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ENV. & ENGR SERVICES

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February 3, 1993

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. 11 - January 1993

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").

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. Using the small drying shed constructed on the Arkwood site in December, MMI ran a series of tests on excavated material to evaluate the effects on dry sieving and materials handling tests. A chain flailer was used on the conveyor system to improve material handling characteristics.

   c. A project progress meeting was held in the Houston offices of ERM-Southwest on January 14 and 15. The meeting was attended by MMI, Four Nines, Inc., and ERM-Southwest. At that meeting, additional laboratory tests were identified as being needed, namely a bench scale drying bed experiment and a Standard Proctor Curve for the dry sieved fines generated from Item 1.b.

   d. Polymer jar tests were performed on a prepared slurry.

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

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A member of the Environmental Resources Management Group

2. Data received during the reporting period:

   a. Additional analytical data from the initial field work became available during this reporting period. 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 2-1.

      Sample locations for the initial sampling were shown on the sample location map enclosed with the November report. An additional copy of this sample map was sent directly to the State as requested.

   b. Analytical data from the Sieve and Wash pilot and related activities was received and is attached. The results are grouped as follows:

      1) Table 2-4: Sieve and Wash Pilot - Dry Sieve Operation

      2) Table 2-5: Sieve and Wash Pilot - Washwater PCP Spike

      3) Table 2-6: Sieve and Wash Pilot - EPA Demonstration Run

      4) Table 2-7: Sieve and Wash Pilot - Composite Run

      5) Table 2-8: Sieve and Wash Pilot - Dewatering Characteristics of Fines from Clarifier Bottom

      6) Table 2-16: Polymer Testing

   c. Meteorological data for site.

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

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

   a. February 1993

      1) All analytical work should be completed.

      2) Work will continue on development of the PER.

      3) Dewatering bench scale tests will be completed as noted above.

   b. March 1993

      1) Work will continue on development of the PER.

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

   c. April 1993

      1) EPA review of Draft PER.

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
Attachments

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

Tables
Attachment

February 3, 1993
W.O. #92-17

ERM-SOUTHWEST, INC.
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TABLE 2-1 02/02/93
ARKWOOD RESULTS 13:14
RESULTS OF ADDITIONAL SITE SOILS SAMPLING C:\ARKWOOD\PER\PCPCPNA.WK1

SAMPLE NO.	LEVEL A 0 - 6" DEPTH PCP (mg/kg)	LEVEL A 0 - 6" DEPTH c-PNA (mg/kg)	LEVEL B 6 - 12" DEPTH PCP (mg/kg)	LEVEL B 6 - 12" DEPTH c-PNA (mg/kg)	LEVEL C 12 - 18" DEPTH PCP (mg/kg)	LEVEL C 12 - 18" DEPTH c-PNA (mg/kg)	LEVEL D 18 - 24" DEPTH PCP (mg/kg)	LEVEL D 18 - 24" DEPTH c-PNA (mg/kg)
PDS - 1	1,400		31		NA			
PDS - 2	560	0.83	200	0.45	NA			
PDS - 3	470	0.71	890		190			
PDS - 4	850							
PDS - 5	120		NA		NA			
PDS - 6	15		NA		NA			
PDS - 7	990		750		58			
PDS - 8	1,100		910		200	ND		
PDS - 9	790							
PDS - 10	1,600		68		NA			
PDS - 11	51		NA		NA			
PDS - 12	ND		NA		NA			
PDS - 13	740		3		NA			
PDS - 14	10		NA		NA			
PDS - 15	190	16.00	NA		NA			
PDS - 16	800		18		NA			
PDS - 17	100	0.71	NA		NA			
PDS - 18	59		NA		NA			
PDS - 19	290	ND	NA		NA			
PDS - 20	ND		NA		NA			
PDS - 21	710		46		NA			
PDS - 22	NA		NA		NA			
PDS - 23	NA		NA		NA			
PDS - 24	150	ND	NA		NA			
PDS - 25	NA		NA		NA			
PDS - 26	NA		NA		NA			
PDS - 27	9.5		NA		NA			
PDS - 28	11		NA		NA			
PDS - 29	NA		NA		NA			
PDS - 30	NA		NA		NA			
PDS - 31	4		NA		NA			
PDS - 32	23		NA		NA			
PDS - 33	120		NA		NA			
PDS - 34	NA		NA		NA			
PDS - 35	290		NA		NA			
PDS - 36	5		NA		NA			
PDS - 37	85		NA		NA			
PDS - 38	190	7.21	NA		NA			
PDS - 39	ND		NA		NA			
PDS - 40	380	ND	ND		NA			
PDS - 41	220	3.95	ND		NA			
PDS - 42	NA		NA		NA			
PDS - 43	260	2.21	NA		NA			
PDS - 44	210	2.50	200	ND	NA			
PDS - 45	350	5.08	110		NA			
PDS - 46	650	0.57	320	ND	72			
PDS - 47	330	ND	150	ND	NA			
PDS - 48	5		NA		NA			
PDS - 49	NA		NA		NA			
PDS - 50	NA		NA		NA			
PDS - 51	NA		NA		NA			

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PDS - 52	120		NA		NA			
PDS - 53	25		NA		NA			
PDS - 54	140		NA		NA			
PDS - 55	17		NA		NA			
PDS - 56	ND		NA		NA			
PDS - 57	16		ND		NA			
PDS - 58	280	ND	NA		NA			
PDS - 59	15		NA		NA			
PDS - 60	NA		NA		NA			
PDS - 61	NA		NA		NA			
PDS - 62	220	ND	NA		NA			
PDS - 63	92		NA		NA			
PDS - 64	ND		NA		NA			
PDS - 65	NA		NA		NA			
PDS - 66	ND		NA		NA			
PDS - 67	55		NA		NA			
PDS - 68	NA		NA		NA			
PDS - 69	ND		NA		NA			
PDS - 70	NA		NA		NA			
PDS - 71	13		NA		NA			
PDS - 72	130		NA		NA			
PDS - 73	230	ND	NA		NA			
PDS - 74	13		NA		NA			
PDS - 75	ND		NA		NA			
PDS - 76	140		NA		NA			
PDS - 77	ND		NA		NA			
PDS - 78	ND		NA		NA			
PDS - 79	ND		NA		NA			
PDS - 80	14		NA		NA			
PDS - 81	1,000		ND		NA			
PDS - 82	27		NA		NA			
PDS - 83	120		NA		NA			
PDS - 84	67		ND		NA			
PDS - 85	1,700		190	0.50	NA			
PDS - 86	2,300		710		ND		200	ND
PDS - 87	2,000		110		NA			
PDS - 88	2,000		58		NA			
PDS - 89	980		ND		NA			
PDS - 90	1,000		100		NA			
PDS - 91	ND		NA		NA			
PDS - 92	ND		ND		NA			
PDS - 93	460		42		NA			
PDS - 94	500		24		NA			
PDS - 95	370	3.91	7		NA			
PDS - 96	ND		ND		NA			

NOTE: NA = Not Analyzed
ND = Not Detected at Detection Limits
c-PNA Data Given as Benzo-a-Pyrene Equivalents

TABLE 2-4

SIEVE AND WASH PILOT STUDY

DRY SIEVE OPERATION

Parameter[1]	PD-1	PD-2	PD-3	PD-4
INITIAL FEED STOCK				
Moisture (%)	33.6	14.7	28.7	14.3
Pentachlorophenol	8.0	23.0	4.5	72.0
c-PNAs[2]	ND	0.62	0.49	0.47
Dioxin[3]	N/A	N/A	N/A	N/A
DRY SIEVED FINE MATERIAL - 1/4 INCH SCREEN				
Moisture (%)	22.5	18.2	29.5	14.7
Pentachlorophenol	27.0	140.0	18.0	ND
DRY SIEVED COARSE MATERIAL - 1/4 INCH SCREEN				
Moisture (%)	16.9	15.8	17.6	14.2
Pentachlorophenol	4.5	53.0	10.0	86.0

NOTES:

1. All units are in mg/kg unless otherwise noted.
2. Acid-base cleanup used; values reported in benzo-(a)-pyrene equivalents using 1/2 limit of quantitation for ND values.
3. N/A = Data not available

TABLE 2-5

SIEVE AND WASH PILOT STUDY

WASHWATER PCP SPIKE

WASHED COARSE FRACTION	
Pentachlorophenol	10.0 mg/kg
WASHWATER SAMPLE	
Pentachlorophenol	990 ug/kg

TABLE 2-6

SIEVE AND WASH PILOT STUDY

EPA DEMONSTRATION RUN

WASHED COARSE FRACTION		
Pentachlorophenol	10.0	mg/kg
PNAs (Carcinogenic)[1]	ND (0.33	mg/kg)
PNAs (Non-carcinogenic)[1]		
Phenanthrene	0.52	mg/kg
Pyrene	0.33	mg/kg
Dioxin	Data Not Yet Available	
WASHWATER SAMPLE		
Pentachlorophenol	550	ug/kg
	600	ug/kg (Duplicate)

NOTE:

1. Acid-Base partition cleanup used.

TABLE 2-7

SIEVE AND WASH FEED PILOT STUDY

COMPOSITE RUN

WASHWATER ANALYSIS

Parameter[1]	Run 4 (PD-1)	Run 8 (PD-2)	Run 12 (PD-3)	Run 16 (PD-4)
Total Solids (%)	1.29	1.34	1.49	1.46
Settleable Solids	325	375	410	440
Pentachlorophenol	700	830	900	1,400

WASHED COARSE FRACTION ANALYSIS

Pentachlorophenol	6.3	mg/kg
PNAs (Carcinogenic)[1]	ND	(0.33 mg/kg)
PNAs (Non-carcinogenic)[1]		
Flouranthene	0.47	mg/kg
Flourene	0.33	mg/kg
Phenanthrene	1.70	mg/kg
Pyrene	0.41	mg/kg
Dioxin	Data Not Yet Available	

NOTES:

1. Acid-Base partition cleanup used.
2. No. 6 mesh screen used during wash.

TABLE 2-8 02/02/93

SIEVE AND WASH PILOT STUDY - COMPOSITE RUN

DEWATERING CHARACTERISTICS OF FINES FROM CLARIFIER BOTTOM

SAMPLE LOCATION DESCRIPTION	VACUUM (in Hg)	INITIAL WEIGHT OF SAMPLE (g)	INITIAL MOISTURE CONTENT (%)	WEIGHT OF DIATOMACEOUS EARTH (g)	TIME OF FILTRATION RUN (min)	ACCUMULATED VOLUME OF FILTRATE (ml)	FINAL WEIGHT OF SAMPLE (g)
Influent End	12	100.27		0.00	15.00	0.24	98.38
	12	100.27		0.00	30.00	0.30	96.05
	12	100.27		0.00	60.00	0.31	92.93
	15	100.02		4.92	15.00	0.92	97.15
	15	100.02		4.92	30.00	1.07	94.99
	15	100.02		4.92	60.00	1.08	91.84
Mid-Tank	27	100.02		0.00	15.00	10.68	89.21
	27	100.02		0.00	30.00	16.17	83.41
	27	100.02		0.00	60.00	23.87	75.10
	27	100.11		5.06	15.00	7.32	92.52
	27	100.11		5.06	30.00	13.67	85.87
	27	100.11		5.06	60.00	26.07	71.81
Beneath Weir	27	100.16		0.00	15.00	14.70	85.49
	27	100.16		0.00	30.00	22.62	77.11
	27	100.16		0.00	60.00	33.02	66.56
	27	100.02		4.98	15.00	21.63	78.37
	27	100.02		4.98	30.00	32.43	67.47
	27	100.02		4.98	60.00	48.34	49.96
Influent End	12	100.50		0.00	15.00	2.79	96.14
	12	100.50		0.00	30.00	3.07	93.99
	12	100.50		0.00	60.00	3.11	91.37
	10	99.64		5.13	15.00	2.52	94.57
	10	99.64		5.13	30.00	3.14	91.72
	10	99.64		5.13	60.00	3.18	88.87
Mid-Tank	17.5	100.26		0.00	15.00	9.62	91.54
	17.5	100.26		0.00	30.00	14.71	85.23
	17.5	100.26		0.00	60.00	22.00	77.48
	17.5	100.08		5.02	15.00	6.68	93.37
	17.5	100.08		5.02	30.00	12.80	86.96
	17.5	100.08		5.02	60.00	20.02	79.31
Beneath Weir	17.5	100.22		0.00	15.00	9.71	90.31
	17.5	100.22		0.00	30.00	14.91	85.05
	17.5	100.22		0.00	60.00	21.82	77.36
	17.5	100.12		5.08	15.00	8.90	90.95
	17.5	100.12		5.08	30.00	15.72	84.01
	17.5	100.12		5.08	60.00	30.13	68.19

NOTE: Area of Filter Paper = 38.465 square centimeters

TABLE 2-16
ARKWOOD SUPERFUND SITE
POLYMER TESTING

Sample ID	Alum	7768	7135	TSS (mg/l)	Observations
Prepared Slurry	---	---	---	4,070	Red, Milky
POL-01	100	10	None	14	Murky
POL-02	200	10	None	25	Clear with floc
POL-03	150	4	None	59	Slightly murky
POL-04	150	6	None	56	Less murky
POL-05	None	4	None	194	Slightly murky, large flo
POL-06	None	6	None	254	Clear water, large floc
POL-07	None	0.2	2	46	Murky
POL-08	None	0.2	4	14	Relatively clear

TABLE 2-17

ARKWOOD, INC. SUPERFUND SITE
OMAHA, ARKANSAS

NORTHWEST ARKANSAS WEATHER FILE

MONTH	RAINFALL (inches)	PAN EVAPORATION (inches)	NET EVAPORATION (inches)	TEMPERATURE (deg F)
January	1.5	0.5	-1.0	33
February	3.0	0.7	-2.3	41
March	3.0	1.5	-1.5	48
April	4.2	5.8	+1.6	60
May	4.7	6.3	+1.6	67
June	5.1	7.7	+2.6	75
July	3.6	6.8	+3.2	79
August	3.5	6.2	+2.7	78
September	2.9	4.4	+1.5	71
October	3.2	2.6	-0.6	61
November	3.0	1.6	-1.4	48
December	3.7	0.5	-3.2	40