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ENV. & ENGR SERVICES

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December 31, 1992

Ms. Jean Mescher
McKesson Corporation
One Post Street
San Francisco, CA 94104-5296

W.O. #92-17

Subject: Arkwood, Inc. Superfund Site - Omaha, Arkansas
Monthly Progress Report No. 10 - December 1992

Dear Ms. Mescher:

The following progress report is being provided by ERM-Southwest, Inc., for submission by McKesson Service Merchandising Co. ("MMI"), formerly Mass Merchandisers, Inc., in accordance with Section IX.B.1 of the Consent Decree. This report is to be submitted to the United States Environmental Protection Agency ("EPA") and to the Arkansas Department of Pollution Control and Ecology ("State").

ERM

Actions taken towards achieving compliance with the Consent Decree:

1. General description of Work (as defined in the Consent Decree) activities commenced or completed during the reporting period:

   a. Additional analytical work was ordered to progressively define the extent of the affected area and to evaluate the c-PNA and dioxin concentrations.

   b. MMI constructed a small drying shed on the Arkwood site to begin drying samples of the excavated material for further dry sieving and materials handling tests.

   c. Development of the Preliminary Engineering Report (PER) continued during this reporting period.

2. Data received during the reporting period:

   a. Additional analytical data from the initial field work became available during this reporting period as well as analytical and geotechnical data from the sieve and wash pilot studies. Since full analytical data packages will be included in the Preliminary Engineering Report it was agreed with EPA that for the monthly reports, a summary of the findings would be sufficient. The summary of current results is given in Table 1. Sample locations for the initial sampling were shown on the sample location map enclosed with the last report.

   b. No other data was received during this reporting period.

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A member of the Environmental Resources Management Group

3. Work activities projected to be commenced or completed during the next three reporting periods:

   a. January 1993

      1) Final analyses will be ordered to delineate the area to be excavated.

      2) Final samples for c-PNAs and dioxin will be analyzed to develop the correlation of PCP/c-PNAs/dioxin ratios.

      3) Work will continue on development of the PER.

   b. February 1993

      Work will continue on development of the PER.

   c. March 1993

      1) Work will continue on development of the PER.

      2) Draft PER will be submitted to the agency by March 24, 1992.

4. Problems encountered or anticipated in commencing or completing the Work activities:

   No problems have been encountered or are anticipated at this time.

Sincerely,

ERM-SOUTHWEST, INC.

Ronald T. Grimes, P.E.

RTG/jbr

cc: D. S. Diehl, ERM-Southwest, Inc.
M. L. Lutz, ERM-Southwest, Inc.

ARKWOOD RESULTS 12/30/92
PREDESIGN STUDIES SAMPLING 10:49
RESULTS TO DATE FOR EPA DECEMBER PROGRESS REPORT

FIRST TIER SAMPLE ID	PCP (mg/kg)	SECOND TIER SAMPLE ID	PCP (mg/kg)	THIRD TIER SAMPLE ID	PCP (mg/kg)	FOURTH TIER SAMPLE ID	PCP (mg/kg)
0 TO 6" DEPTH		6 TO 12" DEPTH		12 TO 18" DEPTH		18 TO 24" DEPTH	
PDS - 1 A	1,400	PDS - 1 B	31	PDS - 1 C	NA		
PDS - 2 A	560	PDS - 2 B	200	PDS - 2 C	NA		
PDS - 3 A	470	PDS - 3 B	890	PDS - 3 C			
PDS - 4 A		PDS - 4 B		PDS - 4 C			
PDS - 5 A		PDS - 5 B		PDS - 5 C			
PDS - 6 A	15	PDS - 6 B	NA	PDS - 6 C	NA		
PDS - 7 A	990	PDS - 7 B	750	PDS - 7 C	58		
PDS - 8 A	1,100	PDS - 8 B	910	PDS - 8 C	200		
PDS - 9 A		PDS - 9 B		PDS - 9 C			
PDS - 10 A	1,600	PDS - 10 B	68	PDS - 10 C	NA		
PDS - 11 A	51	PDS - 11 B	NA	PDS - 11 C	NA		
PDS - 12 A	ND	PDS - 12 B	NA	PDS - 12 C	NA		
PDS - 13 A	740	PDS - 13 B	3	PDS - 13 C	NA		
PDS - 14 A	10	PDS - 14 B	NA	PDS - 14 C	NA		
PDS - 15 A	190	PDS - 15 B	NA	PDS - 15 C	NA		
PDS - 16 A	800	PDS - 16 B	18	PDS - 16 C	NA		
PDS - 17 A	100	PDS - 17 B	NA	PDS - 17 C	NA		
PDS - 18 A	59	PDS - 18 B	NA	PDS - 18 C	NA		
PDS - 19 A	290	PDS - 19 B	NA	PDS - 19 C	NA		
PDS - 20 A	ND	PDS - 20 B	NA	PDS - 20 C	NA		
PDS - 21 A	710	PDS - 21 B	46	PDS - 21 C	NA		
PDS - 22 A	NA	PDS - 22 B	NA	PDS - 22 C	NA		
PDS - 23 A	NA	PDS - 23 B	NA	PDS - 23 C	NA		
PDS - 24 A	150	PDS - 24 B	NA	PDS - 24 C	NA		
PDS - 25 A	NA	PDS - 25 B	NA	PDS - 25 C	NA		
PDS - 26 A	NA	PDS - 26 B	NA	PDS - 26 C	NA		
PDS - 27 A	9.5	PDS - 27 B	NA	PDS - 27 C	NA		
PDS - 28 A	11	PDS - 28 B	NA	PDS - 28 C	NA		
PDS - 29 A	NA	PDS - 29 B	NA	PDS - 29 C	NA		
PDS - 30 A	NA	PDS - 30 B	NA	PDS - 30 C	NA		
PDS - 31 A	4	PDS - 31 B	NA	PDS - 31 C	NA		
PDS - 32 A	23	PDS - 32 B	NA	PDS - 32 C	NA		
PDS - 33 A	120	PDS - 33 B	NA	PDS - 33 C	NA		
PDS - 34 A	NA	PDS - 34 B	NA	PDS - 34 C	NA		
PDS - 35 A		PDS - 35 B		PDS - 35 C			
PDS - 36 A	5	PDS - 36 B	NA	PDS - 36 C	NA		
PDS - 37 A	85	PDS - 37 B	NA	PDS - 37 C	NA		
PDS - 38 A	190	PDS - 38 B	NA	PDS - 38 C	NA		
PDS - 39 A		PDS - 39 B		PDS - 39 C			
PDS - 40 A	380	PDS - 40 B		PDS - 40 C			
PDS - 41 A	220	PDS - 41 B	ND	PDS - 41 C	NA		
PDS - 42 A	NA	PDS - 42 B	NA	PDS - 42 C	NA		
PDS - 43 A	260	PDS - 43 B	NA	PDS - 43 C	NA		
PDS - 44 A	210	PDS - 44 B	200	PDS - 44 C	NA		
PDS - 45 A	350	PDS - 45 B	110	PDS - 45 C	NA		
PDS - 46 A	650	PDS - 46 B	320	PDS - 46 C	72		

ARKWOOD RESULTS 12/30/92
PREDESIGN STUDIES SAMPLING 10:49
RESULTS TO DATE FOR EPA DECEMBER PROGRESS REPORT

FIRST TIER SAMPLE ID	PCP (mg/kg)	SECOND TIER SAMPLE ID	PCP (mg/kg)	THIRD TIER SAMPLE ID	PCP (mg/kg)	FOURTH TIER SAMPLE ID	PCP (mg/kg)
0 TO 6" DEPTH		6 TO 12" DEPTH		12 TO 18" DEPTH		18 TO 24" DEPTH	
PDS - 47 A	330	PDS - 47 B	150	PDS - 47 C	NA		
PDS - 48 A	5	PDS - 48 B	NA	PDS - 48 C	NA		
PDS - 49 A	NA	PDS - 49 B	NA	PDS - 49 C	NA		
PDS - 50 A	NA	PDS - 50 B	NA	PDS - 50 C	NA		
PDS - 51 A	NA	PDS - 51 B	NA	PDS - 51 C	NA		
PDS - 52 A	120	PDS - 52 B	NA	PDS - 52 C	NA		
PDS - 53 A	25	PDS - 53 B	NA	PDS - 53 C	NA		
PDS - 54 A	140	PDS - 54 B	NA	PDS - 54 C	NA		
PDS - 55 A	17	PDS - 55 B	NA	PDS - 55 C	NA		
PDS - 56 A	ND	PDS - 56 B	NA	PDS - 56 C	NA		
PDS - 57 A	16	PDS - 57 B	ND	PDS - 57 C	NA		
PDS - 58 A	280	PDS - 58 B	NA	PDS - 58 C	NA		
PDS - 59 A	15	PDS - 59 B	NA	PDS - 59 C	NA		
PDS - 60 A	NA	PDS - 60 B	NA	PDS - 60 C	NA		
PDS - 61 A	NA	PDS - 61 B	NA	PDS - 61 C	NA		
PDS - 62 A	220	PDS - 62 B	NA	PDS - 62 C	NA		
PDS - 63 A	92	PDS - 63 B	NA	PDS - 63 C	NA		
PDS - 64 A	ND	PDS - 64 B	NA	PDS - 64 C	NA		
PDS - 65 A	NA	PDS - 65 B	NA	PDS - 65 C	NA		
PDS - 66 A	ND	PDS - 66 B	NA	PDS - 66 C	NA		
PDS - 67 A	55	PDS - 67 B	NA	PDS - 67 C	NA		
PDS - 68 A	NA	PDS - 68 B	NA	PDS - 68 C	NA		
PDS - 69 A	ND	PDS - 69 B	NA	PDS - 69 C	NA		
PDS - 70 A	NA	PDS - 70 B	NA	PDS - 70 C	NA		
PDS - 71 A	13	PDS - 71 B	NA	PDS - 71 C	NA		
PDS - 72 A	130	PDS - 72 B	NA	PDS - 72 C	NA		
PDS - 73 A	230	PDS - 73 B	NA	PDS - 73 C	NA		
PDS - 74 A	13	PDS - 74 B	NA	PDS - 74 C	NA		
PDS - 75 A	ND	PDS - 75 B	NA	PDS - 75 C	NA		
PDS - 76 A	140	PDS - 76 B	NA	PDS - 76 C	NA		
PDS - 77 A	ND	PDS - 77 B	NA	PDS - 77 C	NA		
PDS - 78 A	ND	PDS - 78 B	NA	PDS - 78 C	NA		
PDS - 79 A	ND	PDS - 79 B	NA	PDS - 79 C	NA		
PDS - 80 A	14	PDS - 80 B	NA	PDS - 80 C	NA		
PDS - 81 A	1,000	PDS - 81 B	ND	PDS - 81 C	NA		
PDS - 82 A	27	PDS - 82 B	NA	PDS - 82 C	NA		
PDS - 83 A	120	PDS - 83 B	NA	PDS - 83 C	NA		
PDS - 84 A	67	PDS - 84 B	ND	PDS - 84 C	NA		
PDS - 85 A	1,700	PDS - 85 B	190	PDS - 85 C	NA		
PDS - 86 A	2,300	PDS - 86 B	710	PDS - 86 C	ND	PDS - 86 D	200
PDS - 87 A	2,000	PDS - 87 B	110	PDS - 87 C	NA		
PDS - 88 A	2,000	PDS - 88 B	58	PDS - 88 C	NA		
PDS - 89 A	980	PDS - 89 B	ND	PDS - 89 C	NA		
PDS - 90 A	1,000	PDS - 90 B	100	PDS - 90 C	NA		
PDS - 91 A	ND	PDS - 91 B	NA	PDS - 91 C	NA		
PDS - 92 A		PDS - 92 B		PDS - 92 C			

ARKWOOD RESULTS 12/30/92
PREDESIGN STUDIES SAMPLING 10:49
RESULTS TO DATE FOR EPA DECEMBER PROGRESS REPORT

FIRST TIER SAMPLE ID	PCP (mg/kg)	SECOND TIER SAMPLE ID	PCP (mg/kg)	THIRD TIER SAMPLE ID	PCP (mg/kg)	FOURTH TIER SAMPLE ID	PCP (mg/kg)
0 TO 6" DEPTH		6 TO 12" DEPTH		12 TO 18" DEPTH		18 TO 24" DEPTH	
PDS - 93 A	460	PDS - 93 B		PDS - 93 C			
PDS - 94 A		PDS - 94 B		PDS - 94 C			
PDS - 95 A	370	PDS - 95 B	7	PDS - 95 C	NA		
PDS - 96 A	ND	PDS - 96 B	ND	PDS - 96 C	NA		

NOTE: NA = Not Analyzed
ND = Not Detected at Detection Limits

SIEVE AND WASH PILOT STUDY 12/31/92
ANALYTICAL DATA RECEIVED DURING DECEMBER

SAMPLE DESCRIPTION	SAMPLE DATE	MATRIX	PARAMETER	METHOD	RESULT	UNIT	DET LIM	UNIT
SIEVE AND WASH FEEDSTOCK								
PD1	11/16/92	Soil	Moisture	EPA 160.3	33.6	%	0.1	%
PD2	11/16/92	Soil	Moisture	EPA 160.3	14.7	%	0.1	%
PD3	11/16/92	Soil	Moisture	EPA 160.3	28.7	%	0.1	%
PD4	11/16/92	Soil	Moisture	EPA 160.3	14.3	%	0.1	%
PD1	11/16/92	Soil	PCP	SW-846 8270	3.0	mg/kg	6.4	mg/kg
PD2	11/16/92	Soil	PCP	SW-846 8270	23	mg/kg	8	mg/kg
PD3	11/16/92	Soil	PCP	SW-846 8270	4.5	mg/kg	3.2	mg/kg
PD4	11/16/92	Soil	PCP	SW-846 8270	72	mg/kg	64	mg/kg
DRY SIEVE MATERIAL, 1/4 INCH SCREEN (C = Coarse; F = Fines)								
PD1-1/4F	11/17/92	Soil	Moisture	EPA 160.3	22.5	%	0.1	%
PD2-1/4F	11/17/92	Soil	Moisture	EPA 160.3	18.2	%	0.1	%
PD3-1/4F	11/17/92	Soil	Moisture	EPA 160.3	29.5	%	0.1	%
PD4-1/4F	11/17/92	Soil	Moisture	EPA 160.3	14.7	%	0.1	%
PD1-1/4F	11/17/92	Soil	PCP	SW-846 8270	27	mg/kg	16	mg/kg
PD2-1/4F	11/17/92	Soil	PCP	SW-846 8270	140	mg/kg	80	mg/kg
PD3-1/4F	11/17/92	Soil	PCP	SW-846 8270	18	mg/kg	16	mg/kg
PD4-1/4F	11/17/92	Soil	PCP	SW-846 8270	ND	mg/kg	80	mg/kg
PD1-1/4C*	11/17/92	Soil	Moisture	EPA 160.3	16.9	%	0.1	%
PD2-1/4C*	11/17/92	Soil	Moisture	EPA 160.3	15.8	%	0.1	%
PD3-1/4C*	11/17/92	Soil	Moisture	EPA 160.3	17.6	%	0.1	%
PD4-1/4C*	11/17/92	Soil	Moisture	EPA 160.3	14.2	%	0.1	%
PD1-1/4C*	11/17/92	Soil	PCP	SW-846 8270	4.5	mg/kg	3.2	mg/kg
PD2-1/4C*	11/17/92	Soil	PCP	SW-846 8270	53	mg/kg	20	mg/kg
PD3-1/4C*	11/17/92	Soil	PCP	SW-846 8270	10.0	mg/kg	3.2	mg/kg
PD4-1/4C*	11/17/92	Soil	PCP	SW-846 8270	86	mg/kg	32	mg/kg
DRY SIEVE MATERIAL, No. 6 MESH SCREEN (C = Coarse; F = Fines)								
PD2-6F	11/18/92	Soil	Moisture	EPA 160.3	19.2	%	0.1	%
PD4-6C*	11/18/92	Soil	Moisture	EPA 160.3	10.7	%	0.1	%
PD4-6F	11/18/92	Soil	Moisture	EPA 160.3	10.6	%	0.1	%
PD2-6F	11/18/92	Soil	PCP	SW-846 8270	150	mg/kg	64	mg/kg
PD4-6C*	11/18/92	Soil	PCP	SW-846 8270	94	mg/kg	32	mg/kg
PD4-6F	11/18/92	Soil	PCP	SW-846 8270	130	mg/kg	64	mg/kg
SOIL WASHING PRODUCTION RUN - No. 6 MESH SCREEN (WW = Washwater; CyX = Cycle No. X)								
PD3 Com6WW-Cy3	11/20/92	Water	PCP	SW-846 8270	0.9	mg/l	0.2	mg/l
PD4 Com6WW-Cy4	11/20/92	Water	PCP	SW-846 8270	1.4	mg/l	0.4	mg/l
PD3 Com6WW-Cy3	11/20/92	Water	SS	EPA 160.5	410	mg/l	0.2	mg/l

SIEVE AND WASH PILOT STUDY 12/31/92
ANALYTICAL DATA RECEIVED DURING DECEMBER

SAMPLE DESCRIPTION	SAMPLE DATE	MATRIX	PARAMETER	METHOD	RESULT	UNIT	DET LIM	UNIT
SIEVE AND WASH FEEDSTOCK								
PD1	11/16/92	Soil	Moisture	EPA 160.3	33.6	%	0.1	%
PD2	11/16/92	Soil	Moisture	EPA 160.3	14.7	%	0.1	%
PD3	11/16/92	Soil	Moisture	EPA 160.3	28.7	%	0.1	%
PD4	11/16/92	Soil	Moisture	EPA 160.3	14.3	%	0.1	%
PD1	11/16/92	Soil	PCP	SW-846 8270	8.0	mg/kg	6.4	mg/kg
PD2	11/16/92	Soil	PCP	SW-846 8270	23	mg/kg	8	mg/kg
PD3	11/16/92	Soil	PCP	SW-846 8270	4.5	mg/kg	3.2	mg/kg
PD4	11/16/92	Soil	PCP	SW-846 8270	72	mg/kg	64	mg/kg
DRY SIEVE MATERIAL, 1/4 INCH SCREEN (C = Coarse; F = Fines)								
PD1-1/4F	11/17/92	Soil	Moisture	EPA 160.3	22.5	%	0.1	%
PD2-1/4F	11/17/92	Soil	Moisture	EPA 160.3	18.2	%	0.1	%
PD3-1/4F	11/17/92	Soil	Moisture	EPA 160.3	29.5	%	0.1	%
PD4-1/4F	11/17/92	Soil	Moisture	EPA 160.3	14.7	%	0.1	%
PD1-1/4F	11/17/92	Soil	PCP	SW-846 8270	27	mg/kg	16	mg/kg
PD2-1/4F	11/17/92	Soil	PCP	SW-846 8270	140	mg/kg	80	mg/kg
PD3-1/4F	11/17/92	Soil	PCP	SW-846 8270	18	mg/kg	16	mg/kg
PD4-1/4F	11/17/92	Soil	PCP	SW-846 8270	ND	mg/kg	80	mg/kg
PD1-1/4C*	11/17/92	Soil	Moisture	EPA 160.3	16.9	%	0.1	%
PD2-1/4C*	11/17/92	Soil	Moisture	EPA 160.3	15.8	%	0.1	%
PD3-1/4C*	11/17/92	Soil	Moisture	EPA 160.3	17.6	%	0.1	%
PD4-1/4C*	11/17/92	Soil	Moisture	EPA 160.3	14.2	%	0.1	%
PD1-1/4C*	11/17/92	Soil	PCP	SW-846 8270	4.5	mg/kg	3.2	mg/kg
PD2-1/4C*	11/17/92	Soil	PCP	SW-846 8270	53	mg/kg	20	mg/kg
PD3-1/4C*	11/17/92	Soil	PCP	SW-846 8270	10.0	mg/kg	3.2	mg/kg
PD4-1/4C*	11/17/92	Soil	PCP	SW-846 8270	86	mg/kg	32	mg/kg
DRY SIEVE MATERIAL, No. 6 MESH SCREEN (C = Coarse; F = Fines)								
PD2-6F	11/18/92	Soil	Moisture	EPA 160.3	19.2	%	0.1	%
PD4-6C*	11/18/92	Soil	Moisture	EPA 160.3	10.7	%	0.1	%
PD4-6F	11/18/92	Soil	Moisture	EPA 160.3	10.6	%	0.1	%
PD2-6F	11/18/92	Soil	PCP	SW-846 8270	150	mg/kg	64	mg/kg
PD4-6C*	11/18/92	Soil	PCP	SW-846 8270	94	mg/kg	32	mg/kg
PD4-6F	11/18/92	Soil	PCP	SW-846 8270	130	mg/kg	64	mg/kg
SOIL WASHING PRODUCTION RUN - No. 6 MESH SCREEN (WW = Washwater; CyX = Cycle No. X)								
PD3 Com6WW-Cy3	11/20/92	Water	PCP	SW-846 8270	0.9	mg/l	0.2	mg/l
PD4 Com6WW-Cy4	11/20/92	Water	PCP	SW-846 8270	1.4	mg/l	0.4	mg/l
PD3 Com6WW-Cy3	11/20/92	Water	SS	EPA 160.5	410	mg/l	0.2	mg/l

SIEVE AND WASH PILOT STUDY 12/31/92

ANALYTICAL DATA RECEIVED DURING DECEMBER

SAMPLE DESCRIPTION	SAMPLE DATE	MATRIX	PARAMETER	METHOD	RESULT	UNIT	DET LIM	UNIT
PD4 Com6WW-Cy4	11/20/92	Water	SS	EPA 160.5	440	mg/l	0.2	mg/l
PD3 Com6WW-Cy3	11/20/92	Water	TS	EPA 160.3	1.49	%	0.000%	
PD4 Com6WW-Cy4	11/20/92	Water	TS	EPA 160.3	1.46	%	0.000%	
SOIL WASHING PRODUCTION RUN - No. 6 MESH SCREEN (SETTLED CLAR = Settled Washwater)								
SETTELD CLAR-6 WW DUP	11/21/92	Water	PCP	SW-846 8270	2.0	mg/l	0.4	mg/l
SETTLED CLAR-6 WW	11/21/92	Water	PCP	SW-846 8270	2.2	mg/l	0.4	mg/l
SETTELD CLAR-6 WW DUP	11/21/92	Water	TS	EPA 160.3	0.0936	%	0.000%	
SETTLED CLAR-6 WW	11/21/92	Water	TS	EPA 160.3	0.0916	%	0.000%	
SOIL WASHING PRODUCTION RUN - No. 6 MESH SCREEN (COMP-6WC = Composite Sample of Washed Coarse Material)								
COMP-6WC*	11/20/92	Soil	PCP	SW-846 8270	6.3	mg/kg	1.6	mg/kg

* Sample was pulverized by hand and mechanically ground.

SS = Settleable solids

TSS = Total Suspended Solids

TS = Total Solids

TEST REPORT

FUGRO E McClelland

Report No.: 0401-1100 **Date:** December 8, 1992
Material: Soil Samples
Client: ERM Southwest, Inc.
Project: 92-17
Sampled By: Client on November 18, 1992
Attention: Mr. Ron Grimes

LIQUID AND PLASTIC LIMIT
ASTM D 4318

Sample Identification	Liquid Limit	Plastic Limit	Plasticity Index
PO 1 PD1	62	25	37
PO 2 PD2	87	26	61
PO 3 PD3	91	24	67
PO 4 PD4	45	17	28

DENSITY AND WATER CONTENT OF DRIVE RING SAMPLES
ASTM D 2937

Sample Identification	Classification	Water Content(%)	Wet Density (pcf)	Dry Density (pcf)
DR1	Clayey gravel, brown with roots	8.4	117.7	108.6
DR2	Clayey gravel, red, sandy with roots	15.2	97.2	84.3
DR3	Clayey gravel, red, sandy	13.5	119.3	105.1
DR4	Gravelly clay, red, sandy	8.4	112.4	103.7

Geotechnical
Construction Materials

THE ABOVE TEST RESULTS APPLY ONLY TO THE ITEMS TESTED.
THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF FUGRO-McCLELLAND.

TEST REPORT

FUGRO McClelland

Report No.: 0401-1100 **Date:** December 8, 1992

Client: ERM Southwest, Inc.

DENSITY AND WATER CONTENT OF BULK SAMPLES

Sample Identification	Classification	Water Content(%)	Bulk Wet Density (pcf)	Bulk Dry Density (pcf)
PO1	Gravelly clay, red	21.5	84.0	69.1
PO2	Gravelly clay, red with sand	17.3	83.8	71.4
PO3	Gravelly clay, red with sand	18.7	84.0	70.8
PO4	Sandy clay, reddish brown with gravel	14.6	96.2	83.9

Should be D

Note: The density of the bulk samples were measured in a 0.1 cubic foot mold. The soil was placed in the mold loose, then the mold and soil was dropped on a concrete floor two times from a height of about 1 ft. The resulting density was then measured.

PARTICLE SIZE ANALYSIS
ASTM D 422

(See attached Plate 1 for test results)

Respectfully Submitted,
FUGRO-McCLELLAND
(SOUTHWEST), INC.

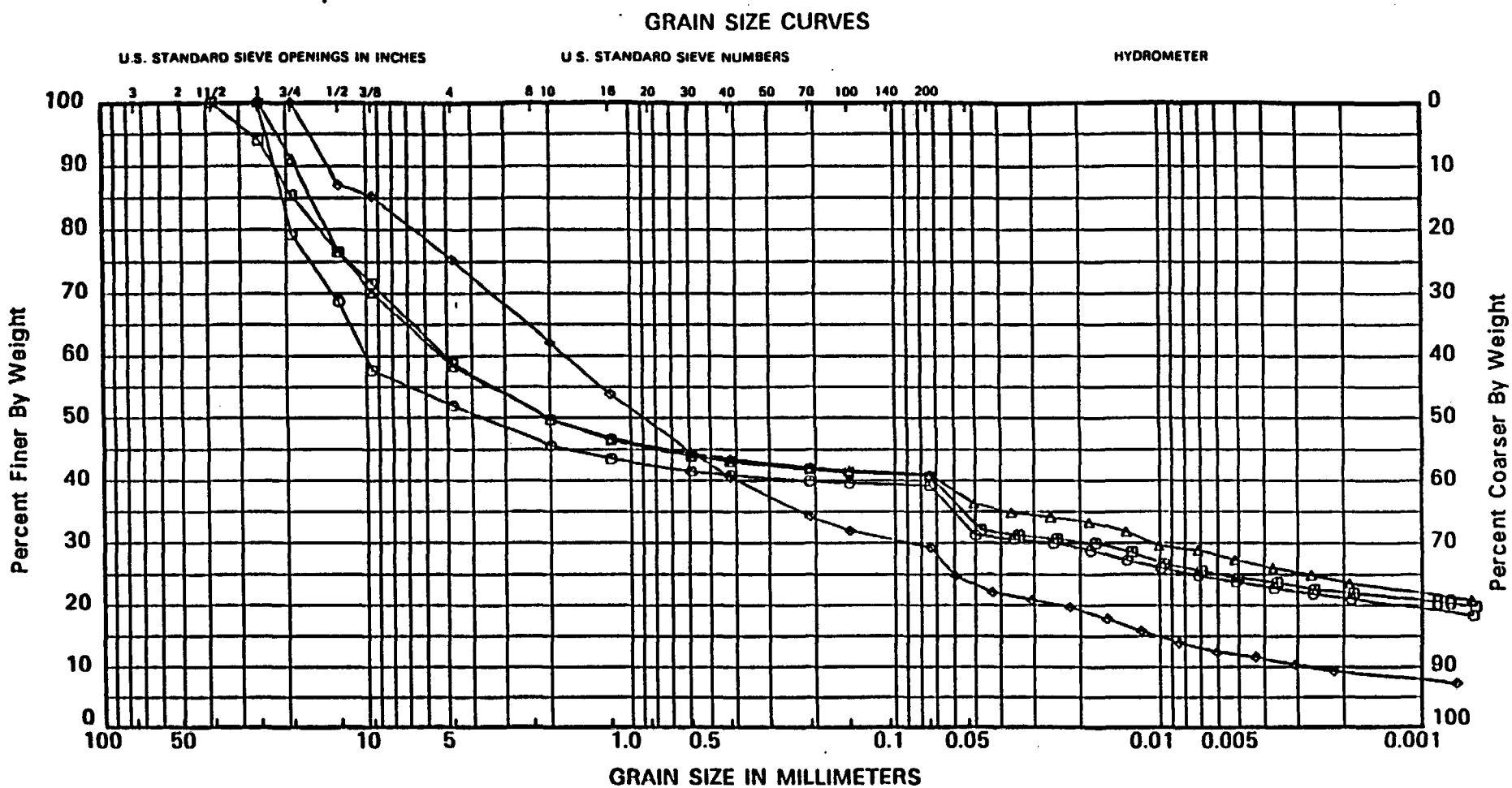
Kenneth W Hill

Kenneth W. Hill
Laboratory Testing Manager

Geotechnical
Construction Materials

THE ABOVE TEST RESULTS APPLY ONLY TO THE ITEMS TESTED.
THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF FUGRO-McCLELLAND.

0401-1100
ASTM D 422



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

CURVE	BORING NO.	PENETRATION, Ft	MATERIAL
-o-o-o-	P01	0.0	GRAVEL CLAY RED
-Δ-Δ-Δ-	P02	0.0	GRAVEL CLAY RED W/SAND
-□-□-□-	P03	0.0	GRAVEL CLAY RED W/SAND
-◇-◇-◇-	P04	0.0	SANDY CLAY REDDISH BROWN W/GRAVEL

McCLELLAND ENGINEERS

PLATE 1