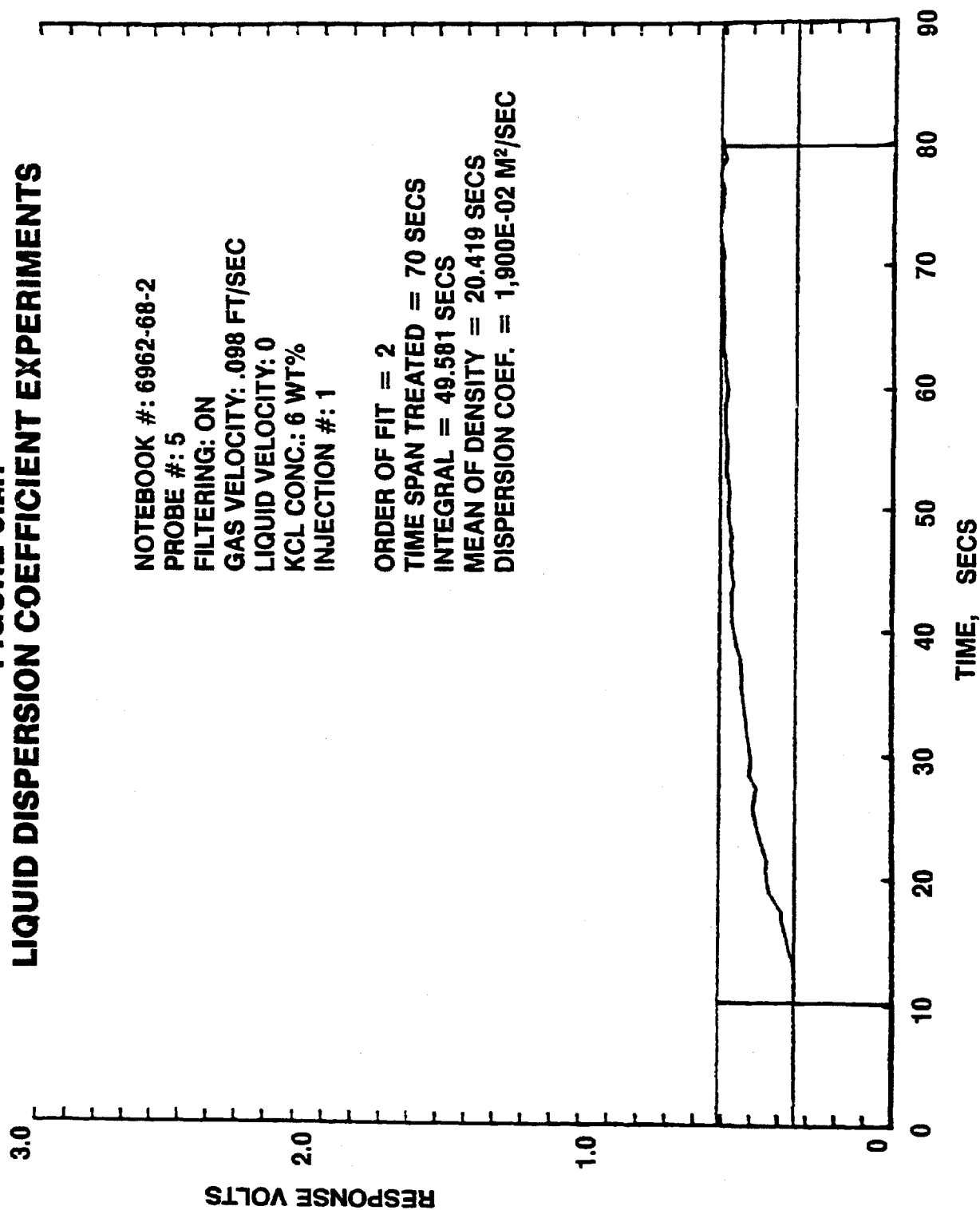


FIGURE 8.2.8 **LIQUID DISPERSION COEFFICIENT EXPERIMENTS** **SMOOTHED DATA**

NOTEBOOK #: 6962-68-2
 PROBE #: 5
 FILTERING: ON
 GAS VELOCITY: .098 FT/SEC
 LIQUID VELOCITY: 0
 KCL CONC.: 6 WT%
 INJECTION #: 1

ORDER OF FIT = 3
 TIME SPAN TREATED = 70 SECS
 INTEGRAL = 50.584 SECS
 MEAN OF DENSITY = 19.416 SECS
 DISPERSION COEF. = $1.997E-02 \text{ M}^2/\text{SEC}$

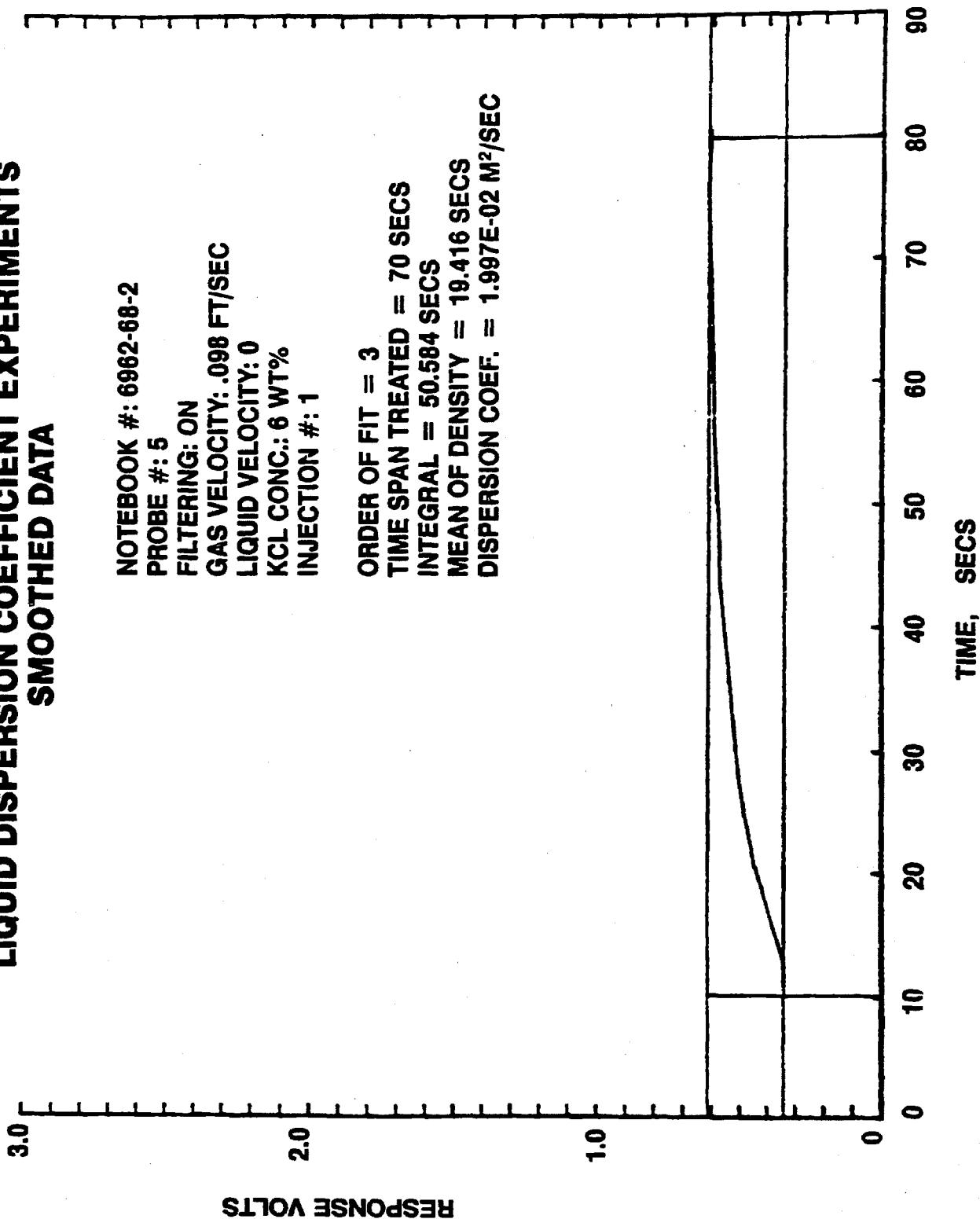


FIGURE 9.3.1A
PARTICLE SIZE EFFECT ON SOLID PROFILES
BATCH SYSTEM, ZERO LIQUID VELOCITY
ISOPARAFFIN, SILICON OXIDE, N₂

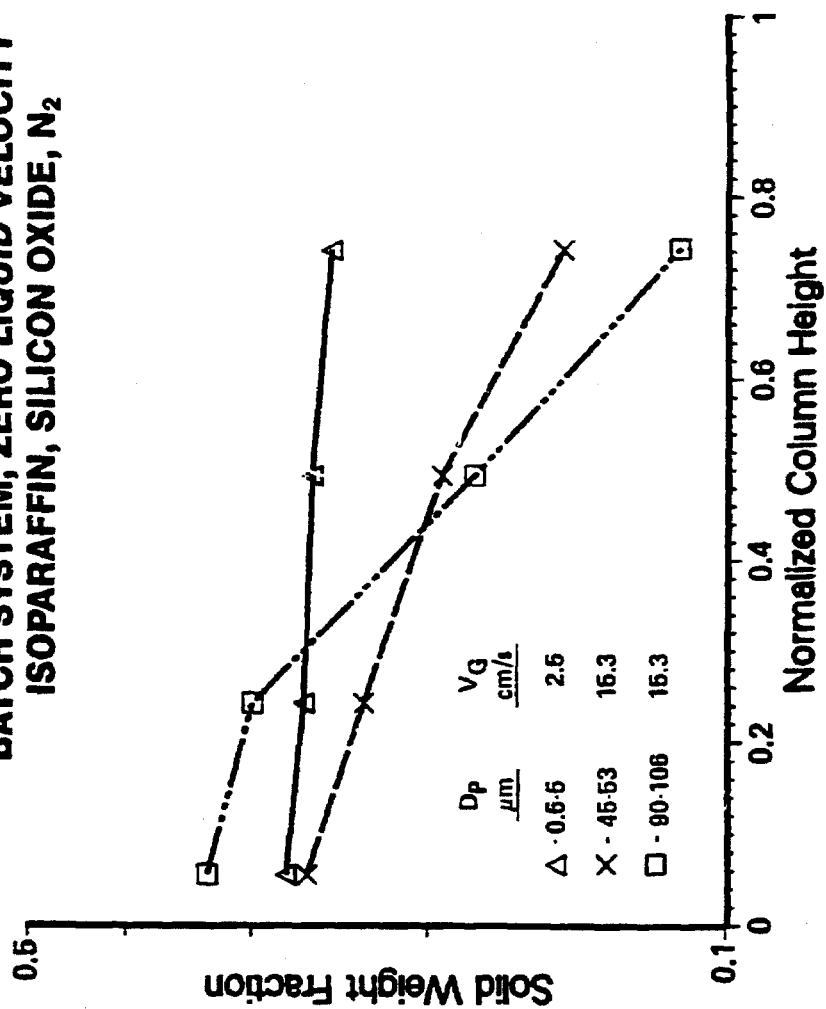


FIGURE 9.3.1B
PARTICLE SIZE EFFECT ON SOLID PROFILES
CONTINUOUS SYSTEM, POSITIVE LIQUID VELOCITY
ISOPARAFFIN, SILICON OXIDE, N₂

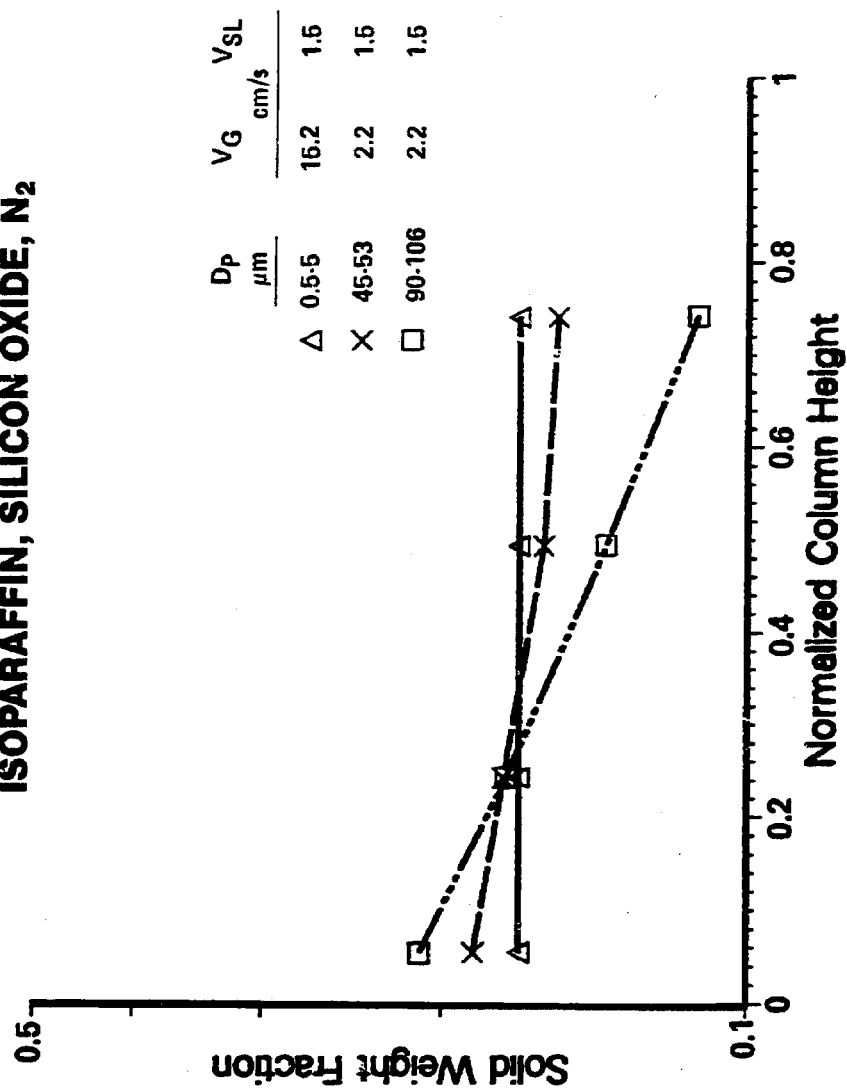


FIGURE 9.3.2A
PARTICLE SIZE EFFECT ON SOLID PROFILES
BATCH SYSTEM, ZERO LIQUID VELOCITY
ISOPARAFFIN, IRON OXIDE, N₂

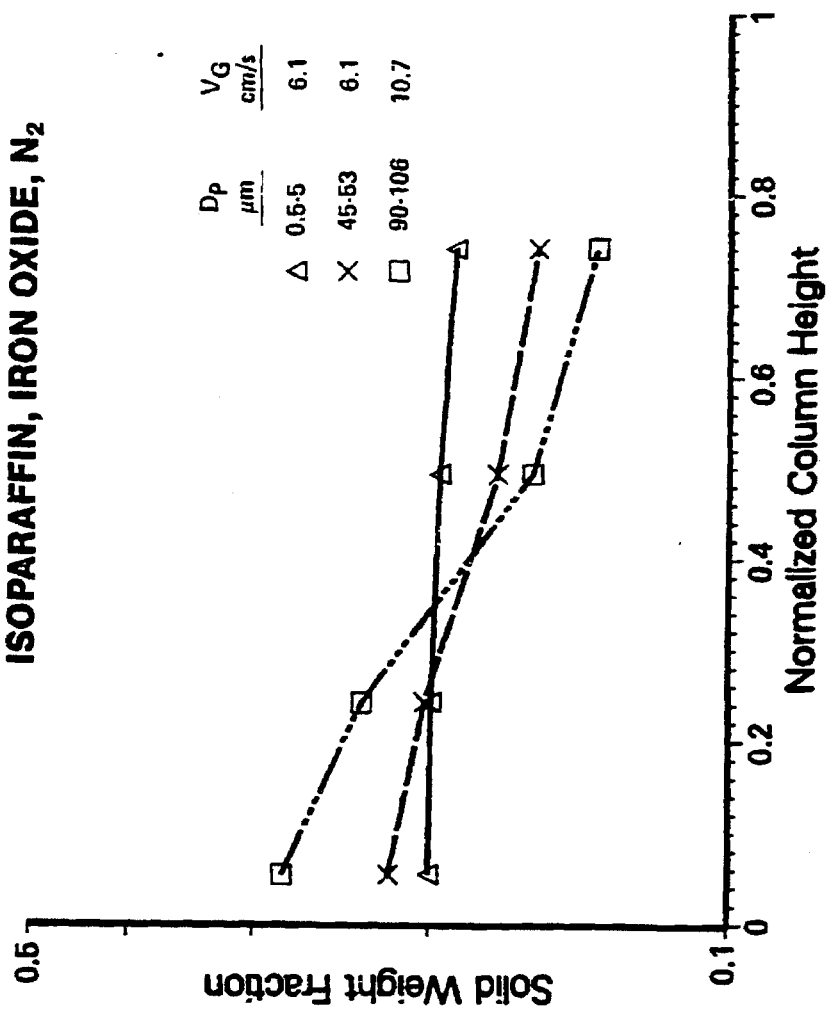


FIGURE 9.3.2B
PARTICLE SIZE EFFECT ON SOLID PROFILES
CONTINUOUS SYSTEM, POSITIVE LIQUID VELOCITY
ISOPARAFFIN, IRON OXIDE, N₂

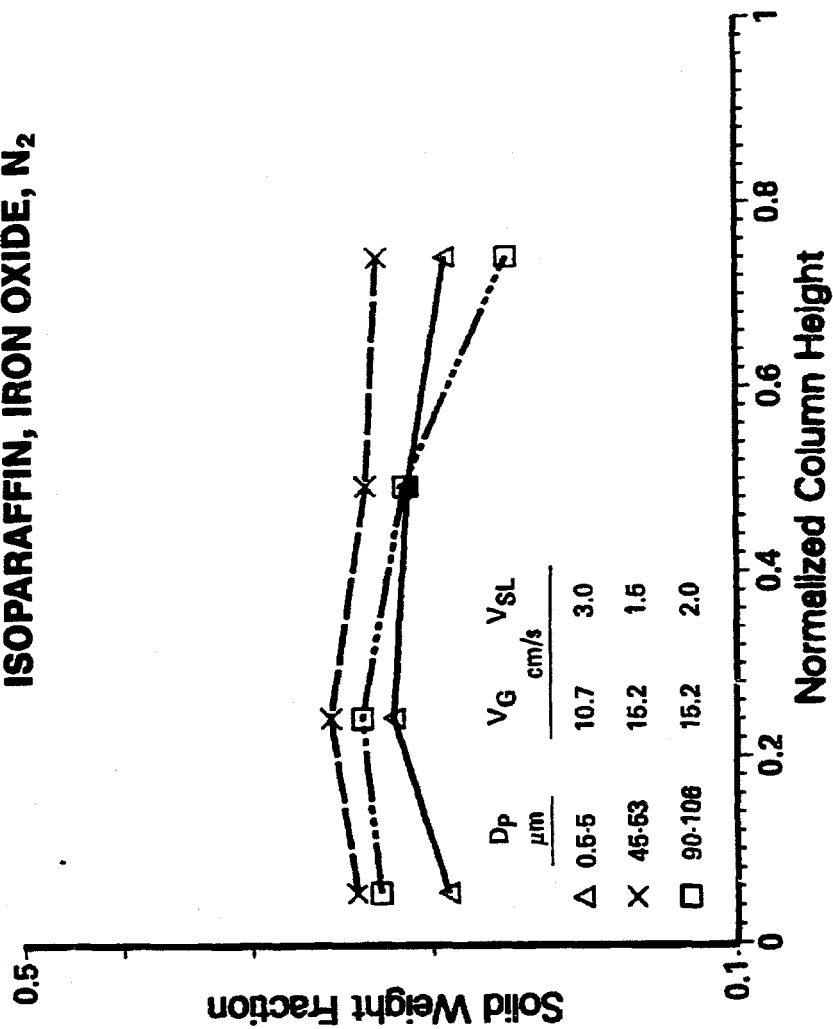


FIGURE 9.3.3.A
PARTICLE TYPE AND LIQUID EFFECT
ON 90-115 μ M SOLID PROFILES
BATCH SYSTEM

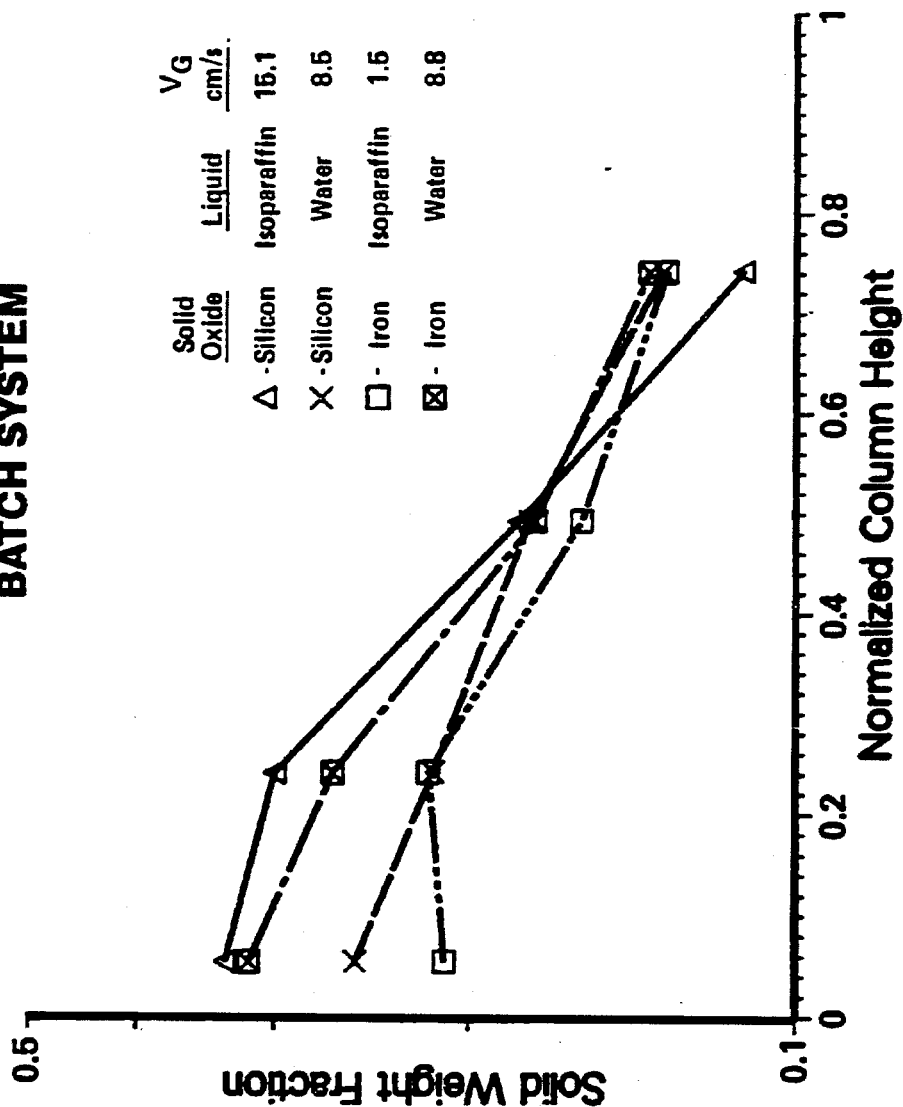


FIGURE 9.3.3.B
PARTICLE TYPE AND LIQUID EFFECT
ON 90-115 μ M SOLID PROFILES
CONTINUOUS SYSTEM

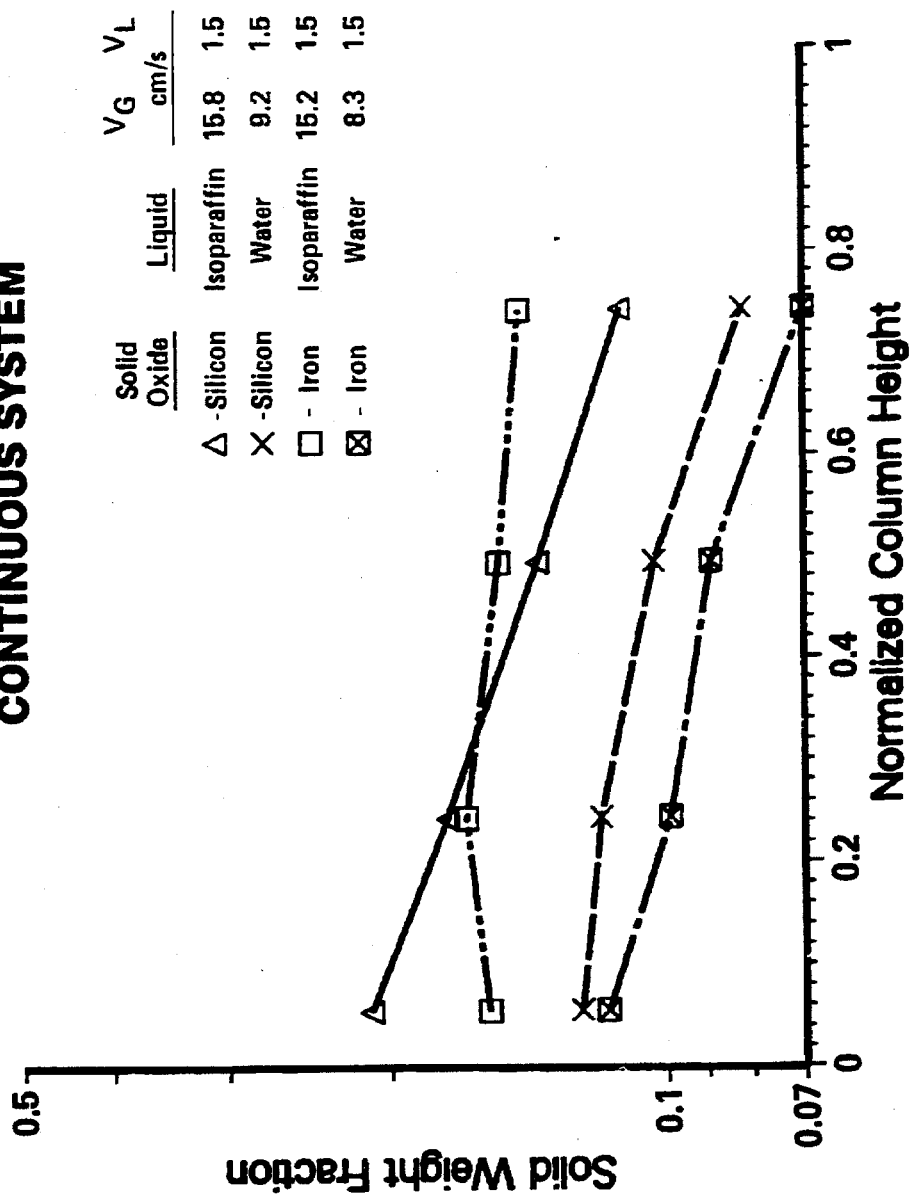


FIGURE 9.4.1
SOLIDS SETTLING VELOCITY
OBSERVED VS. THEORETICAL
ISOPARAFFIN SYSTEM

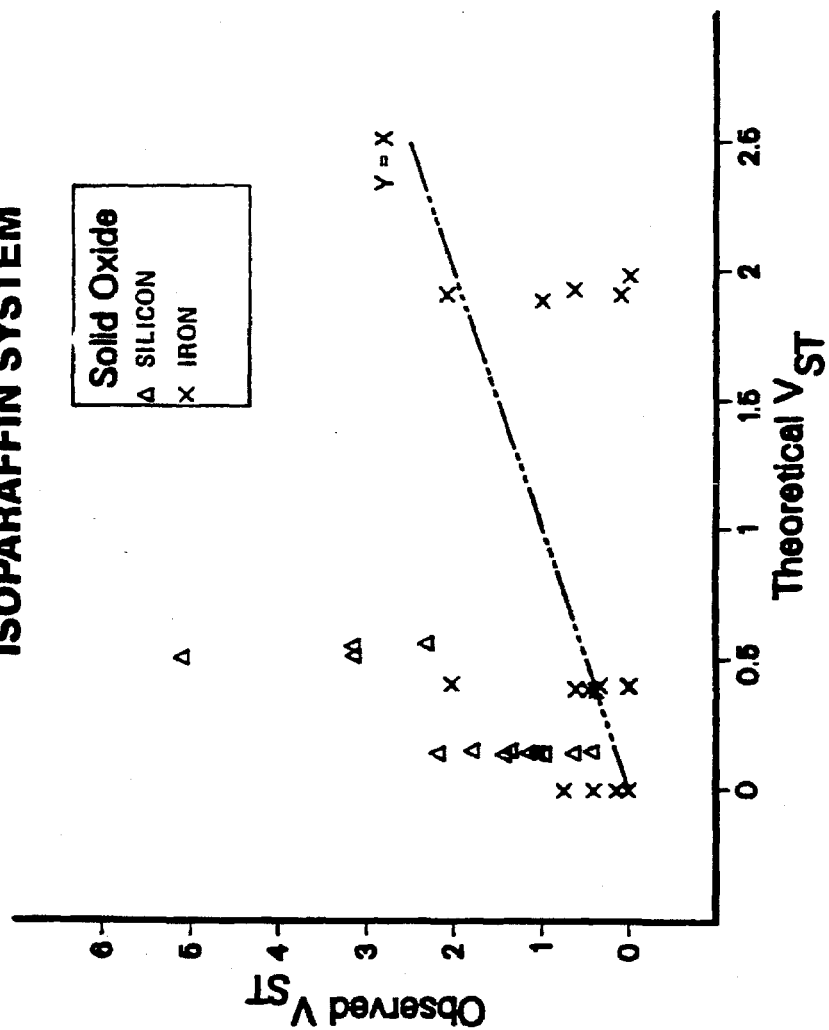


FIGURE 9.4.2
SOLID DISPERSION COEFFICIENT
LITERATURE COMPARISON
SILICON OXIDE, ISOPARAFFIN SYSTEM

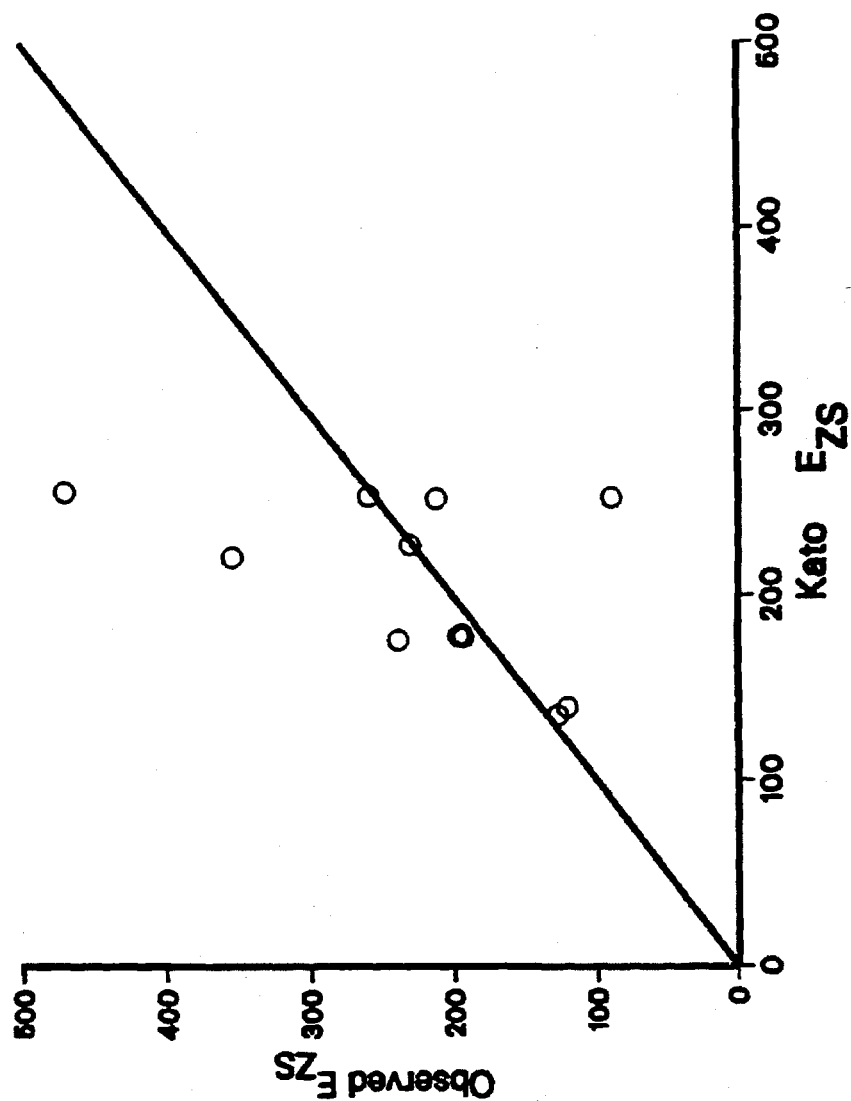


FIGURE 9.4.3
MAXIMUM SOLID LOADING
12" COLD FLOW SIMULATOR
ISOPARAFFIN, 90-115 μ M SILICON OXIDE, N₂

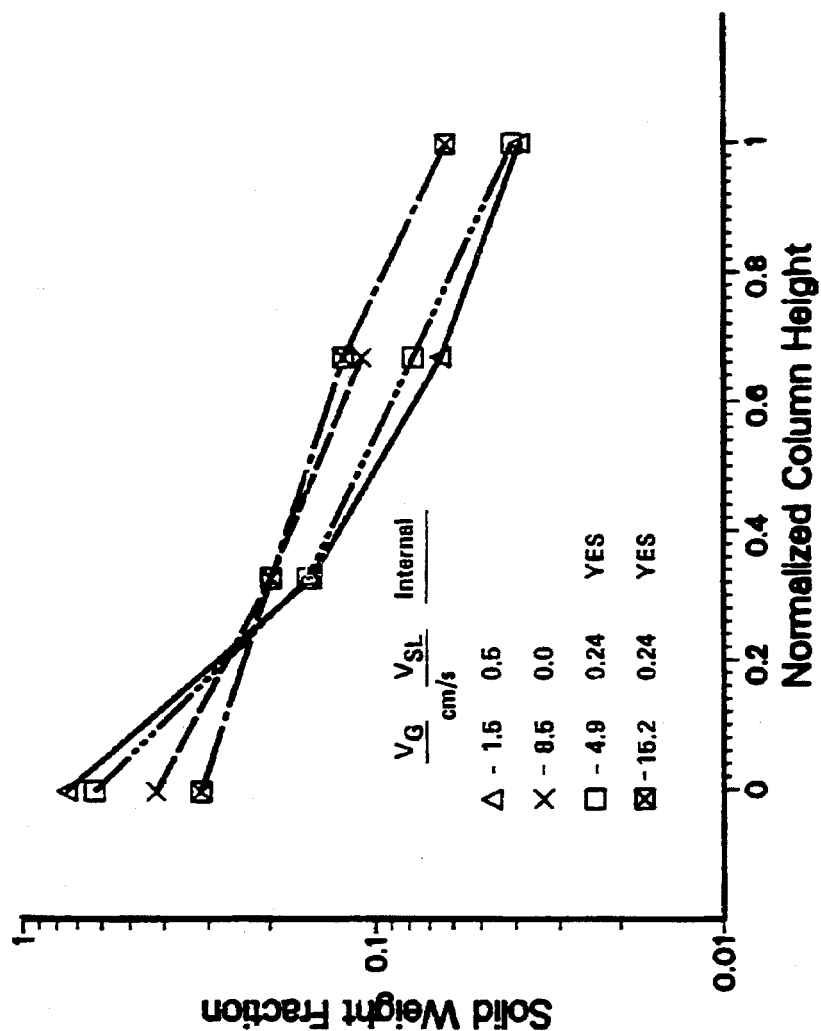


FIGURE 10.2.1
PLACEMENT OF HEATERS

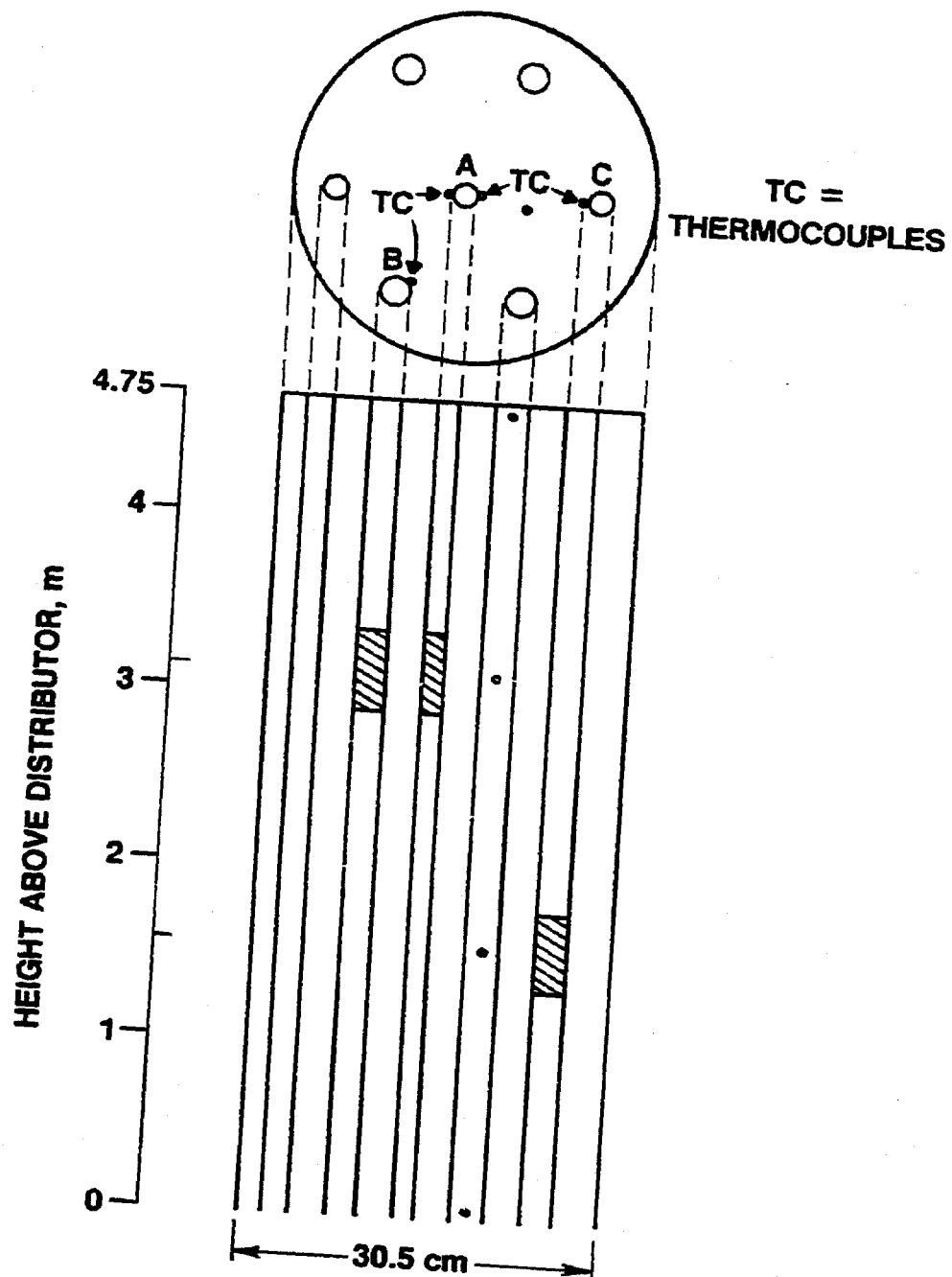


FIGURE 10.2.2
CARTRIDGE HEATER ARRANGEMENT

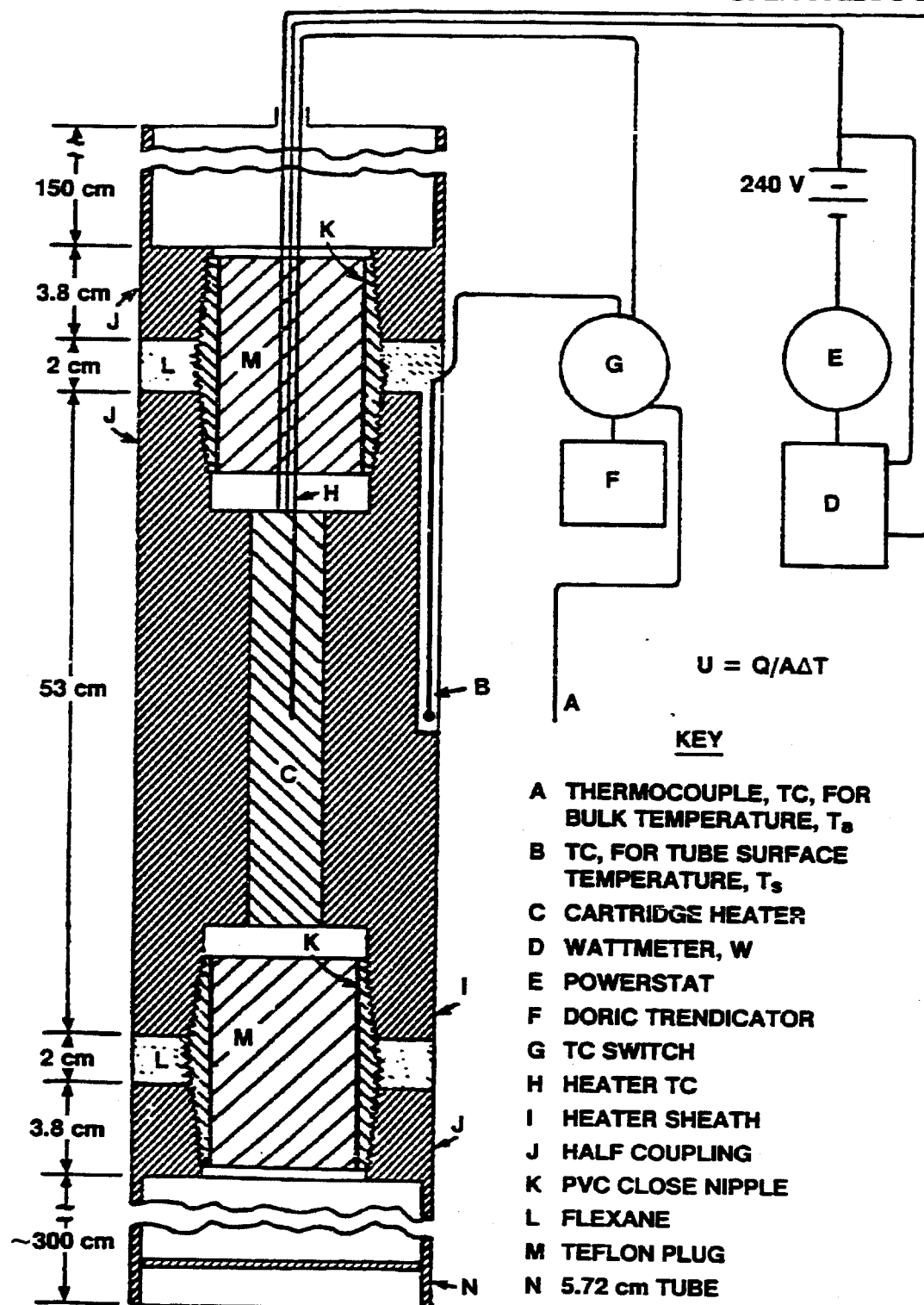


FIGURE 10.3.1
HEAT TRANSFER VS. GAS VELOCITY

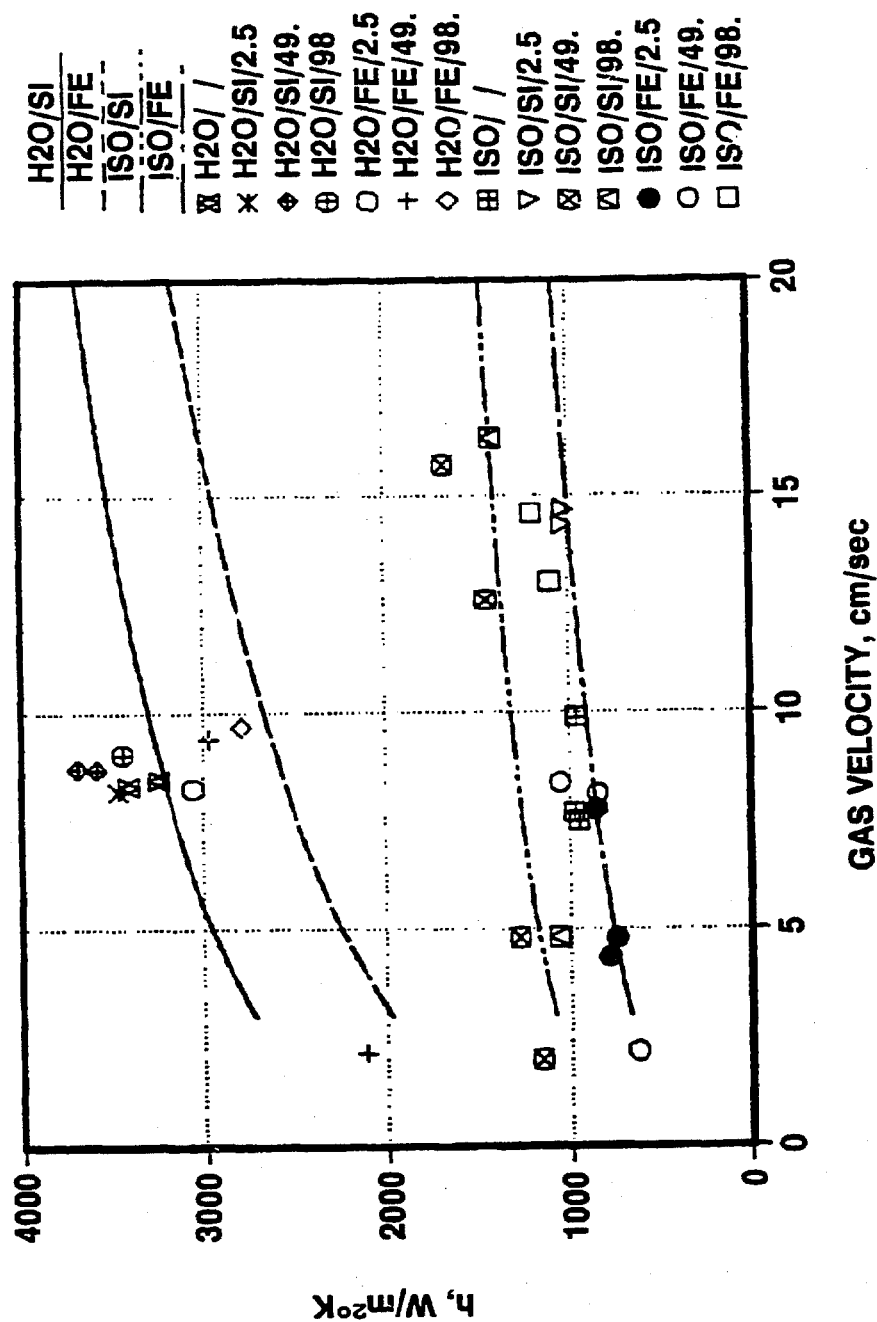


FIGURE 10.3.2
HEAT TRANSFER VS. GAS VELOCITY

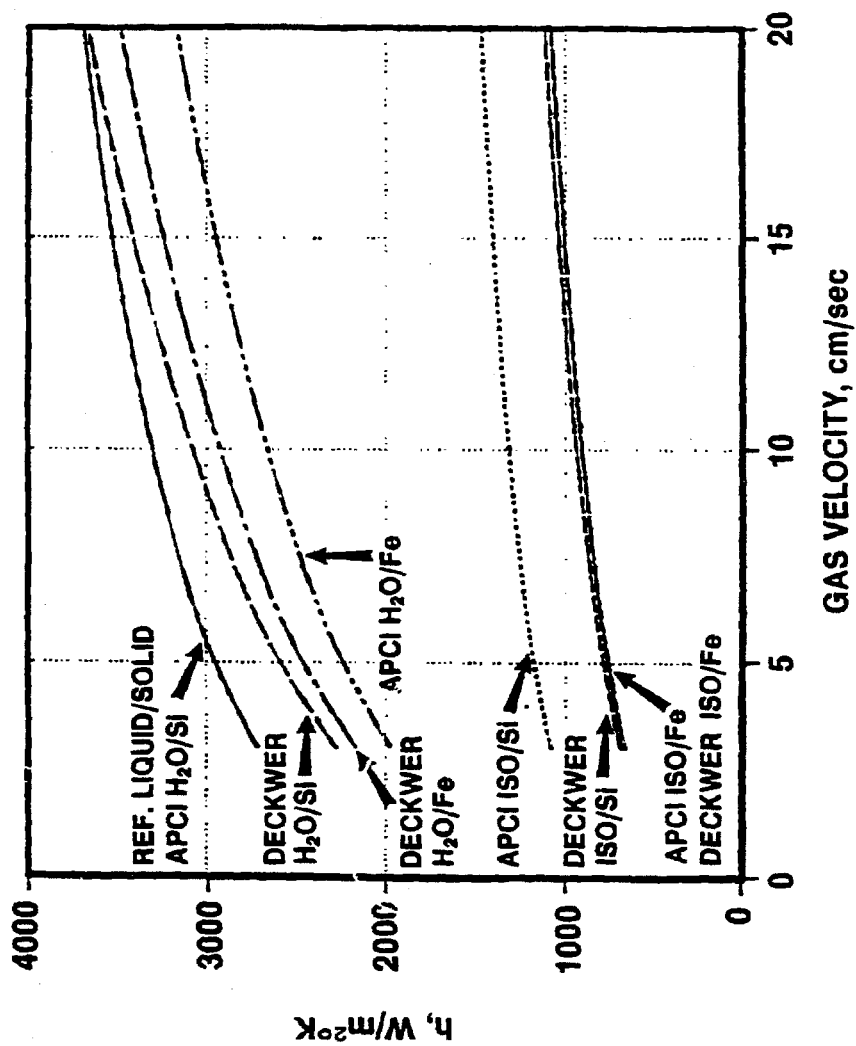


FIGURE 11.0.1

SPACE-TIME YIELD AT RHEINPREUSSEN CONDITIONS

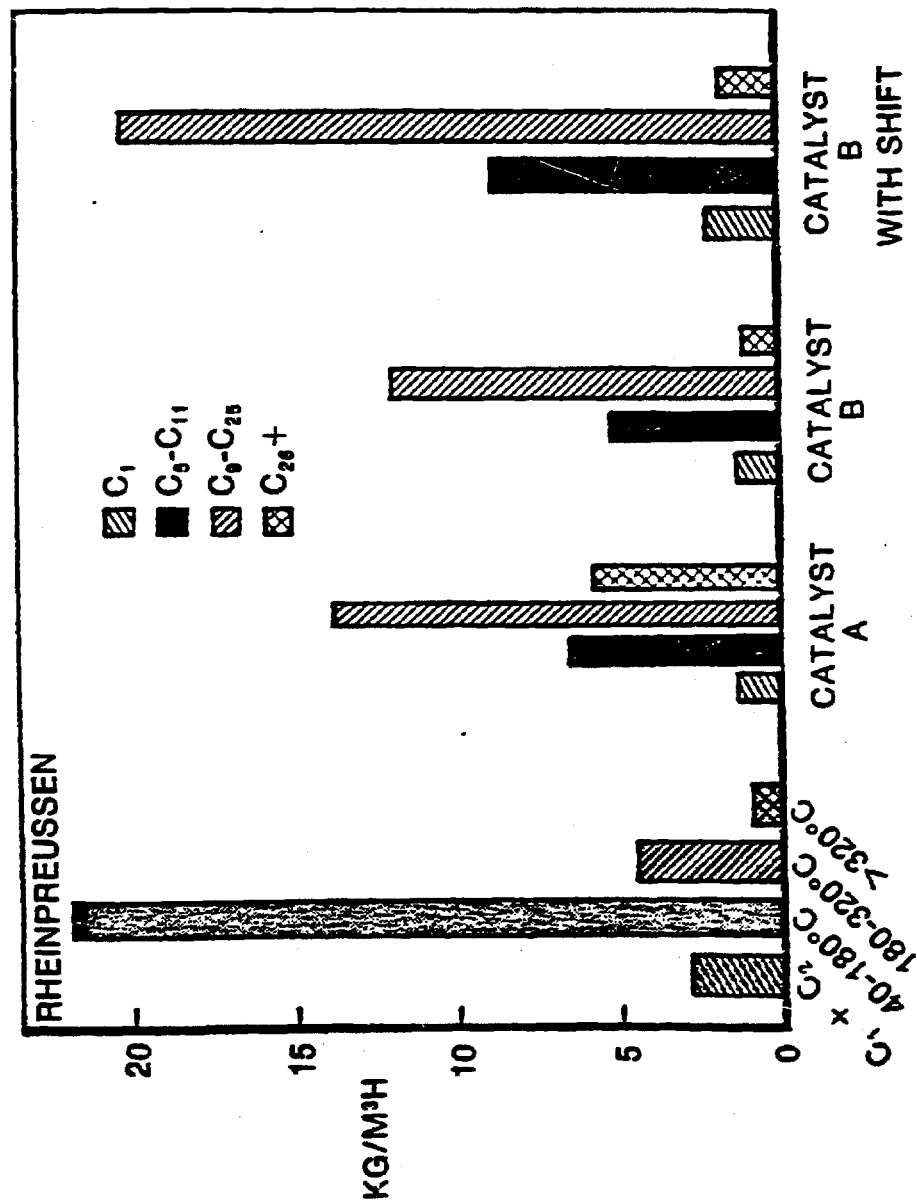


FIGURE 11.1.1
STAGED REACTION SYSTEMS

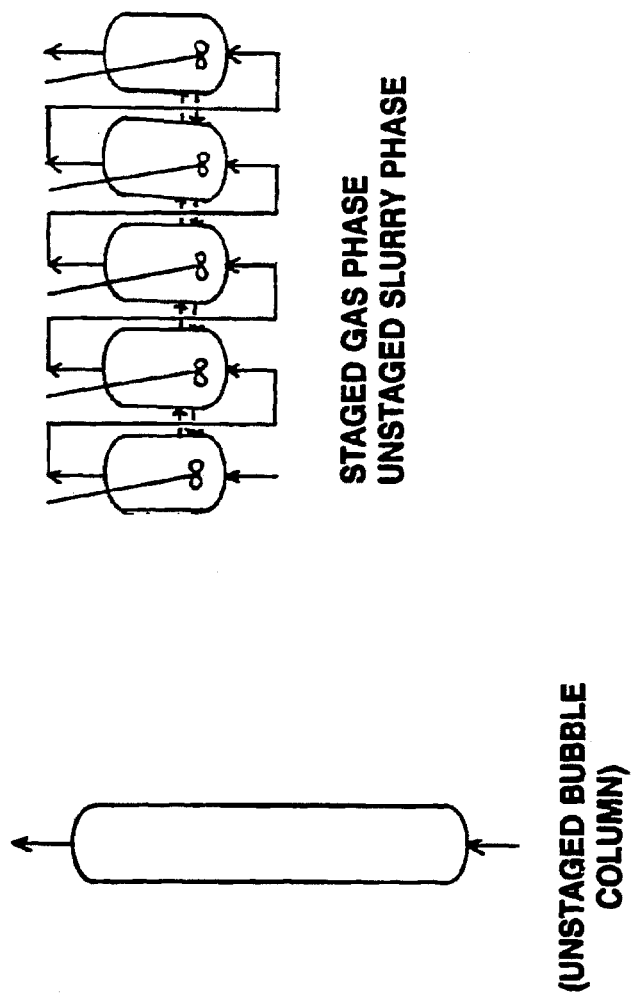


FIGURE 11.1.2
HYDROGEN CONVERSION VS. COLUMN HEIGHT

