ERM-Southwest, Inc.

16300 Katy Freeway
Suite 300
Houston, Texas 77094-1609
(713) 579-8999
(713) 579-8988 (Fax)

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ENV. & ENGR SERVICES

ERM

March 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. 12 - February 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. Analytical work to progressively define the extent of the affected area and to evaluate the c-PNA and dioxin concentrations was completed.
   b. Analytical work to evaluate incineration characteristics was completed.
   c. A bench scale sand drying bed experiment was completed. Results are shown in the attached graph entitled Arkwood Treatability Study (Air Drying - Percent Moisture).
   d. 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. 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. See attached GSAI Groups 9558, 9631, 9335, 9466 and 9060.

      Sample locations for the initial sampling were shown on the sample location map enclosed with the November report.

3501 N. Causeway Blvd.
Suite 200
Metairie, Louisiana 70002
(504) 831-6700
(504) 831-6742 (Fax)

1120 South
Capital of Texas Highway
Building II
Suite 205
Austin, Texas 78746
(512) 328-9200
(512) 328-9214 (Fax)

4100 Spring Valley Road
Suite 200
Dallas, Texas 75244
(214) 458-7272
(214) 458-7204 (Fax)

5959 Gateway West Blvd.
Suite 655
El Paso, Texas 79925
(915) 779-6666
(915) 779-6632 (Fax)

A member of the Environmental Resources Management Group

187517

b. Analytical data from the field drying/chain flailing experiment were received and are attached as GSAI Group 9488.

c. Analytical data for the incineration characteristics study were received and are attached as GSAI Group 9487 and the reports from Galbraith Laboratories.

d. A Proctor curve was developed for a sample of raw feed stock.

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

a. March 1993

1) Work will continue on development of the PER.

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

b. April 1993

1) EPA review of Draft PER.

c. May 1993

1) Respond to EPA comments on 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.

James W. Weinhuber for

Ronald T. Grimes, P.E.

RTG/skd

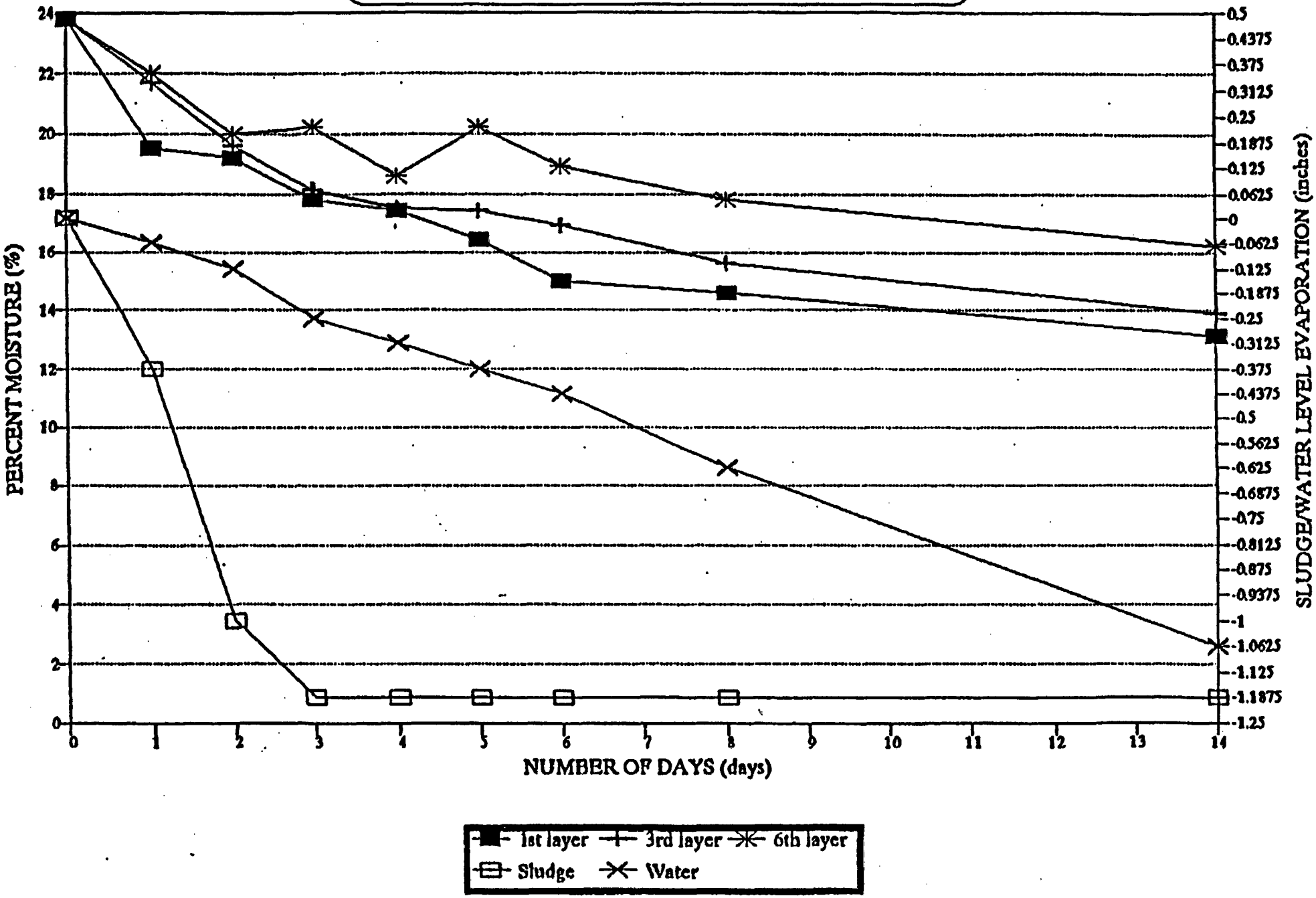
cc: D. S. Diehl, ERM-Southwest, Inc.
M. L. Lutz, ERM-Southwest, Inc.

Graph
Attachment A

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

ERM-SOUTHWEST, INC.
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1609
(713) 579-8999

ARKWOOD TREATABILITY STUDY
(AIR DRYING - PERCENT MOISTURE)



GSAI Groups
Attachment B

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

ERM-SOUTHWEST, INC.
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1609
(713) 579-8999

GULF STATES ANALYTICAL, INC.
5450 Northwest Central Drive, Suite 110
Houston, Texas 77092, (713) 690-4444, FAX (713) 690-5646

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.
16300 Katy Freeway, Suite 300
Houston, TX 77094-1609

GSAI Group: 9558
Date Reported: 02/03/93
Date Received: 10/06/92

Attn: Mr. Ron Grimes
Project: Arkwood

Purchase Order: 92-17
Project No.: 92-17

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47803 - PDS-4B,6-12"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	450	mg/kg	160	02/03/93	HV
Sample:47809 - PDS-9B,6-12"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	95.0	mg/kg	40.0	02/03/93	HV

Respectfully Submitted,
Reviewed and Approved by:

Melanie L. D'Aoust
Project Manager

GULF STATES ANALYTICAL, INC.
5450 Northwest Central Drive, Suite 110
Houston, Texas 77092, (713) 690-4444, FAX (713) 690-5646

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.
16300 Katy Freeway, Suite 300
Houston, TX 77094-1609

GSAI Group: 9631
Date Reported: 02/18/93
Date Received: 02/09/93

Attn: Mr. Ron Grimes
Project: Arkwood

Purchase Order: 92-17
Project No.: 92-17

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47804 - PDS-4C,12-18"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	127	mg/kg	80.0	02/16/93	LG

Respectfully Submitted,
Reviewed and Approved by:

T. K. Koenig for

Melanie L. D'Aoust
Project Manager

GULF STATES ANALYTICAL, INC.
5450 Northwest Central Drive, Suite 110
Houston, Texas 77092, (713) 690-4444, FAX (713) 690-5646

02/15/93

Mr. Ron Grimes
ERM-Southwest, Inc.
16300 Katy Freeway, Suite 300
Houston, TX 77094

Reference:
Project: Arkwood
Project No.: 92-17
GSAI Group Nos: 9060, 9109, 9335

Dear Mr. Grimes:

The reported Dioxin and Furan data is based upon two analytical runs. Per SW-846 method 8280, a dilution must be run when an analyte of interest exceeds the linear calibration range. For many of the samples, a diluted analysis was required for the hepta and octa congeners.

After discussions with the laboratory performing the analysis, Triangle Laboratories of Houston, it was determined to report all data acquired from the undiluted analytical runs, even though some of the congeners had exceeded the calibrated linear range. It was required to dilute samples with internal standard solutions. After this is accomplished, there is no accurate way to quantitate an analyte since the internal standard amount is altered. We used the undiluted results in their entirety because the quantitation was more accurate using the unaltered internal standard response factor. At the suggestion of Triangle Laboratories, the qualitative diluted result was used to verify undiluted result.

Thank you for selecting Gulf States Analytical, Inc. to serve as your analytical laboratory on this project. If you have any questions concerning these results, please feel free to contact me at any time.

We look forward to working with you on future projects.

Sincerely yours,

Melanie L. D'Aoust

Melanie L. D'Aoust
Project Manager

GULF STATES ANALYTICAL, INC.
5450 Northwest Central Drive, Suite 110
Houston, Texas 77092, (713) 690-4444, FAX (713) 690-5646

ANALYSIS SUMMARY REPORT
(Revised 02/04/93)

ERM-Southwest, Inc.
16300 Katy Freeway, Suite 300
Houston, TX 77094-1609

GSAI Group: 9335
Date Reported: 01/20/93
Date Received: 10/01/92

Attn: Mr. Ron Grimes
Project: Arkwood

Purchase Order: 92-17
Project No.: 92-17

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47315 - PDS-2B, 6-12"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	0.00074	mg/kg	0.00007	01/07/93	SUB
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00008	01/07/93	SUB
	Pentachlorodibenzofurans	0.0349	mg/kg	0.00012	01/07/93	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00014	01/07/93	SUB
	Hexachlorodibenzofurans	0.169	mg/kg	0.00024	01/07/93	SUB
	Hexachlorodibenzo-p-dioxins	0.0199	mg/kg	0.00023	01/07/93	SUB
	Heptachlorodibenzofurans	0.263	mg/kg	0.00021	01/07/93	SUB
	Heptachlorodibenzo-p-dioxins	0.450	mg/kg	0.00024	01/07/93	SUB
	Octachlorodibenzofurans	0.0937	mg/kg	0.00039	01/07/93	SUB
	Octachlorodibenzo-p-dioxins	1.07	mg/kg	0.00031	01/07/93	SUB
	Total Dioxins and Furans	2.10	mg/kg	0.00039	01/07/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.0120	mg/kg (11)	0.00008	01/07/93	SUB
Sample:47335 - PDS-19A, 0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	0.00017	mg/kg	0.00006	01/07/93	SUB
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00007	01/07/93	SUB
	Pentachlorodibenzofurans	0.00298	mg/kg	0.00011	01/07/93	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00013	01/07/93	SUB
	Hexachlorodibenzofurans	0.0263	mg/kg	0.00022	01/07/93	SUB
	Hexachlorodibenzo-p-dioxins	0.00911	mg/kg	0.00021	01/07/93	SUB
	Heptachlorodibenzofurans	0.103	mg/kg	0.00019	01/07/93	SUB
	Heptachlorodibenzo-p-dioxins	0.326	mg/kg	0.00022	01/07/93	SUB
	Octachlorodibenzofurans	0.111	mg/kg	0.00035	01/07/93	SUB
	Octachlorodibenzo-p-dioxins	1.07	mg/kg	0.00028	01/07/93	SUB
	Total Dioxins and Furans	1.65	mg/kg	0.00035	01/07/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00460	mg/kg (12)	0.00007	01/07/93	SUB
Sample:47353 - PDS-43A, 0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00008	01/07/93	SUB

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc. GSAI Group: 9335

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47353 - PDS-43A, 0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00009	01/07/93	SUB
	Pentachlorodibenzofurans	0.00636	mg/kg	0.00013	01/07/93	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00016	01/07/93	SUB
	Hexachlorodibenzofurans	0.0155	mg/kg	0.00028	01/07/93	SUB
	Hexachlorodibenzo-p-dioxins	0.00789	mg/kg	0.00027	01/07/93	SUB
	Heptachlorodibenzofurans	0.124	mg/kg	0.00024	01/07/93	SUB
	Heptachlorodibenzo-p-dioxins	0.333	mg/kg	0.00027	01/07/93	SUB
	Octachlorodibenzofurans	0.129	mg/kg	0.00045	01/07/93	SUB
	Octachlorodibenzo-p-dioxins	1.50	mg/kg	0.00036	01/07/93	SUB
	Total Dioxins and Furans	2.12	mg/kg	0.00045	01/07/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00480	mg/kg (13)	0.00009	01/07/93	SUB
Sample:47538 - PDS-46A, 0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	0.00020	mg/kg	0.00006	01/07/93	SUB
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00007	01/07/93	SUB
	Pentachlorodibenzofurans	0.0322	mg/kg	0.0001	01/07/93	SUB
	Pentachlorodibenzo-p-dioxins	0.00024	mg/kg	0.00013	01/07/93	SUB
	Hexachlorodibenzofurans	0.176	mg/kg	0.00021	01/07/93	SUB
	Hexachlorodibenzo-p-dioxins	0.0347	mg/kg	0.0002	01/07/93	SUB
	Heptachlorodibenzofurans	0.394	mg/kg	0.00018	01/07/93	SUB
	Heptachlorodibenzo-p-dioxins	0.841	mg/kg	0.00021	01/07/93	SUB
	Octachlorodibenzofurans	0.215	mg/kg	0.00034	01/07/93	SUB
	Octachlorodibenzo-p-dioxins	2.00	mg/kg	0.00028	01/07/93	SUB
	Total Dioxins and Furans	3.69	mg/kg	0.00034	01/07/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.0140	mg/kg (14)	0.00007	01/07/93	SUB
Sample:47539 - PDS-46B, 6-12"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	0.00314	mg/kg	0.00007	01/07/93	SUB
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00009	01/07/93	SUB
	Pentachlorodibenzofurans	0.00905	mg/kg	0.00012	01/07/93	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00015	01/07/93	SUB
	Hexachlorodibenzofurans	0.0979	mg/kg	0.00025	01/07/93	SUB
	Hexachlorodibenzo-p-dioxins	0.0138	mg/kg	0.00024	01/07/93	SUB
	Heptachlorodibenzofurans	0.183	mg/kg	0.00022	01/07/93	SUB

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc. GSAI Group: 9335

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47539 - PDS-46B, 6-12"						
2795	Dioxins and Furans, Solids					
	Heptachlorodibenzo-p-dioxins	0.392	mg/kg	0.00025	01/07/93	SUB
	Octachlorodibenzofurans	0.100	mg/kg	0.00041	01/07/93	SUB
	Octachlorodibenzo-p-dioxins	1.53	mg/kg	0.00033	01/07/93	SUB
	Total Dioxins and Furans	2.33	mg/kg	0.00041	01/07/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00800	mg/kg (15)	0.00009	01/07/93	SUB
Sample:48241 - PDS-41A,0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00007	01/08/93	SUB
	Tetrachlorodibenzo-p-dioxins	0.00078	mg/kg	0.00008	01/08/93	SUB
	Pentachlorodibenzofurans	0.00186	mg/kg	0.00012	01/08/93	SUB
	Pentachlorodibenzo-p-dioxins	0.00023	mg/kg	0.00014	01/08/93	SUB
	Hexachlorodibenzofurans	0.0245	mg/kg	0.00025	01/08/93	SUB
	Hexachlorodibenzo-p-dioxins	0.0128	mg/kg	0.00024	01/08/93	SUB
	Heptachlorodibenzofurans	0.134	mg/kg	0.00021	01/08/93	SUB
	Heptachlorodibenzo-p-dioxins	0.343	mg/kg	0.00024	01/08/93	SUB
	Octachlorodibenzofurans	0.121	mg/kg	0.00039	01/08/93	SUB
	Octachlorodibenzo-p-dioxins	0.928	mg/kg	0.00032	01/08/93	SUB
	Total Dioxins and Furans	1.57	mg/kg	0.00039	01/08/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00540	mg/kg (16)	0.00008	01/08/93	SUB
Sample:48247 - PDS-47A,0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00008	01/08/93	SUB
	Tetrachlorodibenzo-p-dioxins	0.00104	mg/kg	0.00009	01/08/93	SUB
	Pentachlorodibenzofurans	0.00160	mg/kg	0.00013	01/08/93	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00015	01/08/93	SUB
	Hexachlorodibenzofurans	0.0226	mg/kg	0.00026	01/08/93	SUB
	Hexachlorodibenzo-p-dioxins	0.0124	mg/kg	0.00025	01/08/93	SUB
	Heptachlorodibenzofurans	0.155	mg/kg	0.00023	01/08/93	SUB
	Heptachlorodibenzo-p-dioxins	0.516	mg/kg	0.00026	01/08/93	SUB
	Octachlorodibenzofurans	0.180	mg/kg	0.00042	01/08/93	SUB
	Octachlorodibenzo-p-dioxins	1.40	mg/kg	0.00034	01/08/93	SUB
	Total Dioxins and Furans	2.29	mg/kg	0.00042	01/08/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00770	mg/kg (17)	0.00009	01/08/93	SUB
Sample:48273 - PDS-95A, 0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00006	01/07/93	SUB

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc. GSAI Group: 9335

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:48273 - PDS-95A, 0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00006	01/07/93	SUB
	Pentachlorodibenzofurans	ND	mg/kg	0.00009	01/07/93	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00011	01/07/93	SUB
	Hexachlorodibenzofurans	0.00729	mg/kg	0.00019	01/07/93	SUB
	Hexachlorodibenzo-p-dioxins	0.00804	mg/kg	0.00018	01/07/93	SUB
	Heptachlorodibenzofurans	0.0684	mg/kg	0.00017	01/07/93	SUB
	Heptachlorodibenzo-p-dioxins	0.421	mg/kg	0.00019	01/07/93	SUB
	Octachlorodibenzofurans	0.0896	mg/kg	0.00031	01/07/93	SUB
	Octachlorodibenzo-p-dioxins	1.53	mg/kg	0.00025	01/07/93	SUB
	Total Dioxins and Furans	2.12	mg/kg	0.00031	01/07/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00550	mg/kg (18)	0.00006	01/07/93	SUB
Sample:48288 - PDS-44A, 0-6"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00006	01/07/93	SUB
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00007	01/07/93	SUB
	Pentachlorodibenzofurans	0.00296	mg/kg	0.00011	01/07/93	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00013	01/07/93	SUB
	Hexachlorodibenzofurans	0.0291	mg/kg	0.00022	01/07/93	SUB
	Hexachlorodibenzo-p-dioxins	0.0253	mg/kg	0.00021	01/07/93	SUB
	Heptachlorodibenzofurans	0.223	mg/kg	0.00019	01/07/93	SUB
	Heptachlorodibenzo-p-dioxins	0.610	mg/kg	0.00021	01/07/93	SUB
	Octachlorodibenzofurans	0.190	mg/kg	0.00035	01/07/93	SUB
	Octachlorodibenzo-p-dioxins	2.38	mg/kg	0.00028	01/07/93	SUB
	Total Dioxins and Furans	3.46	mg/kg	0.00035	01/07/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00920	mg/kg (19)	0.00007	01/07/93	SUB
Sample:48289 - PDS-44B, 6-12"						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00008	01/07/93	SUB
	Tetrachlorodibenzo-p-dioxins	0.00261	mg/kg	0.00009	01/07/93	SUB
	Pentachlorodibenzofurans	ND	mg/kg	0.00013	01/07/93	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00016	01/07/93	SUB
	Hexachlorodibenzofurans	0.00469	mg/kg	0.00028	01/07/93	SUB
	Hexachlorodibenzo-p-dioxins	0.00194	mg/kg	0.00026	01/07/93	SUB
	Heptachlorodibenzofurans	0.0602	mg/kg	0.00024	01/07/93	SUB

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc. GSAI Group: 9335

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:48289 - PDS-44B, 6-12"						
2795	Dioxins and Furans, Solids					
	Heptachlorodibenzo-p-dioxins	0.153	mg/kg	0.00027	01/07/93	SUB
	Octachlorodibenzofurans	0.0736	mg/kg	0.00044	01/07/93	SUB
	Octachlorodibenzo-p-dioxins	0.647	mg/kg	0.00035	01/07/93	SUB
	Total Dioxins and Furans	0.943	mg/kg	0.00044	01/07/93	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00220	mg/kg (20)	0.00009	01/07/93	SUB

(1) Reported as toxicity equivalents.

(2) Reported as toxicity equivalents.

(3) Reported as toxicity equivalents.

(4) Reported as toxicity equivalents.

(5) Reported as toxicity equivalents.

(6) Reported as toxicity equivalents.

(7) Reported as toxicity equivalents.

(8) Reported as toxicity equivalents.

(9) Reported as toxicity equivalents.

(10) Reported as toxicity equivalents.

ND - Not detected at the limit of quantitation

Respectfully Submitted,
Reviewed and Approved by:

Melanie L. D'Aoust
Project Manager

GULF STATES ANALYTICAL, INC.
5450 Northwest Central Drive, Suite 110
Houston, Texas 77092, (713) 690-4444, FAX (713) 690-5646

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.
16300 Katy Freeway, Suite 300
Houston, TX 77094-1609

GSAI Group: 9466
Date Reported: 01/27/93
Date Received: 01/14/93

Attn: Mr. Ron Grimes
Project: Arkwood

Purchase Order: 92-17
Project No.: 92-17

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47314 - PDS-2A, 0-6"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	14.0	mg/kg	1.65	01/26/93	HV
	Acenaphthylene	2.20	mg/kg	0.330	01/26/93	HV
	Anthracene	2.10	mg/kg	0.330	01/26/93	HV
	Benzo(a)anthracene	0.440	mg/kg	0.330	01/26/93	HV
	Benzo(b)fluoranthene	0.830	mg/kg	0.330	01/26/93	HV
	Benzo(k)fluoranthene	0.950	mg/kg	0.330	01/26/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)pyrene	0.350	mg/kg	0.330	01/26/93	HV
	Chrysene	1.50	mg/kg	0.330	01/26/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Fluoranthene	14.0	mg/kg	1.65	01/26/93	HV
	Fluorene	5.80	mg/kg	1.65	01/26/93	HV
	1-Methylnaphthalene	23.0	mg/kg	1.65	01/26/93	HV
	2-Methylnaphthalene	16.0	mg/kg	1.65	01/26/93	HV
	Naphthalene	ND	mg/kg	0.330	01/26/93	HV
	Phenanthrene	51.0	mg/kg	6.60	01/26/93	HV
	Pyrene	5.30	mg/kg	1.65	01/26/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/26/93	HV
Sample:47325 - PDS-8C, 12-18"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	01/26/93	HV
	Acenaphthylene	ND	mg/kg	0.330	01/26/93	HV
	Anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(b)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(k)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)pyrene	ND	mg/kg	0.330	01/26/93	HV
	Chrysene	ND	mg/kg	0.330	01/26/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Fluorene	ND	mg/kg	0.330	01/26/93	HV
	1-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc. GSAI Group: 9466

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47325 - PDS-8C, 12-18"						
6721	Polynuclear Aromatics, GC/MS, SW					
	2-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	Naphthalene	ND	mg/kg	0.330	01/26/93	HV
	Phenanthrene	ND	mg/kg	0.330	01/26/93	HV
	Pyrene	ND	mg/kg	0.330	01/26/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/26/93	HV
Sample:47332 - PDS-17A, 0-6"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	01/26/93	HV
	Acenaphthylene	ND	mg/kg	0.330	01/26/93	HV
	Anthracene	0.550	mg/kg	0.330	01/26/93	HV
	Benzo(a)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(b)fluoranthene	0.360	mg/kg	0.330	01/26/93	HV
	Benzo(k)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)pyrene	0.400	mg/kg	0.330	01/26/93	HV
	Chrysene	ND	mg/kg	0.330	01/26/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Fluoranthene	0.750	mg/kg	0.330	01/26/93	HV
	Fluorene	ND	mg/kg	0.330	01/26/93	HV
	1-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	2-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	Naphthalene	ND	mg/kg	0.330	01/26/93	HV
	Phenanthrene	0.340	mg/kg	0.330	01/26/93	HV
	Pyrene	ND	mg/kg	0.330	01/26/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/26/93	HV
Sample:47341 - PDS-24A, 0-6"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	01/26/93	HV
	Acenaphthylene	ND	mg/kg	0.330	01/26/93	HV
	Anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(b)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(k)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)pyrene	ND	mg/kg	0.330	01/26/93	HV
	Chrysene	ND	mg/kg	0.330	01/26/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Fluorene	ND	mg/kg	0.330	01/26/93	HV

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc. GSAI Group: 9466

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47341 - PDS-24A, 0-6"						
6721	Polynuclear Aromatics, GC/MS, SW					
	1-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	2-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	Naphthalene	ND	mg/kg	0.330	01/26/93	HV
	Phenanthrene	ND	mg/kg	0.330	01/26/93	HV
	Pyrene	0.860	mg/kg	0.330	01/26/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/26/93	HV
Sample:47663 - PDS-85B, 6-12"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	01/26/93	HV
	Acenaphthylene	ND	mg/kg	0.330	01/26/93	HV
	Anthracene	0.510	mg/kg	0.330	01/26/93	HV
	Benzo(a)anthracene	0.340	mg/kg	0.330	01/26/93	HV
	Benzo(b)fluoranthene	0.360	mg/kg	0.330	01/26/93	HV
	Benzo(k)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)pyrene	ND	mg/kg	0.330	01/26/93	HV
	Chrysene	0.440	mg/kg	0.330	01/26/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Fluoranthene	3.40	mg/kg	0.660	01/26/93	HV
	Fluorene	0.510	mg/kg	0.330	01/26/93	HV
	1-Methylnaphthalene	0.960	mg/kg	0.330	01/26/93	HV
	2-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	Naphthalene	ND	mg/kg	0.330	01/26/93	HV
	Phenanthrene	3.80	mg/kg	0.660	01/26/93	HV
	Pyrene	1.50	mg/kg	0.330	01/26/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/26/93	HV
Sample:47801 - PDS-3C,12-18"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	190	mg/kg	64.0	01/22/93	LG
Sample:47802 - PDS-4A,0-6"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	850	mg/kg	400	01/23/93	LG
Sample:47805 - PDS-5A,0-6"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	120	mg/kg	64.0	01/23/93	LG
Sample:47808 - PDS-9A,0-6"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	790	mg/kg	400	01/23/93	LG

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc. GSAI Group: 9466

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:47941 - PDS-35A,0-6"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	290	mg/kg	128	01/23/93	LG
Sample:48235 - PDS-40A,0-6"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	01/26/93	HV
	Acenaphthylene	ND	mg/kg	0.330	01/26/93	HV
	Anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(b)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(k)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)pyrene	ND	mg/kg	0.330	01/26/93	HV
	Chrysene	ND	mg/kg	0.330	01/26/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Fluoranthene	1.30	mg/kg	0.330	01/26/93	HV
	Fluorene	ND	mg/kg	0.330	01/26/93	HV
	1-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	2-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	Naphthalene	ND	mg/kg	0.330	01/26/93	HV
	Phenanthrene	ND	mg/kg	0.330	01/26/93	HV
	Pyrene	0.570	mg/kg	0.330	01/26/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/26/93	HV
Sample:48236 - PDS-40B,6-12"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	ND	mg/kg	1.60	01/21/93	LG
Sample:48238 - PDS-39A,0-6"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	ND	mg/kg	1.60	01/22/93	LG
Sample:48248 - PDS-47B,6-12"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	01/26/93	HV
	Acenaphthylene	ND	mg/kg	0.330	01/26/93	HV
	Anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(b)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(k)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)pyrene	ND	mg/kg	0.330	01/26/93	HV

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc. GSAI Group: 9466

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:48248 - PDS-47B,6-12"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Chrysene	ND	mg/kg	0.330	01/26/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Fluoranthene	0.490	mg/kg	0.330	01/26/93	HV
	Fluorene	ND	mg/kg	0.330	01/26/93	HV
	1-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	2-Methylnaphthalene	ND	mg/kg	0.330	01/26/93	HV
	Naphthalene	ND	mg/kg	0.330	01/26/93	HV
	Phenanthrene	ND	mg/kg	0.330	01/26/93	HV
	Pyrene	0.500	mg/kg	0.330	01/26/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/26/93	HV
Sample:48294 - PDS-58A, 0-6"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	01/25/93	HV
	Acenaphthylene	ND	mg/kg	0.330	01/25/93	HV
	Anthracene	ND	mg/kg	0.330	01/25/93	HV
	Benzo(a)anthracene	ND	mg/kg	0.330	01/25/93	HV
	Benzo(b)fluoranthene	ND	mg/kg	0.330	01/25/93	HV
	Benzo(k)fluoranthene	ND	mg/kg	0.330	01/25/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/25/93	HV
	Benzo(a)pyrene	ND	mg/kg	0.330	01/25/93	HV
	Chrysene	ND	mg/kg	0.330	01/25/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/25/93	HV
	Fluoranthene	ND	mg/kg	0.330	01/25/93	HV
	Fluorene	ND	mg/kg	0.330	01/25/93	HV
	1-Methylnaphthalene	ND	mg/kg	0.330	01/25/93	HV
	2-Methylnaphthalene	ND	mg/kg	0.330	01/25/93	HV
	Naphthalene	ND	mg/kg	0.330	01/25/93	HV
	Phenanthrene	ND	mg/kg	0.330	01/25/93	HV
	Pyrene	ND	mg/kg	0.330	01/25/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/25/93	HV
Sample:48318 - PDS-92A, 0-6"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	ND	mg/kg	1.60	01/22/93	LG
Sample:48319 - PDS-92B, 6-12"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	ND	mg/kg	1.60	01/21/93	LG
Sample:48322 - PDS-93B, 6-12"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	42.0	mg/kg	16.0	01/23/93	LG

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.

GSAI Group: 9466

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:48324 - PDS-94A, 0-6"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	500	mg/kg	200	01/23/93	LG
Sample:48325 - PDS-94B, 6-12"						
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	24.0	mg/kg	12.8	01/23/93	LG
Sample:48392 - PDS-86D, 24-30"						
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	2.70	mg/kg	1.65	01/26/93	HV
	Acenaphthylene	ND	mg/kg	1.65	01/26/93	HV
	Anthracene	1.30	mg/kg	0.330	01/26/93	HV
	Benzo(a)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(b)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(k)fluoranthene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(ghi)perylene	ND	mg/kg	0.330	01/26/93	HV
	Benzo(a)pyrene	ND	mg/kg	0.330	01/26/93	HV
	Chrysene	ND	mg/kg	0.330	01/26/93	HV
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	01/26/93	HV
	Fluoranthene	2.60	mg/kg	1.65	01/26/93	HV
	Fluorene	6.10	mg/kg	1.65	01/26/93	HV
	1-Methylnaphthalene	17.0	mg/kg	1.65	01/26/93	HV
	2-Methylnaphthalene	17.0	mg/kg	1.65	01/26/93	HV
	Naphthalene	0.720	mg/kg	0.330	01/26/93	HV
	Phenanthrene	20.0	mg/kg	1.65	01/26/93	HV
	Pyrene	0.870	mg/kg	0.330	01/26/93	HV
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	01/26/93	HV

ND - Not detected at the limit of quantitation

Respectfully Submitted,
Reviewed and Approved by:

Melanie L. D'Aoust

Melanie L. D'Aoust
Project Manager

GULF STATES ANALYTICAL, INC.
3450 Northwest Central Drive, Suite 110
Houston, Texas 77092, (713) 690-4444, FAX (713) 690-5646

ANALYSIS SUMMARY REPORT
(Revised 02/04/93)

ERM-Southwest, Inc.
16300 Katy Freeway, Suite 300
Houston, TX 77094-1609

GSAI Group: 9060
Date Reported: 12/18/92
Date Received: 11/18/92

Attn: Mr. Ron Grimes
Project: Arkwood

Purchase Order: 92-17
Project No.: 92-17

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:50405 - PD1						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	0.00010	mg/kg	0.00008	12/07/92	SUB
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00009	12/07/92	SUB
	Pentachlorodibenzofurans	0.00062	mg/kg	0.00013	12/07/92	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00016	12/07/92	SUB
	Hexachlorodibenzofurans	0.00951	mg/kg	0.00028	12/07/92	SUB
	Hexachlorodibenzo-p-dioxins	0.00456	mg/kg	0.00027	12/07/92	SUB
	Heptachlorodibenzofurans	0.0450	mg/kg	0.00024	12/07/92	SUB
	Heptachlorodibenzo-p-dioxins	0.114	mg/kg	0.00027	12/07/92	SUB
	Octachlorodibenzofurans	0.0333	mg/kg	0.00045	12/07/92	SUB
	Octachlorodibenzo-p-dioxins	0.414	mg/kg	0.00036	12/07/92	SUB
	Total Dioxins and Furans	0.621	mg/kg	0.00045	12/07/92	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00160	mg/kg (1)	0.00009	12/07/92	SUB
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	12/04/92	LG
	Acenaphthylene	ND	mg/kg	0.330	12/04/92	LG
	Anthracene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(a)anthracene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(b)fluoranthene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(k)fluoranthene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(ghi)perylene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(a)pyrene	ND	mg/kg	0.330	12/04/92	LG
	Chrysene	ND	mg/kg	0.330	12/04/92	LG
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	12/04/92	LG
	Fluoranthene	ND	mg/kg	0.330	12/04/92	LG
	Fluorene	ND	mg/kg	0.330	12/04/92	LG
	1-Methylnaphthalene	ND	mg/kg	0.330	12/04/92	LG
	2-Methylnaphthalene	ND	mg/kg	0.330	12/04/92	LG
	Naphthalene	ND	mg/kg	0.330	12/04/92	LG
	Phenanthrene	ND	mg/kg	0.330	12/04/92	LG
	Pyrene	ND	mg/kg	0.330	12/04/92	LG
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	12/04/92	LG
Sample:50406 - PD2						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00007	12/07/92	SUB

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.

GSAI Group: 9060

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:50406 - PD2						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00009	12/07/92	SUB
	Pentachlorodibenzofurans	ND	mg/kg	0.00012	12/07/92	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00015	12/07/92	SUB
	Hexachlorodibenzofurans	0.00389	mg/kg	0.00026	12/07/92	SUB
	Hexachlorodibenzo-p-dioxins	0.00430	mg/kg	0.00025	12/07/92	SUB
	Heptachlorodibenzofurans	0.0319	mg/kg	0.00022	12/07/92	SUB
	Heptachlorodibenzo-p-dioxins	0.118	mg/kg	0.00025	12/07/92	SUB
	Octachlorodibenzofurans	0.0345	mg/kg	0.00041	12/07/92	SUB
	Octachlorodibenzo-p-dioxins	0.481	mg/kg	0.00033	12/07/92	SUB
	Total Dioxins and Furans	0.674	mg/kg	0.00041	12/07/92	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00170	mg/kg (2)	0.00009	12/07/92	SUB
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	12/04/92	LG
	Acenaphthylene	ND	mg/kg	0.330	12/04/92	LG
	Anthracene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(a)anthracene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(b)fluoranthene	0.960	mg/kg	0.330	12/04/92	LG
	Benzo(k)fluoranthene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(ghi)perylene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(a)pyrene	ND	mg/kg	0.330	12/04/92	LG
	Chrysene	0.560	mg/kg	0.330	12/04/92	LG
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	12/04/92	LG
	Fluoranthene	0.820	mg/kg	0.330	12/04/92	LG
	Fluorene	ND	mg/kg	0.330	12/04/92	LG
	1-Methylnaphthalene	ND	mg/kg	0.330	12/04/92	LG
	2-Methylnaphthalene	ND	mg/kg	0.330	12/04/92	LG
	Naphthalene	ND	mg/kg	0.330	12/04/92	LG
	Phenanthrene	ND	mg/kg	0.330	12/04/92	LG
	Pyrene	1.60	mg/kg	0.330	12/04/92	LG
	Indeno(1,2,3-cd)pyrene	0.400	mg/kg	0.330	12/04/92	LG
Sample:50407 - PD3						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00009	12/08/92	SUB
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00010	12/08/92	SUB
	Pentachlorodibenzofurans	0.00041	mg/kg	0.00014	12/08/92	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00017	12/08/92	SUB
	Hexachlorodibenzofurans	0.00495	mg/kg	0.00029	12/08/92	SUB
	Hexachlorodibenzo-p-dioxins	0.00198	mg/kg	0.00028	12/08/92	SUB
	Heptachlorodibenzofurans	0.0338	mg/kg	0.00025	12/08/92	SUB
	Heptachlorodibenzo-p-dioxins	0.0765	mg/kg	0.00029	12/08/92	SUB

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.

GSAI Group: 9060

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:50407 - PD3						
2795	Dioxins and Furans, Solids					
	Octachlorodibenzofurans	0.0363	mg/kg	0.00047	12/08/92	SUB
	Octachlorodibenzo-p-dioxins	0.307	mg/kg	0.00038	12/08/92	SUB
	Total Dioxins and Furans	0.461	mg/kg	0.00047	12/08/92	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00110	mg/kg (3)	0.00010	12/08/92	SUB
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	12/05/92	LG
	Acenaphthylene	ND	mg/kg	0.330	12/05/92	LG
	Anthracene	ND	mg/kg	0.330	12/05/92	LG
	Benzo(a)anthracene	ND	mg/kg	0.330	12/05/92	LG
	Benzo(b)fluoranthene	0.440	mg/kg	0.330	12/05/92	LG
	Benzo(k)fluoranthene	ND	mg/kg	0.330	12/05/92	LG
	Benzo(ghi)perylene	ND	mg/kg	0.330	12/05/92	LG
	Benzo(a)pyrene	ND	mg/kg	0.330	12/05/92	LG
	Chrysene	0.330	mg/kg	0.330	12/05/92	LG
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	12/05/92	LG
	Fluoranthene	ND	mg/kg	0.330	12/05/92	LG
	Fluorene	ND	mg/kg	0.330	12/05/92	LG
	1-Methylnaphthalene	ND	mg/kg	0.330	12/05/92	LG
	2-Methylnaphthalene	ND	mg/kg	0.330	12/05/92	LG
	Naphthalene	ND	mg/kg	0.330	12/05/92	LG
	Phenanthrene	ND	mg/kg	0.330	12/05/92	LG
	Pyrene	ND	mg/kg	0.330	12/05/92	LG
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	12/05/92	LG
Sample:50408 - PD4						
2795	Dioxins and Furans, Solids					
	Tetrachlorodibenzofurans	ND	mg/kg	0.00007	12/08/92	SUB
	Tetrachlorodibenzo-p-dioxins	ND	mg/kg	0.00008	12/08/92	SUB
	Pentachlorodibenzofurans	0.00146	mg/kg	0.00011	12/08/92	SUB
	Pentachlorodibenzo-p-dioxins	ND	mg/kg	0.00014	12/08/92	SUB
	Hexachlorodibenzofurans	0.0135	mg/kg	0.00024	12/08/92	SUB
	Hexachlorodibenzo-p-dioxins	0.00776	mg/kg	0.00023	12/08/92	SUB
	Heptachlorodibenzofurans	0.0789	mg/kg	0.0002	12/08/92	SUB
	Heptachlorodibenzo-p-dioxins	0.189	mg/kg	0.00023	12/08/92	SUB
	Octachlorodibenzofurans	0.0717	mg/kg	0.00038	12/08/92	SUB
	Octachlorodibenzo-p-dioxins	0.675	mg/kg	0.0003	12/08/92	SUB
	Total Dioxins and Furans	1.04	mg/kg	0.00038	12/08/92	SUB
	Total 2,3,7,8-Tetrachlorodibenzo-p-	0.00290	mg/kg (4)	0.00008	12/08/92	SUB
6721	Polynuclear Aromatics, GC/MS, SW					
	Acenaphthene	ND	mg/kg	0.330	12/04/92	LG
	Acenaphthylene	ND	mg/kg	0.330	12/04/92	LG

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.

GSAI Group: 9060

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:50408 - PD4						
6721	Polynuclear Aromatics, GC/MS, SW					
	Anthracene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(a)anthracene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(b)fluoranthene	0.340	mg/kg	0.330	12/04/92	LG
	Benzo(k)fluoranthene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(ghi)perylene	ND	mg/kg	0.330	12/04/92	LG
	Benzo(a)pyrene	ND	mg/kg	0.330	12/04/92	LG
	Chrysene	0.430	mg/kg	0.330	12/04/92	LG
	Dibenzo(a,h)anthracene	ND	mg/kg	0.330	12/04/92	LG
	Fluoranthene	ND	mg/kg	0.330	12/04/92	LG
	Fluorene	ND	mg/kg	0.330	12/04/92	LG
	1-Methylnaphthalene	ND	mg/kg	0.330	12/04/92	LG
	2-Methylnaphthalene	ND	mg/kg	0.330	12/04/92	LG
	Naphthalene	ND	mg/kg	0.330	12/04/92	LG
	Phenanthrene	0.900	mg/kg	0.330	12/04/92	LG
	Pyrene	1.70	mg/kg	0.330	12/04/92	LG
	Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.330	12/04/92	LG

(1) Reported as toxicity equivalents.

(2) Reported as toxicity equivalents.

(3) Reported as toxicity equivalents.

(4) Reported as toxicity equivalents.

ND - Not detected at the limit of quantitation

Respectfully Submitted,
Reviewed and Approved by:

T. K. Konig for

Melanie L. D'Aoust
Project Manager

GULF STATES ANALYTICAL, INC.
5450 Northwest Central Drive, Suite 112
Houston, Texas 77092, (713) 690-4444, FAX (713) 690-5646

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.
16300 Katy Freeway, Suite 300
Houston, TX 77094-1609

GSAI Group: 9488
Date Reported: 02/04/93
Date Received: 01/18/93

Attn: Mr. Ron Grimes
Project: Arkwood

Purchase Order:
Project No.: 92-17

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:52177 - D-1NS Fines						
0111	Moisture	6.6	%	0.1	01/19/93	RM
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	2,000	mg/kg	640	02/02/93	LG
Sample:52178 - D-1NS Coarse						
0111	Moisture	4.9	%	0.1	01/19/93	RM
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	180	mg/kg	80.0	02/01/93	LG
Sample:52179 - D-2S Fines						
0111	Moisture	6.5	%	0.1	01/19/93	RM
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	1,400	mg/kg	800	02/01/93	LG
Sample:52180 - D-2S Coarse						
0111	Moisture	2.6	%	0.1	01/19/93	RM
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	230	mg/kg	160	02/01/93	LG
Sample:52181 - D-3S PD-1 Fines						
0111	Moisture	17.1	%	0.1	01/19/93	RM
Sample:52182 - D-3S PD-1 Coarse						
0111	Moisture	4.0	%	0.1	01/19/93	RM
Sample:52183 - W-1 Feed						
0111	Moisture	12.1	%	0.1	01/19/93	RM
1197	Priority Pollutant Acids, Solids					
	Pentachlorophenol	660	mg/kg	200	02/02/93	LG
Sample:52184 - D-4S PD-1 Feed						
0111	Moisture	10.7	%	0.1	01/19/93	RM
Sample:52185 - D-4S PD-1 Fines						
0111	Moisture	9.5	%	0.1	01/19/93	RM

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.

GSAI Group: 9488

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:52186 - D-4S PD-1 Coarse						
0111	Moisture	3.9	%	0.1	01/19/93	RM
Sample:52187 - D-5S Feed						
0111	Moisture	8.6	%	0.1	01/19/93	RM
1197	Priority Pollutant Acids, Solids Pentachlorophenol	1,700	mg/kg	640	02/02/93	LG
Sample:52188 - D-5S Fines						
0111	Moisture	11.9	%	0.1	01/19/93	RM
1197	Priority Pollutant Acids, Solids Pentachlorophenol	1,600	mg/kg	640	02/03/93	LG
Sample:52189 - D-5S Coarse						
0111	Moisture	6.1	%	0.1	01/19/93	RM
1197	Priority Pollutant Acids, Solids Pentachlorophenol	590	mg/kg	200	02/02/93	LG

Respectfully Submitted,
Reviewed and Approved by:

Melanie L. D'Aoust

Melanie L. D'Aoust
Project Manager

GULF STATES ANALYTICAL, INC.
5450 Northwest Central Drive, Suite 110
Houston, Texas 77092, (713) 690-4444, FAX (713) 690-5646

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.
16300 Katy Freeway, Suite 300
Houston, TX 77094-1609

GSAI Group: 9487
Date Reported: 02/04/93
Date Received: 11/23/92

Attn: Mr. Ron Grimes
Project: Arkwood

Purchase Order: 92-17
Project No.: 92-17

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:50405 - PD1						
1145	Arsenic by Furnace AA, Solids	1.3	mg/kg	1.0	01/22/93	HT
0144A	Antimony by ICP, Solids	ND	mg/kg	4	02/02/93	HT
0146A	Barium by ICP, Solids	40	mg/kg	10	02/02/93	HT
0147A	Beryllium by ICP, Solids	0.7	mg/kg	0.5	02/02/93	HT
0149A	Cadmium by ICP, Solids	ND	mg/kg	0.5	02/02/93	HT
0151A	Chromium by ICP, Solids	12.3	mg/kg	2.0	02/02/93	HT
0155A	Lead by ICP, Solids	32	mg/kg	20	02/02/93	HT
0166A	Silver by ICP, Solids	ND	mg/kg	1	02/02/93	HT
0525A	Thallium by ICP, Solids	ND	mg/kg	50	02/02/93	HT
0159	Mercury by Cold Vapor AA, Solids	ND	mg/kg	0.25	01/25/93	JW
Sample:50406 - PD2						
1145	Arsenic by Furnace AA, Solids	1.6	mg/kg	1.0	01/22/93	HT
0144A	Antimony by ICP, Solids	ND	mg/kg	4	02/02/93	HT
0146A	Barium by ICP, Solids	38	mg/kg	10	02/02/93	HT
0147A	Beryllium by ICP, Solids	ND	mg/kg	0.5	02/02/93	HT
0149A	Cadmium by ICP, Solids	ND	mg/kg	0.5	02/02/93	HT
0151A	Chromium by ICP, Solids	12.4	mg/kg	2.0	02/02/93	HT
0155A	Lead by ICP, Solids	25	mg/kg	20	02/02/93	HT
0166A	Silver by ICP, Solids	ND	mg/kg	1	02/02/93	HT
0525A	Thallium by ICP, Solids	ND	mg/kg	50	02/02/93	HT
0159	Mercury by Cold Vapor AA, Solids	ND	mg/kg	0.25	01/25/93	JW
Sample:50407 - PD3						
1145	Arsenic by Furnace AA, Solids	1.3	mg/kg	1.0	01/22/93	HT
0144A	Antimony by ICP, Solids	ND	mg/kg	4	02/02/93	HT
0146A	Barium by ICP, Solids	27	mg/kg	10	02/02/93	HT
0147A	Beryllium by ICP, Solids	ND	mg/kg	0.5	02/02/93	HT
0149A	Cadmium by ICP, Solids	ND	mg/kg	0.5	02/02/93	HT
0151A	Chromium by ICP, Solids	11.6	mg/kg	2.0	02/02/93	HT
0155A	Lead by ICP, Solids	ND	mg/kg	20	02/02/93	HT
0166A	Silver by ICP, Solids	ND	mg/kg	1	02/02/93	HT
0525A	Thallium by ICP, Solids	ND	mg/kg	50	02/02/93	HT
0159	Mercury by Cold Vapor AA, Solids	ND	mg/kg	0.25	01/25/93	JW
Sample:50408 - PD4						
1145	Arsenic by Furnace AA, Solids	1.3	mg/kg	1.0	01/22/93	HT

ANALYSIS SUMMARY REPORT

ERM-Southwest, Inc.

GSAI Group: 9487

Test	Analysis	Results as Received	Units	Limit of Quantitation	Date Extracted/ Analyzed	Analyst
Sample:50408 - PD4						
0144A	Antimony by ICP, Solids	ND	mg/kg	4	02/02/93	HT
0146A	Barium by ICP, Solids	37	mg/kg	10	02/02/93	HT
0147A	Beryllium by ICP, Solids	ND	mg/kg	0.5	02/02/93	HT
0149A	Cadmium by ICP, Solids	ND	mg/kg	0.5	02/02/93	HT
0151A	Chromium by ICP, Solids	9.9	mg/kg	2.0	02/02/93	HT
0155A	Lead by ICP, Solids	ND	mg/kg	20	02/02/93	HT
0166A	Silver by ICP, Solids	ND	mg/kg	1	02/02/93	HT
0525A	Thallium by ICP, Solids	ND	mg/kg	50	02/02/93	HT
0159	Mercury by Cold Vapor AA, Solids	ND	mg/kg	0.25	01/25/93	JW
Sample:50613 - ICS RR Ditch Sludge						
0111	Moisture	43.3	%	0.1	01/19/93	BWH

ND - Not detected at the limit of quantitation

Respectfully Submitted,
Reviewed and Approved by:

Melanie L. D'Aoust
Project Manager

APPENDIX 1.

GALBRAITH LABORATORIES, INC. ANALYTICAL REPORTS

Contents:

1)	February 1, 1993	CORRECTED REPORT Samples Z-1121 through Z-1125
2)	February 4, 1993	LETTER REPORT Sample Z-7838
3)	February 9, 1993	LETTER REPORT Sample Z-6979

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Mr. Tom McGowan
Four Nines, Inc.
125 East Trinity Place, Suite 249
Decatur, Georgia 30030

February 1, 1993

Received: Dec. 10th

Corrected Report

Dear Mr. McGowan:

Analysis of your compounds gave the following results:

Your #,	Our #,	Analyses,	As Received,	Dry Basis,
PDF Composite	Z-1121	Ultimate Analysis:		
		% Moisture	18.05	
		% Carbon	0.97	1.18
		% Hydrogen	2.34	0.41
		% Kjeldahl Nitrogen	0.036	0.044
		% Chlorine	0.025	0.030
		% Sulfur	0.016	0.019
		% Ash	77.63	94.73
		% Fluorine	0.0016	0.0019
		Proximate Analysis:		
		% Moisture	18.05	
		% Ash	77.63	94.73
		% Volatile Matter	4.32	5.27
		% Fixed Carbon	0.00	0.00
		Sulfur Forms:		
		% Sulfate Sulfur	0.0022	0.0027
		BTU/pound	115	140
		% Oil & Grease	0.087	0.106
		Bulk Density, g/ml	1.737	
		Fusion Temperature of Ash:		
			Oxidizing,	Reducing,
		Initial Deformation	2700 ° F+	2700° F
		H/W	Out of range	2700° F+
		1/2 H/W	Out of range	Out of range
		Fluid Temperature	Out of range	Out of range

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Your #,	Our #,	Analyses,	
PDF Composite ASH	Z-1122	% SiO_2	84.89
		% Fe_2O_3	4.29
		% Al_2O_3	10.54
		% CaO	0.47
		% MgO	0.48
		% Na_2O	0.047
		% K_2O	0.57
		% SO_3	0.019

Your #,	Our #,	Analyses,	As Received,	Dry Basis,
Clar-Bot. Composite	Z-1123	Ultimate Analysis:		
		% Moisture	29.81	
		% Carbon	0.67	0.96
		% Hydrogen	3.31	<0.5
		% Kjeldahl Nitrogen	0.020	0.028
		% Chlorine	0.011	0.016
		% Sulfur	0.010	0.014
		% Ash	68.02	96.91
		% Fluorine		<0.0018
		Proximate Analysis:		
		% Moisture	29.81	
		% Ash	68.02	96.91
		% Volatile Matter	2.14	3.05
		% Fixed Carbon	0.03	0.04
		Sulfur Forms:		
		% Sulfate Sulfur	0.0018	0.0025
		BTU/pound	53	76
		% Oil & Grease	0.064	0.091
		Bulk Density, g/ml	1.793	
		Fusion Temperature of Ash:		
			Oxidizing,	Reducing,
		Initial Deformation	2700 ° F+	2700° F+
		H/W	Out of range	Out of range
		1/2 H/W	Out of range	Out of range
		Fluid Temperature	Out of range	Out of range
		Duplicate Analysis:		
		% Moisture	29.46	

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Your #,	Our #,	Analyses,	As Received,	Dry Basis,
ICS-RR	Z-1124	Ultimate Analysis:		
Ditch Sludge		% Moisture (KF)	32.27	
Composite		% Carbon	8.92*	13.18
		% Hydrogen	4.96*	2.03
		% Kjeldahl Nitrogen	0.096	0.142
		% Chlorine	1.32	1.95
		% Sulfur	0.15	0.22
		% Ash	57.17	84.41
		% Fluorine	0.009	0.013
		Proximate Analysis:		
		% Moisture	32.27	
		% Ash	57.17	84.41
		% Volatile Matter	7.52	11.10
		% Fixed Carbon	3.04	4.49
		Sulfur Forms:		
		% Sulfate Sulfur	0.0013	0.0018
		BTU/pound	1850	2731
		% Oil & Grease	0.126*	0.186
			0.127*	0.188
		Bulk Density, g/ml	1.638	
		Fusion Temperature of Ash:		
			Oxidizing,	Reducing,
		Initial Deformation	2600° F	2640° F
		H/W	2620° F	2660° F
		1/2 H/W	2680° F	2700° F+
		Fluid Temperature	2700° F	Out of range

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Mr. McGowan
Page 4
February 1, 1993

Your #,	Our #,	Analyses,	As Received,	Oil Layer,
MW-10	Z-1125	Ultimate Analysis:		
		% Moisture	93.70	
		% Carbon	5.42**	86.06
		% Hydrogen	11.09**	10.82
		% Kjeldahl Nitrogen	0.0032*	
		% Chlorine	0.063**	0.913
		% Sulfur	0.049*	1.50
		% Sulfur	0.095**	
		% Ash		0.040
		% Fluorine	0.0029*	
		Proximate Analysis		
		% Moisture		2.76
		% Ash		0.040
		% Ash (Water layer)	0.093*	
		% Ash	0.090**	
		Sulfur Forms:		
		Sulfate Sulfur (water layer)	<.5 mg/liter	
		ppm Sulfate Sulfur	6**	94
		BTU/pound	1247**	
		BTU/pound		19062
		BTU/pound (water layer)	85	
		mg/liter Oil & Grease	2896*	
		Specific Gravity, g/ml	0.9945*	

*Grab sample taken, on as received basis.
**Calculated Value.

Sincerely yours,

GALBRAITH LABORATORIES, INC.

Gail R. Hutchens
Exec. Vice-President

GRH/gh:sla

cc: Ron Grimes
Peter Williamson

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Mr. Tom McGowan
Four Nines, Inc.
125 East Trinity Place, Suite 249
Decatur, Georgia 30030

February 4, 1993

Received: Feb. 4th

Dear Mr. McGowan:

Analysis of your compounds gave the following results:

Your #,	Our #,	Analyses,	
Master Composite Ash	Z-7838	% SiO_2	83.09
		% Al_2O_3	9.01
		% Fe_2O_3	3.92
		% CaO	0.38
		% MgO	0.32
		% K_2O	0.57
		% Na_2O	0.24
		% SO_3	0.81

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Your # Master Composite Ash

Our #, Z-7838

Procter Density*

Test No.	1.	2.	3.	4.	5.
Water Content, %	23.3	25.0	27.0	29.3	31.6
Wet Density - PCF	101.7	105.5	111.0	114.0	114.0
Dry Density - PCF	82.5	85.2	87.4	88.2	86.6

Maximum Density, Dry Soil, PCF 88.3
Optimum Moisture, Content % 29.0

* See enclosed graph.

Sincerely yours,

GALBRAITH LABORATORIES, INC.

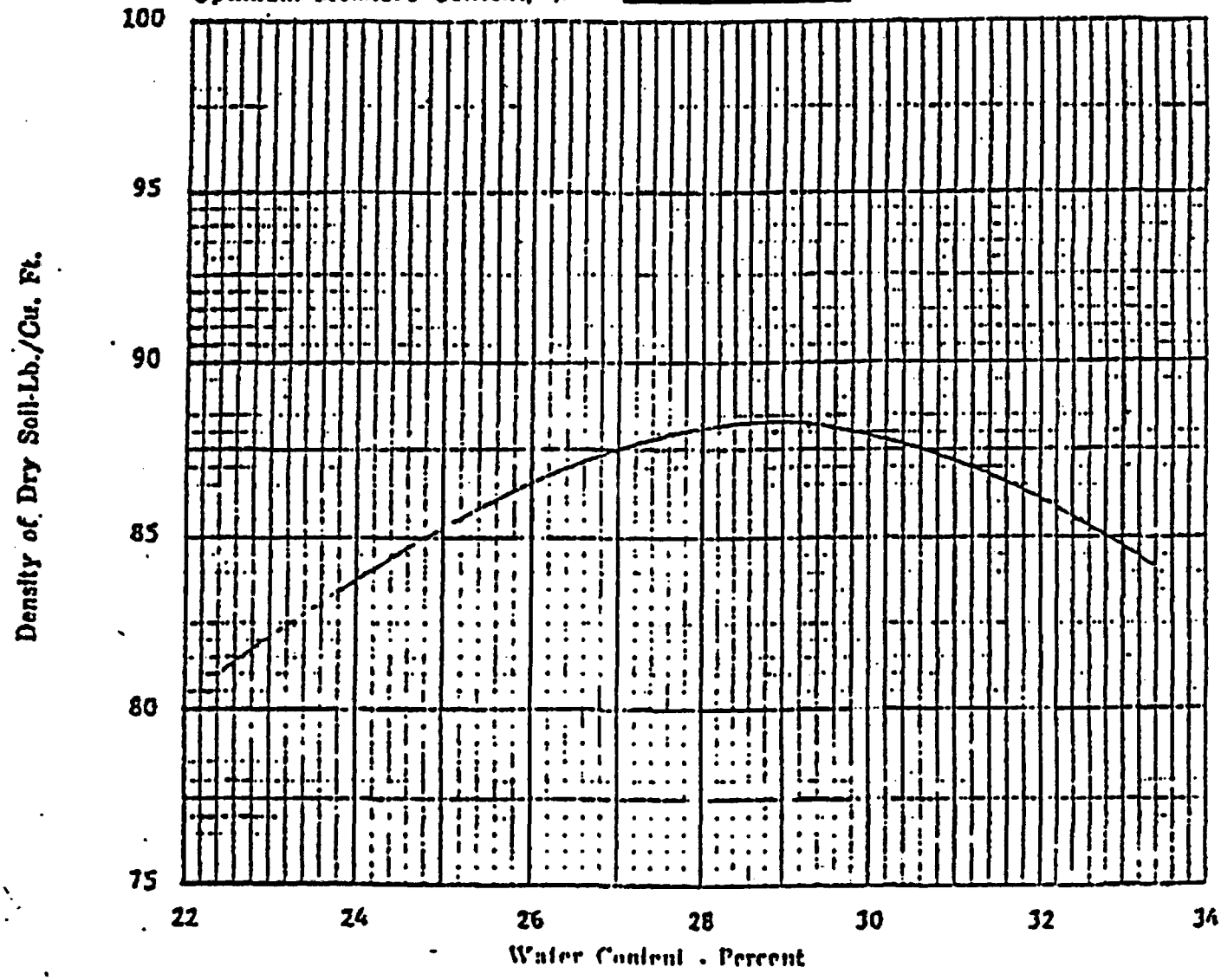
Gail R. Hutchens
Exec. Vice-President

GRH/gh:sla

Trial No.	1	2	3	4	5	6
Water Content, %	23.3	25.0	27.0	29.3	31.6	
Wet Density-PCF	101.7	105.5	111.0	114.0	114.0	
Dry Density-PCF	82.5	85.2	87.4	88.2	86.6	

Maximum Density, Dry Soil, PCF 88.3

Optimum Moisture Content, % 29.0



Z-7838 Master Composite Ash Proctor Density

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Mr. Tom McGowan
Four Nines, Inc.
125 East Trinity Place, Suite 249
Decatur, Georgia 30030

February 9, 1993

Received: Jan. 29th

Dear Mr. McGowan:

Analysis of your sample gave the following results:

Your #,	Our #,	Analyses,	As Received,	Dry Basis,
Master Composite	Z-6979	Ultimate Analysis:		
		% Moisture	23.46	
		% Carbon	1.78	2.32
		% Hydrogen	2.83	0.29
		% Kjeldahl Nitrogen	0.034	0.045
		% Chlorine	0.088	0.115
		% Sulfur	0.033	0.043
		% Ash	72.32	94.49
		% Fluorine	0.0044	0.0058
		Proximate Analysis		
		% Moisture	23.46	
		% Ash	72.32	94.49
		% Volatile Matter	4.22	5.51
		% Fixed Carbon	0.00	0.00
		Sulfur Forms:		
		% Sulfate Sulfur	0.0022	0.0029

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Your #,	Our #,	Analyses,	As Received,	Dry Basis,
Master Composite	Z-6979	BTU/pound	264	345
		% Oil and Grease	0.036	0.047
		Bulk Density, g/ml	1.809	

Fusion Temperature of Ash:

	Oxidizing,	Reducing,
Initial	2660° F	2680° F
H/W	2700° F+	2700° F+
1/2 H/W	Out of range	Out of range
Fluid Temperature	Out of range	Out of range

Duplicate Analyses	As Received,	Dry Basis,
%Carbon	2.13	2.78
%Hydrogen	3.35	0.97
%Chlorine	0.089	0.116
%Oil & Grease	0.035	0.046

Sincerely yours,

GALBRAITH LABORATORIES, INC.

Gail R. Hutchens

Gail R. Hutchens
Exec. Vice-President

GRH/gh:sla

cc: Ron Grimes
Peter Williamson

GALBRAITH LABORATORIES, INC.

PHONE 615/546-1335 FAX 615/546-7209

Mr. Tom McGowan
Four Nines, Inc.
125 East Trinity Place, Suite 249
Decatur, Georgia 30030

February 22, 1993

Received: Jan. 28th
PO#: Project 92-17

Dear Mr. McGowan:

Analysis of your compounds gave the following results:

Your #,	Our #,	Analyses,	
Master Composite Ash	Z-6532	% SiO_2	80.80
		% Al_2O_3	7.01
		% Fe_2O_3	3.15
		% CaO	0.34
		% MgO	0.32
		% K_2O	0.43
		% Na_2O	0.070
		% SO_3	0.088
Master Composite		Z-6531	Cancel

Sincerely yours,

GALBRAITH LABORATORIES, INC.

Gail R. Hutchens

Gail R. Hutchens
Exec. Vice-President

GRH/cb:bc
cc: Ron Grimes
ERM Southwest, Inc.

6100 Hillcroft, Houston, Texas 77081

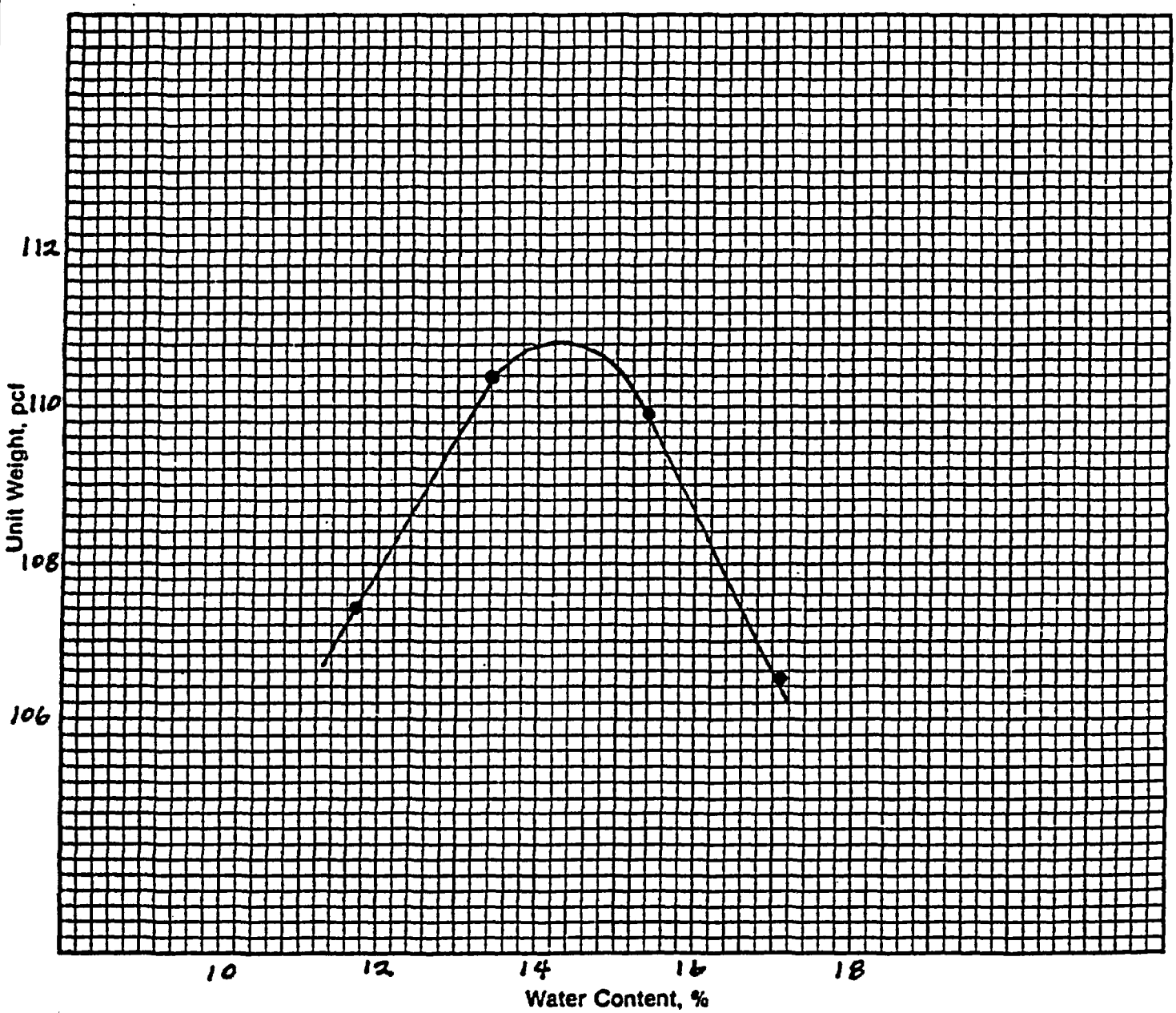
FUGRO McClelland

OPTIMUM MOISTURE / DENSITY RELATIONSHIP OF SOIL

Project : 92-17
Client : ERM Southwest, Inc
Test Method : ASTM D 698
Sample Location : Arkwood
Material : Br Sa clay w/ fine gravel

Date : 2/1/93
Job No. : 0401-1100
Report No. : ——

Optimum Water Content (%) : 14.2
Max. Unit Dry Weight (pcf) : 110.8
Liquid Limit (%) : ——
Plastic Limit (%) : ——
Plasticity Index : ——



Reported By: Kenneth W Hill
Date : 2-2-93

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.

04.02.02
1/89