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FLOW LOOP STUDIES WITH AMAX COAL-WATER MIXTURES

By
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INTRODUCTION

Coal-water mixtures (CWMs) prepared by AMAX were tested in a flow loop facility at the Pittsburgh Energy Technology Center (PETC). Two types of CWM were tested; one included a stabilizing agent, and the other did not. The CWM without a stabilizer appeared to be slightly shear-thickening, whereas the stabilized CWM initially exhibited shear-thinning characteristics.

TEST LOOP FACILITY

The flow loop facility (Figure 1) is composed of two parallel loops of one-inch-diameter and two-inch-diameter schedule-40 pipe. The loops include appropriately sized progressing-cavity pumps with variable-speed drives. Both loops have fifteen foot horizontal and thirty-four foot vertical test sections. The one-inch loop has three long-radius bends, numbered sequentially from the pump. The two-inch loop has long-radius bends at elbows one and three but a 90° elbow at the top of the vertical test section. The mix tank, shared by both loops, holds approximately 500 gallons of material and is equipped with a Lightnin mixer.

A heat exchanger installed for temperature control consists of three 40-foot lengths of individually coiled one-inch-diameter schedule-80 stainless steel pipe inside a steel tank. Nested inside each stainless steel pipe helix is a copper-tubing steam line. The tank is filled with water and then heated with steam. Increases in mixture temperature of 30°F per pass are possible. Temperatures as high as 140°F can be maintained.

Each loop is instrumented with sensors for measuring absolute pressure, differential pressure, temperature, mass flow rate, and pump speed. Pressure measurements are made using diaphragm seals and pressure transducers. Absolute pressure measurements include the prevailing barometric pressure, pump discharge, three pressures along the length of the vertical section, the pressure at the outlet of the second elbow, and the pressure at the inlet of the third elbow. Differential pressures are measured across the outside of the first and second elbows and across the horizontal test section. Temperature sensors are located at a number of points around the loop, including three locations in the mix tank, one at the pump discharge, one at the flowmeter, and locations near each elbow. In addition, a single probe with three thermocouples is inserted in the eight-foot vertical test section. These thermocouples measure the temperature at the centerline of the pipe, at one half of the radial distance, and near the pipe wall. A MicroMotion mass flowmeter that contains a rigid U-shaped tube that is magnetically vibrated is used to measure flow rates. Flow in the tube

causes a Coriolis/gyroscopic twist. The mass flow rate is determined by comparing the angle of twist of the U-tube on the downward vibration stroke to that on the upward stroke.

Additional instrumentation exists on the two-inch test loop. Absolute pressures are measured at the bottom of the pipe at the number two elbow outlet. Differential pressures across the inside of elbows one and two are measured.

Data from the instrumentation are electronically recorded by a computerized data acquisition system. The error in the raw data contributed by the data acquisition system is less than 1% of the range of the instrumentation. An upper bound of the instrumentation errors, independent of the data acquisition system, is 1% of the range of the instrumentation. Hence, the total error of the recorded data is less than 2% of the range of instrumentation.

A test consists of maintaining desired mass flow rates for a given length of time. For the AMAX material, specified mass flow rates were maintained for fifteen minutes. Mass flow rates varied from approximately 100 to 515 lb/min on the two-inch line and from 28 to 144 lb/min on the one-inch line. The normal mode of operation calls for a test at the maximum flow rate first, which is then repeated after tests have been conducted at the lower flow rates. This repetition of the maximum flow rates lends insight as to how the material was affected by shearing during the test.

The loop facility was designed so that mixture velocities of 1 foot per second (fps) to 6 fps are possible in both the one-inch and two-inch loops. These velocities correspond to shear rates of 60 reciprocal seconds (s^{-1}) to 600 s^{-1} for the one-inch loop and of 45 s^{-1} to 300 s^{-1} for the two-inch loop. The highest mass flow rate is roughly equivalent to a thermal input of 240 million Btu/hr for a 65 wt% CWM made with a 13,000 Btu/lb dry coal. By using a series of pressure measurements along the vertical section, disturbances in the flow pattern caused by the bends, the MicroMotion, and other intrusive sensors can be detected.

TEST MATRIX AND RESULTS

Table 1 lists the tests completed with the CWMs. The "A" tests correspond to the CWM without stabilizer, and the "B" tests correspond to the CWM with stabilizer. Both mixes of slurry were received in 55-gallon drums on August 4, 1983.

Raw data for each test are given in the Appendix. For a given time interval, a mean value and the standard deviation are calculated from each instrument. Points more than two standard deviation units from the mean are discarded, and a new mean is listed. This value for each instrument is presented along with the standard deviation and the number of points discarded.

The mean values listed in the Appendix were used in the calculation of the values of Table 2. For a given mass flow, the temperature presented is the mean value of all thermocouples shown throughout the loop (Figure 1) over the fifteen-minute time interval. The 28-, 34-, and 20-foot vertical test section pressure gradients are listed with the pressure head loss removed.

Pressure gradients can be calculated for the six- and eight-foot sections, but result in a great deal of scatter due to the short length.

The pressure loss across a vertical section is primarily due to head loss and not wall friction; hence, subtraction of the head loss from the total pressure loss measured results in a small number. In general, the longer test section (20-, 28- and 34-foot) values are more reliable, even though the 34-foot test section results contain entrance effects.

The twelve-foot section column in Table 3 corresponds to the horizontal test section. The last two columns correspond to the number one elbow and the number two elbow. Pressure gradients across the outside of the pipe are displayed. Both elbow pressure gradients have the pressure head loss removed.

Histogram 1 compares the horizontal pressure gradients results of the duplicated maximum flow rate maintained during each complete test. As discussed earlier, the total error of the recorded data is less than 2% of the range of the instrumentation. The error in the differential pressure transmitter across the horizontal test section corresponds to a pressure gradient of 4 lb/ft³. If the pressure loss per unit length for the duplicated flow rate is 4 lb/ft³ greater than the initial trial, shear-thickening behavior is indicated. Similarly, if the pressure gradient for the initial flow rate is 4 lb/ft³ greater than the duplicated flow rate, shear-thinning behavior is indicated. If the pressure losses are less than 4 lb/ft³ different, no shear effects can be discerned.

Histogram 1 results indicate that tests 1A, 4A, and 5A exhibit shear-thickening behavior, whereas test 2B exhibits shear-thinning behavior. The differences between the pressure gradients of the duplicate flows for the remaining tests are not large enough to conclude any shearing effects.

MATERIAL WITHOUT STABILIZER

On August 5, the mix without stabilizer was transferred to the loop facility tank. To protect against settling, the tank mixer was utilized over the weekend. On August 8, test 1A was completed without problems.

During preparation of test 2A, electronic problems were encountered with the two-inch loop MicroMotion meter. The problem was not solved until August 12. During the elapsed time, the CWM was transported through the two-inch loop for two or three hours each day.

On August 15, one week following the completion of test 1A, formal testing resumed. Flow loop pump pressures were so great that for test 2A the maximum flow rate attainable was 404 lb/min. Due to excessive pump pressures, the mix could not be transported through the heat exchanger, so temperature control was not possible. Presumably, after shearing the material for one week in the loop and in the tank, the viscosity-reducing agent became ineffective.

On the morning of August 16, loop pressures were so great that the maximum flow rate maintainable was 190 lb/min. After consultation with Mark Berggren of AMAX, 0.5 wt% (a viscosity-reducing agent) was added to the mix.

The mixing-tank temperature decreased approximately 300F in fifteen minutes. The heat generated by the mixer passing through the CWM decreased as the mix viscosity decreased. Pump pressures were reduced so that all desired flow rates could be maintained. Test 3A was performed without difficulty. No problems were encountered in transporting the material through the heat exchanger. Mix temperature was maintained at $114 \pm 10^{\circ}\text{F}$. After the addition of the viscosity-reducing agent, no shearing effects were observed during the test.

Test 4A, a repetition of test 2A, was performed on August 17 under temperature-controlled conditions. All desired flow rates were attainable. For a given mass flow rate, pressure gradients measured in test 4A were much less than pressure gradients measured in test 2A. This decrease in pressure loss was the result of the addition of the Lomar-D. A comparison of the data of tests 3A and 4A indicated that for a given flow rate and pipe length, the corresponding pressure gradient was less for test 3A than for test 4A. This observation supports the shear-thickening behavior indicated by Histogram 1.

On August 18, the mix concentration was reduced to 58 wt% coal. Test 5A was performed without problems. As would be expected, pressure gradients were lower for the 58 wt% solids concentration than for the 61 wt% solids concentration. On August 19, the mix was transported through the one-inch loop (Test 6A). No difficulties were experienced. All desired flow rates were maintained.

STABILIZED MATERIAL

On August 23, the stabilized CWM was transferred to the mix tank. Since settling had not occurred in the storage drums, it was decided not to use the tank mixer overnight. On August 24, test 1B was attempted. Pump pressures were so great that the maximum flow maintainable was 209 lb/min. After consulting with Mark Berggren of AMAX, 0.5 wt% Lomar-D was added to the mix. The apparent viscosity of the mix was reduced, but a flow rate of 270 lb/min could not be maintained. Testing stopped for the day. Overnight the mixer was used to shear the material in the tank. Tank temperature increased from 85°F to 105°F overnight. The following day the viscosity of the material had been reduced; thus all desired flow rates could be maintained. On August 25, tests 2B and 3B were completed.

Test 2B pressure gradients were greater in the test at the 500 lb/min flow rate than in any of the tests with the nonstabilized mix at the same flow rate.

Pressure gradients for test 3B were much lower than those for 2B. These results could be due to shear-thinning of the material during the pretest instrumentation check or to temperature dependence of the mix, or to both.

The mix was diluted to a coal concentration of 60.3 wt%, and test 4B was performed. Pressure gradients were much smaller than in the previous tests at higher concentration.

Following test 4B, the one-inch loop was to be used for tests 5B and 6B. The one-inch loop MicroMotion meter developed electronic problems that were

not readily corrected. Test 5B was performed on September 9 without the service of the MicroMotion meter. Mass flow rates for tests 5B and 6B were measured with a MAPCO sonic flowmeter. Test 5B pressure gradients were so great (60.3% coal concentration) that the maximum flow rate maintainable was 69.0 lb/min. After the material had been reduced to 56.8 wt% coal concentration, test 6B was performed. The final test, 7B, was performed on the two-inch loop. No problems were encountered during tests 6B or 7B.

CONCLUSIONS

The CWM with a stabilizer and the CWM without stabilizers were successfully transported through a flow loop facility under a variety of conditions. The handling characteristics of both CWM were reasonable. The mix tank mixer was not needed during nontesting hours to prevent settling of either material. After several days of transporting the nonstabilized material in the loop facility, the viscosity-reducing agent became ineffective. It was necessary to increase the concentration of the viscosity-reducing agent. The material with stabilizer could not be transported through the loop facility at mass flow rates greater than 209 lb/min until overnight shearing of the CWM in the tank. The CWM without a stabilizer appeared to be slightly shear-thickening, whereas the stabilized CWM initially exhibited shear-thinning behavior.

The pressure losses measured for the nonstabilized material were similar to the pressure losses measured for CWM prepared at PETC with three or four percent higher concentration of Pittsburgh seam coal. Tests performed with the stabilized CWM experienced pressure losses similar to CWM prepared at PETC with Pittsburgh seam coal of five to seven percent higher concentration. Tests 1A, 2A, 1B, and 2B were not included in the comparison of in-house-prepared CWM due to differences in pretest handling procedures.

DISCLAIMER

Reference in this report to any specific commercial products, process, or service is to facilitate understanding and does not necessarily imply its endorsement or favoring by the United States Department of Energy. The potentially commercial CWMs discussed in this paper were two of several tested at PETC.

TABLE 1. Test Matrix Performed with AMAX
Coal-Water Mixtures

Test* Number	Date	Coal Concentration wt%	CWM Temperature OF	Loop Pipe Diameter inches
1A	08/08	61.7	100	2
2A	08/15	61.3	133	2
3A+	08/16	61.3	114	2
4A	08/17	60.7	128	2
5A	08/18	58.0	100	2
6A	08/19	58.6	100	1
1B+	08/24	62.5	85	2
2B	08/25	62.6	100	2
3B	08/25	63.0	115	2
4B	08/26	60.3	100	2
5B	09/09	60.3	100	1
6B	09/12	56.8	100	1
7B	09/13	58.1	100	2

* In tests 1A-6A, the CWM contained no stabilizer.

In tests 1B-7B, the CWM contained stabilizer.

+0.5 wt% Lomar-D added to the mix.

- Ⓟ Pressure Sensor
- ⓉⓈ Thermocouple
- ⓔⓂ Voltage input
- Ⓡ Current Monitor

Figure 1- Schematic of Flow Loop.

TABLE 2. Average Pressure Loss Per Unit Length for a Given Mass Flow Rate and Temperature

Test	Mass Flow lb/min	CWM Average Temperature °F	Pressure Drop Per Unit Length lb/ft ² /ft					
			Vertical			Horizontal	Elbows	
			20 ft	28 ft	34 ft	12 ft	#1	#2
1A	514.5	99.0	123.6	104.8	110.6	109.0	125.3	102.7
61.7 wt%	430.9	100.1	108.8	88.0	93.6	90.7	105.8	85.1
coal	350.7	101.2	92.7	73.3	76.4	73.8	88.2	68.9
	270.9	100.9	77.9	58.2	62.3	59.2	71.3	53.9
	188.3	100.7	63.2	44.4	48.4	45.2	54.7	39.8
	106.2	99.8	47.9	31.2	33.1	31.3	38.3	26.8
	516.7	100.3	130.7	110.1	117.6	116.1	133.0	108.9
2A	421.5	124.4	135.4	127.8	125.9	118.7	138.1	114.0
61.3 wt%	343.7	125.6	118.5	110.8	108.7	102.0	119.7	96.3
coal	260.9	126.5	110.3	101.7	99.5	92.7	109.1	86.4
	180.0	127.5	99.4	90.9	89.1	84.0	98.5	77.8
	99.3	126.2	88.0	80.5	78.1	73.4	87.2	68.4
3A	504.5	113.4	56.5	49.7	48.5	45.5	63.3	54.2
61.3 wt%	419.4	113.4	49.9	42.7	41.0	38.8	53.6	43.6
coal	339.6	113.4	42.4	35.4	34.7	31.8	44.7	34.2
	259.2	113.3	38.1	30.4	28.4	25.5	37.1	26.0
	180.2	112.8	31.6	24.1	22.2	18.4	30.5	18.9
	101.4	112.3	24.0	17.3	16.2	11.6	23.9	13.0
	506.8	113.4	55.9	48.2	47.0	45.4	64.5	53.9

TABLE 2. Average Pressure Loss Per Unit Length for a Given Mass Flow Rate and Temperature (Continued)

Test	Mass Flow lb/min	CWM Average Temperature OF	Pressure Drop Per Unit Length lb/ft ² /ft					
			Vertical			Horizontal	Elbows	
			20 ft	28 ft	34 ft	12 ft	#1	#2
4A	505.4	125.4	59.2	52.6	52.1	49.3	59.7	55.6
60.7 wt%	420.5	126.1	51.9	45.9	44.9	42.8	48.8	45.8
coal	341.9	126.3	47.4	40.7	40.0	36.9	39.6	37.8
	261.9	126.0	41.8	34.1	32.8	30.6	30.8	30.1
	179.3	126.2	35.9	28.4	26.1	23.2	21.9	22.8
	100.8	125.5	28.3	20.6	19.0	16.0	14.6	15.9
	506.6	126.1	63.8	55.4	55.2	53.3	63.4	59.0
5A	506.2	101.5	47.0	42.5	41.4	38.7	55.4	47.6
58.0 wt%	420.7	101.9	41.6	37.2	36.1	34.4	48.7	39.6
coal	342.2	100.7	40.3	33.5	33.3	30.7	42.6	33.1
	263.1	97.4	37.5	32.4	30.2	28.8	38.0	29.0
	180.4	97.4	33.1	27.2	26.6	22.3	31.8	22.7
	101.1	96.5	27.8	21.6	20.7	17.0	26.7	17.5
	506.8	98.3	54.0	48.9	47.8	44.5	60.8	53.2
6A	142.4	116.2	91.5	79.2	87.0	82.2	100.9	99.8
58.6 wt%	29.6	117.1	31.1	24.7	24.3	19.9	20.3	24.3
coal	52.4	117.0	43.7	37.1	39.2	33.2	34.7	37.8
	74.4	117.0	58.9	47.4	51.2	44.4	48.5	51.4
	96.8	116.5	68.9	58.0	62.5	56.8	65.2	66.6
	116.0	116.0	78.3	66.9	72.7	67.6	80.6	80.7
	142.8	117.3	92.3	78.4	86.3	80.8	100.7	100.0

TABLE 2. Average Pressure Loss Per Unit Length for a Given Mass Flow Rate and Temperature (Continued)

Test	Mass Flow lb/min	CWM Average Temperature OF	Pressure Drop Per Unit Length lb/ft ² /ft					
			Vertical			Horizontal	Elbows	
			20 ft	28 ft	34 ft	12 ft	#1	#2
1B 62.5 wt% coal	179.9	83.4	152.2	147.9	148.2	133.2	167.3	117.6
	209.2	86.8	164.9	160.0	160.7	143.6	180.4	126.4
2B 62.6 wt% coal	509.8	101.1	148.7	145.0	145.4	135.9	162.8	130.0
	397.9	101.6	116.0	110.7	110.8	100.9	124.3	94.8
	335.8	101.5	99.7	93.3	93.4	82.1	104.0	74.9
	268.7	100.9	75.9	72.6	69.5	63.2	81.7	58.0
	180.1	100.4	49.3	45.2	44.0	37.0	52.9	34.7
	506.9	101.1	141.1	136.4	135.3	127.4	153.4	120.9
3B 63.0 wt% coal	507.0	115.0	112.5	106.9	107.9	103.7	127.2	99.1
	344.3	115.2	75.9	71.9	69.7	63.8	86.0	60.1
	258.1	114.0	57.0	50.6	49.9	46.6	66.9	43.4
	180.9	112.5	42.0	36.7	35.9	31.2	48.4	29.0
	509.8	112.7	117.1	112.1	110.5	107.3	127.2	102.3
4B 60.3 wt% coal	506.7	100.4	71.5	70.5	67.5	64.7	83.7	69.5
	422.0	101.3	59.1	58.5	56.5	53.9	69.9	56.1
	341.3	101.6	51.4	49.1	47.5	43.4	57.6	44.0
	260.9	101.6	41.1	38.6	37.0	33.6	46.7	33.6
	182.3	101.3	31.0	29.0	27.2	23.8	36.2	23.7
	102.5	99.0	23.6	20.9	18.4	13.9	27.6	15.3
	508.6	99.2	75.1	71.6	68.8	66.5	87.5	70.9

TABLE 2. Average Pressure Loss Per Unit Length for a Given Mass Flow Rate and Temperature (Continued)

Test	Mass Flow lb/min	CWM Average Temperature OF	Pressure Drop Per Unit Length lb/ft ² /ft					
			Vertical			Horizontal	Elbows	
			20 ft	28 ft	34 ft	12 ft	#1	#2
5B	28.0	115.9	47.7	50.2	48.0	42.8	48.1	46.3
60.3 wt%	40.0	115.8	78.9	81.9	81.6	75.6	85.0	78.2
coal	52.0	117.8	104.1	107.1	111.4	103.6	119.7	108.7
	69.0	119.1	132.5	137.9	142.7	133.5	158.1	144.8
6B	130.0	113.8	61.1	62.9	65.8	65.1	85.6	84.4
56.8 wt%	28.0	115.2	13.3	19.9	15.3	13.2	14.9	17.8
coal	48.0	115.2	24.4	28.4	25.3	23.4	26.8	29.2
	70.0	115.8	30.8	35.9	34.2	32.8	39.3	41.0
	90.0	115.1	32.5	36.9	35.3	33.5	40.5	41.9
	106.0	113.5	51.9	54.9	56.4	54.2	69.8	69.2
	134.0	116.0	58.9	60.6	63.8	60.9	81.9	80.9
7B	520.0	100.0	51.2	32.8	32.1	15.0	39.2	25.2
58.1 wt%	435.7	100.5	43.8	27.0	26.9	11.3	35.7	18.7
coal	355.2	100.5	38.2	22.7	22.6	9.8	30.7	14.5
	275.3	100.2	35.2	19.1	19.7	7.1	27.4	9.7
	192.9	99.7	30.2	14.6	15.6	4.4	22.8	5.8
	519.1	98.7	51.0	32.5	32.0	15.2	36.6	25.5

Histogram I. Pressure gradients across horizontal section of duplicated mass flow rates during each complete AMAX CWM test.

APPENDIX

Averaged raw data for each mass flow rate of each test.

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/ 8/83 AT 11:30: 0 TO 8/ 8/83 AT 11:45: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/ 8/83 AT 11:50: 0 TO 8/ 8/83 AT 12: 5: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/ 8/83 AT 12:30: 0 TO 8/ 8/83 AT 12:45: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.14467E+02 6.455E-01 0	4.30907E+02 5.825E-01 1	3.50733E+02 9.037E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.94988E+01 3.651E-01 0	1.00509E+02 1.108E-01 1	1.01914E+02 F 2.362E-01 1	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.86179E+01 2.835E-01 1	9.92833E+01 2.086E-01 1	1.00683E+02 F 1.961E-01 2	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.41110E+01 3.272E-02 2	1.44157E+01 4.923E-02 1	1.43717E+01 PSIA 5.063E-02 1	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.78176E+01 3.116E-01 1	8.62881E+01 2.018E-01 1	7.49900E+01 PSIA 1.720E-01 1	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.83223E+01 2.845E-01 1	6.97035E+01 2.386E-01 1	6.11274E+01 PSIA 2.945E-01 0	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.96141E+01 2.932E-01 1	6.17181E+01 2.039E-01 1	5.43662E+01 PSIA 2.587E-01 0	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.24324E+01 2.582E-01 1	5.57774E+01 1.576E-01 1	4.90221E+01 PSIA 1.503E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.53464E+01 2.377E-01 1	3.07572E+01 2.395E-01 0	2.62300E+01 PSIA 2.126E-01 0	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.30437E+00 5.384E-02 1	1.59676E+00 9.896E-02 1	1.47020E+00 PSIA 9.198E-02 1	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.88460E+02 1.923E+00 1	1.26274E+02 6.69CE-01 1	6.16883E+01 INCHES OF WATER 5.983E-01 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.33811E+02 3.341E-01 1	1.1E096E+02 3.385E-01 0	1.03983E+02 INCHES OF WATER 4.632E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.28829E+02 4.587E-01 0	1.12419E+02 2.193E-01 2	9.73851E+01 INCHES OF WATER 4.294E-01 0	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.08646E+00 3.580E-02 1	7.55734E+00 1.253E-02 1	6.15225E+00 PSID 2.370E-02 0	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/ 8/83 AT 12:50: 0 TO 8/ 8/83 AT 13: 5: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/ 8/83 AT 13:10: 0 TO 8/ 8/83 AT 13:25: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/ 8/83 AT 13:35: 0 TO 8/ 8/83 AT 13:50: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.70919E+02 1.962E+00 0	1.88291E+02 7.633E-01 1	1.06179E+02 1.348E+00 1	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.01528E+02 2.795E-01 1	1.01955E+02 1.494E-01 1	1.01814E+02 3.644E-01 1	F
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.00440E+02 2.775E-01 1	1.00178E+02 2.940E-01 0	9.84067E+01 3.491E-01 0	F
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.42718E+01 9.699E-02 0	1.43237E+01 5.935E-02 1	1.42910E+01 6.849E-02 1	PSIA
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.46139E+01 1.753E-01 0	5.60891E+01 1.916E-01 0	4.75387E+01 3.027E-01 1	PSIA
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.39432E+01 3.794E-01 1	4.84862E+01 3.103E-01 1	4.27379E+01 4.472E-01 0	PSIA
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.75850E+01 4.100E-01 1	4.27214E+01 2.539E-01 1	3.80259E+01 2.706E-01 1	PSIA
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.31085E+01 1.892E-01 0	3.89052E+01 1.522E-01 0	3.46408E+01 1.683E-01 1	PSIA
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.23769E+01 1.716E-01 1	2.02125E+01 2.826E-01 2	1.80718E+01 3.975E-01 0	PSIA
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.37856E+00 1.061E-01 1	1.38729E+00 8.340E-02 1	1.35456E+00 9.154E-02 1	PSIA
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.94689E+01 8.307E-01 0	1.47762E+01 8.059E-01 1	1.19833E+01 1.037E+00 1	INCHES OF WATER
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.04771E+01 1.720E-01 1	7.71220E+01 5.149E-01 0	6.40099E+01 3.419E-01 1	INCHES OF WATER
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.34352E+01 4.360E-01 0	7.02503E+01 2.511E-01 1	5.82277E+01 2.869E-01 1	INCHES OF WATER
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.93114E+00 2.344E-02 1	3.76466E+00 2.676E-02 1	2.60631E+00 3.080E-02 0	PSID

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/ 8/83 AT 14:20: 0 TO 8/ 8/83 AT 14:35: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/15/83 AT 10:50: 0 TO 8/15/83 AT 11: 5: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/15/83 AT 11: 8: 0 TO 8/15/83 AT 11:23: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.16737E+02 1.134E+00 1	4.21533E+02 5.669E-01 1	3.43664E+02 8.183E-01 1	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.01230E+02 6.158E-01 0	1.32079E+02 6.854E-01 0	1.34166E+02 F 2.693E-01 1	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.95466E+01 6.884E-01 0	1.31916E+02 8.744E-01 0	1.32585E+02 F 3.025E-01 1	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.43346E+01 6.264E-02 1	1.42670E+01 2.046E-02 1	1.42412E+01 PSIA 3.494E-02 0	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.03571E+02 6.452E-01 1	1.06513E+02 5.500E-01 1	9.44094E+01 PSIA 3.230E-01 1	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.18636E+01 5.545E-01 1	8.76353E+01 5.381E-01 0	7.85579E+01 PSIA 2.191E-01 1	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.25248E+01 5.287E-01 1	7.98439E+01 6.463E-01 0	7.14709E+01 PSIA 2.765E-01 1	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.53016E+01 3.701E-01 1	6.98401E+01 3.152E-01 1	6.24236E+01 PSIA 1.540E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.72294E+01 5.315E-01 1	4.11229E-01 4.020E-01 0	3.60534E+01 PSIA 3.002E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.46366E+00 1.116E-01 1	1.64040E-00 6.607E-02 1	1.60549E+00 PSIA 2.732E-02 1	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.15036E+02 3.765E+00 1	2.40754E+02 3.801E+00 0	1.72052E+02 INCHES OF WATER 1.906E+00 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.39964E+02 5.428E-01 1	1.14044E+02 5.806E-01 1	1.29272E+02 INCHES OF WATER 4.887E-01 1	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.34618E+02 7.440E-01 1	1.39266E+02 7.647E-01 1	1.22814E+02 INCHES OF WATER 4.369E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.67428E+00 5.516E-02 1	9.3553E+00 6.156E-02 1	8.49602E+00 PSID 4.502E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/15/83 AT 11:25: 0 TO 8/15/83 AT 11:40: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/15/83 AT 12:35: 0 TO 8/15/83 AT 12:50: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/15/83 AT 12:50: 0 TO 8/15/83 AT 13: 5: 0 NUMBER OF DATA POINTS: 14

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	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.60924E+02 4.772E-01 1	1.80017E+02 6.087E-01 1	9.93233E+01 6.736E-01 1	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.34546E+02 2.139E-01 1	1.34279E+02 3.195E-01 0	1.32488E+02 F 5.489E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERAIURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.33522E+02 2.191E-01 1	1.34217E+02 2.835E-01 1	1.32753E+02 F 5.012E-01 1	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.42229E+01 2.992E-02 0	1.41906E+01 1.914E-02 1	1.41993E+01 PSIA 2.506E-02 0	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.73769E+01 1.687E-01 1	8.05801E+01 4.246E-01 1	7.31079E+01 PSIA 4.520E-01 1	
6. BCTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.34958E+01 1.752E-01 1	6.85820E+01 3.431E-01 1	6.31904E+01 PSIA 3.918E-01 1	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.68020E+01 1.969E-01 2	6.22456E+01 2.979E-01 1	5.74300E+01 PSIA 3.282E-01 0	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.83822E+01 1.321E-01 0	5.44202E+01 2.835E-01 1	5.00390E+01 PSIA 2.316E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.31529E+01 1.738E-01 2	3.07032E+01 3.009E-01 1	2.79081E+01 PSIA 2.103E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.59021E+00 4.140E-02 1	1.54221E+00 6.676E-02 1	1.52173E+00 PSIA 4.070E-02 1	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.33920E+02 1.025E+00 0	9.79525E+01 2.795E+00 1	6.14265E+01 INCHES OF WATER 2.189E+00 0	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.20764E+02 5.021E-01 0	1.12253E+02 5.078E-01 1	1.03154E+02 INCHES OF WATER 7.165E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13618E+02 2.300E-01 2	1.05598E+02 6.041E-01 1	9.69105E+01 INCHES OF WATER 5.848E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.72623E+00 2.046E-02 1	7.00225E+00 4.517E-02 1	6.11775E+00 PSID 5.898E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/16/83 AT 10:55: 0 TO 8/16/83 AT 11:10: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/16/83 AT 11:10: 0 TO 8/16/83 AT 11:25: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/16/83 AT 11:30: 0 TO 8/16/83 AT 11:45: 0 NUMBER OF DATA POINTS: 15

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	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.04483E+02 1.464E+00 1	4.19439E+02 1.069E+00 1	3.39579E+02 6.124E-01 1	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13832E+02 3.169E-01 1	1.13895E+02 2.850E-01 0	1.13935E+02 F 3.044E-01 1	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13447E+02 3.651E-01 0	1.13305E+02 2.735E-01 1	1.13192E+02 F 3.680E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44082E+01 2.246E-02 0	1.43717E+01 3.208E-02 1	1.43870E+01 PSIA 2.953E-02 1	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.75692E+01 3.488E-01 1	5.30198E+01 3.820E-01 1	4.84770E+01 PSIA 1.357E-01 1	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.16718E+01 2.566E-01 1	4.88658E+01 3.103E-01 1	4.62162E+01 PSIA 2.951E-01 0	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.69064E+01 2.503E-01 1	4.45368E+01 3.983E-01 1	4.19337E+01 PSIA 1.799E-01 1	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.11234E+01 2.284E-01 1	3.91876E+01 1.466E-01 2	3.69798E+01 PSIA 1.157E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.33762E+01 3.686E-01 1	2.23555E+01 2.480E-01 2	2.11790E+01 PSIA 1.635E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.72898E+00 7.382E-02 0	1.72695E+00 7.025E-02 0	1.73917E+00 PSIA 6.548E-02 0	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.20640E+01 1.504E+00 1	2.80190E+01 7.033E-01 2	2.34604E+01 INCHES OF WATER 9.464E-01 0	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.39967E+01 4.847E-01 1	7.62250E+01 4.564E-01 0	6.90575E+01 INCHES OF WATER 4.251E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.36912E+01 5.116E-01 1	7.37851E-01 5.981E-01 1	6.50136E+01 INCHES OF WATER 3.610E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.79477E+00 2.249E-02 1	3.23576E+00 2.758E-02 1	2.65186E+00 PSID 1.886E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/16/83 AT 11:50: 0 TO 8/16/83 AT 12: 5: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/16/83 AT 12:30: 0 TO 8/16/83 AT 12:45: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/16/83 AT 12:50: 0 TO 8/16/83 AT 13: 5: 0 NUMBER OF DATA POINTS: 15

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	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.59248E+02 5.863E-01 1	1.80205E+02 5.204E-01 0	1.01410E+02 3.449E-01 2	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13859E+02 3.007E-01 1	1.13524E+02 2.976E-01 0	1.12962E+02 F 3.579E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13005E+02 2.305E-01 0	1.12016E+02 2.522E-01 1	1.12037E+02 F 4.050E-01 1	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.43935E+01 2.003E-02 1	1.43552E+01 2.615E-02 0	1.43564E+01 PSIA 2.325E-02 1	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.50339E+01 1.403E-01 1	4.12111E+01 1.466E-01 1	3.73330E+01 PSIA 1.996E-01 0	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.37273E+01 1.580E-01 1	4.12442E+01 2.011E-01 1	3.84897E+01 PSIA 2.153E-01 0	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.99765E+01 1.407E-01 1	3.77182E+01 2.785E-01 1	3.50409E+01 PSIA 2.528E-01 1	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.53892E+01 7.655E-02 1	3.34576E+01 1.398E-01 0	3.10525E+01 PSIA 1.333E-01 0	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.01898E+01 1.959E-01 0	1.91672E+01 2.211E-01 1	1.78144E+01 PSIA 1.894E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.74731E+00 4.173E-02 0	1.70032E+00 6.946E-02 2	1.72113E+00 PSIA 5.756E-02 1	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.66373E+01 5.555E-01 0	2.59478E+01 5.396E-01 1	1.15234E+01 INCHES OF WATER 3.875E-01 2	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.30062E+01 3.427E-01 1	5.76604E+01 2.178E-01 1	5.24237E+01 INCHES OF WATER 1.205E-01 1	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.73680E+01 3.108E-01 0	5.08309E+01 2.296E-01 1	4.53542E+01 INCHES OF WATER 3.729E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.12610E+00 2.299E-02 0	1.53645E+00 2.370E-02 1	9.69575E-01 PSID 1.660E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/16/83 AT 13:10: 0 TO 8/16/83 AT 13:25: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/17/83 AT 9: 0: 0 TO 8/17/83 AT 9:15: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/17/83 AT 9:17: 0 TO 8/17/83 AT 9:32: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.06787E+02 1.035E+00 1	5.05369E+02 9.707E-01 2	4.20528E+02 5.477E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.14383E+02 3.028E-01 0	1.27654E+02 2.113E-01 1	1.27396E+02 F 4.449E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13236E+02 2.455E-01 1	1.26526E+02 3.476E-01 0	1.26551E+02 F 5.637E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.43346E+01 2.170E-02 1	1.43557E+01 3.097E-02 1	1.43719E+01 PSIA 1.733E-02 2	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.68208E+01 2.113E-01 1	5.75561E+01 2.339E-01 0	5.43246E+01 PSIA 2.620E-01 1	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.08248E+01 2.607E-01 0	5.20166E+01 2.093E-01 1	5.01161E+01 PSIA 2.041E-01 0	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.61253E+01 2.347E-01 1	4.69575E+01 1.782E-01 0	4.54682E+01 PSIA 8.580E-02 2	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.05446E+01 1.738E-01 0	4.09950E+01 1.239E-01 1	3.97924E+01 PSIA 8.839E-02 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.28765E+01 2.105E-01 1	2.28856E+01 1.515E-01 1	2.26932E+01 PSIA 1.881E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.69092E+00 3.134E-02 2	1.73917E+00 7.268E-02 0	1.73713E+00 PSIA 6.472E-02 0	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.11105E+01 8.383E-01 1	2.03647E-01 6.056E-01 0	1.73509E+01 INCHES OF WATER 1.107E+00 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.49349E+01 5.350E-01 1	8.53931E+01 3.213E-01 1	7.82014E+01 INCHES OF WATER 4.121E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.33333E+01 2.887E-01 0	8.48311E+01 3.979E-01 0	7.57707E+01 INCHES OF WATER 2.735E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.78037E+00 2.165E-02 1	4.0536E+00 3.058E-02 1	3.56698E+00 PSID 1.970E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/17/83 AT 9:35: 0 TO 8/17/83 AT 9:50: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/17/83 AT 9:55: 0 TO 8/17/83 AT 10:10: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/17/83 AT 10:25: 0 TO 8/17/83 AT 10:40: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.41936E+02 7.360E-01 0	2.61877E+02 9.747E-01 0	1.79284E+02 7.196E-01 1	POUNDS / MINUTE
2. CNL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.27384E+02 3.521E-01 0	1.27123E+02 1.919E-01 1	1.27117E+02 F 3.129E-01 0	
3. CNL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.26416E+02 2.350E-01 0	1.26311E+02 1.626E-01 2	1.26758E+02 F 2.673E-01 1	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.43614E+01 2.246E-02 0	1.43608E+01 2.003E-02 1	1.43630E+01 PSIA 3.208E-02 1	
5. CNL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.05826E+01 1.845E-01 1	4.72093E+01 2.879E-01 1	4.32429E+01 PSIA 3.340E-01 0	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.77137E+01 2.339E-01 1	4.52061E+01 2.834E-01 0	4.24393E+01 PSIA 1.654E-01 2	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.32276E+01 2.555E-01 1	4.11199E+01 1.952E-01 1	3.88201E+01 PSIA 2.260E-01 1	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.79333E+01 1.475E-01 1	3.63296E+01 1.036E-01 1	3.43331E+01 PSIA 1.056E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.14604E+01 2.795E-01 1	2.06378E+01 2.524E-01 0	1.94487E+01 PSIA 2.196E-01 1	
10. CNL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.73917E+00 5.287E-02 0	1.73422E+00 3.407E-02 1	1.69276E+00 PSIA 5.186E-02 1	
11. CNL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.56490E+01 6.187E-01 1	1.71327E+01 4.956E-01 1	1.73946E+01 INCHES OF WATER 7.104E-01 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.15013E+01 2.869E-01 0	6.51882E+01 3.468E-01 1	5.96082E+01 INCHES OF WATER 3.608E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.83520E+01 2.191E-01 1	6.12170E+01 3.456E-01 1	5.43875E+01 INCHES OF WATER 3.583E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.07604E+00 2.268E-02 1	2.54844E+00 3.067E-02 1	1.93705E+00 PSID 2.343E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/17/83 AT 10:45: 0 TO 8/17/83 AT 11: 0: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/17/83 AT 11: 5: 0 TO 8/17/83 AT 11:20: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/18/83 AT 11: 0: 0 TO 8/18/83 AT 11:15: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLCWRATE STANDARD DEVIATION & NUMEER OF PCINTS REMOVED	1.00782E+02 7.786E-01 0	5.05577E+02 7.675E-01 1	5.06158E+02 1.080E+00 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMEER OF PCINTS REMOVED	1.27550E+02 3.666E-01 0	1.27568E+02 3.445E-01 0	1.02734E+02 F 3.853E-01 1	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMEER OF PCINTS REMOVED	1.25351E+02 3.007E-01 1	1.25344E+02 2.165E-01 1	1.01423E+02 F 3.780E-01 1	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMEER OF POINTS REMOVED	1.43433E+01 1.722E-02 1	1.43349E+01 3.423E-02 0	1.42910E+01 PSIA 2.003E-02 1	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMEER OF POINTS REMOVED	3.93193E+01 5.375E-01 1	6.01558E+01 1.883E-01 2	5.29282E+01 PSIA 1.962E-01 1	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMEER OF POINTS REMOVED	3.97347E+01 1.574E-01 2	5.31519E+01 2.322E-01 0	4.86620E+01 PSIA 2.967E-01 0	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMEER OF POINTS REMOVED	3.62761E+01 2.016E-01 0	4.82243E+01 1.969E-01 1	4.41986E+01 PSIA 2.171E-01 1	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMEER OF POINTS REMOVED	3.22450E+01 1.178E-01 1	4.23570E+01 1.577E-01 0	3.85290E+01 PSIA 1.432E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMEER OF POINTS REMOVED	1.84201E+01 2.147E-01 0	2.35987E+01 1.952E-01 1	2.21674E+01 PSIA 2.827E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.68622E+00 5.887E-02 1	1.71022E+00 6.446E-02 1	1.70804E+00 PSIA 4.070E-02 1	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.32052E+01 4.117E-01 1	8.53582E+00 1.051E+00 1	1.00195E+01 INCHES OF WATER 6.531E-01 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.37983E+01 2.927E-01 1	8.88624E+01 4.112E-01 1	7.74072E+01 INCHES OF WATER 1.123E-01 2	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.79289E+01 3.211E-01 1	8.80580E+01 5.214E-01 0	7.72192E+01 INCHES OF WATER 4.065E-01 2	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.33614E+00 2.374E-02 1	4.44282E+00 2.190E-02 1	3.22397E+00 PSID 3.301E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/18/83 AT 11:17: 0 TO 8/18/83 AT 11:32: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/18/83 AT 11:35: 0 TO 8/18/83 AT 11:50: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/18/83 AT 12:35: 0 TO 8/18/83 AT 12:50: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.20723E+02 1.049E+00 0	3.42197E+02 6.409E-01 1	2.63099E+02 9.661E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.02868E+02 1.919E-01 1	1.01710E+02 4.037E-01 1	9.82648E+01 F 2.739E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.01608E+02 2.139E-01 1	1.00269E+02 4.530E-01 0	9.71108E+01 F 1.407E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.42614E+01 2.167E-02 2	1.42560E+01 2.574E-02 1	1.42560E+01 PSIA 2.046E-02 1	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.03491E+01 2.500E-01 1	4.77351E+01 2.269E-01 1	4.65054E+01 PSIA 1.804E-01 0	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.69697E+01 2.259E-01 0	4.54668E+01 2.564E-01 0	4.44190E+01 PSIA 1.791E-01 1	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.27338E+01 2.044E-01 0	4.11788E+01 1.983E-01 1	4.06525E+01 PSIA 1.896E-01 0	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.73477E+01 1.176E-01 2	3.63270E+01 1.296E-01 0	3.56226E+01 PSIA 1.210E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.17335E+01 2.812E-01 0	2.08931E+01 1.250E-01 1	2.05808E+01 PSIA 2.539E-01 0	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.67313E+00 5.502E-02 1	1.62730E+00 5.826E-02 1	1.68622E+00 PSIA 4.988E-02 0	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.68709E+01 1.063E+00 1	1.61727E+01 9.370E-01 1	1.62599E+01 INCHES OF WATER 6.604E-01 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.20026E+01 3.669E-01 2	6.71025E+01 2.832E-01 0	6.34164E+01 INCHES OF WATER 3.883E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.97921E+01 4.544E-01 1	6.37830E+01 3.982E-01 0	5.99340E+01 INCHES OF WATER 4.484E-01 0	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.86290E+00 2.607E-02 0	2.56203E+00 1.839E-02 2	2.39708E+00 PSID 1.526E-02 2	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/18/83 AT 12:53: 0 TO 8/18/83 AT 13: 8: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/18/83 AT 13:20: 0 TO 8/18/83 AT 13:35: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/18/83 AT 13:40: 0 TO 8/18/83 AT 13:55: 0 NUMBER OF DATA POINTS: 15

2/

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.80352E+02 9.509E-01 0	1.01124E+02 7.952E-01 0	5.06843E+02 5.000E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.84357E+01 3.521E-01 0	9.86541E+01 1.882E-01 0	9.97168E+01 F 6.654E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.72396E+01 2.236E-01 0	9.59832E+01 2.059E-01 1	9.84661E+01 F 7.719E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.42429E+01 1.868E-02 1	1.42453E+01 2.057E-02 0	1.42497E+01 PSIA 1.787E-02 2	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.25203E+01 1.679E-01 1	3.99805E+01 1.506E-01 2	5.56105E+01 PSIA 3.659E-01 0	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.20577E+01 3.094E-01 0	4.04195E+01 1.959E-01 1	5.02535E+01 PSIA 4.068E-01 1	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.81153E+01 2.735E-01 1	3.67933E+01 2.821E-01 0	4.55136E+01 PSIA 3.469E-01 0	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.35044E+01 1.488E-01 0	3.25177E+01 5.846E-02 1	3.95829E+01 PSIA 2.688E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.90697E+01 1.920E-01 0	1.88290E+01 1.869E-01 1	2.22487E+01 PSIA 3.637E-01 0	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.66440E+00 4.231E-02 1	1.65131E+00 5.145E-02 1	1.65974E+00 PSIA 6.586E-02 0	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.87357E+00 6.936E-01 0	1.60883E+01 6.491E-01 0	-4.69020E+00 INCHES OF WATER 1.209E+00 2	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.84677E+01 3.866E-01 0	5.44093E+01 3.543E-01 1	8.17274E+01 INCHES OF WATER 2.511E-01 1	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.41096E+01 4.242E-01 0	4.92162E+01 2.421E-01 1	8.24911E+01 INCHES OF WATER 4.400E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.85589E+00 2.281E-02 1	1.41993E+00 1.089E-02 1	3.70444E+00 PSID 4.121E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE ONE-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/19/83 AT 13:15: 0 TO 8/19/83 AT 13:30: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/19/83 AT 13: 0: 0 TO 8/19/83 AT 13:15: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/19/83 AT 12:45: 0 TO 8/19/83 AT 13: 0: 0 NUMBER OF DATA POINTS: 15

DATA SET # 1 DATA SET # 2 DATA SET # 3 UNITS

1. MICROMOTION METER CWM FLOW RATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.96153E+01 3.599E-01 1	5.24325E+01 5.817E-01 2	7.44454E+01 3.361E-01 2	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.00484E+02 2.661E-01 0	1.00389E+02 3.252E-01 2	1.00635E+02 4.265E-01 1	F
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.90809E+01 2.588E-01 1	9.91366E+01 5.093E-01 0	9.94171E+01 4.776E-01 0	F
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.43608E+01 4.439E-02 1	1.43491E+01 2.965E-02 0	1.43804E+01 2.540E-02 1	PSIA
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.13376E+01 1.142E+00 1	4.85337E+01 2.708E-01 2	5.57805E+01 5.057E-01 2	PSIA
6. BOTTOM OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.12355E+01 1.247E+00 1	4.67300E+01 5.402E-01 2	5.08751E+01 5.203E-01 2	PSIA
7. BOTTOM OF 8 FOOT/TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.73673E+01 1.126E+00 1	4.17280E+01 2.494E-01 2	4.50654E+01 3.588E-01 2	PSIA
8. BOTTOM OF 20 FOOT/TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.29441E+01 1.352E+00 1	3.66359E+01 8.783E-01 1	4.00848E+01 4.719E-01 2	PSIA
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.87736E+01 1.332E+00 1	2.07286E+01 5.651E-01 1	2.20618E+01 5.425E-01 1	PSIA
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.63795E+01 1.020E+00 1	1.77803E+01 4.706E-01 1	1.87557E+01 4.917E-01 1	PSIA
11. CWL #3 ELBOW INLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.50613E+01 2.668E-01 2	1.47692E+01 1.316E-01 1	1.47793E+01 1.230E-01 2	INCHES OF WATER
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.92817E+01 3.731E-01 1	6.08410E+01 4.655E-01 2	7.19086E+01 1.747E+00 1	INCHES OF WATER
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.24892E+01 1.485E-01 1	6.33318E+01 3.467E-01 2	7.42584E+01 6.374E-01 2	INCHES OF WATER
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.65558E+00 2.542E-02 1	2.76788E+00 3.259E-02 2	3.70122E+00 3.016E-02 2	PSID

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE ONE-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/19/83 AT 12:30: 0 TO 8/19/83 AT 12:45: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/19/83 AT 12:15: 0 TO 8/19/83 AT 12:30: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/19/83 AT 12: 0: 0 TO 8/19/83 AT 12:15: 0 NUMBER OF DATA POINTS: 15

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	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOW RATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.68021E+01 5.479E-01 1	1.16031E+02 7.53E+00 0	1.42383E+02 4.467E-01 2	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.98333E+01 3.720E-01 1	9.93131E+01 4.018E-01 0	9.95391E+01 2.582E-01 0	F
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.88238E+01 4.979E-01 0	9.83994E+01 4.905E-01 0	9.86465E+01 2.673E-01 1	F
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44102E+01 3.827E-02 0	1.44123E+01 3.399E-02 0	1.44306E+01 2.210E-02 1	PSIA
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.35216E+01 3.644E-01 1	7.17925E+01 2.854E+00 0	8.31674E+01 4.612E-01 2	PSIA
6. BOTTOM OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.61536E+01 4.229E-01 1	6.20336E+01 2.019E+00 0	7.00048E+01 3.321E-01 2	PSIA
7. BOTTOM OF 8 FOOT/TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.97138E+01 2.593E-01 1	5.49138E+01 1.982E+00 0	6.18994E+01 2.864E-01 2	PSIA
8. BOTTOM OF 20 FOOT/TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.40568E+01 3.783E-01 1	4.88535E+01 1.647E+00 0	5.52668E+01 2.524E-01 2	PSIA
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.46496E+01 2.381E-01 1	2.81301E+01 1.255E+00 0	3.27163E+01 1.079E-01 2	PSIA
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.07805E+01 1.196E-01 1	2.37068E+01 1.040E+00 0	2.75975E+01 1.103E-01 2	PSIA
11. CWL #3 ELBOW INLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.53082E+01 1.282E-01 1	1.70271E+01 6.543E-01 0	1.93309E+01 8.177E-02 2	INCHES OF WATER
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.53058E+01 5.858E-01 1	9.75703E+01 4.507E+00 0	1.13970E+02 4.232E-01 2	INCHES OF WATER
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.64404E+01 4.126E-01 1	9.77517E+01 4.104E+00 0	1.13054E+02 3.501E-01 2	INCHES OF WATER
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.73214E+00 4.442E-02 1	5.63539E+00 3.293E-01 0	6.84948E+00 3.696E-02 2	PSID

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/24/83 AT 13: 0: 0 TO 8/24/83 AT 13:15: 0 NUMBER OF DATA POINTS: 15 *

DATA SET NUMBER 2 LOGGED: 8/24/83 AT 13:26: 0 TO 8/24/83 AT 13:41: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/24/83 AT 13: 0: 0 TO 8/24/83 AT 13:15: 0 NUMBER OF DATA POINTS: 15

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	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.79231E+02 8.927E-01 1	2.09080E+02 1.819E+00 1	1.79231E+02 8.927E-01 1	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.34665E+01 8.339E-01 0	8.81945E+01 7.597E-01 0	8.34665E+01 8.339E-01 0	F
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.21496E+01 8.509E-01 0	8.71409E+01 9.906E-01 0	8.21496E+01 8.509E-01 0	F
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.45283E+01 3.177E-02 0	1.44958E+01 4.687E-02 0	1.45283E+01 3.177E-02 0	PSIA
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.24058E+02 9.619E-01 1	1.32910E+02 3.763E+00 0	1.24058E+02 9.619E-01 1	PSIA
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.65242E+01 5.738E-01 1	1.02554E+02 2.581E+00 0	9.65242E+01 5.738E-01 1	PSIA
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.74297E+01 4.653E-01 1	9.25505E+01 2.109E+00 0	8.74297E+01 4.653E-01 1	PSIA
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.57292E+01 2.609E-01 1	8.02012E+01 1.877E+00 0	7.57292E+01 2.609E-01 1	PSIA
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.43666E+01 1.923E-01 1	4.70145E+01 1.336E+00 0	4.43666E+01 1.923E-01 1	PSIA
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.05279E+00 1.076E-01 0	2.00391E+00 6.388E-02 0	2.05279E+00 1.076E-01 0	PSIA
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.71855E+02 2.658E+00 1	3.13009E+02 1.524E+01 0	2.71855E+02 2.658E+00 1	INCHES OF WATER
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.67937E+02 1.794E+00 1	1.80250E+02 4.481E+00 0	1.67937E+02 1.794E+00 1	INCHES OF WATER
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.43368E+02 1.035E+00 1	1.52798E+02 3.757E+00 0	1.43368E+02 1.035E+00 1	INCHES OF WATER
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.11654E+01 6.388E-02 1	1.21566E+01 3.571E-01 0	1.11654E+01 6.388E-02 1	PSID

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/24/83 AT 13:26: 0 TO 8/24/83 AT 13:41: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/25/83 AT 10:20: 0 TO 8/25/83 AT 10:35: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 8/25/83 AT 10:40: 0 TC 8/25/83 AT 10:55: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.09080E+02 1.819E+00 1	5.09824E+02 7.676E-01 1	3.97947E+02 3.726E+01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.81945E+01 7.597E-01 0	1.02076E+02 2.339E-01 1	1.02535E+02 F 3.323E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.71409E+01 9.906E-01 0	1.01237E+02 3.162E-01 0	1.01644E+02 F 2.241E-01 1	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44958E+01 4.687E-02 0	1.45589E+01 4.756E-02 0	1.45462E+01 PSIA 2.471E-02 1	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.32910E+02 3.763E+00 0	1.22194E+02 7.478E-01 1	9.62610E+01 PSIA 8.587E+00 0	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.02554E+02 2.581E+00 0	9.79555E+01 5.240E-01 1	7.93662E+01 PSIA 5.934E+00 0	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.25505E+01 2.109E+00 0	8.88176E+01 6.712E-01 0	7.17416E+01 PSIA 5.516E+00 0	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.02012E+01 1.877E+00 0	7.73111E+01 4.193E-01 1	6.23493E+01 PSIA 4.961E+00 0	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.70145E+01 1.336E+00 0	4.67192E+01 2.987E-01 0	3.63066E+01 PSIA 3.380E+00 0	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.00391E+00 6.388E-02 0	2.00595E+00 1.195E-01 0	1.97205E+00 PSIA 5.609E-02 1	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.13009E+02 1.524E+01 0	3.18199E+02 3.771E+00 1	1.71188E+02 INCHES OF WATER 4.635E+01 0	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.80250E+02 4.481E+00 0	1.63958E+02 8.756E-01 0	1.33044E+02 INCHES OF WATER 1.016E+01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.52798E+02 3.757E+00 0	1.54285E+02 1.090E+00 0	1.21579E+02 INCHES OF WATER 1.088E+01 0	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.21566E+01 3.571E-01 0	1.13245E+01 9.030E-02 0	8.40543E+00 PSID 9.615E-01 0	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/25/83 AT 10:55: 0 TO 8/25/83 AT 11:10: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/25/83 AT 11:10: 0 TO 8/25/83 AT 11:25: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/25/83 AT 11:25: 0 TO 8/25/83 AT 11:40: 0 NUMBER OF DATA POINTS: 15

DATA SET # 1 DATA SET # 2 DATA SET # 3 UNITS

1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.35788E+02 2.045E+01 2	2.68726E+02 9.738E+00 1	1.80059E+02 POUNDS / MINUTE 1.259E+00 0
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.02597E+02 1.670E-01 1	1.02167E+02 2.602E-01 0	1.01254E+02 F 2.700E-01 0
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.01481E+02 2.562E-01 0	1.00563E+02 2.893E-01 1	1.00006E+02 F 3.162E-01 0
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.45324E+01 2.824E-02 0	1.45179E+01 1.506E-02 1	1.44964E+01 PSIA 1.370E-02 2
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.24672E+01 3.719E+00 2	6.82106E+01 1.889E+00 1	5.21732E+01 PSIA 2.800E-01 1
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.94878E+01 2.668E+00 2	5.91057E+01 1.126E+00 1	4.86844E+01 PSIA 3.129E-01 0
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.26076E+01 2.303E+00 2	5.38341E+01 7.405E-01 1	4.40982E+01 PSIA 3.328E-01 1
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.43344E+01 2.027E+00 2	4.62793E+01 6.594E-01 1	3.81930E+01 PSIA 1.315E-01 1
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.05505E+01 1.800E+00 1	2.58003E+01 6.475E-01 1	2.14059E+01 PSIA 3.041E-01 1
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.01613E+00 9.006E-02 0	1.96551E+00 7.288E-02 1	1.90209E+00 PSIA 5.403E-02 0
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.01204E+02 1.120E+00 3	2.69381E+01 4.408E-01 2	6.82383E+00 INCHES OF WATER 4.256E-01 2
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.16743E+02 4.678E+00 2	9.88776E+01 1.718E+00 1	7.57925E+01 INCHES OF WATER 4.525E-01 1
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.02980E+02 6.079E+00 1	8.73132E+01 1.610E+00 1	6.56246E+01 INCHES OF WATER 3.204E-01 1
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.83820E+00 4.011E-01 2	5.26498E+00 1.852E-01 1	3.07996E+00 PSID 2.150E-02 1

LIST OF DESIRED INPT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/25/83 AT 11:50: 0 TO 8/25/83 AT 12: 5: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/25/83 AT 13: 0: 0 TO 8/25/83 AT 13:15: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/25/83 AT 11:15: 0 TO 8/25/83 AT 11:30: 0 NUMBER OF DATA POINTS: 15

DATA SET # 1 DATA SET # 2 DATA SET # 3 UNITS

1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.06892E+02 8.345E-01 1	5.06996E+02 1.018E-01 1	2.36510E+02 POUNDS / MINUTE 4.587E+01 0
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.02069E+02 4.677E-01 0	1.16421E+02 5.154E-01 1	1.01959E+02 F 4.108E-01 0
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.00901E+02 3.765E-01 1	1.14340E+02 7.685E-01 0	1.00319E+02 F 3.028E-01 0
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44830E+01 2.540E-02 1	1.44189E+01 2.992E-02 0	1.45179E+01 PSIA 1.914E-02 1
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.15447E+02 9.470E-01 0	9.62924E+01 2.486E+00 1	6.13494E+01 PSIA 8.279E+00 0
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.27384E+01 5.669E-01 1	7.98938E+01 2.026E+00 1	5.46249E+01 PSIA 5.494E+00 0
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.43373E+01 6.816E-01 0	7.22368E+01 1.611E+00 1	4.95255E+01 PSIA 5.178E+00 0
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.34380E+01 5.103E-01 0	6.30848E+01 1.485E+00 1	4.27806E+01 PSIA 4.261E+00 0
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.38997E+01 2.678E-01 1	3.75175E+01 1.097E+00 1	2.37516E+01 PSIA 2.572E+00 0
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.94151E+00 5.842E-02 1	1.90619E+00 1.206E-01 0	1.92187E+00 PSIA 7.431E-02 1
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.82372E+02 3.999E+00 1	1.95006E+02 1.383E+01 1	1.72637E+01 INCHES OF WATER 1.158E+01 1
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.56362E+02 9.454E-01 0	1.35044E+02 2.612E+00 1	8.95039E+01 INCHES OF WATER 1.108E+01 0
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.45793E+02 1.130E+00 0	1.25541E+02 2.999E+00 1	7.85069E+01 INCHES OF WATER 1.078E+01 0
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.06134E+01 9.866E-02 0	8.63872E+00 2.847E-01 1	4.35850E+00 PSID 1.098E+00 0

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/25/83 AT 13:30: 0 TO 8/25/83 AT 13:45: 0 NUMBER CF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/25/83 AT 13:45: 0 TO 8/25/83 AT 14: 0: 0 NUMBER CF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/25/83 AT 14: 0: 0 TO 8/25/83 AT 14:15: 0 NUMBER OF DATA POINTS: 15

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	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.44304E+02 8.321E-01 2	2.58076E+02 1.095E+01 2	1.80907E+02 8.570E-01 1	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.16246E+02 4.044E-01 0	1.15696E+02 4.644E-01 0	1.15221E+02 F 4.725E-01 1	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.15308E+02 2.758E-01 0	1.14144E+02 6.968E-01 1	1.11474E+02 F 5.204E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44590E+01 3.288E-02 1	1.44371E+01 2.738E-02 1	1.44408E+01 PSIA 2.766E-02 0	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.91180E+01 2.470E-01 2	5.82267E+01 1.581E+00 2	4.89723E+01 PSIA 6.857E-01 1	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.95364E+01 4.062E-01 2	5.14340E+01 2.356E+00 1	4.59420E+01 PSIA 6.110E-01 1	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.40661E+01 2.319E-01 2	4.65093E+01 2.060E+00 1	4.16304E+01 PSIA 6.719E-01 1	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.66576E+01 1.521E-01 2	4.06046E+01 1.226E+00 2	3.63361E+01 PSIA 6.868E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.61693E+01 3.126E-01 2	2.27480E+01 6.249E-01 2	2.05615E+01 PSIA 6.822E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.87387E+00 4.298E-02 1	1.83488E+00 4.579E-02 0	1.88376E+00 PSIA 5.887E-02 0	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.37525E+01 7.891E-01 2	9.03263E+00 9.137E-01 2	1.13824E+01 INCHES OF WATER 9.015E-01 2	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.02339E+02 4.866E-01 2	8.69943E+01 2.021E+00 2	7.21704E+01 INCHES OF WATER 5.868E-01 1	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.93206E+01 5.206E-01 2	7.37415E+01 1.905E+00 2	6.03006E+01 INCHES OF WATER 4.611E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.31835E+00 2.398E-02 2	3.88309E+00 1.637E-01 2	2.59688E+00 PSID 5.156E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/25/83 AT 14:15: 0 TO 8/25/83 AT 14:30: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/26/83 AT 9:20: 0 TO 8/26/83 AT 9:35: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/26/83 AT 9:45: 0 TO 8/26/83 AT 10: 0: 0 NUMBER OF DATA POINTS: 15

DATA SET # 1 DATA SET # 2 DATA SET # 3 UNITS

1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.09824E+02 1.000E+00 1	5.06681E+02 9.25EE-01 1	4.21952E+02 POUNDS / MINUTE 3.273E-01 1
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13801E+02 3.798E-01 2	1.02562E+02 7.317E-01 0	1.02340E+02 F 2.067E-01 0
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.12224E+02 5.506E-01 0	1.01449E+02 5.500E-01 1	1.01464E+02 F 2.059E-01 1
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44350E+01 2.129E-02 1	1.45031E+01 2.489E-02 2	1.45004E+01 PSIA 2.863E-02 1
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.81733E+01 2.831E+00 1	6.89057E+01 3.644E-01 1	6.11091E+01 PSIA 3.032E-01 0
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.08948E+01 2.801E+00 1	6.04607E+01 2.171E-01 1	5.45586E+01 PSIA 2.184E-01 1
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.36158E+01 1.533E+00 1	5.52742E+01 4.333E-01 1	4.96186E+01 PSIA 2.825E-01 1
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.41146E+01 1.545E+00 1	4.75296E+01 2.093E-01 1	4.25056E+01 PSIA 1.089E-01 2
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.79015E+01 1.130E+00 1	2.77208E+01 2.170E-01 0	2.44104E+01 PSIA 3.352E-01 1
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.86950E+00 6.875E-02 0	2.02835E+00 8.362E-02 0	1.99605E+00 PSIA 1.012E-01 1
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.03341E+02 1.814E+01 1	5.09531E+01 9.157E-01 0	8.10525E+00 INCHES OF WATER 1.317E+00 0
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.35382E+02 5.178E+00 1	1.00277E+02 9.321E-01 0	8.92552E+01 INCHES OF WATER 5.545E-01 1
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.28530E+02 7.157E-01 1	9.77934E+01 9.45E-01 0	8.53087E+01 INCHES OF WATER 5.548E-01 0
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.94376E+00 5.437E-02 1	5.39457E+00 5.619E-02 0	4.49291E+00 PSID 3.170E-02 0

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/26/83 AT 10: 5: 0 TO 8/26/83 AT 10:20: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 8/26/83 AT 10:25: 0 TO 8/26/83 AT 10:40: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 8/26/83 AT 10:45: 0 TO 8/26/83 AT 11: 0: 0 NUMBER OF DATA POINTS: 15

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	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.41315E+02 4.804E-01 2	2.60948E+02 5.986E-01 0	1.82258E+02 6.630E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.02380E+02 1.581E-01 C	1.02282E+02 3.152E-01 1	1.02119E+02 F 1.637E-01 1	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.01532E+02 1.250E-01 1	1.01465E+02 2.976E-01 0	1.01010E+02 F 4.171E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44870E+01 2.451E-02 2	1.44677E+01 2.770E-02 1	1.44754E+01 PSIA 2.706E-02 0	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.50912E+01 1.819E-01 0	4.94436E+01 2.309E-01 1	4.40171E+01 PSIA 2.660E-01 1	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.06883E+01 2.989E-01 0	4.69195E+01 2.100E-01 1	4.33773E+01 PSIA 1.779E-01 0	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.60614E+01 2.743E-01 0	4.27399E+01 2.025E-01 0	3.96172E+01 PSIA 1.995E-01 2	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.97051E+01 6.469E-02 1	3.69807E+01 1.008E-01 0	3.43353E+01 PSIA 9.547E-02 0	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.26825E+01 2.926E-01 0	2.13928E+01 2.613E-01 1	2.01425E+01 PSIA 2.822E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.98762E+00 9.188E-02 0	1.93496E+00 7.646E-02 1	1.92623E+00 PSIA 5.272E-02 1	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.14598E+00 9.587E-01 0	1.16895E+01 7.877E-01 0	1.35543E+01 INCHES OF WATER 6.996E-01 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.93825E+01 4.825E-01 0	7.05994E+01 2.922E-01 1	6.21945E+01 INCHES OF WATER 5.369E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.40687E+01 2.100E-01 1	6.43808E+01 3.200E-01 1	5.52015E+01 INCHES OF WATER 3.454E-01 2	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.61673E+00 3.760E-02 1	2.80303E+00 2.575E-02 0	1.98288E+00 PSID 3.187E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE ONE-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/19/83 AT 13:30: 0 TO 8/19/83 AT 13:45: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 9/ 9/83 AT 10: 0: 0 TO 9/ 9/83 AT 10:15: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 9/ 9/83 AT 10:24: 0 TO 9/ 9/83 AT 10:39: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOW RATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.42815E+02 3.846E-01 0	2.8C000E+01 0.00CE-01 0	4.00000E+01 0.000E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.00350E+02 1.799E-01 1	1.01091E+02 4.576E-01 0	1.00060E+02 F 4.736E-01 1	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.94390E+01 3.291E-01 0	1.00179E+02 4.666E-01 0	9.97317E+01 F 5.174E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.43368E+01 2.801E-02 1	1.44876E+01 3.517E-02 0	1.45059E+01 PSIA 4.014E-02 0	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.18762E+01 2.266E-01 1	5.37857E+01 3.743E-01 1	7.36695E+01 PSIA 2.880E-01 2	
6. BOTTOM OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.94810E+01 3.690E-01 1	5.05800E+01 2.833E-01 2	6.48155E+01 PSIA 3.747E-01 0	
7. BOTTOM OF 8 FOOT/TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.14031E+01 2.790E-01 0	4.61364E+01 4.278E-01 1	5.85268E+01 PSIA 2.489E-01 1	
8. BOTTOM OF 20 FOOT/TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.50364E+01 1.250E-01 1	3.90438E+01 3.182E-01 2	4.95988E+01 PSIA 2.776E-01 0	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.23737E+01 1.540E-01 1	2.25369E+01 2.078E-01 2	2.87560E+01 PSIA 1.656E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.72435E+01 9.111E-02 1	1.56692E+01 1.834E-01 2	2.48084E+01 PSIA 1.086E-01 1	
11. CWL #3 ELBOW INLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.92532E+01 8.011E-02 1	1.49695E+01 1.646E-01 2	1.68290E+01 INCHES OF WATER 1.000E-01 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13824E+02 3.660E-01 1	7.17132E+01 3.152E-01 1	1.01343E+02 INCHES OF WATER 7.063E-01 1	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.13270E+02 4.414E-01 0	7.02533E+01 3.590E-01 1	9.59101E+01 INCHES OF WATER 3.583E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.73256E+00 2.220E-02 1	3.56436E+00 3.945E-02 1	6.30053E+00 PSID 5.392E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE ONE-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 9/ 9/83 AT 11:58: 0 TO 9/ 9/83 AT 12:13: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 9/ 9/83 AT 12:35: 0 TO 9/ 9/83 AT 12:50: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 9/12/83 AT 11:52: 0 TO 9/12/83 AT 12: 7: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOW RATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.20000E+01 0.000E-01 0	6.90000E+01 0.000E-01 0	2.80000E+01 0.000E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.01749E+02 3.187E-01 1	1.02925E+02 1.736E-01 1	9.91543E+01 F 2.720E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.00697E+02 3.491E-01 0	1.01738E+02 1.768E-01 0	9.79042E+01 F 2.522E-01 1	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44591E+01 5.398E-02 0	1.45266E+01 2.923E-02 1	1.41886E+01 PSIA 2.775E-02 2	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.38464E+01 3.382E-01 1	1.15596E+02 5.250E-01 1	3.65734E+01 PSIA 4.521E-01 0	
6. BOTTOM OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.95398E+01 3.256E-01 1	9.57648E+01 2.191E-01 1	3.77464E+01 PSIA 2.224E-01 0	
7. BOTTOM OF 8 FOOT/TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	7.10803E+01 3.152E-01 1	8.59204E+01 2.361E-01 0	3.50516E+01 PSIA 2.096E-01 1	
8. BOTTOM OF 20 FOOT/TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.07750E+01 3.671E-01 1	7.35438E+01 2.478E-01 1	2.91060E+01 PSIA 2.472E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.64278E+01 1.056E-01 1	4.52604E+01 1.703E-01 1	1.74578E+01 PSIA 1.150E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.14154E+01 1.434E-01 1	3.89846E+01 4.419E-02 1	1.62224E+01 PSIA 4.176E-02 1	
11. CWL #3 ELBOW INLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.05156E+01 1.124E-01 0	2.51575E+01 7.967E-02 1	1.45074E+01 INCHES OF WATER 8.140E-02 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.29185E+02 5.132E-01 1	1.59987E+02 4.306E-01 0	4.48523E+01 INCHES OF WATER 6.605E-01 1	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.20326E+02 5.510E-01 1	1.49346E+02 4.407E-01 1	4.71870E+01 INCHES OF WATER 3.910E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.63087E+00 7.447E-02 1	1.11290E+01 3.752E-02 0	1.09656E+00 PSID 2.159E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE ONE-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 9/12/83 AT 11:34: 0 TO 9/12/83 AT 11:49: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 9/12/83 AT 11:17: 0 TO 9/12/83 AT 11:32: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 3 LOGGED: 9/12/83 AT 10:59: 0 TO 9/12/83 AT 11:14: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOW RATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.80000E+01 0.000E-01 0	7.00000E+01 0.000E-01 0	9.00000E+01 0.000E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.90222E+01 2.932E-01 1	9.95458E+01 3.694E-01 0	9.72255E+01 F 6.797E-01 1	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.79598E+01 3.940E-01 0	9.86866E+01 3.354E-01 0	9.63231E+01 F 7.739E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.41709E+01 4.994E-02 1	1.41251E+01 4.990E-02 0	1.41164E+01 PSIA 5.665E-02 1	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.34847E+01 8.873E-01 1	4.76348E+01 2.339E-01 1	5.42339E+01 PSIA 4.492E-01 0	
6. BOTTOM OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.27704E+01 9.699E-01 0	4.51134E+01 2.617E-01 1	4.93306E+01 PSIA 3.709E-01 1	
7. BOTTOM OF 8 FOOT/TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.93904E+01 8.004E-01 0	4.10878E+01 2.029E-01 1	4.45848E+01 PSIA 3.318E-01 1	
8. BOTTOM OF 20 FOOT/TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.33390E+01 5.940E-01 1	3.44714E+01 2.365E-01 1	3.76069E+01 PSIA 2.175E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.01409E+01 8.120E-01 0	2.03882E+01 1.354E-01 1	2.18654E+01 PSIA 2.248E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.85280E+01 8.236E-01 0	1.84037E+01 1.006E-01 1	1.94932E+01 PSIA 1.809E-01 1	
11. CWL #3 ELBOW INLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.58765E+01 7.730E-01 0	1.46776E+01 1.307E-01 1	1.46274E+01 INCHES OF WATER 1.542E-01 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.43438E+01 5.510E-01 1	6.43339E+01 3.999E-01 0	7.66740E+01 INCHES OF WATER 5.664E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.62887E+01 3.843E-01 0	6.57991E+01 3.044E-01 1	7.66944E+01 INCHES OF WATER 6.175E-01 0	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.94770E+00 3.837E-02 0	2.73696E+00 2.721E-02 1	3.64370E+00 PSID 4.724E-02 0	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE ONE-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 9/12/83 AT 10:42: 0 TO 9/12/83 AT 10:57: 0 NUMBER OF DATA POINTS: 16

DATA SET NUMBER 2 LOGGED: 9/12/83 AT 10:25: 0 TO 9/12/83 AT 10:40: 0 NUMBER OF DATA POINTS: 16

DATA SET NUMBER 3 LOGGED: 9/12/83 AT 12:29: 0 TO 9/12/83 AT 12:44: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOW RATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.06000E+02 0.000E-01 0	1.30000E+02 0.000E-01 0	1.34000E+02 0.000E-01 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.69846E+01 3.891E-01 0	9.72320E+01 2.241E-01 2	9.96647E+01 F 6.479E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.61524E+01 3.671E-01 0	9.62190E+01 2.415E-01 1	9.86741E+01 F 5.240E-01 1	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.41496E+01 3.719E-02 1	1.41423E+01 5.607E-02 0	1.41068E+01 PSIA 6.289E-02 0	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.13148E+01 3.066E-01 1	6.97966E+01 3.959E-01 0	6.73793E+01 PSIA 2.700E+00 1	
6. BOTTOM OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.42665E+01 2.236E-01 1	6.00542E+01 2.971E-01 1	5.88025E+01 PSIA 2.810E-01 1	
7. BOTTOM OF 8 FOOT/TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.86858E+01 2.681E-01 1	5.38160E+01 1.854E-01 1	5.25682E+01 PSIA 8.804E-01 1	
8. BOTTOM OF 20 FOOT/TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.13075E+01 1.299E-01 2	4.61468E+01 3.391E-01 0	4.50474E+01 PSIA 3.185E-01 1	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.42913E+01 1.727E-01 1	2.78611E+01 1.810E-01 0	2.70628E+01 PSIA 1.820E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.14264E+01 6.388E-02 2	2.45296E+01 1.103E-01 1	2.38353E+01 PSIA 1.290E-01 1	
11. CWL #3 ELBOW INLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.54383E+01 1.100E-01 0	1.73245E+01 1.240E-01 1	1.67395E+01 INCHES OF WATER 4.575E-01 1	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.88930E+01 3.979E-01 1	1.01540E+02 6.187E-01 0	9.86158E+01 INCHES OF WATER 2.534E+00 1	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	8.83635E+01 5.534E-01 1	1.00585E+02 7.064E-01 0	9.78085E+01 INCHES OF WATER 4.134E+00 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.51498E+00 2.850E-02 0	5.42889E+00 2.242E-02 1	5.07907E+00 PSID 2.981E-01 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 8/26/83 AT 12:25: 0 TO 8/26/83 AT 12:40: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 8/26/83 AT 12:50: 0 TO 8/26/83 AT 13: 5: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 9/13/83 AT 10:20: 0 TO 9/13/83 AT 10:35: 0 NUMBER OF DATA POINTS: 15

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	DATA SET # 1	DATA SET # 2	DATA SET # 3	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.02481E+02 4.547E-01 2	5.08567E+02 1.402E+00 1	5.20039E+02 1.924E+00 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.00107E+02 3.129E-01 0	9.99473E+01 3.966E-01 0	1.00527E+02 F 2.905E-01 0	
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.77183E+01 1.567E-01 1	9.85766E+01 4.291E-01 1	1.00007E+02 F 2.350E-01 0	
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.44197E+01 2.325E-02 1	1.44143E+01 2.824E-02 0	1.35491E+01 PSIA 9.216E-02 1	
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.92669E+01 2.783E-01 1	7.00595E+01 2.967E-01 0	3.88284E+01 PSIA 2.475E-01 1	
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.98562E+01 4.270E-01 0	6.04554E+01 4.921E-01 0	3.78295E+01 PSIA 2.943E-01 1	
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.66054E+01 3.154E-01 1	5.51695E-01 2.432E-01 1	3.36859E+01 PSIA 1.637E-01 1	
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.18675E+01 1.380E-01 1	4.77232E+01 1.909E-01 0	3.04761E+01 PSIA 1.461E-01 0	
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.87093E+01 4.212E-01 0	2.74128E+01 2.538E-01 1	1.35325E+01 PSIA 1.234E-01 1	
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.91227E+00 1.285E-01 0	1.37168E+00 1.074E-01 1	1.54587E+01 PSIA 1.187E-01 1	
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.79619E+01 1.033E+00 1	5.28296E+01 7.458E-01 1	1.57217E+01 INCHES OF WATER 1.369E+00 0	
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.52603E+01 2.745E-01 1	1.03311E+02 7.346E-01 0	6.44550E+01 INCHES OF WATER 9.249E-01 0	
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.73616E+01 3.932E-01 1	9.90958E+01 6.503E-01 0	5.64385E+01 INCHES OF WATER 3.946E-01 1	
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.15714E+00 2.267E-02 0	5.54121E+00 5.114E-02 1	1.24843E+00 PSID 3.944E-02 1	

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 9/13/83 AT 10:40: 0 TO 9/13/83 AT 10:55: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 2 LOGGED: 9/13/83 AT 10:58: 0 TO 9/13/83 AT 11:13: 0 NUMBER OF DATA POINTS: 15
DATA SET NUMBER 3 LOGGED: 9/13/83 AT 11:15: 0 TO 9/13/83 AT 11:30: 0 NUMBER OF DATA POINTS: 15

DATA SET # 1 DATA SET # 2 DATA SET # 3 UNITS

1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	4.35672E+02 1.343E+00 1	3.55230E+02 2.438E+00 0	2.75269E+02 POUNDS / MINUTE 2.181E+00 0
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.01211E+02 3.096E-01 0	1.01305E+02 1.567E-01 1	1.01015E+02 F 2.415E-01 0
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.00468E+02 1.250E-01 2	1.00590E+02 2.386E-01 1	1.00266E+02 F 2.673E-01 1
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.36364E+01 9.758E-02 1	1.36791E+01 1.066E-01 0	1.36995E+01 PSIA 1.287E-01 0
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.64871E+01 2.631E-01 1	3.49380E+01 2.670E-01 1	3.33189E+01 PSIA 2.416E-01 1
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.66080E+01 3.219E-01 0	3.55802E+01 8.667E-02 2	3.48555E+01 PSIA 3.458E-01 1
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.25535E+01 1.482E-01 1	3.17143E+01 2.351E-01 0	3.09690E+01 PSIA 4.234E-01 0
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.94630E+01 1.380E-01 1	2.86677E+01 2.309E-01 0	2.82238E+01 PSIA 2.720E-01 0
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.35443E+01 7.354E-02 2	1.35302E+01 1.358E-01 2	1.34954E+01 PSIA 1.718E-01 1
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.49764E+01 1.527E-01 0	1.47585E+01 1.106E-01 0	1.47300E+01 PSIA 1.007E-01 0
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.20270E+01 6.294E-01 1	1.38074E+01 1.342E+00 0	1.95503E+01 INCHES OF WATER 1.088E+00 0
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	6.16039E+01 5.627E-01 0	5.76168E+01 3.085E-01 1	5.49446E+01 INCHES OF WATER 5.553E-01 0
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.04032E+01 4.694E-01 0	4.64233E+01 5.502E-01 1	4.19518E+01 INCHES OF WATER 5.733E-01 0
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.43304E-01 2.059E-02 0	8.12561E-01 2.715E-02 0	5.88605E-01 PSID 3.884E-02 1

LIST OF DESIRED INPUT VARIABLES WITH VALUES CONVERTED TO ENGINEERING UNITS AND AVERAGED
FOR THE TWO-INCH COAL-WATER TEST LOOP

DATA SET NUMBER 1 LOGGED: 9/13/83 AT 11:32: 0 TO 9/13/83 AT 11:47: 0 NUMBER OF DATA POINTS: 15

DATA SET NUMBER 2 LOGGED: 9/13/83 AT 12:35: 0 TO 9/13/83 AT 12:50: 0 NUMBER OF DATA POINTS: 15

	DATA SET # 1	DATA SET # 2	UNITS
1. MICROMOTION METER CWM FLOWRATE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.92899E+02 1.890E+00 1	5.19111E+02 2.004E+00 0	POUNDS / MINUTE
2. CWL PUMP OUTLET TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.00354E+02 3.307E-01 0	9.91582E+01 3.256E-01 1	F
3. CWL 8 FOOT VERTICAL SECTION TEMPERATURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	9.97227E+01 2.940E-01 0	9.85496E+01 4.644E-01 0	F
4. BAROMETRIC PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.37565E+01 1.072E-01 0	1.38115E+01 1.042E-01 0	PSIA
5. CWL PUMP OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.17306E+01 3.854E-01 0	3.90803E+01 4.094E-01 0	PSIA
6. BOTTOM OF 6 FOOT SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.40045E+01 1.744E-01 1	3.78096E+01 2.350E-01 0	PSIA
7. BOTTOM OF 8 FOOT / TOP OF 6 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.02210E+01 2.511E-01 1	3.36225E+01 3.410E-01 0	PSIA
8. BOTTOM OF 20 FOOT / TOP OF 8 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.76373E+01 1.430E-01 0	3.04645E+01 1.791E-01 1	PSIA
9. TOP OF 20 FOOT VERTICAL SECTION PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.36099E+01 1.456E-01 0	1.35419E+01 1.654E-01 2	PSIA
10. CWL #2 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	1.46863E+01 9.961E-02 1	1.53213E+01 1.318E-01 1	PSIA
11. CWL #3 ELBOW OUTLET PRESSURE STANDARD DEVIATION & NUMBER OF POINTS REMOVED	2.21949E+01 5.871E-01 1	7.29378E+00 8.511E-01 2	INCHES OF WATER
12. PRESSURE LOSS AROUND #1 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	5.12673E+01 3.217E-01 1	6.23080E+01 1.044E+00 1	INCHES OF WATER
13. PRESSURE LOSS AROUND #2 ELBOW STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.84083E+01 3.966E-01 0	5.67164E+01 8.157E-01 0	INCHES OF WATER
14. PRESSURE LOSS ACROSS 12 FOOT HORIZONTAL SECTION STANDARD DEVIATION & NUMBER OF POINTS REMOVED	3.69973E-01 4.050E-02 1	1.26807E+00 5.329E-02 1	PSID