EPA Region 5 Records Ctr.
3E 1499

TIME CRITICAL REMOVAL ACTION DOCUMENTATION REPORT VOLUME 1

FOR THE

TOLEDO TIE TREATMENT SITE

LOCATED AT

ARCO INDUSTRIAL PARK TOLEDO, OHIO

FEBRUARY 2000

Prepared For:

KERR-McGEE CHEMICAL, LLC
KERR-McGEE CENTER
OKLAHOMA CITY, OKLAHOMA 73125

Prepared By:

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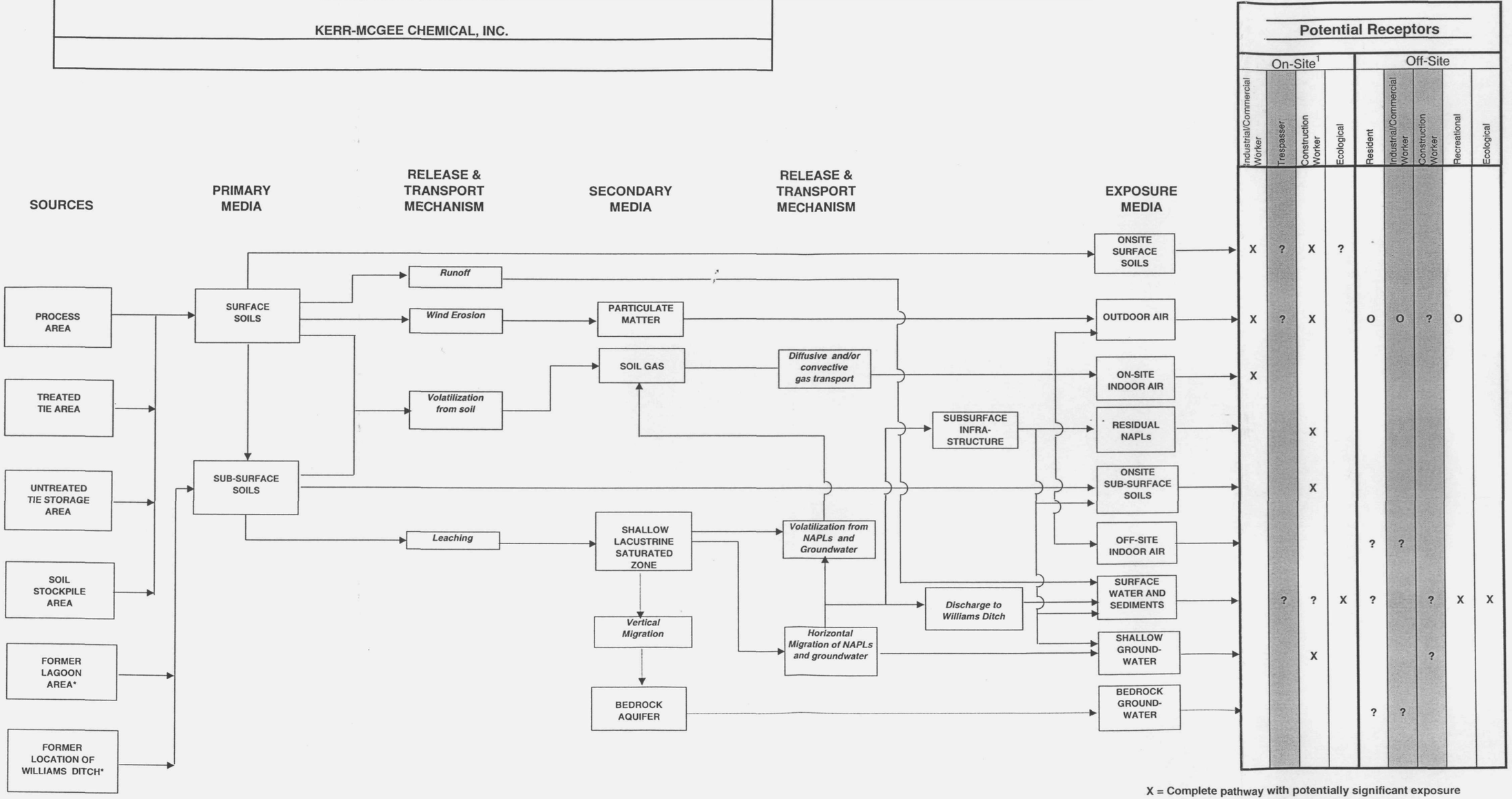
TOLEDO, OHIO 43614

recycled paper

KERR-MCGEE CHEMICAL, INC.



X = Complete pathway with potentially significant exposure
O = Complete pathway with insignificant exposure

Note:

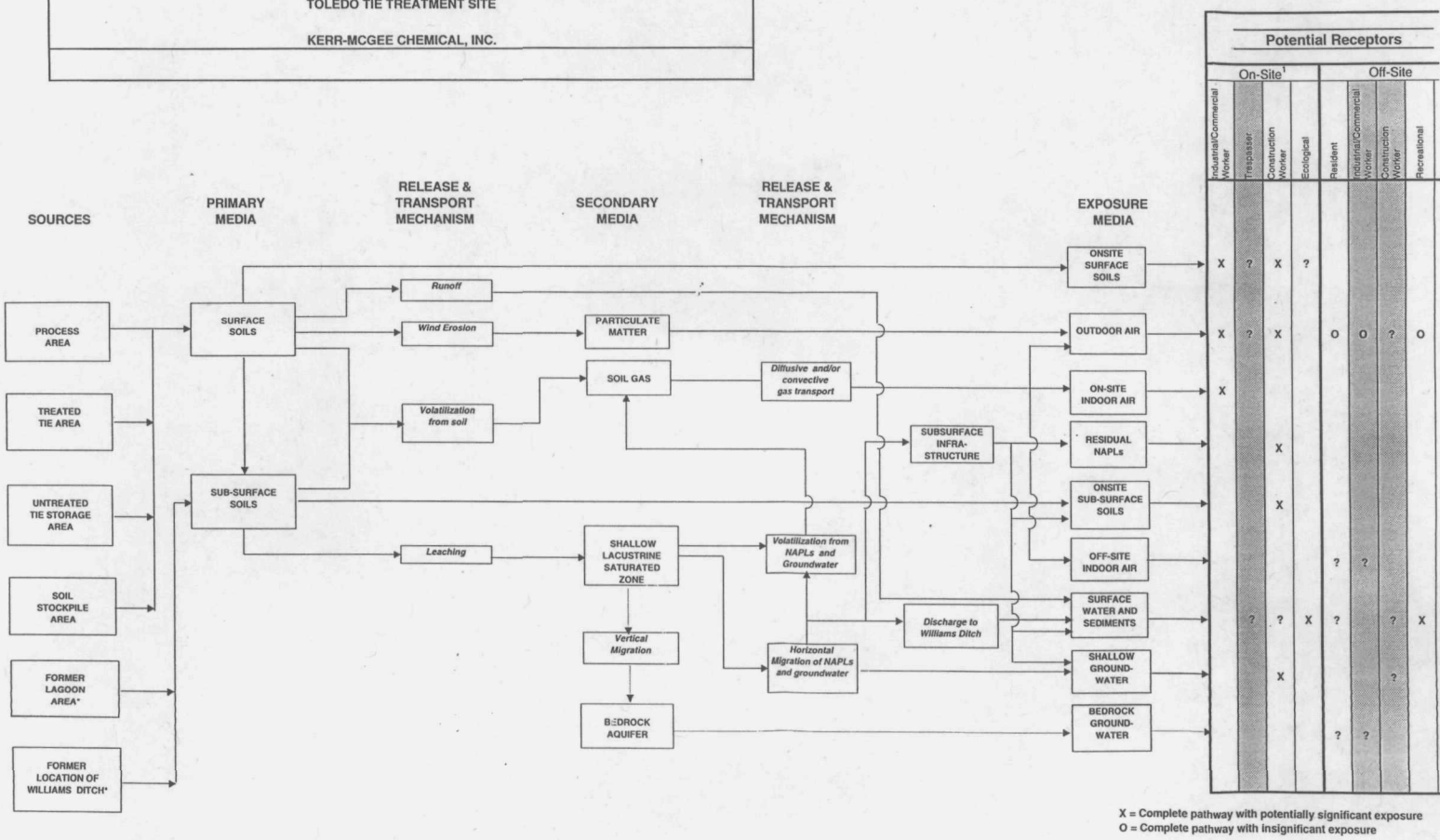
FIGURE 2

HULL & ASSOCIATES,INC.
TOLEDO, OHIO

SITE CONCEPTUAL MODEL

TOLEDO TIE TREATMENT SITE

KERR-MCGEE CHEMICAL, INC.



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Note:
* Assume former lagoons and ditch are backfilled with clean fill.
1. Assume commercial or industrial land use restriction and groundwater use restriction for the site (I.e. Property)

HULL & ASSOCIATES, INC
TOLEDO, OHIO

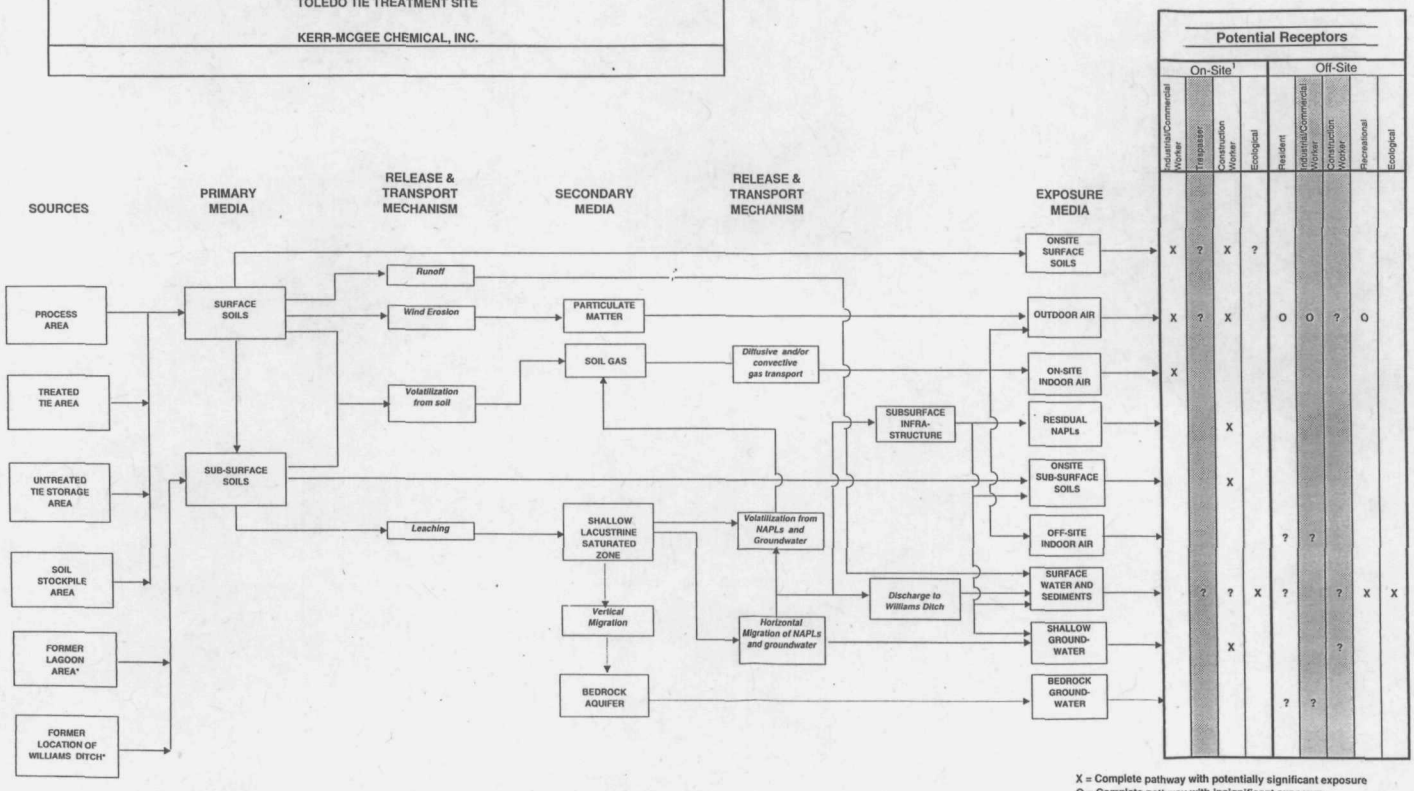
FIGURE 2

HULL & ASSOCIATES,INC.
TOLEDO, OHIO

SITE CONCEPTUAL MODEL

TOLEDO TIE TREATMENT SITE

KERR-MCGEE CHEMICAL, INC.



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HULL & ASSOCIATES, INC.
TOLEDO, OHIO

JUNE 2002
KMC002.100.0002.XLS

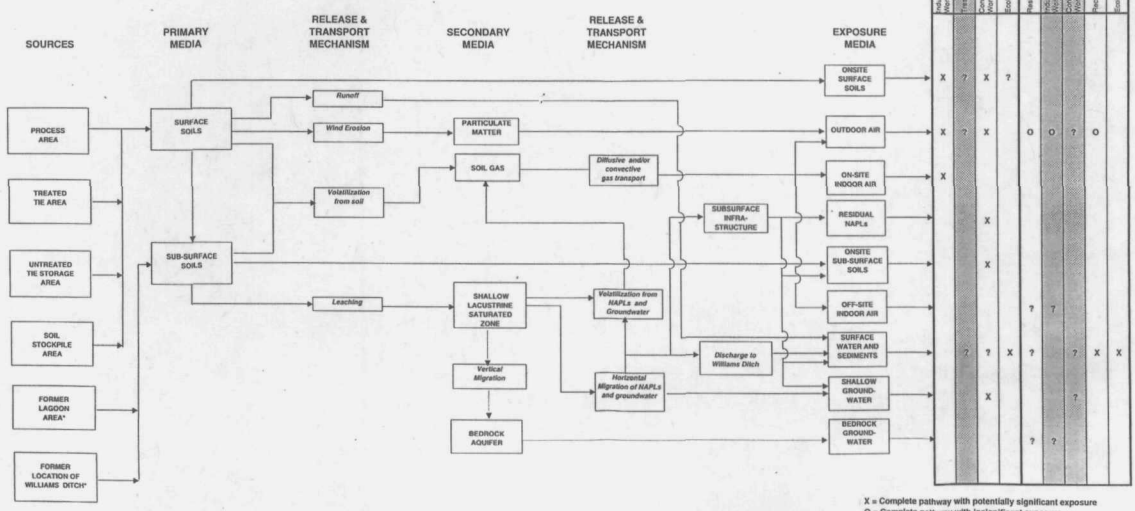
FIGURE 2

HULL & ASSOCIATES,INC.
TOLEDO, OHIO

SITE CONCEPTUAL MODEL

TOLEDO TIE TREATMENT SITE

KERR-MCGEE CHEMICAL, INC.



	Potential Receptors								
	On-Site[1]				Off-Site				
	Industrial/Commercial Worker	Trespasser	Construction Worker	Ecological	Resident	Industrial/Commercial Worker	Construction Worker	Recreational	Ecological
ONSITE SURFACE SOILS	X	?	X	?					
OUTDOOR AIR	X	?	X		O	O	?	O	
ON-SITE INDOOR AIR	X								
RESIDUAL NAPLs			X						
ONSITE SUB-SURFACE SOILS			X						
OFF-SITE INDOOR AIR					?	?			
SURFACE WATER AND SEDIMENTS		?	?	X	?		?	X	X
SHALLOW GROUND-WATER			X				?		
BEDROCK GROUND-WATER					?	?			

X = Complete pathway with potentially significant exposure
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Note:
* Assume former lagoons and ditch are backfilled with clean fill.
1. Assume commercial or industrial land use restriction and groundwater use restriction for the site (i.e. Property)

HULL & ASSOCIATES, INC
TOLEDO, OHIO

JUNE 2002
KMC002 v00-0002.XLS

Final Report Certification

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relavent persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

Signed Keith Watts

Title PROJ. MGR.

Company KERR-McGEE

Date 2-17-00

TABLES

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

TABLE 1

LAGOON AREA EXCAVATION SUMMARY

CPT Number	Original Ground Surface Elevation	Approximate Depth to Base of LIF Signature	Approximate Base of LIF Signature Elevation	Approximate Base of Excavation Elevation[1]	Difference (ft)	Description/Comments
2	620.28	4.6	615.7	617.2	1.5	Pinpoints observed in continuous clayey soil unit
3	620.60	5.4	615.2	617.5	2.3	Pinpoints observed in continuous clayey soil unit
4	620.90	n/a		n/a		Poor signature
5	620.9[illegible]	8.9	612.1	613.8	1.7	Pinpoints observed in continuous clayey soil unit
6	622.[illegible]	6.4	615.6	615.2	(0.4)	Pinpoints observed in continuous clayey soil unit
15	621.66	7.7	614.0	615.3	1.3	Pinpoints observed in continuous clayey soil unit
16	620.9[illegible]	7.5	613.4	614.8	1.4	Pinpoints observed in continuous clayey soil unit
17	621.[illegible]6	4.8	616.4	611.3	(5.1)	Location of 27-inch storm sewer that was removed
17A	621.[illegible]6	7.1	614.1	611.3	(2.8)	Location of 27-inch storm sewer that was removed
18	621.[illegible]	4.8	616.2	615.4	(0.8)	
48	622.[illegible]	7.0	615.4	616.2	0.8	Continuous clay layer at base of excavation, no seeps observed
49	622.[illegible]	7.0	615.3	616.8	1.5	Continuous clay layer at base of excavation, no seeps observed
50	622.[illegible]	6.9	615.7	616.7	1.0	Continuous clay layer at base of excavation, no seeps observed
51	622.4	6.8	615.6	616.6	1.0	Continuous clay layer at base of excavation, no seeps observed
52	622.[illegible]	7.0	615.7	616.2	0.5	Two distinct zones 2.2' to 4.7' & 6.0' to 7.0'
53	623.9[illegible]	9.0	615.0	615.9	0.9	Continuous clay layer at base of excavation, no seeps observed.

NOTE:

[1] Survey point not necessarily taken at exact CPT location. Elevation is approximated based on nearest survey points.

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

TABLE 2

POST-LAGOON EXCAVATION ANALYTICAL RESULTS

ALL UNITS ARE MG/KG

All results are as received

PARAMETER	EXC-001	EXC-002	EXC-003	EXC-004	EXC-005	EXC-006	EXC-007	EXC-008	EXC-009
Barium	58	54	65	79	84	54	59.6	59.3	57
Cadmium	<0.16	<0.16	1.42J	<0.16	<0.16	<0.16	1.23J	1.19J	<0.16
Chromium	15	13.9	16.2	19.7	20.1	12.9	13.6	12.2	11.2
Copper	18.4	19.5	19	19.5	19.3	18.3	19.4	17.6	18.3
Lead	8.5J	8.9J	9.4	9.8J	10	9.2J	8.6J	8.5J	8.6J
Silver	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.76	<0.76	<0.76
Zinc	43	45	47	53	53	45	45.6	41.4	45.4
Arsenic	2.9	3.6	6.1	4.8	4.3	4.5	4.7	7.2	4.5
Selenium	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.40	<0.40	<0.40
Mercury	0.0401J	0.0410J	0.0135J	0.0207J	0.0075J	0.0237J	0.0224J	0.0783J	0.0160J
Benzene	2.4	9.6	7.7	2.7	3.1	4.7	5.3	<0.044	2.2
Toluene	3.9	12	1.7	0.054	3.1	2.1	4.7	<0.044	0.24J
Ethylbenzene	5.5	10	3.2	3.9	4	3.4	6.4	<0.044	2.9
Xylene	10	18	7.6	7.3	8.8	9.7	17	<0.044	4.6
Naphthalene	170	160	11	37	56	45	87	0.094J	50
Acenaphthylene	3	190J	<0.033	<0.033	0.71	.098J	0.75	<0.033	0.53
Acenaphthene	29	14	0.095J	<0.033	2.9	.160J	21	<0.033	3
Fluorene	26	5.2	0.13J	<0.033	1.5	.035J	19	<0.033	1.4
Fluoranthene	23	0.037J	0.18J	<0.033	<0.033	.052J	25	<0.033	<0.033
Anthracene	4.9	.120J	0.075J	<0.033	<0.033	.034J	4.8	<0.033	<0.033
Phenanthrene	57	2.2	0.41	<0.033	0.27	.041J	51	0.044J	0.22J
Pyrene	13J	.037J	0.14J	<0.033	<0.033	<0.033	16	<0.033	<0.033
Chrysene	4.3	<.033	0.044J	<0.033	<0.033	<0.033	4.9	<0.033	<0.033
Benzo(a)anthracene	4.6	<.033	0.047J	<0.033	<0.033	<0.033	5.8J	<0.033	<0.033
benzo(b)fluoranthene	3.1	<.033	<0.033	<0.033	<0.033	<0.033	3.8	<0.033	<0.033
benzo(k)fluoranthene	1.1	<.033	<0.033	<0.033	<0.033	<0.033	1.6	<0.033	<0.033
benzo(a)pyrene	2.4	<.033	<0.033	<0.033	<0.033	<0.033	3.1	<0.033	<0.033
indeno(1,2,3-cd)pyrene	1.2	<.033	<0.033	<0.033	<0.033	<0.033	1.5	<0.033	<0.033
benzo(ghi)perylene	1	<.033	<0.033	<0.033	<0.033	<0.033	1.2	<0.033	<0.033
dibenzo(a,h)anthracene	0.31J	<.033	<0.033	<0.033	<0.033	<0.033	0.42	<0.033	<0.033

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

TABLE 3

POST-SEDIMENT REMOVAL ANALYTICAL RESULTS

ALL UNITS ARE MG/KG

All results are as received

PARAMETER	DIT-004	DIT-005	BAN-005	DIT-006	BAN-006	DIT-007	DIT-QA7	DIT-008	BAN-008	DIT-009
Barium	66.3	67.5	55.9	57.4	66.1	59	69.8	55.6	78.2	79
Cadmium	0.87J	.82J	.73J	.77J	.74J	.75J	.87J	.80J	.91J	0.88J
Chromium	14.1	14.2	12.1	12.3	13	13.8	14.6	16.1	15.1	16.4
Copper	18.8	17.9	17.9	17.6	18	18.2	20	18.5	18.9	19.2
Lead	8.9J	8.9J	8.8J	8.7J	8.8J	9.6J	9.2J	9.2J	9.2J	9.4
Silver	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.76	<0.78
Zinc	50.4	47	45.4	44.7	45.6	46.2	51.1	48.5	48.4	50
Arsenic	4.6	6.7	4.2	4.2	4.1	5.5	6.6	6.4	7.8	6.4
Selenium	<.40	<.40	<.40	<.40	<.40	<.40	<.40	<.40	<.39	<0.41
Mercury	0.0272J	.0276J	.0477J	.0341J	.0315J	.0267J	0.0297J	0.0382J	.0319J	0.0224J
Benzene	1.1	1.1	1.6	0.5	<.045	<.046	<.043	<.043	.190J	<.044
Toluene	.230J	.340J	<.170	<.044	.045J	<.046	<.043	<.043	0.25	<.044
Ethylbenzene	2.5	1.7	4.4	<.044	.110J	<.046	<.043	<.043	2.3	<.044
Xylene (total)	5.3	3.7	11	<.044	0.24	<.046	<.043	<.043	8.8	<.044
Naphthalene	45	33	110	49	9.8	<.033	41J	<.033	240	<.033
Acenaphthylene	.29J	<.033	.18J	<.033	.110J	<.033	<.033	<.033	8.3	<.033
Acenaphthene	6.3	.2J	10	<.033	1.7	<.033	<.033	<.033	48	<.033
Fluorene	6.4	.035J	7.7	<.033	1.8	<.033	<.033	<.033	53	<.033
Fluoranthene	9.4	<.033	6	<.033	2.4	<.033	<.033	<.033	80	<.033
Anthracene	2.1	<.033	1.8	<.033	0.6	<.033	<.033	<.033	18	<.033
Phenanthrene	19	<.033	16	<.033	5.2	<.033	<.033	<.033	160	<.033
Pyrene	6.8	<.033	4.2	<.033	2	<.033	<.033	<.033	51	<.033
Chrysene	2	<.033	1.2	<.033	0.58	<.033	<.033	<.033	16	<.033
Benzo(a)anthracene	2.3	<.033	1.4	<.033	0.7	<.033	<.033	<.033	21	<.033
benzo(b)fluoranthene	1.4	<.033	0.8	<.033	0.43	<.033	<.033	<.033	14	<.033
benzo(k)fluoranthene	0.6	<.033	.310J	<.033	.200J	<.033	<.033	< 033	6	<.033
benzo(a)pyrene	1.2	<.033	0.64	<.033	0.35	<.033	<.033	<.033	12	<.033
indeno(1,2,3-cd)pyrene	0.61	<.033	0.34	<.033	.17J	<.033	<.033	<.033	5.8	<.033
benzo(ghi)perylene	0.54	<.033	.28J	<.033	.160J	<.033	<.033	<.033	5	<.033
dibenzo(a,h)anthracene	.17J	<.033	.084J	<.033	.048J	<.033	<.033	< 033	0.74	<.033

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

TABLE 4

MATERIALS MANAGEMENT ANALYTICAL SUMMARY

Sample ID	Date Sampled	Parameters Tested	Sample Description	Material Disposition
KMC001-QPA-001	11/09/98	TCLP, T	Initial Characterization of "Questionable" pile	Peoria Disposal
KMC001-QPA-002	11/09/98	TCLP, T	Initial Characterization of "Questionable" pile	Peoria Disposal
KMC001-QPA-003	11/09/98	TCLP, T	Initial Characterization of "Questionable" pile	Peoria Disposal
KMC001-QPA-004	11/09/98	TCLP, T	Initial Characterization of "Questionable" pile	Peoria Disposal
KMC001-QP-000-392T	02/16/99	TCLP*	"Contained-in" assessment of "Questionable" pile	Peoria Disposal
KMC001-QP-001-392T	02/16/99	TCLP*	"Contained-in" assessment of "Questionable" pile	Peoria Disposal
KMC001-QP-002-392T	02/16/99	TCLP*	"Contained-in" assessment of "Questionable" pile	Peoria Disposal
KMC001-QP-003-392T	02/16/99	TCLP*	"Contained-in" assessment of "Questionable" pile	Peoria Disposal
KMC001-CDP-001-392T	02/16/99	TCLP*	"Contained-in" assessment of imported clay dam pile	Peoria Disposal**
KMC001-CDP-002-392T	02/16/99	TCLP*	"Contained-in" assessment of imported clay dam pile	Peoria Disposal**
KMC001-SBP-001-392T	02/16/99	TCLP*	"Contained-in" assessment of road subbase pile	BFI Vienna Junction
KMC001-AP-001-392T	02/16/99	TCLP*	"Contained-in" assessment of asphalt pile	BFI Vienna Junction
KMC001-CP-001-392T	02/26/99	TCLP*	"Contained-in" assessment of "Clean" pile	Peoria Disposal
KMC001-CP-002-392T	02/26/99	TCLP*	"Contained-in" assessment of "Clean" pile	Peoria Disposal
KMC001-CP-003-392T	02/26/99	TCLP*	"Contained-in" assessment of "Clean" pile	Peoria Disposal
KMC001-CP-004-392T	02/26/99	TCLP*	"Contained-in" assessment of "Clean" pile	Peoria Disposal
KMC001-CDP003-392T	03/03/99	V	"Contained-in" assessment of imported clay dam pile	Peoria Disposal
KMC001-CDP004-392T	03/03/99	V	"Contained-in" assessment of imported clay dam pile	Peoria Disposal
KMC001-SBP002-392T	03/03/99	V	"Contained-in" assessment of road subbase pile	BFI Vienna Junction

Parameter List Key

V=Totals for F034 Listing Parameters (40 CFR Part 261, Appendix VII) compared against Ohio VAP standards (commercial/industrial)
TCLP= 40 CFR Part 261, Subpart C
T=Totals for VOC's, SVOC's, metals
I=Characterization for incineration purposes
Note
*Indicates PCB's run also
**After "contained-in" analyses performed on SCD-001 and CCD-001

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

TABLE 4 (cont.)

MATERIALS MANAGEMENT ANALYTICAL SUMMARY

Sample ID	Date Sampled	Parameters Tested	Sample Description	Material Disposition
KMC001-CP003-392T	03 03 99	V	"Contained-in" assessment of "Clean" pile	Peoria Disposal
KMC001-CP006-392T	03 03 99	V	"Contained-in" assessment of "Clean" pile	Peoria Disposal
KMC001-CP007-392T	03 03 99	V	"Contained-in" assessment of "Clean" pile	Peoria Disposal
KMC001-CP008-392T	03 03 99	V	"Contained-in" assessment of "Clean" pile	Peoria Disposal
KMC001-AP001-392T	03 24 99	V	"Contained-in" assessment of asphalt pile	BFI Vienna Junction
KMC001-SPW001-T392	06 01 99	TCLP, V	Clay soil removed from Williams Ditch for spillway	BFI Vienna Junction
KMC001-SCD-001-T392	06 04 99	V	Imported clay from dam at Arco Drive, Williams Ditch	BFI Vienna Junction
KMC001-CCD-001-T392	06 04 99	V	Imported clay from downstream dam, Williams Ditch	BFI Vienna Junction
Soil composite	06 04 99	TCLP**	Composite of SCD-001 and CCD-001	BFI Vienna Junction
KMC001-WSS001-T392	06 15 99	I	Remaining waste soils removed from Williams Ditch	Clean Harbors
KMC001-BBS-001-T392	07 01 99	TCLP, V	Soils removed for catch basins to Williams Ditch pipe	Clean Harbors
KMC001-SPD-COL-T143	07 01 99	TCLP, V	Downstream siphon dam in Williams Ditch	BFI Vienna Junction
KMC001-CBS-002-T143	07 02 99	I	Soils removed to replace curbs on Frenchmens Rd	Clean Harbors

Parameter List Key:

V=Totals for F034 Listing Parameters (40 CFR Part 261, Appendix VII) compared against Ohio VAP standards (commercial/industrial)
TCLP= 40 CFR Part 261, Subpart C
T=Totals for VOC's, SVOC's, metals
I=Characterization for incineration purposes
Note:
* Indicates PCB's run also
** After "contained-in" analyses performed on SCD-001 and CCD-001

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

TABLE 5

SUMMARY OF WASTE MATERIAL DISPOSITION

WASTE STREAM DESCRIPTION	QUANTITY	UNITS	RECEIVING FACILITY
Pre-LDR Disposal of F034 Waste (Subtitle C facility)			
Source material, creosote saturated soils, impacted clay soils	18,602	tons	Peoria Disposal Company, Peoria #1, Peoria, Illinois
Impacted surficial and buffer material[1]	1,900	tons	Peoria Disposal Company, Peoria #1, Peoria, Illinois
Sediment and LKD conditioner	8,944	tons	Peoria Disposal Company, Peoria #1, Peoria, Illinois
Total	**29,446**	tons	
Total number of trucks	1,286		
Post-LDR Disposal of F034 Waste (Subtitle C facility)			
Impacted soils from Williams Ditch and infrastructure restoration[2]	572	tons	Clean Harbors, Kimball, Nebraska
Residuals from water treatment plant (sand carbon conditioned sludge)	18	tons	Clean Harbors, Kimball, Nebraska
Total	**590**	tons	
Total number of trucks	16		
Total number of roll-off boxes	14		
Non-hazardous material (Subtitle D)			
Residual debris, asphalt and concrete and non-hazardous soils[3]	1,392	cy	BFI Vienna Junction Landfill, Erie, Michigan
Total	**1,392**	cy	
Non-hazardous industrial wastewater			
Sheen recovery activities[4]	424,315	gallons	City Environmental, Detroit, Michigan
Treated water from Williams Ditch[5]	700,000	gallons	Returned to Williams Ditch downstream of work area

NOTES:

[1] Includes "clean" pile, "questionable" pile and material from exterior of temporary clay dams.

[2] Includes material excavated from Williams Ditch to accommodate piping, assorted debris from soil staging area, & for new curb installation.

[3] Includes asphalt, concrete, soils from temporary clay dams and ditch restoration, aggregate road subbase material & residual site debris.

[4] Reflects quantity collected and disposed of after the effective date of the UAO. Does not include quantity managed by KMC under voluntary effort.

[5] Reflects an estimate of water that was treated on site during Williams Ditch remediation and site restoration activities.

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
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TABLE 6

TEST PIT AND GEOPROBE OBSERVATION SUMMARY

Test Identification	Approximate Depth	Date	Subsurface Description
Test Trench 1	8-9 feet	04/22/99	Dark,stained layer at 4 ft., just above clay layer. Isolated seeps observed to 5.5 ft. Grey clay at 8 ft w/one small seep noted
Test Trench 2	8-9 feet	04/22/99	Presumed clay cut-off wall noted at 4 feet, continues to 8 ft. plus. No product layer observed. Few small seeps noted at 5.5 feet. 4"clay tile observed in NE wall, trending E-W. Some clear water flowing from tile.
Test Trench 3	8-9 feet	04 22 99	0 to 1.5-2 ft. Grey sandy soil, roots, wood debris. 2 to 3-4 ft. brown, sandy soil. 4-6.5 brown,layered silty soil. 6.5-9 ft. firm grey clay. Slight seepage with sheen observed at 3.5 -4 ft. within layered silty soil.
Test Trench 4	8-9 feet	04 22/99	0 to 2.5-3 ft. Grey/brown sandy soil. 3-7 ft. grey/brown silty soil. 7 -9 5 ft. firm grey clay. No creosote seeps or water observed.
GP-1A to GP-10A	8-12 feet	02 02 99	Geoprobe borings not logged. No seeps or evidence of creosote reported.
TP-1A	8-9 feet	01 27/99	Grey brown silty, sandy soil to approx. 4 ft. Grey silty clay to depth. Bottom at elevation 614.3 No creosote observed.
TP-2A	9-10 feet	01/27/99	Same as TP-1A. Isolated creosote globules at approx. 4 - 8 ft. in grey, silty clay,decrease with depth. Bottom at elevation 61 .9
TP-3A	9-10 feet	01/27/99	Same as TP-2A. Ground surface at elevation 622.1
TP-4A	8-9 feet	01 27/99	Same as TP-1A. Bottom at elevation 614.1
TP-5A	8-9 feet	01/27/99	Same as TP -1A. Ground surface at elevation 621.5
TP-6A	8-9 feet	01/27/99	Same as TP-2A. Ground surface at elevation 622.9
TP-7A	8-9 feet	01 27/99	Same as TP-1A. Ground surface at elevation 621.9
TP-8A	8-9 feet	01/27/99	Same as TP-1A. Ground surface at elevation 622.7
TP-9A	8-9 feet	01 27/99	Same as TP-1A. Ground surface at elevation 622.3
TP-10A	8-9 feet	01 27/99	Same as TP-2A. Ground surface at elevation 622.8

NOTE

Shaded cell indicates a location where evidence of suspected creosote related contamination was observed outside the area addressed during time critical removal

TABLE 6 (cont.)

TEST PIT AND GEOPROBE OBSERVATION SUMMARY

Test Identification	Approximate Depth	Date	Subsurface Description
GP-1	8 feet	12/30/98	0"-12"asphalt; 12"-20" stone; 20"-58" brn sand; 58"-60" silty clay; 60"-96" firm grey clay
GP-2	12 feet	12/30/98	0"-12"asphalt; 12"-20" stone; 20"-37" brn sand; 37"-46" wet, silty grey sand w/tr product; 46"-48"grey silty clay; 48"-52" fine/med brn sand; 52"-60"grey silty wet clay w/product lense; 60"-70" grey silty clay w/product in thin sand lense; 70"-96" grey silty clay.
GP-3	9 feet	12/30/98	0"-6" topsoil ;6"-14"stone; 14"-26" topsoil, darker with depth; 26"-49" sand; 49"-60" crushed stone; 60"-67"blk sand; 67"-92" grey silty clay w/ some sand. Product at 76" & 87"; 87"-101"grey silty clay w/some sand lenses tr product; 101"-108" grey clay.
GP-4	8 feet	12/30/98	0"-12"asphalt; 12"-20" stone; 20"-33" mixed brn sand and orange brick; 33"-56" fine sand w/ silty clay; 56"-69" grade from blk sandy silt to grey silty clay w/sand; 69"-82" silty sand w/product; 82"-96" grey silty clay w/some sand, tr product.
GP-5	8 feet	12/30/98	0"-12"asphalt; 12"-14" stone; 14"-32" sand & organic matter,darker w/depth; 32-48" brn to dark sandy silt w/slight product odor; 48"-60" brn sand w/some product; 60"-66" silty, sandy clay w/less product. 66"-92" grey silty clay w/some sand lenses.
GP-6	8 feet	12/30/98	0"-4" topsoil; 4"-10" silty sand & clay; 10"-22" dk blk sand w/silt & trace blk chunks; 22"-43" med sand w/silt &clay; 43"-80" sandy silty clay; 80"-96" grey silty clay.
GP-7	9 feet	12/30/98	0"-10" topsoil; 10"-15"med sand; 15"-25" dk blk sand w/silt & trace blk chunks; 25"-38" wet sand/silt w/slt odor; 38"-58" grey wet med sand w/ some clay; 58"-104" grey silty clay.
GP-8	12 feet	12/30/98	0"-14" topsoil; 14"-62"brn & blk sandy silty mix w/tr clay; 62"-66" dk brn sand & silt w/product odor; 66-75" same w/product & water; 76"-80"gravel sat w/product; 80"-87" dk brn silt w/odor; 87"-96"grey silty clay w/sand & some product. 96"-104"wet silt & gravel w/product; 104"-144" grey silty clay.
GP-9	9 feet	12/30/98	0"-14" topsoil; 14"-24" dk sand w/some silt & tr product; 24"-39" grey med sand w/slt odor; 39"-60" med sand w/silt & clay; 60"-66" med sand; 66"-76" grey silty clay, grading to clay w/ thin sand lenses; 76"-104" grey silty clay.

NOTE:

Shaded cell indicates a location where evidence of suspected creosote related contamination was observed outside the area addressed during time critical removal

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

TABLE 7

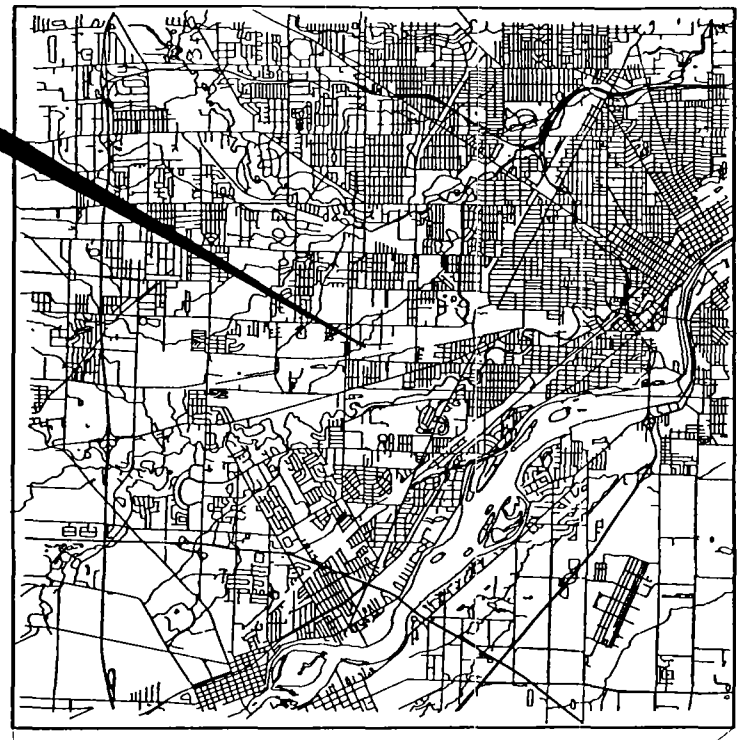
PROJECT EXPENDITURE SUMMARY[1]

Contractor	Classification of Service	Project Billing	Percentage of Total Project
IT Group	Removal Action Contractor [2]	$3,377,683.37	50.9%
Hull & Associates, Inc.	Engineering Support	$395,780.73	6.0%
Heritage Environmental Services	Environmental Response	$15,716.80	0.2%
Goetz Associates, Inc.	Project Oversight	$144,210.57	2.2%
Porter, Wright, Morris & Arthur	Legal Counsel	$18,251.07	0.3%
Peoria Disposal Company	Waste Disposal	$2,602,130.45	39.2%
Lancaster Laboratories	Analytical Testing	$11,961.76	0.2%
Pinkerton's	Site Security	$51,347.30	0.8%
Toledo Edison	Utility Relocation	$1,500.00	0.0%
Columbia Gas	Utility Relocation	$10,932.00	0.2%
All-Star Heating, Toledo, Oh	Temporary Utilities	$2,207.13	0.0%
	Project Total	$6,631,721.18	100.00%

NOTE:

[1] Project Billings are from January 27, 1998 to December 31, 1999. Based on search of KMC accounting database.

[2] Includes disposition of post-LDR waste at Clean Harbors, Kimball, Nebraska.



N.T.S.

KMC001.100.0041.DWG
12/03/99 BK

FIGURE 1

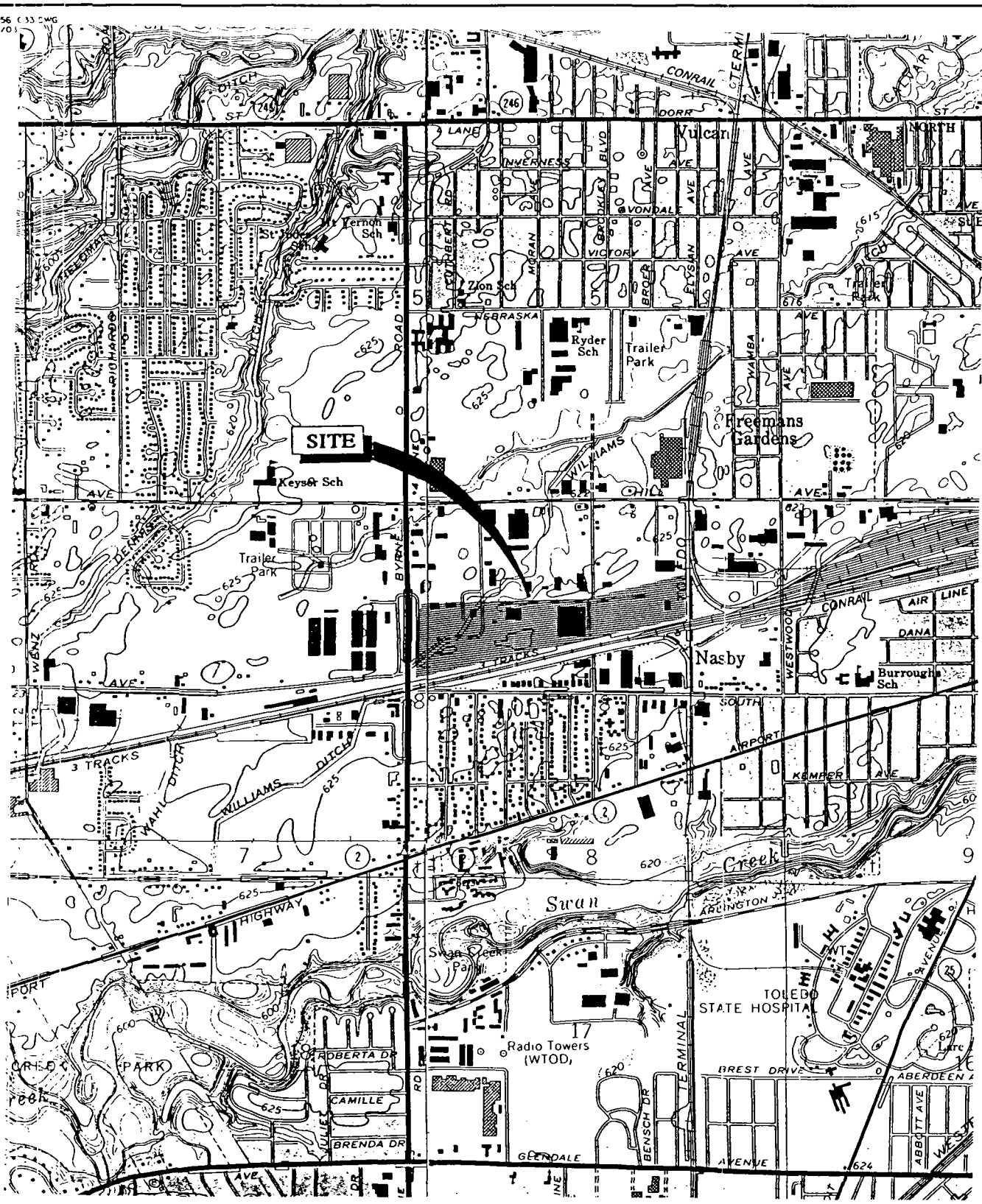
Hull & Associates, Inc.
TOLEDO, OHIO

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL PLAN

LOCATION MAP

CITY OF TOLEDO, LUCAS COUNTY, OHIO

DATE:
DECEMBER 1999 KMC001



QUADRANGLE LOCATION

0 1/2 MILE 1 MILE

1000 0 1000 2000 3000 4000 5000 FEET

1 0.5 0 1 KILOMETER

FIGURE 2

Hull & Associates, Inc.
TOLEDO, OHIO

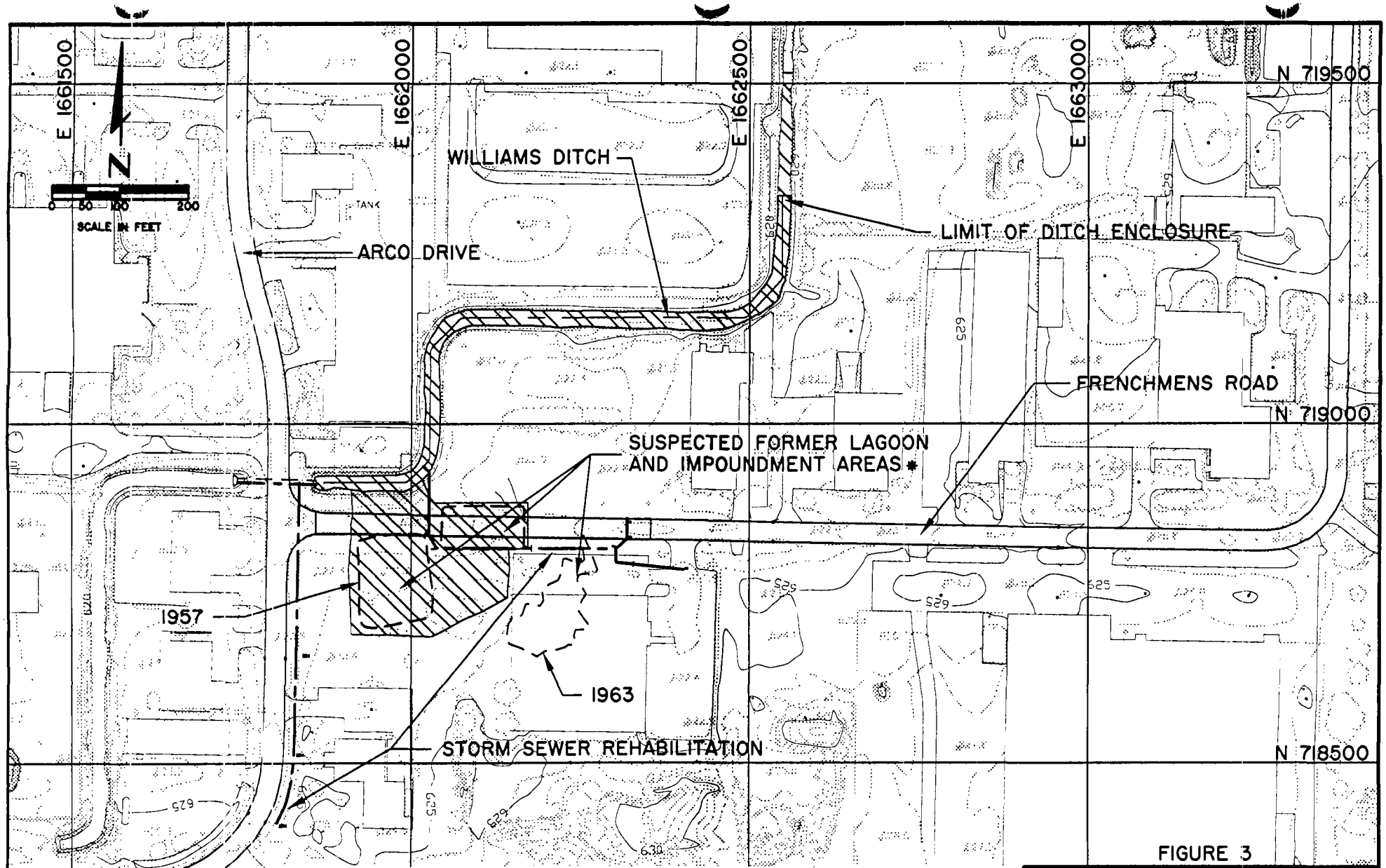
KERR-McGEE CHEMICAL, LLC.
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL PLAN

SITE MAP

CITY OF TOLEDO, LUCAS CO., OHIO

DATE:
DECEMBER 1999

KMC001



LEGEND

- SEDIMENT REMOVAL AND SOIL EXCAVATION AREA
- ROAD RESTORATION
- * APPROXIMATE LIMITS DERIVED FROM 1957 AND 1963 AERIAL PHOTOS

FIGURE 3

Hull & Associates, Inc.
TOLEDO, OHIO

KERR-McGEE CHEMICAL, LLC.
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT
GENERAL REMOVAL ACTION WORK AREAS
CITY OF TOLEDO, LUCAS CO., OHIO

DATE: FEBRUARY 2000 KMC001

KMC001.100.0042.DWG
02/14/00 GAC

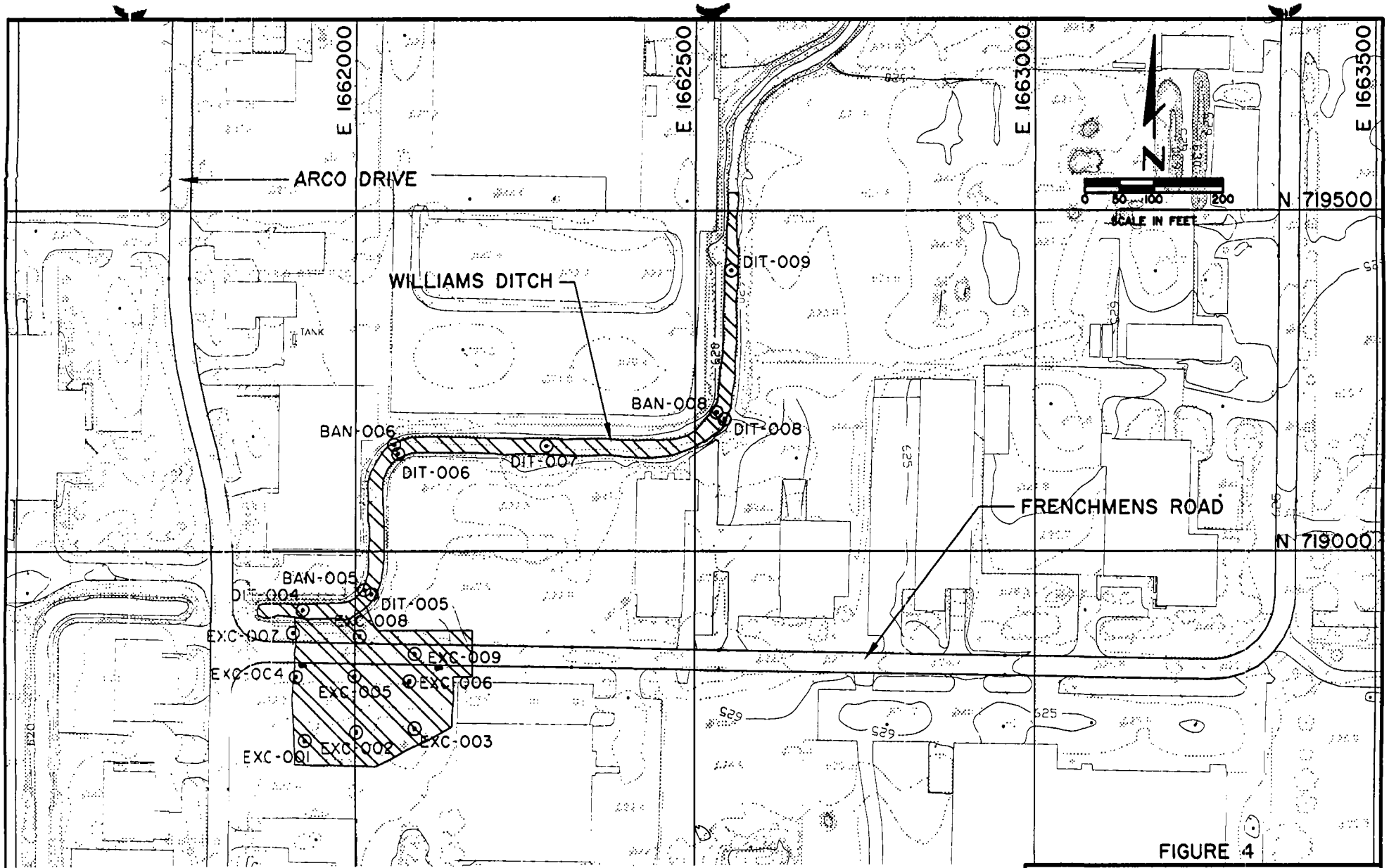


FIGURE 4

LEGEND

- SEDIMENT REMOVAL AND SOIL EXCAVATION AREA
- EXC-001 ⊙ POST-EXCAVATION SAMPLE LOCATION
- DIT-001 ⊙ POST-SEDIMENT REMOVAL SAMPLE LOCATION-DITCH BOTTOM
- SAN-001 ⊙ POST-SEDIMENT REMOVAL SAMPLE LOCATION-DITCH BANK

Hull & Associates, Inc.
TOLEDO, OHIO

KERR-McGEE CHEMICAL, LLC.
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

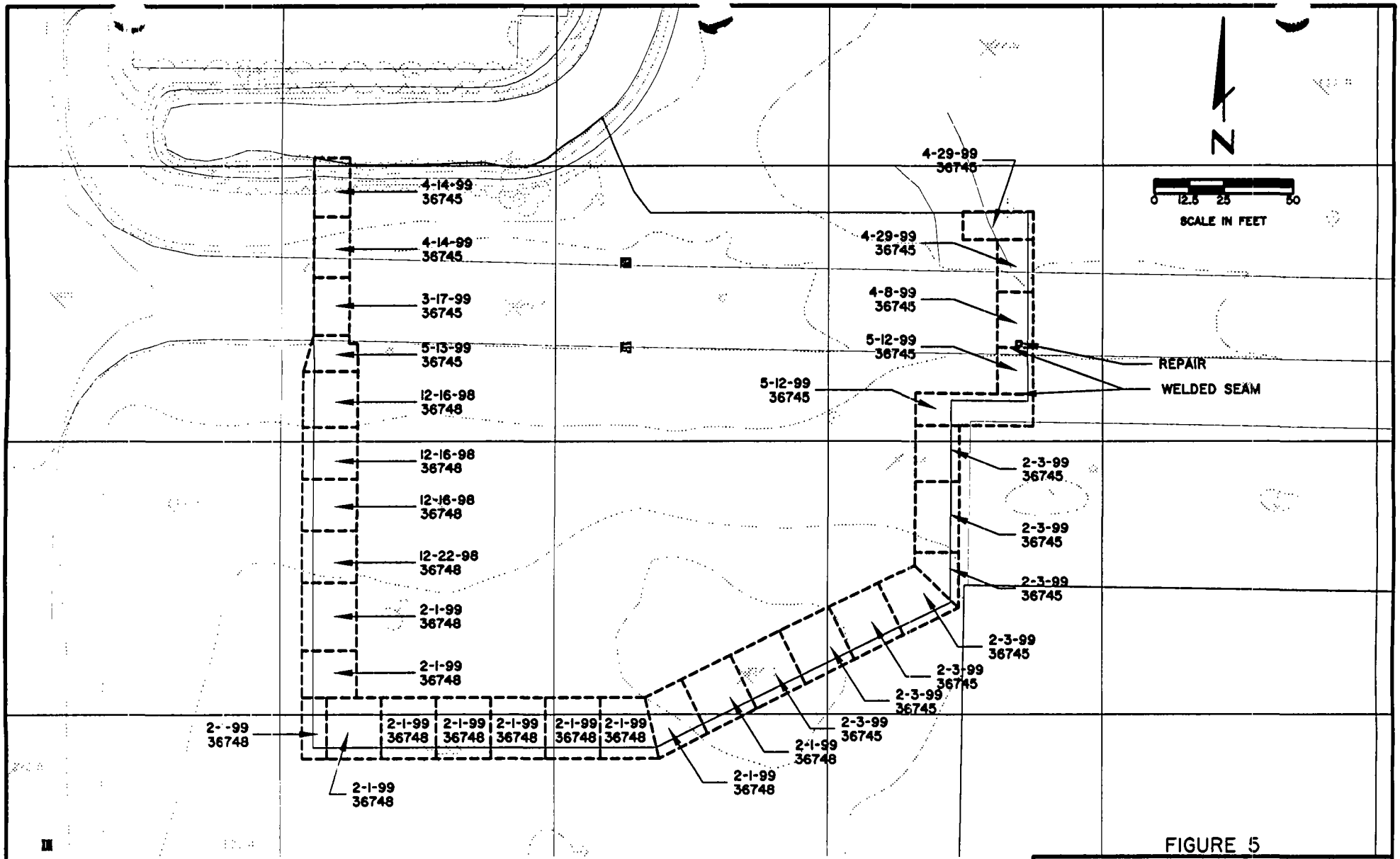
POST-EXCAVATION SAMPLE LOCATIONS

CITY OF TOLEDO, LUCAS CO., OHIO

DATE: FEBRUARY 2000

KMC001

KMC001.100.0034.DWG
02/14/00 GAC



LEGEND

APPROXIMATE LINER PANEL LIMITS

2-1-99 DATE INSTALLED

36748 HDPE ROLL NUMBER

FIGURE 5

Hull & Associates, Inc.
TOLEDO, OHIO

KERR-McGEE CHEMICAL, LLC.
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

EXCAVATION PERIMETER BARRIER PANEL LAYOUT

CITY OF TOLEDO, LUCAS CO., OHIO

DATE: FEBRUARY 2000

KMC001

KMC001.100.0033.DWG
02/14/00 GAC

APPENDIX A

Record Drawings and Plates

SDMS US EPA Region V

Imagery Insert Form

Some images in this document may be illegible or unavailable in SDMS. Please see reason(s) indicated below:

☐ Illegible due to bad source documents. Image(s) in SDMS is equivalent to hard copy.

Specify Type of Document(s) / Comment

☐ **Confidential Business Information (CBI).**
This document contains highly sensitive information. Due to confidentiality, materials with such information are not available in SDMS. You may contact the EPA Superfund Records Manager if you wish to view this document.

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Due to certain scanning equipment capability limitations, the document page(s) is not available in SDMS. The original document is available for viewing at the Superfund Records center.

Specify Type of Document(s) / Comment

APPENDIX A - RECORD DRAWINGS & PLATES

☐ **Other:**

APPENDIX B

Community Relations Information

TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION

INFORMATIONAL MEETING FOR TENANTS OF ARCO INDUSTRIAL PARK
SEPTEMBER 10 ,1998

AGENDA

1. Route sign in sheet
2. Introductory remarks
3. Brief project and site history
4. Results of investigative activities
5. Discussion of removal activities and schedule
6. Discussion of future activities
7. Lines of communication
8. Closure

Participants:

A. Keith Watson, Kerr-McGee Chemical, LLC, Project Manager
Peter Goetz, Goetz Associates, Inc., Project Coordinator
Chris Schraff, Esq., Porter, Wright, Morris & Arthur, local counsel
Scott Lockhart, P.E., Hull & Associates, Inc., Project Manager

TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION

Project Background:

The former Toledo Tie Treatment Site operated between approximately 1923 and 1962, treating railroad ties with a creosote based wood preservative. Subsequent to cessation of operations, the site was subdivided and plans for development of Arco Industrial Park South Plat One were approved by the City of Toledo in December of 1969. Plans for Arco Industrial Park South Plat Two were approved in August of 1971.

The United States Environmental Protection Agency (U.S. EPA) ordered Kerr-McGee Chemical Corporation, now known as Kerr-McGee Chemical, LLC (KMC) to conduct certain time critical removal actions to address the environmental impacts of the former operations on Williams Ditch. The U.S. EPA approved work plans mandated by the order in April of 1998 and investigation activities were initiated immediately pursuant to these work plans. These activities included sampling of air, sediment, soil and water in and around areas of suspected contamination. The data from these activities, coupled with a review of historical aerial photography, were used to formulate a removal action plan submitted to the U.S. EPA in July, 1998. The U.S. EPA requested additional information and clarification and the plan resubmitted in August 1998. Conditional approval was granted on September 1, 1998. KMC has retained IT Corporation, formerly known as OH Materials to perform the removal tasks.

Key Project Activities:

- Excavation of creosote contaminated sediment and soil from Williams Ditch and suspected former lagoon areas
- Removal and replacement of certain infrastructure components, including storm sewers, a water line and a portion of Frenchmens Road
- Temporary rerouting of Williams Ditch
- Installation of a subsurface barrier to mitigate potential future creosote migration to Williams Ditch
- Site restoration, including regrading and revegetation

What to expect:

- Increased site activity beginning within the next few weeks. Additional trailers and water storage tanks will be mobilized to the site. An area for staging excavated soils/sediment may be placed north of Frenchmens Road . Materials such as pipes, clean backfill, gravel, etc. will be staged at various locations around the site. Completion of this phase of the project is expected to be completed by mid-December, 1998
- Work hours will typically be early am to early evening, 5 days a week.
- Beginning early to mid-October increased truck traffic (could be 20-25 trucks/day hauling soil and/or sediment) is likely. These would be tractor trailer sized vehicles
- Noticeable "moth ball" type smell due to napthalene component in creosote.
- It is likely that Frenchmens Road will not be re-paved with asphalt until early spring 1999. It will however be restored to a condition suitable for travel until that time. Similarly, revegetation will likely not occur until early spring.
- There will be noise and vibration due to heavy equipment operation.
- Regular ambient air monitoring and/or sampling around the perimeter of the work areas
- Additional investigation activities throughout the industrial park, including soil borings and sampling, will be conducted under the second phase of the project. Some of these activities could be expected to occur simultaneously with the pending removal activities.
- Periodic updates regarding project progress will be provided to the industrial park tenants effected by removal activities.

09/10/98
8:14 AM

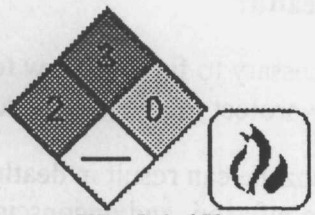
ToxFAQs

Benzene

CAS# 71-43-2

September 1997

Benzene
C_6H_6
Stereo Image
XYZ File
Search ChemFinder



NFPA Label Key

Material Safety Data Sheet
(University of Utah)

Agency for Toxic Substances and Disease Registry

This fact sheet answers the most frequently asked health questions (FAQs) about benzene. For more information, call the ATSDR Information Center at 1-800-447-1544. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Benzene is a widely used chemical formed from both natural processes and human activities. Breathing benzene can cause drowsiness, dizziness, and unconsciousness; long-term benzene exposure causes effects on the bone marrow and can cause anemia and leukemia. Benzene has been found in at least 813 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is benzene?

Benzene is a colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities.

Benzene is widely used in the United States; it ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals which are used to make plastics, resins, and nylon and synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs, and pesticides. Natural sources of benzene include volcanoes and forest fires. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke.

What happens to benzene when it enters the environment?

- Industrial processes are the main source of benzene in the environment.
- Benzene can pass into the air from water and soil.
- It reacts with other chemicals in the air and breaks down within a few days.
- Benzene in the air can attach to rain or snow and be carried back down to the ground.
- It breaks down more slowly in water and soil, and can pass through the soil into underground water.
- Benzene does not build up in plants or animals.

How might I be exposed to benzene?

- Outdoor air contains low levels of benzene from tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions.
- Indoor air generally contains higher levels of benzene from products that contain it such as glues, paints, furniture wax, and detergents.
- Air around hazardous waste sites or gas stations will contain higher levels of benzene.
- Leakage from underground storage tanks or from hazardous waste sites containing benzene can result in benzene contamination of well water.
- People working in industries that make or use benzene may be exposed to the highest levels of it.

How can benzene affect my health?

Animal testing is sometimes necessary to find out how toxic substances might harm people or to treat those who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death

The major effect of benzene from long-term (365 days or longer) exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessiv bleeding and can affect the immune system, increasing the chance for infection.

Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries. It is not known whether benzene exposure affects the developing fetus in pregnant women or fertility in men. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

How likely is benzene to cause cancer?

The **Department of Health and Human Services (DHHS)** has determined that benzene is a known human carcinogen. Long-term exposure to high levels of benzene in the air can cause leukemia, cancer of the blood-formin organs.

Is there a medical test to show whether I've been exposed to benzene?

Several test can show if you have been exposed to benzene. There is test for measuring benzene in the breath; this test must be done shortly after exposure. Benzene can also be measured in the blood, however, since benzene disappears rapidly from the blood, measurements are accurate only for recent exposures.

In the body, benzene is converted to products called metabolites. Certain metabolites can be measured in the urine. However, this test must be done shortly after exposure and is not a reliable indicator of how much benzene you hav been exposed to, since the metabolites may be present in urine from other sources.

Has the federal government made recommendations to protect human health?

The **EPA** has set the maximum permissible level of benzene in drinking water at 0.005 milligrams per liter (0.005 mg/L). The **EPA** requires that spills or accidental releases into the environment of 10 pounds or more of benzene b reported to the **EPA**.

The **Occupational Safety and Health Administration (OSHA)** has set a permissible exposure limit of 1 par benzene per million parts of air (1 ppm) in the workplace during an 8-hour workday, 40-hour workweek.

Glossary

Anemia:

A decreased ability of the blood to transport oxygen

Carcinogen:

A substance with the ability to cause cancer

CAS:

Chemical Abstracts Service

Chromosomes:

Parts of the cells responsible for the development of hereditary characteristics

Metabolites:

Breakdown products of chemicals

Milligram (mg):

One thousandth of a gram

Pesticide:

A substance that kills pests

Reference

Agency for Toxic Substances and Disease Registry. 1995. Toxicological profile for benzene (update). Atlanta, GA; U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

For more information, contact:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop E-29
Atlanta, GA 30333
Phone: 1-800-447-1544
Fax: 404-639-6359

U.S. Department of Health and Human Services
Public Health Service
Agency for Toxic Substances and Disease Registry

Link to ToxFAQs Home Page

Link to ATSDR Science Corner

Link to ATSDR Home Page

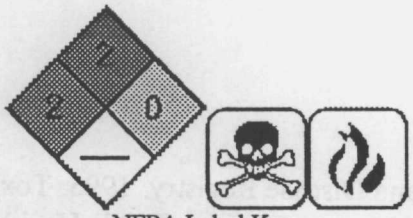
ToxFAQs

Naphthalene

CAS# 91-20-3

September 1996

Naphthalene
$C_{10}H_8$
Stereo Image
XYZ File
Search ChemFinder



NFPA Label Key

Material Safety Data Sheet
(University of Utah)

Agency for Toxic Substances and Disease Registry

This fact sheet answers the most frequently asked health questions about naphthalene. For more information, you may call the ATSDR Information Center at 1-800-447-1544. This fact sheet is one in a series of summaries about hazardous substances and their health effects. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. It's important you understand this information because this substance may harm you; refer to the glossary for definitions of any technical words.

SUMMARY: Exposure to naphthalene happens mostly from breathing air contaminated from the burning of wood or fossil fuels, industrial discharges, tobacco smoke, or moth repellents. Exposure to large amounts of naphthalene may damage or destroy some of your red blood cells. Naphthalene has been found in at least 536 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is naphthalene?
(Pronounced naf tha leen)

Naphthalene is a white solid that is found naturally in fossil fuels. Burning tobacco or wood produces naphthalene. It has a strong, but not unpleasant smell.

The major products made from naphthalene are moth repellents. It is also used for making dyes, resins, leather, tanning agents, and the insecticide, carbaryl.

What happens to naphthalene when it enters the environment?

- Naphthalene enters the environment from industrial uses, and from its use as a moth repellent.
- It also enters from the burning of wood or tobacco, and from accidental spills.
- Naphthalene evaporates easily.
- In air, moisture and sunlight break it down, often within 1 day.
- Naphthalene in water is destroyed by bacteria or evaporates into the air.
- Naphthalene binds weakly to soils and sediment.

- It does not accumulate in animals or fish.
- If dairy cows are exposed to naphthalene, some of it will be in their milk.
- If laying hens are exposed, some of it will be in their eggs.

How might I be exposed to naphthalene?

- Breathing low levels in outdoor air.
- Breathing air contaminated from industrial discharges or from burning wood or fossil fuels.
- Breathing air in homes or businesses where cigarettes are smoked, wood is burned, or moth repellents are used.
- Drinking water from contaminated wells.
- Touching clothing, blankets, or coverlets that are treated with naphthalene.

How can naphthalene affect my health?

Exposure to **large amounts** of naphthalene may damage or destroy some of your red blood cells. This could cause you to have too few red blood cells until your body replaces the destroyed cells. People, particularly children, have developed this problem after eating naphthalene-containing mothballs or deodorant blocks. Some of the symptoms of this problem are fatigue, lack of appetite, restlessness, and pale skin. Exposure to **large amounts** of naphthalene may also cause nausea, vomiting, diarrhea, blood in the urine, and a yellow color to the skin.

Animals sometimes develop cloudiness in their eyes after swallowing naphthalene. It is not clear if this also develops in people.

When mice were repeatedly exposed to naphthalene vapors for 2 years, their noses and lungs became inflamed and irritated.

How likely is naphthalene to cause cancer?

The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC) and the **EPA** have not classified naphthalene as to its human carcinogenicity.

No studies are available in people. Naphthalene has caused cancer in studies in female mice, but not in male mice or in rats of either sex.

Is there a medical test to show whether I've been exposed to naphthalene?

Tests are available that measure levels of naphthalene and its breakdown products in urine, stool, blood, or maternal milk. A **small** sample of your body fat can also be removed and analyzed for naphthalene. These tests are not routinely available in a doctor's office. However, a sample taken in a doctor's office can be sent to a special laboratory, if needed.

These tests cannot determine exactly how much naphthalene you were exposed to or predict whether harmful effects will occur.

Has the federal government made recommendations to protect human health?

The **EPA** recommends that children not drink water containing over 0.5 parts of naphthalene per million parts of water (0.5 ppm) for more than 10 days, or 0.4 ppm for longer than 7 years. Adults should not drink water with more than 1 ppm for more than 7 years. For water consumed over a lifetime, the **EPA** suggests it contain no more than 0.02 ppm naphthalene. The **EPA** requires that discharges or spills into the environment of 100 pounds or more be reported.

The **Occupational Safety and Health Administration (OSHA)** has set a limit of 10 parts per million (10 ppm) for the level of naphthalene in workplace air over an 8-hour workday, 40-hour workweek.

The **National Institute for Occupational Safety and Health (NIOSH)** considers more than 250 ppm of

naphthalene in air to be immediately dangerous to life or health. This is the exposure level of a chemical that is likely to cause permanent health problems or death.

Glossary

Carcinogenicity:
Ability of a substance to cause cancer.
CAS:
Chemical Abstract Service.
Insecticide:
A substance that kills insects.
Sediment:
Mud and debris that have settled to the bottom of a body of water.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Services.

Where can I get more information?

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

For more information, contact:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop E-29
Atlanta, GA 30333
Phone: 1-800-447-1544
Fax: 404-639-6359

U.S. Department of Health and Human Services
Public Health Service
Agency for Toxic Substances and Disease Registry

INVITATION TO
ARCO INDUSTRIAL PARK
PROPERTY OWNERS AND TENANTS

On Tuesday, August 31, 1999, at 10:00 AM, Kerr-McGee Chemical LLC will host an informational meeting at:

Toledo Hilton Hotel
3100 Glendale Avenue
Toledo, Ohio 43614

The room location for this meeting will be posted in the lobby of the Hotel. You are invited to attend this meeting. Please allow 1 to 1 ½ hours for the meeting.

Kerr-McGee wants to provide you with updated information regarding the activities being conducted in response to USEPA's Administrative Order for the former Toledo Tie Treatment Plant site (now the site of the Arco Industrial Park). This presentation will include information regarding:

- Work Completed at the Arco Industrial Park (including Williams Ditch)
- Description of the Engineering Evaluation/Cost Analysis (EE/CA) Process
    - Additional Sampling Activities
    - Continuing Access Needs
- Expected Time Frame and Schedule

Representatives of Kerr-McGee Chemical LLC and Hull & Associates, Inc. will be present to provide information and to answer your questions.

08/31/99
8:13 AM

Kerr-McGee Chemical, LLC
Toledo Tie Treatment Site Removal Action
Project Update Meeting
August 31,1999

Dana Conference Center

1.0 Introduction

- 1.1 UAO
- 1.2 Role of U.S. EPA
- 1.3 Role of KMC

2.0 Overview of Activities

- 2.1 Brief Review of Project Chronology
- 2.2 Review of time critical removal activities
- 2.3 Review of non-time critical removal activites

3.0 Review of EE/CA Process

- 3.1 Additional Sampling Activities
- 3.2 Access needs
- 3.3 What to expect (people, equipment, etc.)
- 3.4 Schedule for EE/CA

4.0 Close out

Toledo Tie Treatment Site
Time-Critical Removal Action

Project Overview

Project Background:

The former Toledo Tie Treatment Site operated between approximately 1923 and 1962, treating railroad ties with a creosote-based wood preservative. Subsequent to closing , the site was subdivided and plans for development of Arco Industrial Park South Plat One were approved by the City of Toledo in December 1969. Plans for Arco Industrial Park South Plat Two were approved in August 1971.

The United States Environmental Protection Agency (U.S. EPA) ordered Kerr-McGee Chemical Corporation, now known as Kerr-McGee Chemical, LLC (KMC) in December 1997 to conduct certain "time critical" removal actions to address the environmental impacts of the former operations on Williams Ditch. U.S. EPA approved work plans mandated by the order in April 1998 and investigation activities were initiated immediately. Air, sediment, soil and water were sampled in and around areas of suspected contamination. The data from these activities and a review of historical aerial photography were used to formulate a removal action plan submitted to U.S. EPA in July 1998. U.S. EPA requested additional information and clarification, and the plan was resubmitted in August 1998 and conditional approval was granted in September 1998. KMC retained IT Corporation, formerly known as OH Materials, to perform the removal tasks. The following are key project activities conducted between September 1, 1998 and August 31, 1999:

Key Project Activities:

- **September 1998**: Commencement of project by IT Corporation
- **October 1998**: Utility relocation,
- **October 1998-June 1999**: Williams Ditch by-pass and water treatment
- **Early November 1998 - April 1999**: Excavation and disposal of approximately 30,000 tons of impacted soil and sediment from Williams Ditch and suspected former lagoon areas
- **October 1998 - July 1999**: Removal, replacement and/or rehabilitation of infrastructure components, including storm sewers, a water line and approximately 500 feet of Frenchmens Road.
- **June 1999**: Enclosed approximately 1050 feet of Williams Ditch
- **June 1999 –July 1999**: Overall site regrading and restoration.
- **October 1998 – July 1999**: Monitoring and sampling of the air during excavation and waste handling activities.
- **August 1999**: Frenchmens Road is reopened.
- **September 1999**: Restoration of utilities to original position, including electric, telephone, gas and new fiber optic service.

Toledo Tie Treatment Site
Non-time Critical Removal Action

Project Overview

Project Background

Pursuant to Unilateral Administrative Order (UAO) issued to KMC by the U.S. EPA, KMC is preparing to initiate the portion of the project deemed by the U.S. EPA as "non-time" critical. This phase is intended to further characterize the physical attributes of the site as well as identify areas that could have been impacted by creosote . This portion of the project will address those areas of the site, which were not evaluated during the time-critical portion of the project. Key components of this phase include.

- Additional borings and sampling of surficial and subsurface soils
- Geophysical investigations
- Assessment of groundwater flow direction and quality
- Identification of removal action objectives
- Identification of possible remedial alternatives
- Evaluation of remedial alternative
- Recommendation of a remedial action to address residual contamination

The above tasks constitute what is referred to as an Engineering Evaluation/Cost Analysis. A document will be prepared summarizing the investigation(s) and the selected remedy. This document, once accepted by U.S. EPA, is then released for public comment. The document will be available in the administrative record for review by interested parties. The administrative record is on file at the Technology reference desk at the Toledo Lucas County Public Library in downtown Toledo.

What to expect:

- Additional investigation activities (ie. Drill rig, backhoe, personnel). May be wearing special personal protective equipment.
- Periodic site inspections. This will involve KMC contractors performing site reconnaissance, etc.
- Short duration activities (days to several weeks), occurring periodically, over the next three to six months.

APPENDIX C

Photodocumentation

SDMS US EPA Region V

Imagery Insert Form

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APPENDIX C: RECORD DRAWING FOR CPT, GEOPROBE AND TEST PITS/TRENCHES

☐ **Other:**

APPENDIX D

Analytical Data and Summary Tables

APPENDIX D-1

Water/Sheen Analytical Results

AC 874 1

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE ____ OF ____

NO. 0104

☐ Dublin — 6130 Wilcox Road, Dublin, Ohio 43017, Phone: (614)793-8777, FAX: (614)793-9070

☒ Toledo — 2726 Monroe Street, Toledo, Ohio 43606, Phone: (419)241-7171, FAX: (419)241-3117

☐ Mason — 4700 Duke Drive, Suite 172, Mason, Ohio 45040, Phone: (513)459-9677, FAX: (513)459-9869

☐ Warrensville Heights — 4949 Galary Parkway, Suite S, Warrensville Heights, Ohio 44128, Phone: (216)514-7100, FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr-McGee Corporation

Site: Williams Ditch

Project#: PWM001 Phase: 01 SMP

Samplers: Gary D. Lescalleth

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER: ____

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

PRESERVATIVES / ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	Full TCLP - 10 Metals Herbicide Pest	IGN	Reactivity (RCI)	PCB (Cancelled per Doug McCalleth 1/5/98)	TSS	COMMENTS
PWM001-F1ac001-T388	1		N	1/5/97 15:50						

RELINQUISHED BY: [signature]	DATE: 1-5-98	RECEIVED BY: [signature]	DATE: 1-5-98
	TIME: ~~15:50~~ 16:20		TIME: 16:20
RELINQUISHED BY:	DATE: – –	RECEIVED BY: [signature]	DATE: 1-5-98
	TIME: – –		TIME: 1630
RELINQUISHED BY:	DATE: – –	RECEIVED FOR LAB BY:	DATE: – –
	TIME: – –		TIME: – –
COOLER TEMPERATURE AS RECEIVED °C :	°C		

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: TOHCI - Henry Lab

Method of Delivery: Hand Delivery

Airbill Number: –

NOTES: Full TCLP Analysis Per 40 CFR 261 Subpart C. Including Michigan Leachate (a)

HAI 0997289 08/14/97 CORNER

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

January 8, 1998

To: Hull & Associates
2726 Monroe St.
Toledo, Ohio 43606
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AC87421 Location code: HULL
Project account code: 196
Location Description: PWM001-FRAC001-T388
Sample collector: CLIENT Sample collection date: 01/05/98
Lab submittal date: 01/05/98 Time: 16:28
Received by: JK Validated by: SA

Parameter: pH @ 25 DEG C
Method reference: SM18-4500
Result: 7.72 Std. MDL or sensitivity: 1.00
Date started: 01/05/98 Date finished: 01/05/98
Time started: Analyst: WS

Parameter: SOLIDS, SUSP. 104 DEG C
Method reference: SM18-2540D
Result: 9 mg/L MDL or sensitivity: 5
Date started: 01/06/98 Date finished: 01/06/98
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3
Result: 0.005 mg/L MDL or sensitivity: 0.005
Date started: 01/06/98 Date finished: 01/08/98
Time started: Analyst: JC

Parameter: FLASH POINT
Method reference: EPA1020 Unit: deg F
Result: >160 MDL or sensitivity: 80
Date started: 01/07/98 Date finished: 01/07/98
Time started: Analyst: CF

Parameter: SULFIDE
Method reference: EPA 376.2 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.02
Date started: 01/06/98 Date finished: 01/06/98
Time started: Analyst: CF

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 01/06/98 Date finished: 01/06/98
Time started: Analyst: ND

Parameter: TCLP METALS (MI)
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 01/07/98 Date finished: 01/07/98
Time started: Analyst: JH

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 01/06/98 Date finished: 01/06/98
Time started: Analyst: ND

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15 Unit: mg/L
Result: see below
Date started: 01/07/98 Date finished: 01/07/98
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 01/06/98 Date finished: 01/06/98
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 01/06/98 Date finished: 01/07/98
Time started: Analyst: JR

Data for TCLP METALS (MI) mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	Not detected	0.2
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
COPPER	Not detected	0.2
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1
ZINC	Not detected	0.2

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

If there are any questions regarding this data, please call.

Fred W. Doering
President

✓ 83313-14

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

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NO. 0062

☐ Dublin — 6130 Wilcox Road, Dublin, Ohio 43017, Phone: (614)793-8777, FAX: (614)793-9070

☒ Toledo — 2726 Monroe Street, Toledo, Ohio 43606, Phone: (419)241-7171, FAX: (419)241-3117

☐ Mason — 4700 Duke Drive, Suite 172, Mason, Ohio 45040, Phone: (513)459-9677, FAX: (513)459-9869

☐ Warrensville Heights — 4949 Galaxy Parkway, Suite S, Warrensville Heights, Ohio 44128, Phone: (216)514-7100, FAX: (216)514-7104

REPORT TO: WILLIAM PETRUZZI

Client: KERR-McGEE

Site: WILLIAMS DITCH

Project#: PMW001 Phase: MONITORING

Samplers: D. WADLEY, L. FSCALLETT

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$ (0.008%); G – HCl pH<2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES — PRESERVATIVES: A, C, D, B, A, C

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	EHF	VOP	CYANIDE	METALS	CHROMIUM (HEX)	PCL TCL PH	DELISTING PARAMETERS					COMMENTS
PMW001-DRUM-0 102192-TB3	1	9	N	10-22-97 / 1015	3	2	1	1	1		1					
PMW001-TB1-102192-TB4	1	2		LAB		2										

RELINQUISHED BY: [signature]	DATE: 10-22-97 TIME: 1455	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY: Dino Collins	DATE: 10-22-97 TIME: 1455

COOLER TEMPERATURE AS RECEIVED °C: Cooler #1 3°C; Cooler #2 2°C °C

DISTRIBUTION: WHITE – LAB USE (MUST BE RETURNED WITH REPORT); YELLOW – LAB USE; PINK – RETAINED BY H&A

Deliver To:

Method of Delivery:

Airbill Number:

NOTES:

HA/0997269 08/14/97 DONKER

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

October 28, 1997

To: Hull & Associates
2726 Monroe St.
Toledo, Ohio 43606
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AC83314
Location code: HULL
Purchase order number: PMW
Project account code: 196
Location Description: PMW001-TB1-102197-T348
Sample collector: CLIENT
Sample collection date: 10/22/97
Lab submittal date: 10/22/97
Time: 12:21
Received by: JK
Validated by: FD

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240
Unit: ug/L
Result: see below
Date started: 10/22/97
Date finished: 10/22/97
Time started:
Analyst: VW

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
ACROLEIN	Not detected	10
ACRYLONITRILE	Not detected	5
BENZENE	Not detected	1
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	2
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	2
2-CHLOROETHYL VINYL ETHER	Not detected	2
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	2
DIBROMOCHLOROMETHANE	Not detected	1
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1
1,1-DICHLOROETHENE	Not detected	1
t-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
c-1,3-DICHLOROPROPENE	Not detected	1
t-1,3-DICHLOROPROPENE	Not detected	1
ETHYLBENZENE	Not detected	1
METHYLENE CHLORIDE	Not detected	2

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
TOLUENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	2
VINYL CHLORIDE	Not detected	2
Additional requested compounds:	---	
m+p-XYLENE	Not detected	1
o-XYLENE	Not detected	1
Surrogate results:	---	
20 ug/L Dibromofluoromethane	18.6	
20 ug/L Toluene-D8	19.9	
20 ug/L 4-Bromofluoromethane	21.5	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

October 27, 1997

To: Hull & Associates
2726 Monroe St.
Toledo, Ohio 43606
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AC83313
Location code: HULL
Purchase order number: PMW
Project account code: 196
Location Description: PMW001-DRUM-102197-T348
Sample collector: CLIENT
Sample collection date: 10/22/97
Lab submittal date: 10/22/97
Time: 12:21
Received by: JK
Validated by: FD

Parameter: pH @ 25 DEG C
Method reference: SM18-4500
Result: 7.93 Std.
MDL or sensitivity: 1.00
Date started: 10/22/97
Date finished: 10/22/97
Time started:
Analyst: JLK

Parameter: SOLIDS, SUSP. 104 DEG C
Method reference: SM18-2540D
Result: 32 mg/L
MDL or sensitivity: 5
Date started: 10/22/97
Date finished: 10/23/97
Time started:
Analyst: JLK

Parameter: BIOCHEMICAL OXYGEN DEMAND
Method reference: SM18 5210
Result: 12 mg/L
MDL or sensitivity: 4
Date started: 10/22/97
Date finished: 10/27/97
Time started:
Analyst: WS

Parameter: HEXAVALENT CHROMIUM
Method reference: SM18 3500D
Unit: ug/L
Result: Not detected
MDL or sensitivity: 15
Date started: 10/23/97
Date finished: 10/23/97
Time started:
Analyst: CF

Parameter: CYANIDE
Method reference: 4500-C/335.3
Unit: mg/L
Result: Not detected
MDL or sensitivity: 0.005
Date started: 10/22/97
Date finished: 10/23/97
Time started:
Analyst: JC

Parameter: OIL & GREASE
Method reference: EPA 1664
Result: 12.5 mg/L
Date started: 10/23/97
Time started:
MDL or sensitivity: 5.0
Date finished: 10/24/97
Analyst: JC

Parameter: HYDROCARBONS
Method reference: EPA 1664
Result: 6.8 mg/L
Date started: 10/24/97
Time started:
MDL or sensitivity: 5.0
Date finished: 10/24/97
Analyst: JC

Parameter: ARSENIC
Method reference: 200.7/6010
Result: Not detected
Date started: 10/24/97
Time started:
Unit: ug/L
MDL or sensitivity: 5.0
Date finished: 10/24/97
Analyst: AA

Parameter: CADMIUM
Method reference: 200.7/6010
Result: Not detected
Date started: 10/24/97
Time started:
Unit: ug/L
MDL or sensitivity: 1
Date finished: 10/24/97
Analyst: AA

Parameter: COPPER
Method reference: 200.7/6010
Result: Not detected
Date started: 10/24/97
Time started:
Unit: ug/L
MDL or sensitivity: 20
Date finished: 10/24/97
Analyst: AA

Parameter: LEAD
Method reference: 200.7/6010
Result: Not detected
Date started: 10/24/97
Time started:
Unit: ug/L
MDL or sensitivity: 10
Date finished: 10/24/97
Analyst: AA

Parameter: MERCURY
Method reference: 245.1/7470
Result: Not detected
Date started: 10/24/97
Time started:
Unit: ug/L
MDL or sensitivity: 0.2
Date finished: 10/24/97
Analyst: AA

Parameter: NICKEL
Method reference: 200.7/6010
Result: Not detected
Date started: 10/24/97
Time started:
Unit: ug/L
MDL or sensitivity: 20
Date finished: 10/24/97
Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010
Result: Not detected
Date started: 10/24/97
Time started:
Unit: ug/L
MDL or sensitivity: 10
Date finished: 10/24/97
Analyst: AA

Parameter: ZINC
Method reference: 200.7/6010
Result: 247 ug/L
MDL or sensitivity: 20
Date started: 10/24/97
Date finished: 10/24/97
Time started:
Analyst: AA

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240
Unit: ug/L
Result: see below
Date started: 10/22/97
Date finished: 10/22/97
Time started:
Analyst: VW

Parameter: PRIORITY POLLUTANT EXTRACTABLES
Method reference: EPA 625/8270
Unit: ug/L
Result: see below
Date started: 10/22/97
Date finished: 10/23/97
Time started:
Analyst: SUB

Parameter: NON-PRIORITY POLLUTANT VOLATILES
Method reference:
Unit:
Result: See comment
MDL or sensitivity:
Date started: 10/22/97
Date finished: 10/22/97
Time started:
Analyst: VW

Parameter: NON-PRIORITY POLLUTANT ORGANICS
Method reference:
Unit:
Result: See comment
MDL or sensitivity:
Date started: 10/22/97
Date finished: 10/23/97
Time started:
Analyst: SUB

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
ACROLEIN	Not detected	10
ACRYLONITRILE	Not detected	5
BENZENE	25	1
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	2
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	2
2-CHLOROETHYL VINYL ETHER	Not detected	2
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	2
DIBROMOCHLOROMETHANE	Not detected	1
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1
1,1-DICHLOROETHENE	Not detected	1
t-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
c-1,3-DICHLOROPROPENE	Not detected	1
t-1,3-DICHLOROPROPENE	Not detected	1

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
ETHYLBENZENE	6.5	1
METHYLENE CHLORIDE	Not detected	2
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	2.6	1
TOLUENE	34	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	2
VINYL CHLORIDE	Not detected	2
Additional requested compounds:	---	
m+p-XYLENE	19	1
o-XYLENE	8.1	1
Surrogate results:	---	
20 ug/L Dibromofluoromethane	18.0	
20 ug/L Toluene-D8	21.0	
20 ug/L 4-Bromofluoromethane	18.6	

Data for PRIORITY POLLUTANT EXTRACTABLES ug/L:

Component Name	Result	Component MDL
2-CHLOROPHENOL	Not detected	3
2,4-DICHLOROPHENOL	Not detected	3
2,4-DIMETHYLPHENOL	26	3
4,6-DINITRO-o-CRESOL	Not detected	5
2,4-DINITROPHENOL	Not detected	5
2-NITROPHENOL	Not detected	5
4-NITROPHENOL	Not detected	5
p-CHLORO-m-CRESOL	Not detected	5
PENTACHLOROPHENOL	Not detected	6
PHENOL	3.7	3
2,4,6-TRICHLOROPHENOL	Not detected	5
ACENAPHTHENE	48	3
ACENAPHTHYLENE	5.7	3
ANTHRACENE	21	3
BENZIDINE	Not detected	5
BENZO(a)ANTHRACENE	18	5
BENZO(a)PYRENE	12	4
BENZO(ghi)PERYLENE	5.7	5
BENZO(b & k)FLUORANTHENE	20	5
bis(2-CHLOROETHOXY)METHANE	Not detected	5
bis(2-CHLOROETHYL)ETHER	Not detected	3
bis(2-CHLOROISOPROPYL)ETHER	Not detected	5
bis(2-ETHYLHEXYL)PHTHALATE	21	5
4-BROMOPHENYL PHENYL ETHER	Not detected	5
BUTYL BENZYL PHTHALATE	Not detected	5
2-CHLORONAPHTHALENE	Not detected	10
4-CHLOROPHENYL PHENYL ETHER	Not detected	5
CHRYSENE	19	3
DIBENZO(ah)ANTHRACENE	Not detected	5

Data for PRIORITY POLLUTANT EXTRACTABLES (continued):

Component Name	Result	Component MDL
1,2-DICHLOROBENZENE	Not detected	3
1,3-DICHLOROBENZENE	Not detected	3
1,4-DICHLOROBENZENE	Not detected	3
3,3'-DICHLOROBENZIDINE	Not detected	10
DIETHYL PHTHALATE	Not detected	5
DIMETHYL PHTHALATE	Not detected	5
DI-N-BUTYL PHTHALATE	4.5*	1
2,4-DINITROTOLUENE	Not detected	10
2,6-DINITROTOLUENE	Not detected	10
DI-N-OCTYL PHTHALATE	Not detected	5
1,2-DIPHENYLHYDRAZINE	Not detected	5
FLUORANTHENE	110*	3
FLUORENE	70*	3
HEXACHLOROBENZENE	Not detected	5
HEXACHLOROBUTADIENE	Not detected	5
HEXACHLOROCYCLOPENTADIENE	Not detected	10
HEXACHLOROETHANE	Not detected	5
INDENO(123-cd)PYRENE	4.8	4
ISOPHORONE	Not detected	5
NAPHTHALENE	7.6	5
NITROBENZENE	Not detected	5
N-NITROSO-DIMETHYLAMINE	Not detected	5
N-NITROSO-DI-N-PROPYLAMINE	Not detected	5
N-NITROSO-DIPHENYLAMINE	Not detected	5
PHENANTHRENE	150*	3
PYRENE	64*	3
1,2,4-TRICHLOROBENZENE	Not detected	5
ALDRIN	Not detected	10
A-BHC	Not detected	8
B-BHC	Not detected	8
3	Not detected	9
D-BHC	Not detected	10
CHLORDANE	Not detected	40
4,4'-DDD	Not detected	4
4,4'-DDE	Not detected	7
4,4'-DDT	Not detected	5
DIELDRIN	Not detected	6
ENDOSULFAN I	Not detected	30
ENDOSULFAN II	Not detected	30
ENDOSULFAN SULFATE	Not detected	20
ENDRIN	Not detected	60
ENDRIN ALDEHYDE	Not detected	30
HEPTACHLOR	Not detected	10
HEPTACHLOR EPOXIDE	Not detected	10
TOXAPHENE	Not detected	40
TETRACHLORODIBENZO-p-DIOXIN	Not detected	7
PCB-1016	Not detected	9
PCB-1221	Not detected	5
PCB-1232	Not detected	5
PCB-1242	Not detected	7
PCB-1248	Not detected	5

Data for PRIORITY POLLUTANT EXTRACTABLES (continued):

Component Name	Result	Component MDL
PCB-1254	Not detected	7
PCB-1260	Not detected	8
Surrogate results:	---	
88.8 ug/L 2-Fluorophenol	59	
88.8 ug/L Phenol-D6	38	
88.8 ug/L Nitrobenzene-D5	43	
88.8 ug/L 2-Fluorobiphenyl	51	
88.8 ug/L 2,4,6-Tribromophenol	60	
88.8 ug/L Terphenyl-D14	59	

Sample comments:

Several non-priority pollutant responses were detected by GCMS. The best matches to library spectra and approximate ug/L concentrations are reported below:

1.	Dimethylphenol isomer	30
2.	Methylnaphthalenes	60
3.	Dimethylnaphthalenes	60
4.	Dibenzofuran	40
5.	Carbazole	10
6.	Methylphenanthrenes	40
7.	1,2,4-Trimethylbenzene	12
8.	1,3,5-Trimethylbenzene	7.2
9.	Indene	10
10.	2,3-Dihydro-methylindene isomer	6
11.	1-Propenylbenzene	20
12.	1,2,3,4-Tetrahydronaphthalene	8
13.	1,2,3,4-Tetrahydro-6-methylnaphthalene	10
14.	Tetramethylbenzene isomer	5
15.	2-Ethenyl-1,4-dimethylbenzene	4

*Matrix spike recoveries for the indicated compounds are outside EPA Method 8270 acceptance criteria, possibly due to matrix interferences. These values are provided as estimates. Recovery of the batch quality control sample for this oil/grease analysis is 73.3% and is outside the acceptance criteria of 79 - 114%. The oil/grease and hydrocarbon values are provided as estimates. These values should not be reported to a regulatory agency without qualification.

If there are any questions regarding this data, please call.

Fred W. Doering
President

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE ____ OF ____

NO. 0057

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☐ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petrucci

Client: ____

Site: Williams Ditch

Project#: PWM001 Phase: 01. SMP

Samplers: Gary D. Lescallett

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER: ____

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	FLASHPOINT	SULFIDE	Herbicide									COMMENTS
					A	E	A									
PWM001-DRUM102197-002-T388	1	5	✓	10-28-97	✓	✓	✓									See notes on RFAs

RELINQUISHED BY: Gary D. Lescallett	DATE: 10-28-97 TIME: 12-15-pm	RECEIVED BY: [illegible]	DATE: 10-28-97 TIME: 12-15-pm
RELINQUISHED BY: J. Kayser	DATE: 10-28-97 TIME: 12:44-	RECEIVED BY: [illegible]	DATE: - - TIME: 10-28-97
RELINQUISHED BY:	DATE: - - TIME: - -	RECEIVED FOR LAB BY:	DATE: 12-44- TIME: - -

Deliver To: Jones & Henry Lab

Method of Delivery: Hand Delivery

Airbill Number: ____

NOTES: ____

COOLER TEMPERATURE AS RECEIVED °C : ____ °C

DISTRIBUTION:
WHITE --LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW --LAB USE
PINK --RETAINED BY HAI

HAI\0997T289
08/14/97 CORNER

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

October 29, 1997

To: Hull & Associates
2726 Monroe St.
Toledo, Ohio 43606
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AC83671 Location code: HULL
Project account code: 196
Location Description: PWM001-DRUM-102197-002-T388
Sample collector: CLIENT Sample collection date: 10/28/97
Lab submittal date: 10/28/97 Time: 12:29
Received by: JK Validated by: SA

Parameter: FLASH POINT
Method reference: EPA1020 Unit: deg F
Result: >160 MDL or sensitivity: 80
Date started: 10/29/97 Date finished: 10/29/97
Time started: Analyst: JH

Parameter: SULFIDE
Method reference: EPA 376.2 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.02
Date started: 10/29/97 Date finished: 10/29/97
Time started: Analyst: CF

Parameter: HERBICIDES IN WATER
Method reference: 600/4-81-053 Unit: ug/L
Result: see below
Date started: 10/29/97 Date finished: 10/29/97
Time started: Analyst: JR

Data for HERBICIDES IN WATER ug/L:

Component Name	Result	Component MDL
2,4-D	Not detected	2.0
2,4,5-TP (SILVEX)	Not detected	0.5

If there are any questions regarding this data, please call.

Fred W. Doering
President

Hull & Associates, Inc.

3401 Glendale Avenue
Suite 300
Toledo, Ohio 43614
(419) 385-2018
fax: (419) 385-5487

September 11, 1998

Mr. John Walthall
City of Toledo
Division of Environmental Services
348 S. Erie Street
Toledo, Ohio 43602-1633

RE: Toledo Tie Treatment Site, Wastewater Discharge to City of Toledo Sanitary Sewer System
PWM001.100.0088

Dear Mr. Walthall:

Pursuant to our discussions regarding the Toledo Tie Treatment Site, attached are additional data on a water sample collected from an on-site storage tank. Water stored in the tank was generated from the surface of Williams Ditch during regular product recovery activities. The U.S. EPA has given conditional approval to begin the removal action and Kerr-McGee's contractor will be mobilizing soon. I spoke with Bill Garber last week and understand that a resolution of whether the City will accept wastewater is pending. I trust the enclosed data will facilitate that decision.

Please feel free to contact me in our office or Peter Goetz, KMC project coordinator, 405.447.8300, if you have any questions or require additional information. I appreciate your continued cooperation and assistance in this matter.

Sincerely,

Scott F. Lockhart, PE
Senior Project Manager

Enclosure

ct: Peter Goetz, KMC
A. Keith Watson, KMC
Christopher Schraff, PWMA
John Walthall, City of Toledo, Division of Environmental Services
Lourdes Santiago, City of Toledo Law Department

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

September 8, 1998

Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

Dear Mr. Petruzzi:

Below are the results of analysis of 1 sample received for examination on August 31, 1998:

Sample I.D. AD01203 Location code: HULL
Project account code: 196
Location Description: FRAC-83198-001
Sample collector: CLIENT Sample collection date: 08/31/98
Lab submittal date: 08/31/98 Time: 07:44

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
pH @ 25 DEG C	Std.	8.07	1.00
BIOCHEMICAL OXYGEN DEMAND	mg/L	23	4
CHEMICAL OXYGEN DEMAND	mg/L	118	10
TOTAL ORGANIC CARBON	mg/L	25.4	1.0
TOTAL ORGANIC HALOGEN	mg/L	10.9	0.030
SOLIDS, SUSP. 104 DEG C	mg/L	29	5
HEXAVALENT CHROMIUM	ug/L	Not detected	15
CYANIDE	mg/L	Not detected	0.005
OIL & GREASE	mg/L	Not detected	5.0
HYDROCARBONS	mg/L	Not present	5.0
PHENOLS	mg/L	0.047	0.005
PHOSPHORUS	mg/L	0.65	0.04
ARSENIC	ug/L	Not detected	5.0
CADMIUM	ug/L	Not detected	1
COPPER	ug/L	Not detected	20
LEAD	ug/L	20	10
MERCURY	ug/L	Not detected	0.2
NICKEL	ug/L	Not detected	20
SILVER	ug/L	Not detected	10
ZINC	ug/L	21	20
Multicomponent analysis: PCB			
PCB 1016	ug/L	Not detected	0.1
PCB 1221	ug/L	Not detected	0.1
PCB 1232	ug/L	Not detected	0.1
PCB 1242	ug/L	Not detected	0.1
PCB 1248	ug/L	Not detected	0.1
PCB 1254	ug/L	Not detected	0.1
PCB 1260	ug/L	Not detected	0.1

TEST PARAMETER	UNITS	TEST RESULT	DETECT. LIMIT
Multicomponent analysis: PRIORITY POLLUTANT VOLATILES			
ACROLEIN	ug/L	Not detected	10
ACRYLONITRILE	ug/L	Not detected	5
BENZENE	ug/L	Not detected	1
BROMODICHLOROMETHANE	ug/L	Not detected	1
BROMOFORM	ug/L	Not detected	1
BROMOMETHANE	ug/L	Not detected	2
CARBON TETRACHLORIDE	ug/L	Not detected	1
CHLOROBENZENE	ug/L	Not detected	1
CHLOROETHANE	ug/L	Not detected	2
2-CHLOROETHYL VINYL ETHER	ug/L	Not detected	2
CHLOROFORM	ug/L	Not detected	1
CHLOROMETHANE	ug/L	Not detected	2
DIBROMOCHLOROMETHANE	ug/L	Not detected	1
1,1-DICHLOROETHANE	ug/L	Not detected	1
1,2-DICHLOROETHANE	ug/L	Not detected	1
1,1-DICHLOROETHENE	ug/L	Not detected	1
t-1,2-DICHLOROETHENE	ug/L	Not detected	1
1,2-DICHLOROPROPANE	ug/L	Not detected	1
c-1,3-DICHLOROPROPENE	ug/L	Not detected	1
t-1,3-DICHLOROPROPENE	ug/L	Not detected	1
ETHYLBENZENE	ug/L	Not detected	1
METHYLENE CHLORIDE	ug/L	Not detected	2
1,1,2,2-TETRACHLOROETHANE	ug/L	Not detected	1
TETRACHLOROETHENE	ug/L	Not detected	1
TOLUENE	ug/L	2.2	1
1,1,1-TRICHLOROETHANE	ug/L	Not detected	1
1,1,2-TRICHLOROETHANE	ug/L	Not detected	1
TRICHLOROETHENE	ug/L	Not detected	1
TRICHLOROFLUOROMETHANE	ug/L	Not detected	2
VINYL CHLORIDE	ug/L	Not detected	2
Additional requested compounds:	ug/L	---	
o-XYLENE	ug/L	10	1
m+p-XYLENE	ug/L	15	1
Surrogate results:	ug/L	---	
10 ug/L Dibromofluoromethane	ug/L	8.97	
10 ug/L Toluene-D8	ug/L	9.81	
10 ug/L 4-Bromofluorobenzene	ug/L	8.06	
Multicomponent analysis: PRIORITY POLLUTANT EXTRACTABLES			
2-CHLOROPHENOL	ug/L	Not detected	4
2,4-DICHLOROPHENOL	ug/L	Not detected	4
2,4-DIMETHYLPHENOL	ug/L	Not detected	4
4,6-DINITRO-o-CRESOL	ug/L	Not detected	6
2,4-DINITROPHENOL	ug/L	Not detected	6
2-NITROPHENOL	ug/L	Not detected	6
4-NITROPHENOL	ug/L	Not detected	6
p-CHLORO-m-CRESOL	ug/L	Not detected	6
PENTACHLOROPHENOL	ug/L	Not detected	6
PHENOL	ug/L	Not detected	4

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: PRIORITY POLLUTANT EXTRACTABLES (continued)			
2,4,6-TRICHLOROPHENOL	ug/L	Not detected	6
ACENAPHTHENE	ug/L	Not detected	4
ACENAPHTHYLENE	ug/L	Not detected	4
ANTHRACENE	ug/L	14	4
BENZIDINE	ug/L	Not detected	6
BENZO(a)ANTHRACENE	ug/L	12	6
BENZO(b)FLUORANTHENE	ug/L	Not detected	6
BENZO(k)FLUORANTHENE	ug/L	Not detected	6
BENZO(a)PYRENE	ug/L	Not detected	4
BENZO(ghi)PERYLENE	ug/L	Not detected	6
bis(2-CHLOROETHOXY)METHANE	ug/L	Not detected	6
bis(2-CHLOROETHYL)ETHER	ug/L	Not detected	4
bis(2-CHLOROISOPROPYL)ETHER	ug/L	Not detected	6
bis(2-ETHYLHEXYL)PHTHALATE	ug/L	32	6
4-BROMOPHENYL PHENYL ETHER	ug/L	Not detected	6
BUTYL BENZYL PHTHALATE	ug/L	Not detected	6
2-CHLORONAPHTHALENE	ug/L	Not detected	12
4-CHLOROPHENYL PHENYL ETHER	ug/L	Not detected	6
CHRYSENE	ug/L	16	4
DIBENZO(ah)ANTHRACENE	ug/L	Not detected	6
1,2-DICHLOROBENZENE	ug/L	Not detected	4
1,3-DICHLOROBENZENE	ug/L	Not detected	4
1,4-DICHLOROBENZENE	ug/L	Not detected	4
3,3'-DICHLOROBENZIDINE	ug/L	Not detected	6
DIETHYL PHTHALATE	ug/L	Not detected	6
DIMETHYL PHTHALATE	ug/L	Not detected	6
DI-N-BUTYL PHTHALATE	ug/L	Not detected	6
2,4-DINITROTOLUENE	ug/L	Not detected	12
2,6-DINITROTOLUENE	ug/L	Not detected	12
DI-N-OCTYL PHTHALATE	ug/L	Not detected	6
1,2-DIPHENYLHYDRAZINE	ug/L	Not detected	6
FLUORANTHENE	ug/L	120	4
FLUORENE	ug/L	34	4
HEXACHLOROBENZENE	ug/L	Not detected	6
HEXACHLOROBUTADIENE	ug/L	Not detected	6
HEXACHLOROCYCLOPENTADIENE	ug/L	Not detected	12
HEXACHLOROETHANE	ug/L	Not detected	6
INDENO(123-cd)PYRENE	ug/L	Not detected	6
ISOPHORONE	ug/L	Not detected	6
NAPHTHALENE	ug/L	Not detected	6
NITROBENZENE	ug/L	Not detected	6
N-NITROSO-DIMETHYLAMINE	ug/L	Not detected	6
N-NITROSO-DI-N-PROPYLAMINE	ug/L	Not detected	6
N-NITROSO-DIPHENYLAMINE	ug/L	Not detected	6
PHENANTHRENE	ug/L	37	4
PYRENE	ug/L	49	4
1,2,4-TRICHLOROBENZENE	ug/L	Not detected	6
ALDRIN	ug/L	Not detected	4
A-BHC	ug/L	Not detected	4

TEST PARAMETER	UNITS	TEST RESULT	DETECT. LIMIT
Multicomponent analysis: PRIORITY POLLUTANT EXTRACTABLES (continued)			
B-BHC	ug/L	Not detected	4
G-BHC (LINDANE)	ug/L	Not detected	4
D-BHC	ug/L	Not detected	4
CHLORDANE	ug/L	Not detected	7
4,4'-DDD	ug/L	Not detected	4
4,4'-DDE	ug/L	Not detected	4
4,4'-DDT	ug/L	Not detected	4
DIELDRIN	ug/L	Not detected	4
ENDOSULFAN I	ug/L	Not detected	4
ENDOSULFAN II	ug/L	Not detected	4
ENDOSULFAN SULFATE	ug/L	Not detected	4
ENDRIN	ug/L	Not detected	4
ENDRIN ALDEHYDE	ug/L	Not detected	4
HEPTACHLOR	ug/L	Not detected	4
HEPTACHLOR EPOXIDE	ug/L	Not detected	4
TOXAPHENE	ug/L	Not detected	7
TETRACHLORODIBENZO-p-DIOXIN	ug/L	Not detected	7
PCB-1016	ug/L	Not detected	7
PCB-1221	ug/L	Not detected	7
PCB-1232	ug/L	Not detected	7
PCB-1242	ug/L	Not detected	7
PCB-1248	ug/L	Not detected	7
PCB-1254	ug/L	Not detected	7
PCB-1260	ug/L	Not detected	7
Surrogate results:	ug/L	---	
96.4 ug/L 2-Fluorobiphenyl	ug/L	52.5	
96.4 ug/L 2-Fluorophenol	ug/L	72.0	
96.4 ug/L Nitrobenzene-D5	ug/L	99.2	
96.4 ug/L Phenol-D6	ug/L	87.3	
96.4 ug/L Terphenyl-D14	ug/L	59.6	
96.4 ug/L 2,4,6-Tribromophenol	ug/L	51.1	

Sample comments:

Total BETX: 27 ug/L.

Please advise should you have questions concerning these data.

Respectfully submitted,

Fred W. Doering

Fred W. Doering
President

Jones & Henry Laboratories, Inc.
2567 Tracy Road
Northwood, Ohio 43619
Phone: (419) 666-0411
FAX: (419) 666-1657

CHAIN OF CUSTODY RECORD

WHITE — ORIGINAL
PINK — LAB USE
YELLOW — LAB USE (MUST BE RETURNED W/REPORT)

(Please forward results to address at top left)

REPORT TO: Hull - Toledo

Client: HAI Site: Williams Ditch
Project: FRAC TANK Project #: PWM001
Samplers: S. Kuhlman / G. Lescallett

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, 4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – None

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

With the exception of parameters not requiring preservation (G), all samples are kept at 4° C.

ANALYSES

LAB SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF SAMPLES	METALS	SAMPLING DATE/TIME	1L plastic pH BOD TSS CrG (A)	1L plastic metals (B)	1L plastic CN (D)	1L glass phenol P COD (C)	1L glass OG/TPH (C)	1L qec glass EXT. TTO (A)	40ml vial VOL TTO HCl	125 qec glass TOC HCl	125 qec glass TOX (C)	1L qec glass PCB (A)	COMMENTS
	FRAC-83197-001	1		N	8/31/98 14:45	1	1	1	1	1	1	2	1	1	1	

RELINQUISHED BY:	DATE: 8-31-98 TIME: 4-23-PM	RECEIVED BY:	DATE: 8-31-98 TIME: 4-23-PM
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –

Deliver To:
Method of Delivery:
Airbill Number:

NOTES:

APPENDIX D-2

Lagoon Area Post-Excavation Analytical Results

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3049618
Collected: 12/ 1/98 at 16:30 by 389

Submitted: 12/ 2/98 Reported: 12/29/98
Discard: 2/28/99

KMC001-EXC-001-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX001 SDG#: TOL06-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	58.		0.20	mg/kg	72.		0.25
1649	Cadmium	N.D.		0.16	mg/kg	N.D.		0.20
1651	Chromium	15.0		0.75	mg/kg	18.6		0.92
1653	Copper	18.4		0.25	mg/kg	22.7		0.31
1655	Lead	8.5	J	3.7	mg/kg	10.5	J	4.6
1666	Silver	N.D.		0.78	mg/kg	N.D.		1.0
1672	Zinc	43.		0.90	mg/kg	53.		1.1
6935	Arsenic TR	2.9		0.39	mg/kg	3.5		0.48
6936	Selenium TR	N.D.		0.41	mg/kg	N.D.		0.51
0159	Mercury	0.0401	J	0.0048	mg/kg	0.0494	J	0.0059
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	18.9		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300
11:37:07 D 0003 2 643136
050 100.00 00082600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL
Lancaster Laboratories
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717 656 2300 Fax 717 656 2681

See reverse side for explanation of symbols and abbreviations

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3049618
Collected: 12/ 1/98 at 16:30 by 389

Submitted: 12/ 2/98 Reported: 12/29/98
Discard: 2/28/99

KMC001-EXC-001-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX001 SDG#: TOL06-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	2,400.	42.	ug/kg	2,900.	52.
5466	Toluene	3,900.	42.	ug/kg	4,900.	52.
5474	Ethylbenzene	5,500.	42.	ug/kg	6,800.	52.
6301	Xylene (Total)	10,000.	42.	ug/kg	13,000.	52.

Due to effervescence caused by reaction of the sample with the sodium bisulfate preservative, the sample could not be analyzed by the low level method within the 48 hour holding time established in SW-846 method 5035. Therefore, the sample for analysis by SW-846 method 8260B was prepared in methanol within 48 hours of collection per the high level option in SW-846 method 5035. The limits of quantitation for the analysis were raised appropriately.

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3049618
Collected: 12/ 1/98 at 16:30 by 389

Submitted: 12/ 2/98 Reported: 12/29/98
Discard: 2/28/99

KMC001-EXC-001-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX001 SDG#: TOL06-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	AS RECEIVED METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	DRY WEIGHT METHOD DETECTION LIMIT
PAHs in Soil by GC/MS						
3761	naphthalene	170,000.	2,000.	ug/kg	210,000.	2,500.
3765	acenaphthylene	3,000.	33.	ug/kg	3,700.	41.
1191	acenaphthene	29,000.	2,000.	ug/kg	36,000.	2,500.
3768	fluorene	26,000.	2,000.	ug/kg	33,000.	2,500.
3775	phenanthrene	57,000.	2,000.	ug/kg	70,000.	2,500.
3776	anthracene	4,900.	33.	ug/kg	6,100.	41.
3778	fluoranthene	23,000.	2,000.	ug/kg	28,000.	2,500.
1195	pyrene	13,000.	J 2,000.	ug/kg	16,000.	J2,500.
3781	benzo(a)anthracene	4,600.	33.	ug/kg	5,600.	41.
3782	chrysene	4,300.	33.	ug/kg	5,300.	41.
3786	benzo(b)fluoranthene	3,100.	33.	ug/kg	3,800.	41.
3787	benzo(k)fluoranthene	1,100.	33.	ug/kg	1,300.	41.
3789	indeno(1,2,3-cd)pyrene	1,200.	33.	ug/kg	1,500.	41.
790	dibenz(a,h)anthracene	310.	J 33.	ug/kg	380.	J 41.
791	benzo(ghi)perylene	1,000.	33.	ug/kg	1,300.	41.
3788	benzo(a)pyrene	2,400.	33.	ug/kg	3,000.	41.

The surrogate recovery of nitrobenzene-d5 was above QC limits. The analysis was repeated outside of the required hold time and all surrogate recoveries met requirements. The data reported is from the initial extraction of the sample. Both sets of data are being submitted in the data package. Please refer to the case narrative for further details.

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL
Lancaster Laboratories
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax 717-656-2681
See reverse side for explanation of symbols and abbreviations

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3049618
Collected: 12/01/98 at 16:30 by 389

Submitted: 12/02/98

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC-001-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX001 SDG#: TOL06-01

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		12/14/98 1832	Susan A. McMahon
1646	Barium	SW-846 6010B	1		12/07/98 2117	Christine R. Fritz
1649	Cadmium	SW-846 6010B	1		12/07/98 2117	Christine R. Fritz
1651	Chromium	SW-846 6010B	1		12/07/98 2117	Christine R. Fritz
1653	Copper	SW-846 6010B	1		12/07/98 2117	Christine R. Fritz
1655	Lead	SW-846 6010B	1		12/07/98 2117	Christine R. Fritz
1666	Silver	SW-846 6010B	1		12/07/98 2117	Christine R. Fritz
1672	Zinc	SW-846 6010B	1		12/07/98 2117	Christine R. Fritz
5708	SW SW846 ICP Digest	SW-846 3050B	1		12/07/98 0922	Rebekah K. Fox
6935	Arsenic TR	SW-846 6010B	1		12/07/98 2117	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		12/14/98 2031	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		12/08/98 1446	Lee Allen Seats
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		12/07/98 1145	Rebekah K. Fox
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		12/12/98 2237	Catherine A. Evans
7806	BNA Soil Extraction	SW-846 3550B	1		12/07/98 0930	Denise L. Trimby
0111	Moisture	EPA 160.3 modified	1		12/07/98 1654	Susan A. Engle
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		12/03/98 1300	G. Chad Wettig

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3049618
KMC001-EXC-001-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 643136
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J983471AB									
5460 Benzene											
42.	ug/kg	N.D.		91	100	6	112	105	6	77	126
5466 Toluene											
42.	ug/kg	N.D.		-157	-112	35	109	100	9	74	128
5474 Ethylbenzene											
42.	ug/kg	N.D.		-5	-73 (2)	10	108	102	6	86	129
6301 Xylene (Total)											
42.	ug/kg	N.D.		944	892	8	105	99	7	88	128
1646 Barium		Batch: 983415708001									
0.20	mg/kg	N.D.	0 (1)	102	106	3	98			56	143
1649 Cadmium		Batch: 983415708001									
0.16	mg/kg	N.D.	0 (1)	78	75	4	92			55	145
1651 Chromium		Batch: 983415708001									
0.75	mg/kg	N.D.	0 (1)	110	120	6	103			69	131
Copper		Batch: 983415708001									
0.25	mg/kg	0.30 J mg/kg	0 (1)	115	114	0	103			62	138
1655 Lead		Batch: 983415708001									
3.7	mg/kg	N.D.	0 (1)	104	105	1	96			60	140
1666 Silver		Batch: 983415708001									
0.78	mg/kg	N.D.	0 (1)	103	103	0	97			57	144
1672 Zinc		Batch: 983415708001									
0.90	mg/kg	1.15 J mg/kg	2	100	97	2	94			61	139
6935 Arsenic TR		Batch: 983415708001									
0.39	mg/kg	N.D.	7	94	94	0	102			62	138
6936 Selenium TR		Batch: 983415708001									
0.41	mg/kg	N.D.	0 (1)	92	93	1	96			65	134
0159 Mercury		Batch: 983415711001									
0.0048	mg/kg	0.0535 J mg/kg	0 (1)	97	104	5	109			49	151
7804 PAHs in Soil by GC/MS		Batch: 98341SLA026									
3761 naphthalene											
2,000.	ug/kg	N.D.		86	81	6	83			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		87	86	1	85			62	101
1191 acenaphthene											
2,000.	ug/kg	N.D.		88	88	0	88			61	100
3768 fluorene											
2,000.	ug/kg	N.D.		93	94	1	91			59	109
3775 phenanthrene											
2,000.	ug/kg	N.D.		89	91	2	88			62	107
3776 anthracene											
33.	ug/kg	N.D.		87	89	1	85			62	105
3778 fluoranthene											
2,000.	ug/kg	N.D.		92	96	4	93			58	110
1195 pyrene											
2,000.	ug/kg	N.D.		93	90	3	89			52	115

(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3049618
KMC001-EXC-001-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 643136
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		96	95	2	93			63	106
3782 chrysene											
33.	ug/kg	N.D.		100	97	3	96			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		94	92	2	95			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		102	100	2	98			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		99	99	0	99			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		100	101	1	101			60	117
3791 benzo(ghi)perylene											
33.	ug/kg	N.D.		100	101	1	100			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		98	97	1	95			61	107
0111 Moisture		Batch: 983410227820001A									
0.080	% by wt.		6				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3049618
KMC001-EXC-001-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 643136
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	93	80	120
	d4-1,2-DCA	87	80	120
	d8-toluene	87	81	117
	4-BFB	92	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	133	31	126
	2-Fbiphnyl	94	45	113
	Tphenyld14	102	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3049619
Collected: 12/ 1/98 at 16:00 by 389

Submitted: 12/ 2/98 Reported: 12/29/98
Discard: 2/28/99

KMC001-EXC-002-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX002 SDG#: TOL06-02*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	54.		0.20	mg/kg	68.		0.25
1649	Cadmium	N.D.		0.16	mg/kg	N.D.		0.20
1651	Chromium	13.9		0.75	mg/kg	17.5		0.94
1653	Copper	19.5		0.25	mg/kg	24.5		0.31
1655	Lead	8.9	J	3.7	mg/kg	11.2	J	4.6
1666	Silver	N.D.		0.78	mg/kg	N.D.		1.0
1672	Zinc	45.		0.90	mg/kg	56.		1.1
6935	Arsenic TR	3.6		0.39	mg/kg	4.5		0.49
6936	Selenium TR	N.D.		0.41	mg/kg	N.D.		0.52
0159	Mercury	0.0410	J	0.0048	mg/kg	0.0515	J	0.0061
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.4		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300
11:42:18 D 0003 2 643136
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Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3049619
Collected: 12/ 1/98 at 16:00 by 389

Submitted: 12/ 2/98 Reported: 12/29/98
Discard: 2/28/99

KMC001-EXC-002-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX002 SDG#: TOL06-02*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	9,600.	860.	ug/kg	12,000.	1,100.
5466	Toluene	12,000.	860.	ug/kg	15,000.	1,100.
5474	Ethylbenzene	10,000.	860.	ug/kg	13,000.	1,100.
6301	Xylene (Total)	18,000.	860.	ug/kg	23,000.	1,100.

Due to effervescence caused by reaction of the sample with the sodium bisulfate preservative, the sample could not be analyzed by the low level method within the 48 hour holding time established in SW-846 method 5035. Therefore, the sample for analysis by SW-846 method 8260B was prepared in methanol within 48 hours of collection per the high level option in SW-846 method 5035. The limits of quantitation for the analysis were raised appropriately.

Poor surrogate recoveries were observed for the GC/MS volatile fraction due to the dilution needed to perform the analysis.

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL
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Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3049619
Collected: 12/ 1/98 at 16:00 by 389

Submitted: 12/ 2/98 Reported: 12/29/98
Discard: 2/28/99

KMC001-EXC-002-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX002 SDG#: TOL06-02*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	160,000.		1,000.	ug/kg	190,000.		1,300.
3765	acenaphthylene	190.	J	33.	ug/kg	230.	J	42.
1191	acenaphthene	14,000.		1,000.	ug/kg	17,000.		1,300.
3768	fluorene	5,200.		33.	ug/kg	6,500.		42.
3775	phenanthrene	2,200.		33.	ug/kg	2,700.		42.
3776	anthracene	120.	J	33.	ug/kg	150.	J	42.
3778	fluoranthene	37.	J	33.	ug/kg	46.	J	42.
1195	pyrene	37.	J	33.	ug/kg	47.	J	42.
3781	benzo(a)anthracene	N.D.		33.	ug/kg	N.D.		42.
3782	chrysene	N.D.		33.	ug/kg	N.D.		42.
3786	benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3787	benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3789	indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		42.
790	dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		42.
791	benzo(ghi)perylene	N.D.		33.	ug/kg	N.D.		42.
3788	benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		42.

The surrogate recovery of nitrobenzene-d5 was above QC limits. The analysis was repeated outside of the required hold time and all surrogate recoveries met requirements. The data reported is from the initial extraction of the sample. Both sets of data are being submitted in the data package. Please refer to the case narrative for further details.

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3049619
Collected: 12/01/98 at 16:00 by 389

Submitted: 12/02/98

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC-002-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX002 SDG#: TOL06-02*

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		12/15/98 1332	Tracey Neff
1646	Barium	SW-846 6010B	1		12/07/98 2122	Christine R. Fritz
1649	Cadmium	SW-846 6010B	1		12/07/98 2122	Christine R. Fritz
1651	Chromium	SW-846 6010B	1		12/07/98 2122	Christine R. Fritz
1653	Copper	SW-846 6010B	1		12/07/98 2122	Christine R. Fritz
1655	Lead	SW-846 6010B	1		12/07/98 2122	Christine R. Fritz
1666	Silver	SW-846 6010B	1		12/07/98 2122	Christine R. Fritz
1672	Zinc	SW-846 6010B	1		12/07/98 2122	Christine R. Fritz
5708	SW SW846 ICP Digest	SW-846 3050B	1		12/07/98 0922	Rebekah K. Fox
6935	Arsenic TR	SW-846 6010B	1		12/07/98 2122	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		12/14/98 2036	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		12/08/98 1447	Lee Allen Seats
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		12/07/98 1145	Rebekah K. Fox
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		12/12/98 2328	Catherine A. Evans
7806	BNA Soil Extraction	SW-846 3550B	1		12/07/98 0930	Denise L. Trimby
0111	Moisture	EPA 160.3 modified	1		12/07/98 1654	Susan A. Engle
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		12/03/98 1301	G. Chad Wettig

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3049619
KMC001-EXC-002-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 643136
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J983471AC									
5460 Benzene											
860.	ug/kg	N.D.		91	100	6	112	105	6	77	126
5466 Toluene											
860.	ug/kg	N.D.		-157	-112	35	109	100	9	74	128
5474 Ethylbenzene											
860.	ug/kg	N.D.		-5	-73 (2)	10	108	102	6	86	129
6301 Xylene (Total)											
860.	ug/kg	N.D.		944	892	8	105	99	7	88	128
1646 Barium		Batch: 983415708001									
0.20	mg/kg	N.D.	0 (1)	102	106	3	98			56	143
1649 Cadmium		Batch: 983415708001									
0.16	mg/kg	N.D.	0 (1)	78	75	4	92			55	145
1651 Chromium		Batch: 983415708001									
0.75	mg/kg	N.D.	0 (1)	110	120	6	103			69	131
16[illegible] Copper		Batch: 983415708001									
0.25	mg/kg	0.30 J mg/kg	0 (1)	115	114	0	103			62	138
1655 Lead		Batch: 983415708001									
3.7	mg/kg	N.D.	0 (1)	104	105	1	96			60	140
1666 Silver		Batch: 983415708001									
0.78	mg/kg	N.D.	0 (1)	103	103	0	97			57	144
1672 Zinc		Batch: 983415708001									
0.90	mg/kg	1.15 J mg/kg	2	100	97	2	94			61	139
6935 Arsenic TR		Batch: 983415708001									
0.39	mg/kg	N.D.	7	94	94	0	102			62	138
6936 Selenium TR		Batch: 983415708001									
0.41	mg/kg	N.D.	0 (1)	92	93	1	96			65	134
0159 Mercury		Batch: 983415711001									
0.0048	mg/kg	0.0535 J mg/kg	0 (1)	97	104	5	109			49	151
7804 PAHs in Soil by GC/MS		Batch: 98341SLA026									
3761 naphthalene											
1,000.	ug/kg	N.D.		86	81	6	83			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		87	86	1	85			62	101
1191 acenaphthene											
1,000.	ug/kg	N.D.		88	88	0	88			61	100
3768 fluorene											
33.	ug/kg	N.D.		93	94	1	91			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		89	91	2	88			62	107
3776 anthracene											
33.	ug/kg	N.D.		87	89	1	85			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		92	96	4	93			58	110
1195 pyrene											
33.	ug/kg	N.D.		93	90	3	89			52	115

(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3049619
KMC001-EXC-002-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 643136
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		96	95	2	93			63	106
3782 chrysene											
33.	ug/kg	N.D.		100	97	3	96			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		94	92	2	95			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		102	100	2	98			63	108
3789 inceno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		99	99	0	99			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		100	101	1	101			60	117
3791 benzo(ghi)perylene											
33.	ug/kg	N.D.		100	101	1	100			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		98	97	1	95			61	107
0111 Moisture		Batch: 983410227820001A									
0.080	% by wt.		6				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3049619
KMC001-EXC-002-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 643136
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	80	80	120
	d4-1,2-DCA	82	80	120
	d8-toluene	77	81	117
	4-BFB	84	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	135	31	126
	2-Fbiphnyl	92	45	113
	Tphenyld14	84	37	130

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1539

☒ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☐ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Kevin Wildman

Client: Kerr - McGee
Site: Toledo Tie / Williams Ditch
Project#: KMC001 Phase: 01. SMP
Samplers: 389

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	8260-BTEX only	8 RCRA Metals+C, Zn	8270-BNA (SVOC)								COMMENTS
KMC001-EXC-001-389D	2	6	N	1630 12-1-98	X	X	X								B/C - 1/2
KMC001-EXC-002-389U	2	6	N	1600 12-1-98	X	X	X								B/C - 4/5

RELINQUISHED BY: [signature]	DATE: 12-1-98 TIME: 18-00-00	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –
COOLER TEMPERATURE AS RECEIVED °C :	°C	DISTRIBUTION: WHITE --LAB USE (MUST BE RETURNED WITH REPORT) YELLOW --LAB USE PINK --RETAINED BY HAI	

Deliver To: Lancaster Labs
Method of Delivery: Fed Ex
Airbill Number: 805670976749
NOTES: SCR# 1118646
Normal TAT

HAI\0999T269
08/14/97 CORNER

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3041986
Collected: 11/17/98 at 17:00 by 389

Submitted: 11/18/98 Reported: 12/ 4/98
Discard: 2/ 3/99

KMC001-EXC-003-389D Grab Soil Sample

Williams Ditch - OH
KMC01 SDG#: TCL05-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. PWM001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	JST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	65.		0.20	mg/kg	80.		0.24
1649	Cadmium	1.42	J	0.16	mg/kg	1.73	J	0.19
1651	Chromium	16.2		0.75	mg/kg	19.6		0.91
1653	Copper	19.0		0.25	mg/kg	23.1		0.30
1655	Lead	9.4	J	3.7	mg/kg	11.4	J	4.5
1666	Silver	N.D.		0.78	mg/kg	N.D.		0.95
1672	Zinc	47.		0.90	mg/kg	57.		1.1
6935	Arsenic TR	6.1		0.39	mg/kg	7.4		0.47
6936	Selenium TR	N.D.		0.41	mg/kg	N.D.		0.50
0159	Mercury	0.0135	J	0.0047	mg/kg	0.0165	J	0.0057
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	17.7		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300
06:58:59 D 0003 2 641390
603 140.00 00086600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

RECEIVED DEC 07 1998

MEMBER ACIL
Lancaster Laboratories
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax 717-656-2681

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3041986
Collected: 11/17/98 at 17:00 by 389

Submitted: 11/18/98 Reported: 12/ 4/98
Discard: 2/ 3/99

KMC001-EXC-003-389D Grab Soil Sample

Williams Ditch - OH
KMC01 SDG#: TOL05-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. PWM001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	7,700.	43.	ug/kg	9,300.	52.
5466	Toluene	1,700.	43.	ug/kg	2,100.	52.
5474	Ethylbenzene	3,200.	43.	ug/kg	3,900.	52.
6301	Xylene (Total)	7,600.	43.	ug/kg	9,300.	52.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3041986
Collected: 11/17/98 at 17:00 by 389

Submitted: 11/18/98 Reported: 12/ 4/98
Discard: 2/ 3/99

KMC001-EXC-003-3890 Grab Soil Sample

Williams Ditch - OH
KMC01 SDG#: TOL05-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. PWM001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	11,000.		100.	ug/kg	13,000.		120.
3765	acenaphthylene	N.D.		33.	ug/kg	N.D.		41.
1191	acenaphthene	95.	J	33.	ug/kg	120.	J	41.
3768	fluorene	130.	J	33.	ug/kg	160.	J	41.
3775	phenanthrene	410.		33.	ug/kg	500.		41.
3776	anthracene	75.	J	33.	ug/kg	91.	J	41.
3778	fluoranthene	180.	J	33.	ug/kg	220.	J	41.
1195	pyrene	140.	J	33.	ug/kg	180.	J	41.
3781	benzo(a)anthracene	47.	J	33.	ug/kg	58.	J	41.
3782	chrysene	44.	J	33.	ug/kg	53.	J	41.
3786	benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		41.
3787	benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		41.
3789	indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		41.
3790	dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		41.
3791	benzo(ghi)perylene	N.D.		33.	ug/kg	N.D.		41.
3788	benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		41.

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Ther[illegible] Analytical Inc.

LLI Sample No. SW 3041986
Collected: 11/17/98 at 17:00 by 389

Submitted: 11/18/98

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC-003-389D Grab Soil Sample

Williams Ditch - OH
KMC01 SDG#: TOL05-01

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		11/27/98 1436	Tracey Neff
1646	Barium	SW-846 6010B	1		11/22/98 2142	Christine R. Fritz
1649	Cadmium	SW-846 6010B	1		11/22/98 2142	Christine R. Fritz
1651	Chromium	SW-846 6010B	1		11/22/98 2142	Christine R. Fritz
1653	Copper	SW-846 6010B	1		11/22/98 2142	Christine R. Fritz
1655	Lead	SW-846 6010B	1		11/22/98 2142	Christine R. Fritz
1666	Silver	SW-846 6010B	1		11/22/98 2142	Christine R. Fritz
1672	Zinc	SW-846 6010B	1		11/22/98 2142	Christine R. Fritz
5708	SW SW846 ICP Digest	SW-846 3050B	1		11/20/98 1313	Rebekah K. Fox
6935	Arsenic TR	SW-846 6010B	2		11/22/98 2142	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		11/22/98 2142	Christine R. Fritz
0159	Mercury	SW-846 7471A	2		11/20/98 1143	Damary S. Valentin
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		11/19/98 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		11/21/98 2125	Teresa A. Perros
7806	BNA Soil Extraction	SW-846 3550B	1		11/20/98 2000	John M. Becker
0111	Moisture	EPA 160.3 modified	1		11/22/98 1244	Susan A. Engle
8389	Low Level Volatile Soil Prep	EPA SW846 Method 5035	1		11/18/98 2330	Janet H. Scholl
			2		11/18/98 2345	Janet H. Scholl
			3		11/18/98 2345	Janet H. Scholl

LLI Sample No. 3041986
KMC001-EXC-003-389D Grab Soil Sample

Williams Ditch - OH

Group No. 641390
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: I983311AA									
5460 Benzene											
43.	ug/kg	N.D.		109	106	3	98	106	8	77	126
5466 Toluene											
43.	ug/kg	N.D.		111	111	0	100	109	9	74	128
5474 Ethylbenzene											
43.	ug/kg	N.D.		115	114	1	101	112	10	86	129
6301 Xylene (Total)											
43.	ug/kg	N.D.		119	121	2	105	114	8	88	128
1646 Barium		Batch: 983245708002									
0.20	mg/kg	N.D.	0 (1)	80	76	5	101			56	143
1649 Cadmium		Batch: 983245708002									
0.16	mg/kg	N.D.	0 (1)	78	75	3	97			55	145
1651 Chromium		Batch: 983245708002									
0.75	mg/kg	N.D.	0 (1)	98	80	14	106			69	131
Copper		Batch: 983245708002									
0.25	mg/kg	N.D.	0 (1)	83	80	2	106			62	138
1655 Lead		Batch: 983245708002									
3.7	mg/kg	N.D.	0 (1)	74	75	1	103			60	140
1666 Silver		Batch: 983245708002									
0.78	mg/kg	N.D.	0 (1)	79	79	0	101			57	144
1672 Zinc		Batch: 983245708002									
0.90	mg/kg	3.81 J mg/kg	0 (1)	82	75	6	106			61	139
6935 Arsenic TR		Batch: 983245708002									
0.39	mg/kg	0.50 J mg/kg	1	77	77	1	110			62	138
6936 Selenium TR		Batch: 983245708002									
0.41	mg/kg	N.D.	0 (1)	76	76	0	105			65	134
0159 Mercury		Batch: 983235711003									
0.0047	mg/kg	N.D.	0 (1)	119	121	1	101	118	15	49	151
7804 PAHs in Soil by GC/MS		Batch: 98324SLB026322SC									
3761 naphthalene											
100.	ug/kg	N.D.		275	338	21	77	81	4	58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		74	71	4	83	84	1	62	101
1191 acenaphthene											
33.	ug/kg	N.D.		108	109	1	84	86	3	61	100
3768 fluorene											
33.	ug/kg	N.D.		79	85	5	90	89	1	59	109
3775 phenanthrene											
33.	ug/kg	N.D.		106	148	18	86	86	0	62	107
3776 anthracene											
33.	ug/kg	N.D.		79	75	4	84	82	2	62	105
3778 fluoranthene											
33.	ug/kg	N.D.		64	54	17	85	86	1	58	110
1195 pyrene											
33.	ug/kg	N.D.		84	83	1	84	89	6	52	115

The result for one or both determinations was less than five times the LOQ.

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3041986
KMC001-EXC-003-389D Grab Soil Sample

Williams Ditch - OH

Group No. 641390
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		69	64	8	85	84	1	63	106
3782 chrysene											
33.	ug/kg	N.D.		71	65	8	84	89	6	60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		64	60	6	88	87	1	59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		74	62	18	90	88	2	63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		63	57	11	83	84	2	55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		65	59	10	80	81	1	60	117
3791 benzo(ghi)perylene											
33.	ug/kg	N.D.		65	57	13	83	84	1	52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		71	63	12	86	87	1	61	107
0[illegible] Moisture		Batch: 983260227820002A									
0.080	% by wt.		3				100	100	0	99	101

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3041986
KMC001-EXC-003-389D Grab Soil Sample

Williams Ditch - OH

Group No. 641390
Kerr-McGee Corporation

SURROGATE SUMMARY

	TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B		DBFM	93	80	120
		d4-1,2-DCA	88	80	120
		d8-toluene	91	81	117
		4-BFB	99	74	121
7804 PAHs in Soil by GC/MS		Nitrobz-d5	62	31	126
		2-Fbiphnyl	71	45	113
		Tphenyld14	73	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3041987
Collected:

Submitted: 11/18/98 Reported: 12/ 4/98
Discard: 2/ 3/99

Trip Blank Grab Water Sample

Williams Ditch - OH
KMCTB SDG#: TOL05-02TB*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. PWM001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
2300	UST-Unleaded Waters by 8260B			See Page 2

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300
07:00:08 D 0003 2 641390
603 0.00 00021500 ASROCO

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3041987
Collected:

Submitted: 11/18/98 Reported: 12/ 4/98
Discard: 2/ 3/99

Trip Blank Grab Water Sample

Williams Ditch - OH
KMCTB SDG#: TOL05-02TB*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. PWM001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
UST-Unleaded Waters by 8260B				
5401	Benzene	N.D.	1.	ug/l
5407	Toluene	N.D.	2.	ug/l
5415	Ethylbenzene	N.D.	2.	ug/l
6310	Xylene (Total)	N.D.	1.	ug/l

Questions? Contact your Client Services Representative
Donald J. Nazario at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3041987
Collected:

Submitted: 11/18/98

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

Trip Blank Grab Water Sample

Williams Ditch - OH
KMCTB SDG#: TOL05-02TB*

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2300	UST-Unleaded Waters by 8260B	SW-846 8260B	1		11/21/98 0653	Joel R. Nace

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3041987
Trip Blank Grab Water Sample

Williams Ditch - OH

Group No. 641390
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2300 UST-Unleaded Waters by 8260B		Batch: P983241AB									
5401 Benzene											
1.	ug/l	N.D.		106	101	5	113			82	123
5407 Toluene											
2.	ug/l	N.D.		103	98	5	110			80	126
5415 Ethylbenzene											
2.	ug/l	N.D.		103	97	6	110			89	124
6310 Xylene (Total)											
1.	ug/l	N.D.		102	98	4	109			89	123

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3041987
Trip Blank Grab Water Sample

Williams Ditch - OH

Group No. 641390
Kerr-McGee Corporation

SURROGATE SUMMARY

	TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2300 UST-Unleaded Waters by 8260B		DBFM	108	86	118
		d4-1,2-DCA	102	80	120
		d8-toluene	103	88	110
		4-BFB	96	86	115

Analysis Request, Environmental Services Chain of Custody

Lancaster Laboratories
A division of Thermo Analytical Inc.

For Lancaster Laboratories use only

Acct. # _____ Sample # _____

Please print. Instructions on reverse side correspond with circled numbers.

(1)

Client: KERR - McGEE Acct. #: Hull & Assoc. Inc

Project Name/#: Williams Ditch PWSID #: _____

Project Manager: Scott Lockhart P.O.# _____

Sampler: 389 Quote #: _____

Name of state where samples were collected: OH

For lab use only
FSC: _____
SCR #: 1118646

(2)

Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water (☐ Potable ☐ NPDES) (Check if applicable)	Other	Total # of Containers	(5) Analyses Requested: 8260-BTEX ONLY	8RCRA Metals + Cu + Zn	8270-BNA (SVOC)						Remarks	(6) Temperature of samples upon receipt (if requested)
KMC001-EXC-003-389D	11-17-98	1700	X		X			6	X	X	X						B/C - 7/8	X

No pick up free

62 90
77

(7) **Turnaround Time Requested** (TAT) (please circle): (Normal) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 14 Days
Rush results requested by (please circle): Phone Fax
Phone #: 419-385-2018 Fax #: _____

(8) **Data Package Options** (please circle if requested)
QC Summary Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No

Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)

Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
B. Daily	10/30/98	12:35			
Jason Finan	11-17-98	1745			

The pink copy should be retained by the client.

2102 Rev. 5/26/98

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054978
Collected: 12/ 9/98 at 16:30

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-004-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC04 SDG#: TOL06-03

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	79.		0.20	mg/kg	98.		0.25
1649	Cadmium	N.D.		0.16	mg/kg	N.D.		0.20
1651	Chromium	19.7		0.75	mg/kg	24.5		0.93
1653	Copper	19.5		0.25	mg/kg	24.2		0.31
1655	Lead	9.8	J	3.7	mg/kg	12.2	J	4.6
1666	Silver	N.D.		0.78	mg/kg	N.D.		1.0
1672	Zinc	53.		0.90	mg/kg	66.		1.1
6935	Arsenic TR	4.8		0.39	mg/kg	5.9		0.49
6936	Selenium TR	N.D.		0.41	mg/kg	N.D.		0.51
0159	Mercury	0.0207	J	0.0048	mg/kg	0.0257	J	0.0060
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	19.6		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
04:21:06 D 0003 3 644489
412 100.00 00082600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054978
Collected: 12/ 9/98 at 16:30

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-004-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC04 SDG#: TOL06-03

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B								
5460	Benzene	2,700.		42.	ug/kg	3,300.		53.
5466	Toluene	54.	J	42.	ug/kg	67.	J	53.
5474	Ethylbenzene	3,900.		42.	ug/kg	4,800.		53.
6301	Xylene (Total)	7,300.		42.	ug/kg	9,000.		53.

Due to effervescence caused by reaction of the sample with the sodium bisulfate preservative, the sample could not be analyzed by the low level method within the 48 hour holding time established in SW-846 method 5035. Therefore, the sample for analysis by SW-846 method 8260B was prepared in methanol within 48 hours of collection per the high level option in SW-846 method 5035. The limits of quantitation for the analysis were raised appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054978
Collected: 12/ 9/98 at 16:30

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-004-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC04 SDG#: TOL06-03

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
PAHs in Soil by GC/MS						
3761	naphthalene	37,000.	330.	ug/kg	46,000.	410.
3765	acenaphthylene	N.D.	33.	ug/kg	N.D.	41.
1191	acenaphthene	N.D.	33.	ug/kg	N.D.	41.
3768	fluorene	N.D.	33.	ug/kg	N.D.	41.
3775	phenanthrene	N.D.	33.	ug/kg	N.D.	41.
3776	anthracene	N.D.	33.	ug/kg	N.D.	41.
3778	fluoranthene	N.D.	33.	ug/kg	N.D.	41.
1195	pyrene	N.D.	33.	ug/kg	N.D.	41.
3781	benzo(a)anthracene	N.D.	33.	ug/kg	N.D.	41.
3782	chrysene	N.D.	33.	ug/kg	N.D.	41.
3786	benzo(b)fluoranthene	N.D.	33.	ug/kg	N.D.	41.
3787	benzo(k)fluoranthene	N.D.	33.	ug/kg	N.D.	41.
3789	indeno(1,2,3-cd)pyrene	N.D.	33.	ug/kg	N.D.	41.
790	dibenz(a,h)anthracene	N.D.	33.	ug/kg	N.D.	41.
791	benzo(ghi)perylene	N.D.	33.	ug/kg	N.D.	41.
3788	benzo(a)pyrene	N.D.	33.	ug/kg	N.D.	41.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054978
Collected: 12/09/98 at 16:30

Submitted: 12/10/98

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC-004-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC04 SDG#: TOL06-03

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		12/18/98 1239	Rick S. Rodgers
1646	Barium	SW-846 6010B	1		12/15/98 1601	Jennifer Garrett
1649	Cadmium	SW-846 6010B	1		12/15/98 1601	Jennifer Garrett
1651	Chromium	SW-846 6010B	1		12/15/98 1601	Jennifer Garrett
1653	Copper	SW-846 6010B	1		12/15/98 1601	Jennifer Garrett
1655	Lead	SW-846 6010B	1		12/15/98 1601	Jennifer Garrett
1666	Silver	SW-846 6010B	1		12/15/98 1601	Jennifer Garrett
1672	Zinc	SW-846 6010B	1		12/15/98 1601	Jennifer Garrett
5708	SW SW846 ICP Digest	SW-846 3050B	1		12/14/98 0803	Rebekah K. Fox
6935	Arsenic TR	SW-846 6010B	1		12/15/98 1601	Jennifer Garrett
6936	Selenium TR	SW-846 6010B	1		12/16/98 1830	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		12/15/98 0918	Rosalind D. Ernest
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		12/14/98 1339	Rebekah K. Fox
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		12/28/98 1727	Eileen Hostetler
7806	BNA Soil Extraction	SW-846 3550B	2		12/21/98 1730	Karen L. Beyer
0111	Moisture	EPA 160.3 modified	1		12/16/98 1406	Susan A. Engle
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		12/10/98 1700	Janet H. Scholl
			2		12/10/98 1701	Janet H. Scholl
			3		12/10/98 1645	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3054978
KMC001-EXC-004-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: I983231AC									
5460 Benzene											
42.	ug/kg	N.D.		96	98	2	99			77	126
5466 Toluene											
42.	ug/kg	N.D.		99	100	1	103			74	128
5474 Ethylbenzene											
42.	ug/kg	N.D.		101	102	0	106			86	129
6301 Xylene (Total)											
42.	ug/kg	N.D.		102	103	0	105			88	128
1646 Barium		Batch: 983485708001									
0.20	mg/kg	N.D.	0	99	120	12	102			56	143
1649 Cadmium		Batch: 983485708001									
0.16	mg/kg	N.D.	0 (1)	88	85	3	97			55	145
1651 Chromium		Batch: 983485708001									
0.75	mg/kg	N.D.	0 (1)	134	187	22	105			69	131
Copper		Batch: 983485708001									
0.25	mg/kg	N.D.	0 (1)	110	119	5	104			62	138
1055 Lead		Batch: 983485708001									
3.7	mg/kg	N.D.	0 (1)	116	114	1	100			60	140
1666 Silver		Batch: 983485708001									
0.78	mg/kg	N.D.	0 (1)	107	107	1	98			57	144
1672 Zinc		Batch: 983485708001									
0.90	mg/kg	N.D.	0 (1)	116	123	4	98			61	139
6935 Arsenic TR		Batch: 983485708001									
0.39	mg/kg	N.D.	23	98	99	1	106			62	138
6936 Selenium TR		Batch: 983485708001									
0.41	mg/kg	N.D.	0 (1)	96	97	1	100			65	134
0159 Mercury		Batch: 983485711002									
0.0048	mg/kg	N.D.	0 (1)	52	59	6	95			49	151
7804 PAHs in Soil by GC/MS		Batch: 98355SLC026									
3761 naphthalene											
330.	ug/kg	N.D.		-772	947 (2)	69	77			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		29	128	85	81			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		-141	402 (2)	83	81			61	100
3768 fluorene											
33.	ug/kg	N.D.		-84	416 (2)	86	87			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		-191	533 (2)	66	93			62	107
3776 anthracene											
33.	ug/kg	N.D.		33	184	88	87			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		11	424	82	92			58	110
1195 pyrene											
33.	ug/kg	N.D.		6	236	81	95			52	115

(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3054978
KMC001-EXC-004-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		35	131	78	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		34	124	80	88			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		33	111	78	82			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		45	115	82	93			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		40	109	81	90			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		42	100	82	93			60	117
3791 benzo(ghi)perylene											
33.	ug/kg	N.D.		48	115	80	91			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		36	114	80	80			61	107
0111 Moisture		Batch: 983500227820005A									
0.080	% by wt.		0				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3054978
KMC001-EXC-004-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	102	80	120
	d4-1,2-DCA	99	80	120
	d8-toluene	94	81	117
	4-BFB	102	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	93	31	126
	2-Fbiphnyl	98	45	113
	Tphenyld14	84	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054979
Collected: 12/ 9/98 at 16:45

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-005-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC05 SDG#: TOL06-04

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B			See Page 2		
1646	Barium	84.	0.20	mg/kg	102.	0.25
1649	Cadmium	N.D.	0.16	mg/kg	N.D.	0.20
1651	Chromium	20.1	0.75	mg/kg	24.6	0.92
1653	Copper	19.3	0.25	mg/kg	23.7	0.31
1655	Lead	10.	3.7	mg/kg	13.	4.5
1666	Silver	N.D.	0.78	mg/kg	N.D.	1.0
1672	Zinc	53.	0.90	mg/kg	65.	1.1
6935	Arsenic TR	4.3	0.39	mg/kg	5.2	0.48
6936	Selenium TR	N.D.	0.41	mg/kg	N.D.	0.50
0159	Mercury	0.0075 J	0.0048	mg/kg	0.0092 J	0.0059
7804	PAHs in Soil by GC/MS			See Page 3		
0111	Moisture	18.4	0.080	% by wt.		

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
04:22:04 D 0003 3 644489
412 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054979
Collected: 12/ 9/98 at 16:45

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-005-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC05 SDG#: TOL06-04

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
	UST-Unleaded Soils by 8260B					
5460	Benzene	3,100.	45.	ug/kg	3,800.	55.
5466	Toluene	3,100.	45.	ug/kg	3,800.	55.
5474	Ethylbenzene	4,000.	45.	ug/kg	5,000.	55.
6301	Xylene (Total)	8,800.	45.	ug/kg	11,000.	55.

Due to effervescence caused by reaction of the sample with the sodium bisulfate preservative, the sample could not be analyzed by the low level method within the 48 hour holding time established in SW-846 method 5035. Therefore, the sample for analysis by SW-846 method 8260B was prepared in methanol within 48 hours of collection per the high level option in SW-846 method 5035. The limits of quantitation for the analysis were raised appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054979
Collected: 12/ 9/98 at 16:45

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-005-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC05 SDG#: TOL06-04

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	56,000.		670.	ug/kg	68,000.		820.
3765	acenaphthylene	710.		33.	ug/kg	870.		41.
1191	acenaphthene	2,900.		33.	ug/kg	3,600.		41.
3768	fluorene	1,500.		33.	ug/kg	1,800.		41.
3775	phenanthrene	270.	J	33.	ug/kg	330.	J	41.
3776	anthracene	N.D.		33.	ug/kg	N.D.		41.
3778	fluoranthene	N.D.		33.	ug/kg	N.D.		41.
1195	pyrene	N.D.		33.	ug/kg	N.D.		41.
3781	benzo(a)anthracene	N.D.		33.	ug/kg	N.D.		41.
3782	chrysene	N.D.		33.	ug/kg	N.D.		41.
3786	benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		41.
3787	benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		41.
3789	indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		41.
3790	dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		41.
3791	benzo(ghi)perylene	N.D.		33.	ug/kg	N.D.		41.
3788	benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		41.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054979
Collected: 12/09/98 at 16:45

Submitted: 12/10/98

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC-005-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC05 SDG#: TDL06-04

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		12/18/98 1117	Rick S. Rodgers
1646	Barium	SW-846 6010B	1		12/15/98 1605	Jennifer Garrett
1649	Cadmium	SW-846 6010B	1		12/15/98 1605	Jennifer Garrett
1651	Chromium	SW-846 6010B	1		12/15/98 1605	Jennifer Garrett
1653	Copper	SW-846 6010B	1		12/15/98 1605	Jennifer Garrett
1655	Lead	SW-846 6010B	1		12/15/98 1605	Jennifer Garrett
1666	Silver	SW-846 6010B	1		12/15/98 1605	Jennifer Garrett
1672	Zinc	SW-846 6010B	1		12/15/98 1605	Jennifer Garrett
5708	SW SW846 ICP Digest	SW-846 3050B	1		12/14/98 0803	Rebekah K. Fox
6935	Arsenic TR	SW-846 6010B	1		12/15/98 1605	Jennifer Garrett
6936	Selenium TR	SW-846 6010B	1		12/16/98 1835	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		12/15/98 0919	Rosalind D. Ernest
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		12/14/98 1339	Rebekah K. Fox
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		12/28/98 0221	Eileen Hostetler
7806	BNA Soil Extraction	SW-846 3550B	2		12/22/98 1800	Karen L. Beyer
0111	Moisture	EPA 160.3 modified	1		12/16/98 1406	Susan A. Engle
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		12/10/98 1702	Janet H. Scholl
			2		12/10/98 1703	Janet H. Scholl
			3		12/10/98 1645	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3054979
KMC001-EXC-005-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: I983231AC									
5460 Benzene											
45.	ug/kg	N.D.		96	98	2	99			77	126
5466 Toluene											
45.	ug/kg	N.D.		99	100	1	103			74	128
5474 Ethylbenzene											
45.	ug/kg	N.D.		101	102	0	106			86	129
6301 Xylene (Total)											
45.	ug/kg	N.D.		102	103	0	105			88	128
1646 Barium		Batch: 983485708001									
0.20	mg/kg	N.D.	0	99	120	12	102			56	143
1649 Cadmium		Batch: 983485708001									
0.16	mg/kg	N.D.	0 (1)	88	85	3	97			55	145
1651 Chromium		Batch: 983485708001									
0.75	mg/kg	N.D.	0 (1)	134	187	22	105			69	131
16[illegible] Copper		Batch: 983485708001									
0.25	mg/kg	N.D.	0 (1)	110	119	5	104			62	138
1655 Lead		Batch: 983485708001									
3.7	mg/kg	N.D.	0 (1)	116	114	1	100			60	140
1666 Silver		Batch: 983485708001									
0.78	mg/kg	N.D.	0 (1)	107	107	1	98			57	144
1672 Zinc		Batch: 983485708001									
0.90	mg/kg	N.D.	0 (1)	116	123	4	98			61	139
6935 Arsenic TR		Batch: 983485708001									
0.39	mg/kg	N.D.	23	98	99	1	106			62	138
6936 Selenium TR		Batch: 983485708001									
0.41	mg/kg	N.D.	0 (1)	96	97	1	100			65	134
0159 Mercury		Batch: 983485711002									
0.0048	mg/kg	N.D.	0 (1)	52	59	6	95			49	151
7804 PAHs in Soil by GC/MS		Batch: 98356SLE026									
3761 naphthalene											
670.	ug/kg	N.D.		-85	-67	32	79			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		-39	-21	30	87			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		-77	-55	26	89			61	100
3768 fluorene											
33.	ug/kg	N.D.		-65	-39	24	94			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		-71	-15	25	94			62	107
3776 anthracene											
33.	ug/kg	N.D.		-18	20	41	89			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		-31	-13	30	93			58	110
1195 pyrene											
33.	ug/kg	N.D.		-45	-24	31	91			52	115

(1) The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3054979
KMC001-EXC-005-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		-31	-10	32	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		-31	-7	34	89			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		-28	-6	33	84			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		-30	-10	26	96			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		-43	-13	46	93			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		-42	-13	43	92			60	117
3791 benzo(ghi)perylene											
33.	ug/kg	N.D.		-42	-11	46	93			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		-33	-9	32	90			61	107
0111 Moisture		Batch: 983500227820005A									
0.080	% by wt.		0				100	100	0	99	101

LLI Sample No. 3054979
KMC001-EXC-005-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SURROGATE SUMMARY

	TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B		DBFM	104	80	120
		d4-1,2-DCA	104	80	120
		d8-toluene	96	81	117
		4-BFB	105	74	121
7804 PAHs in Soil by GC/MS		Nitrobz-d5	80	31	126
		2-Fbiphnyl	75	45	113
		Tphenyld14	73	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054980
Collected: 12/ 9/98 at 17:00

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-006-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC06 SDG#: TOL06-05

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	54.		0.20	mg/kg	66.		0.24
1649	Cadmium	N.D.		0.16	mg/kg	N.D.		0.20
1651	Chromium	12.9		0.75	mg/kg	15.8		0.92
1653	Copper	18.3		0.25	mg/kg	22.4		0.31
1655	Lead	9.3	J	3.7	mg/kg	11.4	J	4.5
1666	Silver	N.D.		0.78	mg/kg	N.D.		1.0
1672	Zinc	45.		0.90	mg/kg	55.		1.1
6935	Arsenic TR	4.6		0.39	mg/kg	5.6		0.48
6936	Selenium TR	N.D.		0.41	mg/kg	N.D.		0.50
0159	Mercury	0.0237	J	0.0048	mg/kg	0.0289	J	0.0059
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	18.1		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
04:23:03 D 0003 3 644489
412 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054980
Collected: 12/ 9/98 at 17:00

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-006-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC06 SDG#: TOL06-05

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	AS RECEIVED METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	DRY WEIGHT METHOD DETECTION LIMIT
	UST-Unleaded Soils by 8260B					
5460	Benzene	4,700.	44.	ug/kg	5,800.	53.
5466	Toluene	2,100.	44.	ug/kg	2,600.	53.
5474	Ethylbenzene	3,400.	44.	ug/kg	4,100.	53.
6301	Xylene (Total)	9,700.	44.	ug/kg	12,000.	53.

Due to effervescence caused by reaction of the sample with the sodium bisulfate preservative, the sample could not be analyzed by the low level method within the 48 hour holding time established in SW-846 method 5035. Therefore, the sample for analysis by SW-846 method 8260B was prepared in methanol within 48 hours of collection per the high level option in SW-846 method 5035. The limits of quantitation for the analysis were raised appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054980
Collected: 12/ 9/98 at 17:00

Submitted: 12/10/98 Reported: 12/31/98
Discard: 1/31/99

KMC001-EXC-006-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC06 SDG#: TOL06-05

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	45,000.		330.	ug/kg	55,000.		410.
3765	acenaphthylene	98.	J	33.	ug/kg	120.	J	41.
1191	acenaphthene	160.	J	33.	ug/kg	190.	J	41.
3768	fluorene	35.	J	33.	ug/kg	43.	J	41.
3775	phenanthrene	87.	J	33.	ug/kg	110.	J	41.
3776	anthracene	34.	J	33.	ug/kg	41.	J	41.
3778	fluoranthene	52.	J	33.	ug/kg	64.	J	41.
1195	pyrene	41.	J	33.	ug/kg	50.	J	41.
3781	benzo(a)anthracene	N.D.		33.	ug/kg	N.D.		41.
3782	chrysene	N.D.		33.	ug/kg	N.D.		41.
3786	benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		41.
3787	benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		41.
3789	indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		41.
3790	dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		41.
3791	benzo(ghi)perylene	N.D.		33.	ug/kg	N.D.		41.
3788	benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		41.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3054980
Collected: 12/09/98 at 17:00

Submitted: 12/10/98

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC-006-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
KMC06 SDG#: TOL06-05

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	Sw-846 8260B	1		12/18/98 1204	Rick S. Rodgers
1646	Barium	Sw-846 6010B	1		12/15/98 1610	Jennifer Garrett
1649	Cadmium	Sw-846 6010B	1		12/15/98 1610	Jennifer Garrett
1651	Chromium	Sw-846 6010B	1		12/15/98 1610	Jennifer Garrett
1653	Copper	Sw-846 6010B	1		12/15/98 1610	Jennifer Garrett
1655	Lead	Sw-846 6010B	1		12/15/98 1610	Jennifer Garrett
1666	Silver	Sw-846 6010B	1		12/15/98 1610	Jennifer Garrett
1672	Zinc	Sw-846 6010B	1		12/15/98 1610	Jennifer Garrett
5708	SW SW846 ICP Digest	Sw-846 3050B	1		12/14/98 0803	Rebekah K. Fox
6935	Arsenic TR	Sw-846 6010B	1		12/15/98 1610	Jennifer Garrett
6936	Selenium TR	Sw-846 6010B	1		12/16/98 1840	Christine R. Fritz
0159	Mercury	Sw-846 7471A	1		12/15/98 0921	Rosalind D. Ernest
5711	SW SW846 Hg Digest	Sw-846 7471A modified	1		12/14/98 1339	Rebekah K. Fox
7804	PAHs in Soil by GC/MS	Sw-846 8270C	1		12/28/98 0315	Eileen Hostetler
7806	BNA Soil Extraction	Sw-846 3550B	2		12/22/98 1800	Karen L. Beyer
0111	Moisture	EPA 160.3 modified	1		12/16/98 1406	Susan A. Engle
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		12/10/98 1704	Janet H. Scholl
			2		12/10/98 1705	Janet H. Scholl
			3		12/10/98 1645	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3054980
KMC001-EXC-006-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: I983231AC									
5460 Benzene											
44.	ug/kg	N.D.		96	98	2	99			77	126
5466 Toluene											
44.	ug/kg	N.D.		99	100	1	103			74	128
5474 Ethylbenzene											
44.	ug/kg	N.D.		101	102	0	106			86	129
6301 Xylene (Total)											
44.	ug/kg	N.D.		102	103	0	105			88	128
1646 Barium		Batch: 983485708001									
0.20	mg/kg	N.D.	0	99	120	12	102			56	143
1649 Cadmium		Batch: 983485708001									
0.16	mg/kg	N.D.	0 (1)	88	85	3	97			55	145
1651 Chromium		Batch: 983485708001									
0.75	mg/kg	N.D.	0 (1)	134	187	22	105			69	131
[illegible] Copper		Batch: 983485708001									
0.25	mg/kg	N.D.	0 (1)	110	119	5	104			62	138
[illegible] Lead		Batch: 983485708001									
3.7	mg/kg	N.D.	0 (1)	116	114	1	100			60	140
1666 Silver		Batch: 983485708001									
0.78	mg/kg	N.D.	0 (1)	107	107	1	98			57	144
1672 Zinc		Batch: 983485708001									
0.90	mg/kg	N.D.	0 (1)	116	123	4	98			61	139
6935 Arsenic TR		Batch: 983485708001									
0.39	mg/kg	N.D.	23	98	99	1	106			62	138
6936 Selenium TR		Batch: 983485708001									
0.41	mg/kg	N.D.	0 (1)	96	97	1	100			65	134
0159 Mercury		Batch: 983485711002									
0.0048	mg/kg	N.D.	0 (1)	52	59	6	95			49	151
7804 PAHs in Soil by GC/MS		Batch: 98356SLE026									
3761 naphthalene											
330.	ug/kg	N.D.		-85	-67	32	79			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		-39	-21	30	87			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		-77	-55	26	89			61	100
3768 fluorene											
33.	ug/kg	N.D.		-65	-39	24	94			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		-71	-15	25	94			62	107
3776 anthracene											
33.	ug/kg	N.D.		-18	20	41	89			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		-31	-13	30	93			58	110
1195 pyrene											
33.	ug/kg	N.D.		-45	-24	31	91			52	115

(1) The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3054980
KMC001-EXC-006-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		-31	-10	32	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		-31	-7	34	89			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		-28	-6	33	84			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		-30	-10	26	96			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		-43	-13	46	93			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		-42	-13	43	92			60	117
3791 benzo(ghi)perylene											
33.	ug/kg	N.D.		-42	-11	46	93			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		-33	-9	32	90			61	107
0111 Moisture		Batch: 983500227820005A									
0.080	% by wt.		0				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3054980
KMC001-EXC-006-389D Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644489
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	112	80	120
	d4-1,2-DCA	106	80	120
	d8-toluene	102	81	117
	4-BFB	112	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	84	31	126
	2-Fbiphnyl	81	45	113
	Tphenyld14	75	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3055073
Collected:

Submitted: 12/10/98 Reported: 1/ 1/99
Discard: 3/ 3/99

Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
TTTTB SDG#: TOL06-06TB*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
2300	UST-Unleaded Waters by 8260B			

See Page 2

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
11:17:26 D 0003 1 644516
270 0.00 00000000 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

RECEIVED JAN 0 6 1999

MEMBER ACIL
Lancaster Laboratories
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax 717-656-2681

See reverse side for explanation of symbols and abbreviations

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3055073
Collected:

Submitted: 12/10/98 Reported: 1/ 1/99
Discard: 3/ 3/99

Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
TTTTB SDG#: TOL06-06TB*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
UST-Unleaded Waters by 8260B				
5401	Benzene	N.D.	1.	ug/l
5407	Toluene	N.D.	2.	ug/l
5415	Ethylbenzene	N.D.	2.	ug/l
6310	Xylene (Total)	N.D.	1.	ug/l

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3055073
Collected:

Submitted: 12/10/98

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
TTTTB SDG#: TOL06-06TB*

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2300	UST-Unleaded Waters by 8260B	SW-846 8260B	1		12/14/98 1933	Tamra L. Schumacher

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3055073
Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644516
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2300 UST-Unleaded Waters by 8260B		Batch: M983481AA									
5401 Benzene											
1.	ug/l	N.D.		97	113	15	108			82	123
5407 Toluene											
2.	ug/l	N.D.		93	108	15	108			80	126
5415 Ethylbenzene											
2.	ug/l	N.D.		94	109	15	108			89	124
6310 Xylene (Total)											
1.	ug/l	N.D.		94	110	16	108			89	123

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3055073
Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 644516
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2300 UST-Unleaded Waters by 8260B	DBFM	98	86	118
	d4-1,2-DCA	96	80	120
	d8-toluene	103	88	110
	4-BFB	101	86	115

7802 #305 #80
#3055073

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

Hull & Associates, Inc.

NO. 1530

☒ Dublin: 6130 Wilcox Road, Dublin, Ohio 43017, Phone: (614)793-8777, FAX: (614)793-9070
☐ Toledo: 2726 Monroe Street, Toledo, Ohio 43606, Phone: (419)241-7171, FAX: (419)24 -3117
☐ Mason: 4700 Duke Drive, Suite 172, Mason, Ohio 45040, Phone: (513)459-9877, FAX: (513)459-9869
☐ Warrensville Heights: 4949 Galaxy Parkway, Suite S, Warrensville Heights, Ohio 44128, Phone: (216)514-7100, FAX: (216)514-7104

REPORT TO: Kevin Wildman

Client: Kerr McGee
Site: Toledo Tie
Project#: KMC001 Phase: 01.SMP
Samplers: 389

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH<2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	8260-BTEX Only (A)	8RCRA Metals (w/Hg) (A)	8270-BNA (SVOC) (A)								COMMENTS
KMC001-EXC-004-389D	2	6	N	12-9-98 1630	X	X	X								E/F - 1/2
KMC001-EXC-005-389D	2	6	N	12-9-98 1645	X	X	X								E/F - 4/5
KMC001-EXC-006-389D	2	6	N	12-9-98 1700	X	X	X								E/F - 7/8

RELINQUISHED BY: Jason D. Fixson	DATE: 12-9-98 TIME: 18-00-00	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY: Don Wilson	DATE: 12-10-98 TIME: 0850
COOLER TEMPERATURE AS RECEIVED °C:	3.0 °C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT); YELLOW —LAB USE; PINK —RETAINED BY HAI	

Deliver To: Lancaster Labs
Method of Delivery: Fed Ex
Airbill Number: 807006209902
NOTES: SCR # 118646

Normal TAT

RECEIVED JAN 06 1999

HAI\09997269 08/14/97 CORNER

Lancaster Laboratories
A division of Thermo Analytical Inc.

COPY

LLI Sample No. SW 3133713
Collected: 4/19/99 at 09:30 by JM

Submitted: 4/20/99 Reported: 5/12/99
Discard: 7/12/99

KMC001-EXC007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX007 SDG#: TOL09-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	59.6		0.20	mg/kg	75.		0.25
1649	Cadmium	1.23	J	0.16	mg/kg	1.54	J	0.20
1651	Chromium	13.6		0.74	mg/kg	17.1		0.92
1653	Copper	19.4		0.25	mg/kg	24.3		0.31
1655	Lead	8.6	J	3.6	mg/kg	10.8	J	4.5
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	45.6		0.88	mg/kg	57.		1.1
6935	Arsenic TR	4.7		0.38	mg/kg	5.9		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.50
0159	Mercury	0.0224	J	0.0047	mg/kg	0.0280	J	0.0059
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.1		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

Due to effervescence caused by reaction of the sample with the sodium bisulfate preservative, the sample could not be analyzed by the low level method within the 48 hour holding time established in SW-846 method 5035. Therefore, the sample for analysis by SW-846 method 8260B was prepared in methanol within 48 hours of collection per the high level option in SW-846 method 5035. The limits of quantitation for the analysis were raised appropriately.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
11:49:22 D 0003 2 662097
652 100.00 00082600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3133713
Collected: 4/19/99 at 09:30 by JM

Submitted: 4/20/99 Reported: 5/12/99
Discard: 7/12/99

KMC001-EXC007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX007 SDG#: TOL09-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	5,300.	62.	ug/kg	6,600.	78.
5466	Toluene	4,700.	62.	ug/kg	5,900.	78.
5474	Ethylbenzene	6,400.	62.	ug/kg	8,000.	78.
6301	Xylene (Total)	17,000.	62.	ug/kg	22,000.	78.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Poor surrogate recoveries were observed for the GC/MS volatile fraction. The analysis was repeated and poor surrogate recoveries were again observed indicating a significant matrix effect.

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3133713
Collected: 4/19/99 at 09:30 by JM

Submitted: 4/20/99 Reported: 5/12/99
Discard: 7/12/99

KMC001-EXC007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX007 SDG#: TOL09-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	Naphthalene	87,000.		670.	ug/kg	110,000.		830.
3765	Acenaphthylene	750.		33.	ug/kg	940.		42.
1191	Acenaphthene	21,000.		670.	ug/kg	27,000.		830.
3768	Fluorene	19,000.		670.	ug/kg	24,000.		830.
3775	Phenanthrene	51,000.		670.	ug/kg	64,000.		830.
3776	Anthracene	4,800.		33.	ug/kg	6,000.		42.
3778	Fluoranthene	25,000.		670.	ug/kg	31,000.		830.
1195	Pyrene	16,000.		670.	ug/kg	21,000.		830.
3781	Benzo(a)anthracene	5,800.	J	670.	ug/kg	7,300.	J	830.
3782	Chrysene	4,900.		33.	ug/kg	6,100.		42.
3786	Benzo(b)fluoranthene	3,800.		33.	ug/kg	4,800.		42.
3787	Benzo(k)fluoranthene	1,600.		33.	ug/kg	2,000.		42.
3789	Indeno(1,2,3-cd)pyrene	1,500.		33.	ug/kg	1,900.		42.
790	Dibenz(a,h)anthracene	420.		33.	ug/kg	520.		42.
3791	Benzo(g,h,i)perylene	1,200.		33.	ug/kg	1,500.		42.
3788	Benzo(a)pyrene	3,100.		33.	ug/kg	3,900.		42.

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3133713
Collected: 04/19/99 at 09:30 by JM

Submitted: 04/20/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX007 SDG#: TOL09-01

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		04/29/99 1850	Susan A. McMahon
1646	Barium	SW-846 6010B	1		04/26/99 0810	Jennifer Garrett
1649	Cadmium	SW-846 6010B	1		04/26/99 0810	Jennifer Garrett
1651	Chromium	SW-846 6010B	1		04/26/99 0810	Jennifer Garrett
1653	Copper	SW-846 6010B	1		04/27/99 1638	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		04/26/99 0810	Jennifer Garrett
1666	Silver	SW-846 6010B	1		04/26/99 0810	Jennifer Garrett
1672	Zinc	SW-846 6010B	1		04/26/99 0810	Jennifer Garrett
5708	SW SW846 ICP Digest	SW-846 3050B	1		04/25/99 2349	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		04/26/99 0810	Jennifer Garrett
6936	Selenium TR	SW-846 6010B	1		04/27/99 1638	Eric Walter Cuba
0159	Mercury	SW-846 7471A	1		04/26/99 1544	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		04/25/99 2349	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		04/28/99 0120	David J. Evans
7806	BNA Soil Extraction	SW-846 3550B	1		04/23/99 1330	John M. Becker
0111	Moisture	EPA 160.3 modified	1		04/21/99 1755	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		04/20/99 1600	G. Chad Wettig

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3133713
KMC001-EXC007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 662097
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J991181AC									
5460 Benzene											
62.	ug/kg	N.D.					113	120	6	77	126
5466 Toluene											
62.	ug/kg	N.D.					113	119	6	74	128
5474 Ethylbenzene											
62.	ug/kg	N.D.					115	123	6	86	129
6301 Xylene (Total)											
62.	ug/kg	N.D.					115	121	5	88	128
1646 Barium		Batch: 991155708002									
0.20	mg/kg	N.D.	0 (1)	90	87	3	104			56	143
1649 Cadmium		Batch: 991155708002									
0.16	mg/kg	N.D.	0 (1)	68	96	33	102			55	145
1651 Chromium		Batch: 991155708002									
0.74	mg/kg	N.D.	0 (1)	98	114	12	106			69	131
Copper		Batch: 991155708002									
0.25	mg/kg	N.D.	0 (1)	104	106	1	107			62	138
1695 Lead		Batch: 991155708002									
3.6	mg/kg	N.D.	0 (1)	98	131	25	103			60	140
1666 Silver		Batch: 991155708002									
0.76	mg/kg	N.D.	0 (1)	88	0	200	103			57	144
1672 Zinc		Batch: 991155708002									
0.88	mg/kg	N.D.	17	-69	668 (2)	38	100			61	139
6935 Arsenic TR		Batch: 991155708002									
0.38	mg/kg	N.D.	18	89	75	12	108			62	138
6936 Selenium TR		Batch: 991155708002									
0.40	mg/kg	N.D.	0 (1)	95	95	0	100			65	134
0159 Mercury		Batch: 991155711002									
0.0047	mg/kg	N.D.	0 (1)	101	98	0	94			49	151
7804 PAHs in Soil by GC/MS		Batch: 99113SLA									
3761 Naphthalene											
670.	ug/kg	N.D.					87	89	2	58	99
3765 Acenaphthylene											
33.	ug/kg	N.D.					88	86	2	62	101
1191 Acenaphthene											
670.	ug/kg	N.D.					92	90	2	61	100
3768 Fluorene											
670.	ug/kg	N.D.					95	95	1	59	109
3775 Phenanthrene											
670.	ug/kg	N.D.					95	95	0	62	107
3776 Anthracene											
33.	ug/kg	N.D.					88	90	1	62	105
3778 Fluoranthene											
670.	ug/kg	N.D.					93	94	1	58	110
1195 Pyrene											
670.	ug/kg	N.D.					94	98	4	52	115

(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3133713
KMC001-EXC007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 662097
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 Benzo(a)anthracene											
670.	ug/kg	N.D.					92	94	3	63	106
3782 Chrysene											
33.	ug/kg	N.D.					96	99	4	60	107
3786 Benzo(b)fluoranthene											
33.	ug/kg	N.D.					94	95	0	59	105
3787 Benzo(k)fluoranthene											
33.	ug/kg	N.D.					99	99	0	63	108
3789 Indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.					96	96	1	55	111
3790 Dibenz(a,h)anthracene											
33.	ug/kg	N.D.					99	98	1	60	117
3791 Benzo(g,h,i)perylene											
33.	ug/kg	N.D.					98	98	0	52	113
3788 Benzo(a)pyrene											
33.	ug/kg	N.D.					91	93	2	61	107
0111 Moisture		Batch: 991110091820002A									
0.080	% by wt.		1				100	100	0	99	101

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3133713
KMC001-EXC007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 662097
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	88	80	120
	d4-1,2-DCA	74	80	120
	d8-toluene	77	81	117
	4-BFB	82	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	87	31	126
	2-Fbiphnyl	80	45	113
	Tphenyld14	104	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3133714
Collected: 4/19/99 at 17:00 by JM

Submitted: 4/20/99 Reported: 5/12/99
Discard: 7/12/99

KMC001-EXC008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX008 SDG#: TOL09-02*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	59.3		0.20	mg/kg	74.		0.25
1649	Cadmium	1.19	J	0.16	mg/kg	1.50	J	0.20
1651	Chromium	12.2		0.74	mg/kg	15.4		0.92
1653	Copper	17.6		0.25	mg/kg	22.1		0.31
1655	Lead	8.5	J	3.6	mg/kg	10.6	J	4.6
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	41.4		0.88	mg/kg	52.		1.1
6935	Arsenic TR	7.2		0.38	mg/kg	9.0		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.50
0159	Mercury	0.0183	J	0.0047	mg/kg	0.0230	J	0.0058
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.3		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

Due to effervescence caused by reaction of the sample with the sodium bisulfate preservative, the sample could not be analyzed by the low level method within the 48 hour holding time established in SW-846 method 5035. Therefore, the sample for analysis by SW-846 method 8260B was prepared in methanol within 48 hours of collection per the high level option in SW-846 method 5035. The limits of quantitation for the analysis were raised appropriately.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
11:51:23 D 0003 2 662097
652 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3133714
Collected: 4/19/99 at 17:00 by JM

Submitted: 4/20/99 Reported: 5/12/99
Discard: 7/12/99

KMC001-EXC008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX008 SDG#: TOL09-02*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	N.D.	44.	ug/kg	N.D.	55.
5466	Toluene	N.D.	44.	ug/kg	N.D.	55.
5474	Ethylbenzene	N.D.	44.	ug/kg	N.D.	55.
6301	Xylene (Total)	N.D.	44.	ug/kg	N.D.	55.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Poor surrogate recoveries were observed for the GC/MS volatile fraction. The analysis was repeated and poor surrogate recoveries were again observed indicating a significant matrix effect.

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3133714
Collected: 4/19/99 at 17:00 by JM

Submitted: 4/20/99 Reported: 5/12/99
Discard: 7/12/99

KMC001-EXC008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX008 SDG#: TOL09-02*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	Naphthalene	94.	J	33.	ug/kg	120.	J	42.
3765	Acenaphthylene	N.D.		33.	ug/kg	N.D.		42.
1191	Acenaphthene	N.D.		33.	ug/kg	N.D.		42.
3768	Fluorene	N.D.		33.	ug/kg	N.D.		42.
3775	Phenanthrene	44.	J	33.	ug/kg	56.	J	42.
3776	Anthracene	N.D.		33.	ug/kg	N.D.		42.
3778	Fluoranthene	N.D.		33.	ug/kg	N.D.		42.
1195	Pyrene	N.D.		33.	ug/kg	N.D.		42.
3781	Benzo(a)anthracene	N.D.		33.	ug/kg	N.D.		42.
3782	Chrysene	N.D.		33.	ug/kg	N.D.		42.
3786	Benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3787	Benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3789	Indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		42.
790	Dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		42.
3791	Benzo(g,h,i)perylene	N.D.		33.	ug/kg	N.D.		42.
3788	Benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		42.

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3133714
Collected: 04/19/99 at 17:00 by JM

Submitted: 04/20/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
EX008 SDG#: TOL09-02*

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		04/30/99 0755	Jason P. Pisarcik
1646	Barium	SW-846 6010B	1		04/26/99 0815	Jennifer Garrett
1649	Cadmium	SW-846 6010B	1		04/26/99 0815	Jennifer Garrett
1651	Chromium	SW-846 6010B	1		04/26/99 0815	Jennifer Garrett
1653	Copper	SW-846 6010B	1		04/27/99 1644	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		04/26/99 0815	Jennifer Garrett
1665	Silver	SW-846 6010B	1		04/26/99 0815	Jennifer Garrett
1672	Zinc	SW-846 6010B	1		04/26/99 0815	Jennifer Garrett
5708	SW SW846 ICP Digest	SW-846 3050B	1		04/25/99 2349	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		04/26/99 0815	Jennifer Garrett
6936	Selenium TR	SW-846 6010B	1		04/27/99 1644	Eric Walter Cuba
0159	Mercury	SW-846 7471A	1		04/26/99 1546	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		04/25/99 2349	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		04/28/99 0028	David J. Evans
7806	BNA Soil Extraction	SW-846 3550B	1		04/23/99 1330	John M. Becker
0111	Moisture	EPA 160.3 modified	1		04/21/99 1755	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		04/20/99 1603	G. Chad Wettig

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3133714
KMC001-EXC008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 662097
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J991181AD									
5460 Benzene											
44.	ug/kg	N.D.					113	120	6	77	126
5466 Toluene											
44.	ug/kg	N.D.					113	119	6	74	128
5474 Ethylbenzene											
44.	ug/kg	N.D.					115	123	6	86	129
6301 Xylene (Total)											
44.	ug/kg	N.D.					115	121	5	88	128
1646 Barium		Batch: 991155708002									
0.20	mg/kg	N.D.	0 (1)	90	87	3	104			56	143
1649 Cadmium		Batch: 991155708002									
0.16	mg/kg	N.D.	0 (1)	68	96	33	102			55	145
1651 Chromium		Batch: 991155708002									
0.74	mg/kg	N.D.	0 (1)	98	114	12	106			69	131
1[illegible] Copper		Batch: 991155708002									
0.25	mg/kg	N.D.	0 (1)	104	106	1	107			62	138
1655 Lead		Batch: 991155708002									
3.6	mg/kg	N.D.	0 (1)	98	131	25	103			60	140
1666 Silver		Batch: 991155708002									
0.76	mg/kg	N.D.	0 (1)	88	0	200	103			57	144
1672 Zinc		Batch: 991155708002									
0.88	mg/kg	N.D.	17	-69	668 (2)	38	100			61	139
6935 Arsenic TR		Batch: 991155708002									
0.38	mg/kg	N.D.	18	89	75	12	108			62	138
6936 Selenium TR		Batch: 991155708002									
0.40	mg/kg	N.D.	0 (1)	95	95	0	100			65	134
0159 Mercury		Batch: 991155711002									
0.0047	mg/kg	N.D.	0 (1)	101	98	0	94			49	151
7804 PAHs in Soil by GC/MS		Batch: 99113SLA									
3761 Naphthalene											
33.	ug/kg	N.D.					87	89	2	58	99
3765 Acenaphthylene											
33.	ug/kg	N.D.					88	86	2	62	101
1191 Acenaphthene											
33.	ug/kg	N.D.					92	90	2	61	100
3768 Fluorene											
33.	ug/kg	N.D.					95	95	1	59	109
3775 Phenanthrene											
33.	ug/kg	N.D.					95	95	0	62	107
3776 Anthracene											
33.	ug/kg	N.D.					88	90	1	62	105
3778 Fluoranthene											
33.	ug/kg	N.D.					93	94	1	58	110
1195 Pyrene											
33.	ug/kg	N.D.					94	98	4	52	115

(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3133714
KMC001-EXC008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 662097
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 Benzo(a)anthracene											
33.	ug/kg	N.D.					92	94	3	63	106
3782 Chrysene											
33.	ug/kg	N.D.					96	99	4	60	107
3786 Benzo(b)fluoranthene											
33.	ug/kg	N.D.					94	95	0	59	105
3787 Benzo(k)fluoranthene											
33.	ug/kg	N.D.					99	99	0	63	108
3789 Indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.					96	96	1	55	111
3790 Dibenz(a,h)anthracene											
33.	ug/kg	N.D.					99	98	1	60	117
3791 Benzo(g,h,i)perylene											
33.	ug/kg	N.D.					98	98	0	52	113
3788 Benzo(a)pyrene											
33.	ug/kg	N.D.					91	93	2	61	107
0111 Moisture		Batch: 991110091820002A									
0.080	% by wt.		1				100	100	0	99	101

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3133714
KMC001-EXC008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 662097
Kerr-McGee Corporation

SURROGATE SUMMARY

	TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B		DBFM	84	80	120
		d4-1,2-DCA	70	80	120
		d8-toluene	72	81	117
		4-BFB	72	74	121
7804 PAHs in Soil by GC/MS		Nitrobz-d5	75	31	126
		2-Fbiphnyl	78	45	113
		Tphenyld14	91	37	130

2/3133702-14

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 2095

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☒ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR-McGEE
Site: Toledo TIE Treatment Site.
Project#: KMC-001 Phase: 01.SMP
Samplers: JEFF MONNIN

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	8260 BTEX only (A)	8270 BNA (A)	8RCRA Metals + Cyanide (A)								COMMENTS
KMC001-EXC007-392T	2	5	N	4-19-99 9:30	X	X	X								-2' below T.O.C.
KMC001-EXC008-392T	2	5	N	4-19-99 17:00	X	X	X								-5' below T.O.C-S.S.

RELINQUISHED BY: Jeff L. Monnin	DATE: 4-19-99 TIME: 18-00-00	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY: [signature]	DATE: 4-20-99 TIME: 0 – –
COOLER TEMPERATURE AS RECEIVED °C :	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT) YELLOW —LAB USE PINK —RETAINED BY HAI	

Deliver To: LANCASTER Labs
Method of Delivery: Fed Exc
Airbill Number: 807006209898

NOTES:

HAI\0999T269 08/14/97 CORNER

RECEIVED MAY 17 1999

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3121579
Collected: 3/31/99 at 16:00 by JM

Submitted: 4/ 1/99 Reported: 4/ 9/99
Discard: 6/ 9/99

KMC001-EXC009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC-001/01.SMP
MC001 SDG#: TOL08-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	57.0		0.20	mg/kg	71.		0.25
1649	Cadmium	N.D.		0.16	mg/kg	N.D.		0.20
1651	Chromium	11.2		0.74	mg/kg	14.0		0.92
1653	Copper	18.3		0.25	mg/kg	23.0		0.31
1655	Lead	8.6	J	3.6	mg/kg	10.8	J	4.5
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	45.4		0.88	mg/kg	57.		1.1
6935	Arsenic TR	4.5		0.38	mg/kg	5.7		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.50
0159	Mercury	0.0160	J	0.0046	mg/kg	0.0201	J	0.0058
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.2		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
06:48:12 D 0003 1 659495
100.00 00082600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3121579
Collected: 3/31/99 at 16:00 by JM

Submitted: 4/ 1/99 Reported: 4/ 9/99
Discard: 6/ 9/99

KMC001-EXC009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC-001/01.SMP
MC001 SDG#: TOL08-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMI
UST-Unleaded Soils by 8260B								
5460	Benzene	2,200.		50.	ug/kg	2,700.		62.
5466	Toluene	240.	J	50.	ug/kg	310.	J	62.
5474	Ethylbenzene	2,900.		50.	ug/kg	3,700.		62.
6301	Xylene (Total)	4,600.		50.	ug/kg	5,700.		62.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3121579
Collected: 3/31/99 at 16:00 by JM

Submitted: 4/ 1/99 Reported: 4/ 9/99
Discard: 6/ 9/99

KMC001-EXC009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC-001/01.SMP
MC001 SDG#: TOL08-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMI
PAHs in Soil by GC/MS								
3761	naphthalene	50,000.		330.	ug/kg	63,000.		420.
3765	acenaphthylene	530.		33.	ug/kg	660.		42.
1191	acenaphthene	3,000.		33.	ug/kg	3,800.		42.
3768	fluorene	1,400.		33.	ug/kg	1,700.		42.
3775	phenanthrene	220.	J	33.	ug/kg	270.	J	42.
3776	anthracene	N.D.		33.	ug/kg	N.D.		42.
3778	fluoranthene	N.D.		33.	ug/kg	N.D.		42.
1195	pyrene	N.D.		33.	ug/kg	N.D.		42.
3781	benzo(a)anthracene	N.D.		33.	ug/kg	N.D.		42.
3782	chrysene	N.D.		33.	ug/kg	N.D.		42.
3786	benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3787	benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3789	indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		42.
3790	dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		42.
3791	benzo(g,h,i)perylene	N.D.		33.	ug/kg	N.D.		42.
3788	benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL
Lancaster Laboratories
2425 New Holland Pike
PO Box 12425
Lancaster PA 17605-2425
717-656-2300 Fax 717-656-2681

See reverse side for explanation of symbols and abbreviations

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3121579
Collected: 03/31/99 at 16:00 by JM

Submitted: 04/01/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-EXC009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC-001/01.SMP
MC001 SDG#: TOL08-01

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		04/06/99 2352	Christina R. Sharland
1646	Barium	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
1649	Cadmium	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
1651	Chromium	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
1653	Copper	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
1655	Lead	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
1666	Silver	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
1672	Zinc	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
5708	SW SW846 ICP Digest	SW-846 3050B	1		04/06/99 2344	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
6936	Selenium TR	SW-846 6010B	1		04/08/99 0210	Donna R. Sackett
0159	Mercury	SW-846 7471A	1		04/08/99 1851	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		04/06/99 2344	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		04/05/99 1721	Douglas D. Seitz
7806	BNA Soil Extraction	SW-846 3550B	1		04/02/98 1500	John M. Becker
0111	Moisture	EPA 160.3 modified	1		04/06/99 1921	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		04/01/99 1330	Janet H. Scholl
			2		04/01/99 1345	Janet H. Scholl
			3		04/01/99 1345	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3121579
KMC001-EXC009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC-001/01.SMP

Group No. 659495
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990951AD									
5460 Benzene											
50.	ug/kg	N.D.					108	111	3	77	126
5466 Toluene											
50.	ug/kg	N.D.					112	115	3	74	128
5474 Ethylbenzene											
50.	ug/kg	N.D.					110	113	3	86	129
6301 Xylene (Total)											
50.	ug/kg	N.D.					109	112	3	88	128
1646 Barium		Batch: 990965708002									
0.20	mg/kg	N.D.	5	101	101	0	87			56	143
1649 Cadmium		Batch: 990965708002									
0.16	mg/kg	N.D.	0 (1)	89	87	1	83			55	145
1651 Chromium		Batch: 990965708002									
0.74	mg/kg	N.D.	0 (1)	111	113	2	93			69	131
1653 Copper		Batch: 990965708002									
0.25	mg/kg	N.D.	0 (1)	91	85	3	92			62	138
1669 Lead		Batch: 990965708002									
3.6	mg/kg	N.D.	0 (1)	93	95	2	86			60	140
1673 Silver		Batch: 990965708002									
0.76	mg/kg	N.D.	0 (1)	98	98	1	87			57	144
1672 Zinc		Batch: 990965708002									
0.88	mg/kg	N.D.	9	98	101	2	86			61	139
6935 Arsenic TR		Batch: 990965708002									
0.38	mg/kg	N.D.	4	93	93	1	92			62	138
6936 Selenium TR		Batch: 990965708002									
0.40	mg/kg	N.D.	0 (1)	93	94	1	86			65	134
0159 Mercury		Batch: 990965711002									
0.0046	mg/kg	N.D.	0 (1)	93	1362	125	95			49	151
7804 PAHs in Soil by GC/MS		Batch: 99092SLA026									
3761 naphthalene											
330.	ug/kg	N.D.		68	77	9		74		58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		78	77	1		83		62	101
1191 acenaphthene											
33.	ug/kg	N.D.		79	81	2		86		61	100
3768 fluorene											
33.	ug/kg	N.D.		61	61	1		90		59	109
3775 phenanthrene											
33.	ug/kg	N.D.		85	84	1		89		62	107
3776 anthracene											
33.	ug/kg	N.D.		98	99	1		85		62	105
3778 fluoranthene											
33.	ug/kg	N.D.		105	104	1		86		58	110
1195 pyrene											
33.	ug/kg	N.D.		64	63	0		87		52	115

(1) The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3121579
KMC001-EXC009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC-001/01.SMP

Group No. 659495
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		74	76	2		82		63	106
3782 chrysene											
33.	ug/kg	N.D.		73	75	3		82		60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	77	7		88		59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		76	77	1		92		63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		84	89	5		87		55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		84	88	5		86		60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		85	89	5		87		52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		77	81	4		88		61	107
0111 Moisture		Batch: 9909960091820002A									
0.080	% by wt.		2				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3121579
KMC001-EXC009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC-001/01.SMP

Group No. 659495
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	86	80	120
	d4-1,2-DCA	86	80	120
	d8-toluene	98	81	117
	4-BFB	96	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	77	31	126
	2-Fbiphnyl	79	45	113
	Tphenyld14	82	37	130

7802

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

NO. 1688

Hull & Associates, Inc.

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
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☒ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
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☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9877
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO:

Client: KERR-MCGEE
Site: Toledo Tie Treatment Site
Project#: KMC-001 Phase: 01.SMP
Samplers: JEFF MOUNIN

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCl pH<2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	8260-BTEX only (A)	8270 (BNA) (A)	8 RCRA Metals + Cu+Zn (A)									COMMENTS
KMC001-EX009-392T	2	5	N	3-31-99 16:00	X	X	X									High level is ok for BTex. Likely the soil will EFFERVESCE.

RELINQUISHED BY: Jeff Mounin	DATE: 03-31-99 TIME: 18-15-00	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: 4-1-99 TIME: 0920
COOLER TEMPERATURE AS RECEIVED °C: 2.1	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT) YELLOW —LAB USE PINK —RETAINED BY HAI	

Deliver To: LANCASTER LABS
Method of Delivery: Fed EX
Airbill Number: 8670062098 10

NOTES:

HAI\0999T269
08/14/97 CORNER

APPENDIX D-3

Off-Site Borrow Source Analytical Results

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

SUMMARY OF OFF-SITE BORROW SOURCES

Topsoil

Al Mackey Enterprises
P.O. Box 269
Swanton, Ohio 43558

Sources: Private development
Quantity: Approximately 2500 tons

Embankment material for Frenchmens Road restoration

ODOT 203 material
Al Mackey Enterprises, Inc
P.O. Box 269
Swanton, Ohio 43558

Source: Sand Mining operations
Quantity: Approximately 7500 tons

ODOT 310 material
Sylvester Materials, Inc
Genoa, Ohio 43560

Source: Quarry operations
Quantity: Approximately 6000 tons

ODOT 304 material (Road subbase)
Sylvester Materials, Inc
Genoa, Ohio 43560

Source: Quarry operations
Quantity: Approximately 3500 tons

Clay Soil for excavation backfill and fill over Williams Ditch

Sylvester Materials, Inc
Genoa, Ohio 43560

Source: Quarry operations
Quantity: Approximately 14,000 tons

KERR-McGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL ACTION REPORT

SUMMARY OF OFF-SITE BORROW SOURCES *(cont)*

Clay Soil for excavation backfill and fill over Williams Ditch *(cont)*

Seaway Sand & Gravel, Inc
(Contractors' Sand & Stone
11330 Airport Hwy
Swanton, Ohio 43558

Source:	Quarry operations
Quantity:	Approximately 4000 tons

Rock backfill for Williams Ditch enclosure (ODOT 57 material)

Hanson Aggregates
P.O. Box 278
Sylvania, Ohio 43560

Source:	Quarry Operations
Quantity:	Approximately 3000 tons

Rip-rap for streambank protection

Sandman Trucking, Inc
9025 Old Airport Highway
Holland, Ohio 43528

Source:	Quarry Operations
Quantity:	Approximately 300 tons

Topsoil
SL Mackey

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

October 29, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD04543 Location code: HULL
Project account code: 196
Location Description: KMCOGI-TOPSOIL-102398-T348
Sample collector: CLIENT Sample collection date: 10/23/98
Lab submittal date: 10/26/98 Time: 09:14
Received by: RS Validated by: SA

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 83.7 % MDL or sensitivity: 0.01
Date started: 10/26/98 Date finished: 10/27/98
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 6.5 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 120 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Result: 0.44 mg/dry kg MDL or sensitivity: 0.25
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 27.8 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 24.3 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 19.4 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.05
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 89.9 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ORGANOCHLORINE PESTICIDES by GC
Method reference: EPA 8081
Unit: mg/dry kg
Result: see below
Date started: 10/26/98
Date finished: 10/28/98
Time started:
Analyst: JR

Parameter: POLYCHLORINATED BIPHENYLS by GC
Method reference: EPA 8020
Unit: mg/dry kg
Result: see below
Date started: 10/27/98
Date finished: 10/27/98
Time started:
Analyst: JR

Parameter: VOCs by GCMS
Method reference: EPA 8060
Unit: mg/dry kg
Result: see below
Date started: 10/28/98
Date finished: 10/28/98
Time started:
Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 10/26/98 Date finished: 10/26/98
Time started: Analyst: JR

Data for ORGANOCHLORINE PESTICIDES by GC mg/dry kg:

Component Name	Result	Component MDL
ALDRIN	Not detected	0.0005
a-BHC	Not detected	0.0005
b-BHC	Not detected	0.0005
g-BHC (LINDANE)	Not detected	0.0005
d-BHC	Not detected	0.0005
CHLORDANE	Not detected	0.006
4,4'-DDD	Not detected	0.0005
4,4'-DDE	Not detected	0.0005
4,4'-DDT	Not detected	0.0005
DIELDRIN	Not detected	0.0005
ENDOSULFAN I	Not detected	0.0005
ENDOSULFAN II	Not detected	0.0005
ENDOSULFAN SULFATE	Not detected	0.0005
ENDRIN	Not detected	0.0005
ENDRIN ALDEHYDE	Not detected	0.0005
HEPTACHLOR	Not detected	0.0005
HEPTACHLOR EPOXIDE	Not detected	0.0005
METHOXYCHLOR	Not detected	0.0005
TOXAPHENE	Not detected	0.01

Data for POLYCHLORINATED BIPHENYLS by GC mg/dry kg:

Component Name	Result	Component MDL
PCB-1016	Not detected	0.10
PCB-1221	Not detected	0.10
PCB-1232	Not detected	0.10
PCB-1242	Not detected	0.10
PCB-1248	Not detected	0.10
PCB-1254	Not detected	0.10
PCB-1260	Not detected	0.10

Data for VOCs by GCMS mg/dry kg:

Component Name	Result	Component MDL
ACETONE	Not detected	0.06
ACROLEIN	Not detected	0.01
ACRYLONITRILE	Not detected	0.002
BENZENE	Not detected	0.001
BROMODICHLOROMETHANE	Not detected	0.001
BROMOFORM	Not detected	0.001
BROMOMETHANE	Not detected	0.006
2-BUTANONE (MEK)	Not detected	0.006

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
CARBON DISULFIDE	Not detected	0.006
CARBON TETRACHLORIDE	Not detected	0.001
CHLOROBENZENE	Not detected	0.001
CHLOROETHANE	Not detected	0.006
2-CHLOROETHYL VINYL ETHER	Not detected	0.006
CHLOROFORM	Not detected	0.001
CHLOROMETHANE	Not detected	0.006
DIBROMOCHLOROMETHANE	Not detected	0.001
DICHLORODIFLUOROMETHANE	Not detected	0.006
1,1-DICHLOROETHANE	Not detected	0.001
1,2-DICHLOROETHANE	Not detected	0.001
1,1-DICHLOROETHENE	Not detected	0.001
c-1,2-DICHLOROETHENE	Not detected	0.001
t-1,2-DICHLOROETHENE	Not detected	0.001
1,2-DICHLOROPROPANE	Not detected	0.001
c-1,3-DICHLOROPROPENE	Not detected	0.001
t-1,3-DICHLOROPROPENE	Not detected	0.001
ETHYLBENZENE	Not detected	0.001
1,2-DIBROMOETHANE	Not detected	0.001
1,2-DIBROMO-3-CHLOROPROPANE	Not detected	0.001
ETHYL METHACRYLATE	Not detected	0.006
2-HEXANONE	Not detected	0.01
METHYLENE CHLORIDE	Not detected	0.006
4-METHYL-2-PENTANONE (MIBK)	Not detected	0.01
STYRENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
TETRACHLOROETHENE	Not detected	0.001
TOLUENE	Not detected	0.001
1,1,1-TRICHLOROETHANE	Not detected	0.001
1,1,2-TRICHLOROETHANE	Not detected	0.001
TRICHLOROETHENE	Not detected	0.001
TRICHLOROFLUOROMETHANE	Not detected	0.01
VINYL ACETATE	Not detected	0.006
VINYL CHLORIDE	Not detected	0.002
m+p-XYLENE	Not detected	0.001
o-XYLENE	Not detected	0.001
DIBROMOMETHANE	Not detected	0.001
1,2-DICHLOROBENZENE	Not detected	0.001
1,3-DICHLOROBENZENE	Not detected	0.001
1,4-DICHLOROBENZENE	Not detected	0.001
t-1,4-DICHLORO-2-BUTENE	Not detected	0.01
ETHYL ETHER	Not detected	0.006
METHYL IODIDE	Not detected	0.002
NAPHTHALENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
1,2,3-TRICHLOROPROPANE	Not detected	0.001
1,3-DICHLOROPROPANE	Not detected	0.001
HEXACHLOROBUTADIENE	Not detected	0.001
ISOPROPYLBENZENE	Not detected	0.001
BROMOCHLOROMETHANE	Not detected	0.001
2,2-DICHLOROPROPANE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
2-CHLOROTOLUENE	Not detected	0.001
4-CHLOROTOLUENE	Not detected	0.001
1,2,3-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRIMETHYLBENZENE	Not detected	0.001
1,3,5-TRIMETHYLBENZENE	Not detected	0.001
BROMOBENZENE	Not detected	0.001
N-PROPYLBENZENE	Not detected	0.001
N-BUTYLBENZENE	Not detected	0.001
sec-BUTYLBENZENE	Not detected	0.001
tert-BUTYLBENZENE	Not detected	0.001
4-ISOPROPYLTOLUENE	Not detected	0.001
1,1-DICHLOROPROPENE	Not detected	0.001
1,1,2-TRICHLOROTRIFLUOROETHANE	Not detected	0.006
Surrogate results:	---	
0.012 mg/kg Dibromofluoromethane	0.011	
0.012 mg/kg Toluene-D8	0.007	
0.012 mg/kg 4-Bromofluorobenzene	0.009	

Data for SEMIVOLATILE ORGANICS by GCMS mg/dry kg:

Component Name	Result	Component MDL
4-CHLORO-3-METHYLPHENOL	Not detected	0.08
2-CHLOROPHENOL	Not detected	0.08
2,4-DICHLOROPHENOL	Not detected	0.08
2,4-DIMETHYLHENOL	Not detected	0.08
2,4-DINITROPHENOL	Not detected	0.08
2-METHYL-4,6-DINITROPHENOL	Not detected	0.08
2-NITROPHENOL	Not detected	0.04
4-NITROPHENOL	Not detected	0.04
PENTACHLOROPHENOL	Not detected	0.04
PHENOL	Not detected	0.08
2,4,6-TRICHLOROPHENOL	Not detected	0.04
ACENAPHTHENE	Not detected	0.08
ACENAPHTHYLENE	Not detected	0.08
ANTHRACENE	Not detected	0.08
BENZIDINE	Not detected	0.08
BENZO(a)ANTHRACENE	Not detected	0.16
BENZO(b)FLUORANTHENE	Not detected	0.20
BENZO(k)FLUORANTHENE	Not detected	0.16
BENZO(ghi)PERYLENE	Not detected	0.08
BENZO(a)PYRENE	Not detected	0.16
4-BROMOPHENYL PHENYL ETHER	Not detected	0.08
BUTYL BENZYL PHTHALATE	Not detected	0.08
bis(2-CHLOROETHOXY)METHANE	Not detected	0.08
bis(2-CHLOROETHYL)ETHER	Not detected	0.04
bis(2-CHLOROISOPROPYL)ETHER	Not detected	0.08
2-CHLORONAPHTHALENE	Not detected	0.08
4-CHLOROPHENYL PHENYL ETHER	Not detected	0.12
CHRYSENE	Not detected	0.08

Data for SEMIVOLATILE ORGANICS by GCMS (continued):

Component Name	Result	Component MDL
DIBENZO(ah)ANTHRACENE	Not detected	0.04
1,2-DICHLOROBENZENE	Not detected	0.04
1,3-DICHLOROBENZENE	Not detected	0.08
1,4-DICHLOROBENZENE	Not detected	0.08
3,3'-DICHLOROBENZIDINE	Not detected	0.16
DIETHYL PHTHALATE	Not detected	0.04
DIMETHYL PHTHALATE	Not detected	0.08
DI-N-BUTYL PHTHALATE	Not detected	0.08
2,4-DINITROTOLUENE	Not detected	0.04
2,6-DINITROTOLUENE	Not detected	0.08
DI-N-OCTYL PHTHALATE	Not detected	0.04
1,2-DIPHENYLHYDRAZINE	Not detected	0.04
bis(2-ETHYLHEXYL)PHTHALATE	0.18	0.12
FLUORANTHENE	Not detected	0.16
FLUORENE	Not detected	0.08
HEXACHLOROBENZENE	Not detected	0.04
HEXACHLOROBUTADIENE	Not detected	0.08
HEXACHLOROCYCLOPENTADIENE	Not detected	0.04
HEXACHLOROETHANE	Not detected	0.08
INDENO(123-cd)PYRENE	Not detected	0.08
ISOPHORONE	Not detected	0.08
NAPHTHALENE	Not detected	0.08
NITROBENZENE	Not detected	0.04
N-NITROSODIMETHYLAMINE	Not detected	0.12
N-NITROSODI-N-PROPYLAMINE	Not detected	0.08
N-NITROSODIPHENYLAMINE	Not detected	0.04
PHENANTHRENE	Not detected	0.04
PYRENE	Not detected	0.08
1,2,4-TRICHLOROBENZENE	Not detected	0.08
Surrogate compounds	---	
0.794 mg/kg 2-Fluorophenol	0.68	
0.794 mg/kg Phenol-D6	0.59	
0.794 mg/kg 2,4,6-Tribromophenol	0.53	
0.794 mg/kg 2-Flourobiphenyl	0.57	
0.794 mg/kg Nitrobenzene-D5	0.76	
0.794 mg/kg Terphenyl-D14	0.96	

If there are any questions regarding this data, please call.

September L. Arriaga
Vice President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

October 29, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD04544 Location code: HULL
Project account code: 196
Location Description: KMCOGI-EMBANK-102398-T348
Sample collector: CLIENT Sample collection date: 10/23/98
Lab submittal date: 10/26/98 Time: 09:14
Received by: RS Validated by: SA

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 95.8 % MDL or sensitivity: 0.01
Date started: 10/26/98 Date finished: 10/27/98
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 11.1 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 0.25
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 5.1 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 2.2 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.05
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 8.8 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ORGANOCHLORINE PESTICIDES by GC
Method reference: EPA 8081
Unit: mg/dry kg
Result: see below
Date started: 10/26/98
Date finished: 10/28/98
Time started:
Analyst: JR

Parameter: POLYCHLORINATED BIPHENYLS by GC
Method reference: EPA 8020
Unit: mg/dry kg
Result: see below
Date started: 10/27/98
Date finished: 10/27/98
Time started:
Analyst: JR

Parameter: VOCs by GCMS
Method reference: EPA 8060
Unit: mg/dry kg
Result: see below
Date started: 10/28/98
Date finished: 10/28/98
Time started:
Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 10/26/98 Date finished: 10/26/98
Time started: Analyst: JR

Data for ORGANOCHLORINE PESTICIDES by GC mg/dry kg:

Component Name	Result	Component MDL
ALDRIN	Not detected	0.0004
a-BHC	Not detected	0.0004
b-BHC	Not detected	0.0004
g-BHC (LINDANE)	Not detected	0.0004
d-BHC	Not detected	0.0004
CHLORDANE	Not detected	0.005
4,4'-DDD	Not detected	0.0004
4,4'-DDE	Not detected	0.0004
4,4'-DDT	Not detected	0.0004
DIELDRIN	Not detected	0.0004
ENDOSULFAN I	Not detected	0.0004
ENDOSULFAN II	Not detected	0.0004
ENDOSULFAN SULFATE	Not detected	0.0004
ENDRIN	Not detected	0.0004
ENDRIN ALDEHYDE	Not detected	0.0004
HEPTACHLOR	Not detected	0.0004
HEPTACHLOR EPOXIDE	Not detected	0.0004
METHOXYCHLOR	Not detected	0.0004
TOXAPHENE	Not detected	0.01

Data for POLYCHLORINATED BIPHENYLS by GC mg/dry kg:

Component Name	Result	Component MDL
PCB-1016	Not detected	0.10
PCB-1221	Not detected	0.10
PCB-1232	Not detected	0.10
PCB-1242	Not detected	0.10
PCB-1248	Not detected	0.10
PCB-1254	Not detected	0.10
PCB-1260	Not detected	0.10

Data for VOCs by GCMS mg/dry kg:

Component Name	Result	Component MDL
ACETONE	Not detected	0.05
ACROLEIN	Not detected	0.01
ACRYLONITRILE	Not detected	0.002
BENZENE	Not detected	0.001
BROMODICHLOROMETHANE	Not detected	0.001
BROMOFORM	Not detected	0.001
BROMOMETHANE	Not detected	0.005
2-BUTANONE (MEK)	Not detected	0.005

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
CARBON DISULFIDE	Not detected	0.005
CARBON TETRACHLORIDE	Not detected	0.001
CHLOROBENZENE	Not detected	0.001
CHLOROETHANE	Not detected	0.005
2-CHLOROETHYL VINYL ETHER	Not detected	0.005
CHLOROFORM	Not detected	0.001
CHLOROMETHANE	Not detected	0.005
DIBROMOCHLOROMETHANE	Not detected	0.001
DICHLORODIFLUOROMETHANE	Not detected	0.005
1,1-DICHLOROETHANE	Not detected	0.001
1,2-DICHLOROETHANE	Not detected	0.001
1,1-DICHLOROETHENE	Not detected	0.001
c-1,2-DICHLOROETHENE	Not detected	0.001
t-1,2-DICHLOROETHENE	Not detected	0.001
1,2-DICHLOROPROPANE	Not detected	0.001
c-1,3-DICHLOROPROPENE	Not detected	0.001
t-1,3-DICHLOROPROPENE	Not detected	0.001
ETHYLBENZENE	Not detected	0.001
1,2-DIBROMOETHANE	Not detected	0.001
1,2-DIBROMO-3-CHLOROPROPANE	Not detected	0.001
ETHYL METHACRYLATE	Not detected	0.005
2-HEXANONE	Not detected	0.01
METHYLENE CHLORIDE	Not detected	0.005
4-METHYL-2-PENTANONE (MIBK)	Not detected	0.01
STYRENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
TETRACHLOROETHENE	Not detected	0.001
TOLUENE	Not detected	0.001
1,1,1-TRICHLOROETHANE	Not detected	0.001
1,1,2-TRICHLOROETHANE	Not detected	0.001
TRICHLOROETHENE	Not detected	0.001
TRICHLOROFLUOROMETHANE	Not detected	0.01
VINYL ACETATE	Not detected	0.005
VINYL CHLORIDE	Not detected	0.002
m+p-XYLENE	Not detected	0.001
o-XYLENE	Not detected	0.001
DIBROMOMETHANE	Not detected	0.001
1,2-DICHLOROBENZENE	Not detected	0.001
1,3-DICHLOROBENZENE	Not detected	0.001
1,4-DICHLOROBENZENE	Not detected	0.001
t-1,4-DICHLORO-2-BUTENE	Not detected	0.01
ETHYL ETHER	Not detected	0.005
METHYL IODIDE	Not detected	0.002
NAPHTHALENE	Not detected	0.001
1,1,1,2-TETRACHLOROETHANE	Not detected	0.001
1,2,3-TRICHLOROPROPANE	Not detected	0.001
1,3-DICHLOROPROPANE	Not detected	0.001
HEXACHLOROBUTADIENE	Not detected	0.001
ISOPROPYLBENZENE	Not detected	0.001
BROMOCHLOROMETHANE	Not detected	0.001
2,2-DICHLOROPROPANE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
2-CHLOROTOLUENE	Not detected	0.001
4-CHLOROTOLUENE	Not detected	0.001
1,2,3-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRIMETHYLBENZENE	Not detected	0.001
1,3,5-TRIMETHYLBENZENE	Not detected	0.001
BROMOBENZENE	Not detected	0.001
N-PROPYLBENZENE	Not detected	0.001
N-BUTYLBENZENE	Not detected	0.001
sec-BUTYLBENZENE	Not detected	0.001
tert-BUTYLBENZENE	Not detected	0.001
4-ISOPROPYLTOLUENE	Not detected	0.001
1,1-DICHLOROPROPENE	Not detected	0.001
1,1,2-TRICHLOROTRIFLUOROETHANE	Not detected	0.005
Surrogate results:	---	
0.010 mg/kg Dibromofluoromethane	0.010	
0.010 mg/kg Toluene-D8	0.007	
0.010 mg/kg 4-Bromofluorobenzene	0.009	

Data for SEMIVOLATILE ORGANICS by GCMS mg/dry kg:

Component Name	Result	Component MDL
4-CHLORO-3-METHYLPHENOL	Not detected	0.07
2-CHLOROPHENOL	Not detected	0.07
2,4-DICHLOROPHENOL	Not detected	0.07
2,4-DIMETHYLHENOL	Not detected	0.07
2,4-DINITROPHENOL	Not detected	0.07
2-METHYL-4,6-DINITROPHENOL	Not detected	0.07
2-NITROPHENOL	Not detected	0.03
4-NITROPHENOL	Not detected	0.03
PENTACHLOROPHENOL	Not detected	0.03
PHENOL	Not detected	0.07
2,4,6-TRICHLOROPHENOL	Not detected	0.03
ACENAPHTHENE	Not detected	0.07
ACENAPHTHYLENE	Not detected	0.07
ANTHRACENE	Not detected	0.07
BENZIDINE	Not detected	0.07
BENZO(a)ANTHRACENE	Not detected	0.13
BENZO(b)FLUORANTHENE	Not detected	0.17
BENZO(k)FLUORANTHENE	Not detected	0.13
BENZO(ghi)PERYLENE	Not detected	0.07
BENZO(a)PYRENE	Not detected	0.13
4-BROMOPHENYL PHENYL ETHER	Not detected	0.07
BUTYL BENZYL PHTHALATE	Not detected	0.07
bis(2-CHLOROETHOXY)METHANE	Not detected	0.07
bis(2-CHLOROETHYL)ETHER	Not detected	0.03
bis(2-CHLOROISOPROPYL)ETHER	Not detected	0.07
2-CHLORONAPHTHALENE	Not detected	0.07
4-CHLOROPHENYL PHENYL ETHER	Not detected	0.10
CHRYSENE	Not detected	0.07

Data for SEMIVOLATILE ORGANICS by GCMS (continued):

Component Name	Result	Component MDL
DIBENZO(ah)ANTHRACENE	Not detected	0.03
1,2-DICHLOROBENZENE	Not detected	0.03
1,3-DICHLOROBENZENE	Not detected	0.07
1,4-DICHLOROBENZENE	Not detected	0.07
3,3'-DICHLOROBENZIDINE	Not detected	0.13
DIETHYL PHTHALATE	Not detected	0.03
DIMETHYL PHTHALATE	Not detected	0.07
DI-N-BUTYL PHTHALATE	Not detected	0.07
2,4-DINITROTOLUENE	Not detected	0.03
2,6-DINITROTOLUENE	Not detected	0.07
DI-N-OCTYL PHTHALATE	Not detected	0.03
1,2-DIPHENYLHYDRAZINE	Not detected	0.03
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	0.10
FLUORANTHENE	Not detected	0.13
FLUORENE	Not detected	0.07
HEXACHLOROBENZENE	Not detected	0.03
HEXACHLOROBUTADIENE	Not detected	0.07
HEXACHLOROCYCLOPENTADIENE	Not detected	0.03
HEXACHLOROETHANE	Not detected	0.07
INDENO(123-cd)PYRENE	Not detected	0.07
ISOPHORONE	Not detected	0.07
NAPHTHALENE	Not detected	0.07
NITROBENZENE	Not detected	0.03
N-NITROSODIMETHYLAMINE	Not detected	0.10
N-NITROSODI-N-PROPYLAMINE	Not detected	0.07
N-NITROSODIPHENYLAMINE	Not detected	0.03
PHENANTHRENE	Not detected	0.03
PYRENE	Not detected	0.07
1,2,4-TRICHLOROBENZENE	Not detected	0.07
Surrogate compounds:	---	
0.667 mg/kg 2-Fluorophenol	0.54	
0.667 mg/kg Phenol-D6	0.58	
0.667 mg/kg 2,4,6-Tribromophenol	0.36	
0.667 mg/kg 2-Flourobiphenyl	0.57	
0.667 mg/kg Nitrobenzene-D5	0.55	
0.667 mg/kg Terphenyl-D14	0.89	

If there are any questions regarding this data, please call.

September L. Arriaga
Vice President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

October 29, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD04545 Location code: HULL
Project account code: 196
Location Description: KMCOO1-CLAY1-102398-T348
Sample collector: CLIENT Sample collection date: 10/23/98
Lab submittal date: 10/26/98 Time: 09:14
Received by: RS Validated by: SA

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 88.3 % MDL or sensitivity: 0.01
Date started: 10/26/98 Date finished: 10/27/98
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 9.9 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 109 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Result: 0.42 mg/dry kg MDL or sensitivity: 0.25
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 21.4 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 26.8 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 11.8 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.05
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 76.3 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ORGANOCHLORINE PESTICIDES by GC
Method reference: EPA 8081
Unit: mg/dry kg
Result: see below
Date started: 10/26/98
Date finished: 10/28/98
Time started:
Analyst: JR

Parameter: POLYCHLORINATED BIPHENYLS by GC
Method reference: EPA 8020
Unit: mg/dry kg
Result: see below
Date started: 10/27/98
Date finished: 10/27/98
Time started:
Analyst: JR

Parameter: VOCs by GCMS
Method reference: EPA 8060
Unit: mg/dry kg
Result: see below
Date started: 10/28/98
Date finished: 10/28/98
Time started:
Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 10/26/98 Date finished: 10/27/98
Time started: Analyst: JR

Data for ORGANOCHLORINE PESTICIDES by GC mg/dry kg:

Component Name	Result	Component MDL
ALDRIN	Not detected	0.0004
a-BHC	Not detected	0.0004
b-BHC	Not detected	0.0004
g-BHC (LINDANE)	Not detected	0.0004
d-BHC	Not detected	0.0004
CHLORDANE	Not detected	0.006
4,4'-DDD	Not detected	0.0004
4,4'-DDE	Not detected	0.0004
4,4'-DDT	Not detected	0.0004
DIELDRIN	Not detected	0.0004
ENDOSULFAN I	Not detected	0.0004
ENDOSULFAN II	Not detected	0.0004
ENDOSULFAN SULFATE	Not detected	0.0004
ENDRIN	Not detected	0.0004
ENDRIN ALDEHYDE	Not detected	0.0004
HEPTACHLOR	Not detected	0.0004
HEPTACHLOR EPOXIDE	Not detected	0.0004
METHOXYCHLOR	Not detected	0.0004
TOXAPHENE	Not detected	0.01

Data for POLYCHLORINATED BIPHENYLS by GC mg/dry kg:

Component Name	Result	Component MDL
PCB-1016	Not detected	0.10
PCB-1221	Not detected	0.10
PCB-1232	Not detected	0.10
PCB-1242	Not detected	0.10
PCB-1248	Not detected	0.10
PCB-1254	Not detected	0.10
PCB-1260	Not detected	0.10

Data for VOCs by GCMS mg/dry kg:

Component Name	Result	Component MDL
ACETONE	Not detected	0.06
ACROLEIN	Not detected	0.01
ACRYLONITRILE	Not detected	0.002
BENZENE	Not detected	0.001
BROMODICHLOROMETHANE	Not detected	0.001
BROMOFORM	Not detected	0.001
BROMOMETHANE	Not detected	0.006
2-BUTANONE (MEK)	Not detected	0.006

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
CARBON DISULFIDE	Not detected	0.006
CARBON TETRACHLORIDE	Not detected	0.001
CHLOROBENZENE	Not detected	0.001
CHLOROETHANE	Not detected	0.006
2-CHLOROETHYL VINYL ETHER	Not detected	0.006
CHLOROFORM	Not detected	0.001
CHLOROMETHANE	Not detected	0.006
DIBROMOCHLOROMETHANE	Not detected	0.001
DICHLORODIFLUOROMETHANE	Not detected	0.006
1,1-DICHLOROETHANE	Not detected	0.001
1,2-DICHLOROETHANE	Not detected	0.001
1,1-DICHLOROETHENE	Not detected	0.001
c-1,2-DICHLOROETHENE	Not detected	0.001
t-1,2-DICHLOROETHENE	Not detected	0.001
1,2-DICHLOROPROPANE	Not detected	0.001
c-1,3-DICHLOROPROPENE	Not detected	0.001
t-1,3-DICHLOROPROPENE	Not detected	0.001
ETHYLBENZENE	Not detected	0.001
1,2-DIBROMOETHANE	Not detected	0.001
1,2-DIBROMO-3-CHLOROPROPANE	Not detected	0.001
ETHYL METHACRYLATE	Not detected	0.006
2-HEXANONE	Not detected	0.01
METHYLENE CHLORIDE	Not detected	0.006
4-METHYL-2-PENTANONE (MIBK)	Not detected	0.01
STYRENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
TETRACHLOROETHENE	Not detected	0.001
TOLUENE	Not detected	0.001
1,1,1-TRICHLOROETHANE	Not detected	0.001
1,1,2-TRICHLOROETHANE	Not detected	0.001
TRICHLOROETHENE	Not detected	0.001
TRICHLOROFLUOROMETHANE	Not detected	0.01
VINYL ACETATE	Not detected	0.006
VINYL CHLORIDE	Not detected	0.002
m+p-XYLENE	Not detected	0.001
o-XYLENE	Not detected	0.001
DIBROMOMETHANE	Not detected	0.001
1,2-DICHLOROBENZENE	Not detected	0.001
1,3-DICHLOROBENZENE	Not detected	0.001
1,4-DICHLOROBENZENE	Not detected	0.001
t-1,4-DICHLORO-2-BUTENE	Not detected	0.01
ETHYL ETHER	Not detected	0.006
METHYL IODIDE	Not detected	0.002
NAPHTHALENE	Not detected	0.001
1,1,1,2-TETRACHLOROETHANE	Not detected	0.001
1,2,3-TRICHLOROPROPANE	Not detected	0.001
1,3-DICHLOROPROPANE	Not detected	0.001
HEXACHLOROBUTADIENE	Not detected	0.001
ISOPROPYLBENZENE	Not detected	0.001
BROMOCHLOROMETHANE	Not detected	0.001
2,2-DICHLOROPROPANE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
2-CHLOROTOLUENE	Not detected	0.001
4-CHLOROTOLUENE	Not detected	0.001
1,2,3-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRIMETHYLBENZENE	Not detected	0.001
1,3,5-TRIMETHYLBENZENE	Not detected	0.001
BROMOBENZENE	Not detected	0.001
N-PROPYLBENZENE	Not detected	0.001
N-BUTYLBENZENE	Not detected	0.001
sec-BUTYLBENZENE	Not detected	0.001
tert-BUTYLBENZENE	Not detected	0.001
4-ISOPROPYLTOLUENE	Not detected	0.001
1,1-DICHLOROPROPENE	Not detected	0.001
1,1,2-TRICHLOROTRIFLUOROETHANE	Not detected	0.006
Surrogate results:	---	
0.011 mg/kg Dibromofluoromethane	0.012	
0.011 mg/kg Toluene-D8	0.008	
0.011 mg/kg 4-Bromofluorobenzene	0.012	

Data for SEMIVOLATILE ORGANICS by GCMS mg/dry kg:

Component Name	Result	Component MDL
4-CHLORO-3-METHYLPHENOL	Not detected	0.07
2-CHLOROPHENOL	Not detected	0.07
2,4-DICHLOROPHENOL	Not detected	0.07
2,4-DIMETHYLHENOL	Not detected	0.07
2,4-DINITROPHENOL	Not detected	0.07
2-METHYL-4,6-DINITROPHENOL	Not detected	0.07
2-NITROPHENOL	Not detected	0.04
4-NITROPHENOL	Not detected	0.04
PENTACHLOROPHENOL	Not detected	0.04
PHENOL	Not detected	0.07
2,4,6-TRICHLOROPHENOL	Not detected	0.04
ACENAPHTHENE	Not detected	0.07
ACENAPHTHYLENE	Not detected	0.07
ANTHRACENE	Not detected	0.07
BENZIDINE	Not detected	0.07
BENZO(a)ANTHRACENE	Not detected	0.15
BENZO(b)FLUORANTHENE	Not detected	0.18
BENZO(k)FLUORANTHENE	Not detected	0.15
BENZO(ghi)PERYLENE	Not detected	0.07
BENZO(a)PYRENE	Not detected	0.15
4-BROMOPHENYL PHENYL ETHER	Not detected	0.07
BUTYL BENZYL PHTHALATE	Not detected	0.07
bis(2-CHLOROETHOXY)METHANE	Not detected	0.07
bis(2-CHLOROETHYL)ETHER	Not detected	0.04
bis(2-CHLOROISOPROPYL)ETHER	Not detected	0.07
2-CHLORONAPHTHALENE	Not detected	0.07
4-CHLOROPHENYL PHENYL ETHER	Not detected	0.11
CHRYSENE	Not detected	0.07

Data for SEMIVOLATILE ORGANICS by GCMS (continued):

Component Name	Result	Component MDL
DIBENZO(ah)ANTHRACENE	Not detected	0.04
1,2-DICHLOROBENZENE	Not detected	0.04
1,3-DICHLOROBENZENE	Not detected	0.07
1,4-DICHLOROBENZENE	Not detected	0.07
3,3'-DICHLOROBENZIDINE	Not detected	0.15
DIETHYL PHTHALATE	Not detected	0.04
DIMETHYL PHTHALATE	Not detected	0.07
DI-N-BUTYL PHTHALATE	Not detected	0.07
2,4-DINITROTOLUENE	Not detected	0.04
2,6-DINITROTOLUENE	Not detected	0.07
DI-N-OCTYL PHTHALATE	0.05	0.04
1,2-DIPHENYLHYDRAZINE	Not detected	0.04
bis(2-ETHYLHEXYL)PHTHALATE	10	0.11
FLUORANTHENE	Not detected	0.15
FLUORENE	Not detected	0.07
HEXACHLOROBENZENE	Not detected	0.04
HEXACHLOROBUTADIENE	Not detected	0.07
HEXACHLOROCYCLOPENTADIENE	Not detected	0.04
HEXACHLOROETHANE	Not detected	0.07
INDENO(12`-cd)PYRENE	Not detected	0.07
ISOPHORON	Not detected	0.07
NAPHTHALENE	Not detected	0.07
NITROBENZENE	Not detected	0.04
N-NITROSODIMETHYLAMINE	Not detected	0.11
N-NITROSODI-N-PROPYLAMINE	Not detected	0.07
N-NITROSODIPHENYLAMINE	Not detected	0.04
PHENANTHRENE	Not detected	0.04
PYRENE	Not detected	0.07
1,2,4-TRICHLOROBENZENE	Not detected	0.07
Surrogate compounds:	---	
0.738 mg/kg 2-Fluorophenol	0.67	
0.738 mg/kg Phenol-D6	0.60	
0.738 mg/kg 2,4,6-Tribromophenol	0.50	
0.738 mg/kg 2-Flourobiphenyl	0.74	
0.738 mg/kg Nitrobenzene-D5	0.62	
0.738 mg/kg Terphenyl-D14	0.87	

If there are any questions regarding this data, please call.

September L. Arriaga
Vice President

Sylvester materials clay brick pier

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

October 29, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD04546 Location code: HULL
Project account code: 196
Location Description: KMCOO1-CLAY2-102398-T348
Sample collector: CLIENT Sample collection date: 10/23/98
Lab submittal date: 10/26/98 Time: 09:14
Received by: RS Validated by: SA

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 98.0 % MDL or sensitivity: 0.01
Date started: 10/26/98 Date finished: 10/27/98
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 8.0 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 88.3 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Result: 0.38 mg/dry kg MDL or sensitivity: 0.25
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 18.5 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 25.3 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 10.7 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.05
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 67.8 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ORGANOCHLORINE PESTICIDES by GC
Method reference: EPA 8081
Unit: mg/dry kg
Result: see below
Date started: 10/26/98
Date finished: 10/28/98
Time started:
Analyst: JR

Parameter: POLYCHLORINATED BIPHENYLS by GC
Method reference: EPA 8020
Unit: mg/dry kg
Result: see below
Date started: 10/27/98
Date finished: 10/27/98
Time started:
Analyst: JR

Parameter: VOCs by GCMS
Method reference: EPA 8060
Unit: mg/dry kg
Result: see below
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 10/26/98 Date finished: 10/26/98
Time started: Analyst: JR

Data for ORGANOCHLORINE PESTICIDES by GC mg/dry kg:

Component Name	Result	Component MDL
ALDRIN	Not detected	0.0004
a-BHC	Not detected	0.0004
b-BHC	Not detected	0.0004
g-BHC (LINDANE)	Not detected	0.0004
d-BHC	Not detected	0.0004
CHLORDANE	Not detected	0.005
4,4'-DDD	Not detected	0.0004
4,4'-DDE	Not detected	0.0004
4,4'-DDT	Not detected	0.0004
DIELDRIN	Not detected	0.0004
ENDOSULFAN I	Not detected	0.0004
ENDOSULFAN II	Not detected	0.0004
ENDOSULFAN SULFATE	Not detected	0.0004
ENDRIN	Not detected	0.0004
ENDRIN ALDEHYDE	Not detected	0.0004
HEPTACHLOR	Not detected	0.0004
HEPTACHLOR EPOXIDE	Not detected	0.0004
METHOXYCHLOR	Not detected	0.0004
TOXAPHENE	Not detected	0.01

Data for POLYCHLORINATED BIPHENYLS by GC mg/dry kg:

Component Name	Result	Component MDL
PCB-1016	Not detected	0.10
PCB-1221	Not detected	0.10
PCB-1232	Not detected	0.10
PCB-1242	Not detected	0.10
PCB-1248	Not detected	0.10
PCB-1254	Not detected	0.10
PCB-1260	Not detected	0.10

Data for VOCs by GCMS mg/dry kg:

Component Name	Result	Component MDL
ACETONE	Not detected	0.05
ACROLEIN	Not detected	0.01
ACRYLONITRILE	Not detected	0.002
BENZENE	Not detected	0.001
BROMODICHLOROMETHANE	Not detected	0.001
BROMOFORM	Not detected	0.001
BROMOMETHANE	Not detected	0.005
2-BUTANONE (MEK)	Not detected	0.005

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
CARBON DISULFIDE	Not detected	0.005
CARBON TETRACHLORIDE	Not detected	0.001
CHLOROBENZENE	Not detected	0.001
CHLOROETHANE	Not detected	0.005
2-CHLOROETHYL VINYL ETHER	Not detected	0.005
CHLOROFORM	Not detected	0.001
CHLOROMETHANE	Not detected	0.005
DIBROMOCHLOROMETHANE	Not detected	0.001
DICHLORODIFLUOROMETHANE	Not detected	0.005
1,1-DICHLOROETHANE	Not detected	0.001
1,2-DICHLOROETHANE	Not detected	0.001
1,1-DICHLOROETHENE	Not detected	0.001
c-1,2-DICHLOROETHENE	Not detected	0.001
t-1,2-DICHLOROETHENE	Not detected	0.001
1,2-DICHLOROPROPANE	Not detected	0.001
c-1,3-DICHLOROPROPENE	Not detected	0.001
t-1,3-DICHLOROPROPENE	Not detected	0.001
ETHYLBENZENE	Not detected	0.001
1,2-DIBROMOETHANE	Not detected	0.001
1,2-DIBROMO-3-CHLOROPROPANE	Not detected	0.001
ETHYL METHACRYLATE	Not detected	0.005
2-HEXANONE	Not detected	0.01
METHYLENE CHLORIDE	Not detected	0.005
4-METHYL-2-PENTANONE (MIBK)	Not detected	0.01
STYRENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
TETRACHLOROETHENE	Not detected	0.001
TOLUENE	Not detected	0.001
1,1,1-TRICHLOROETHANE	Not detected	0.001
1,1,2-TRICHLOROETHANE	Not detected	0.001
TRICHLOROETHENE	Not detected	0.001
TRICHLOROFLUOROMETHANE	Not detected	0.01
VINYL ACETATE	Not detected	0.005
VINYL CHLORIDE	Not detected	0.002
m+p-XYLENE	Not detected	0.001
o-XYLENE	Not detected	0.001
DIBROMOMETHANE	Not detected	0.001
1,2-DICHLOROBENZENE	Not detected	0.001
1,3-DICHLOROBENZENE	Not detected	0.001
1,4-DICHLOROBENZENE	Not detected	0.001
t-1,4-DICHLORO-2-BUTENE	Not detected	0.01
ETHYL ETHER	Not detected	0.005
METHYL IODIDE	Not detected	0.002
NAPHTHALENE	Not detected	0.001
1,1,1,2-TETRACHLOROETHANE	Not detected	0.001
1,2,3-TRICHLOROPROPANE	Not detected	0.001
1,3-DICHLOROPROPANE	Not detected	0.001
HEXACHLOROBUTADIENE	Not detected	0.001
ISOPROPYLBENZENE	Not detected	0.001
BROMOCHLOROMETHANE	Not detected	0.001
2,2-DICHLOROPROPANE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
2-CHLOROTOLUENE	Not detected	0.001
4-CHLOROTOLUENE	Not detected	0.001
1,2,3-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRIMETHYLBENZENE	Not detected	0.001
1,3,5-TRIMETHYLBENZENE	Not detected	0.001
BROMOBENZENE	Not detected	0.001
N-PROPYLBENZENE	Not detected	0.001
N-BUTYLBENZENE	Not detected	0.001
sec-BUTYLBENZENE	Not detected	0.001
tert-BUTYLBENZENE	Not detected	0.001
4-ISOPROPYLTOLUENE	Not detected	0.001
1,1-DICHLOROPROPENE	Not detected	0.001
1,1,2-TRICHLOROTRIFLUOROETHANE	Not detected	0.005
Surrogate results:	---	
0.010 mg/kg Dibromofluoromethane	0.007	
0.010 mg/kg Toluene-D8	0.006	
0.010 mg/kg 4-Bromofluorobenzene	0.006	

Data for SEMIVOLATILE ORGANICS by GCMS mg/dry kg:

Component Name	Result	Component MDL
4-CHLORO-3-METHYLPHENOL	Not detected	0.07
2-CHLOROPHENOL	Not detected	0.07
2,4-DICHLOROPHENOL	Not detected	0.07
2,4-DIMETHYLHENOL	Not detected	0.07
2,4-DINITROPHENOL	Not detected	0.07
2-METHYL-4,6-DINITROPHENOL	Not detected	0.07
2-NITROPHENOL	Not detected	0.03
4-NITROPHENOL	Not detected	0.03
PENTACHLOROPHENOL	Not detected	0.03
PHENOL	Not detected	0.07
2,4,6-TRICHLOROPHENOL	Not detected	0.03
ACENAPHTHENE	Not detected	0.07
ACENAPHTHYLENE	Not detected	0.07
ANTHRACENE	Not detected	0.07
BENZIDINE	Not detected	0.07
BENZO(a)ANTHRACENE	Not detected	0.14
BENZO(b)FLUORANTHENE	Not detected	0.17
BENZO(k)FLUORANTHENE	Not detected	0.14
BENZO(ghi)PERYLENE	Not detected	0.07
BENZO(a)PYRENE	Not detected	0.14
4-BROMOPHENYL PHENYL ETHER	Not detected	0.07
BUTYL BENZYL PHTHALATE	Not detected	0.07
bis(2-CHLOROETHOXY)METHANE	Not detected	0.07
bis(2-CHLOROETHYL)ETHER	Not detected	0.03
bis(2-CHLOROISOPROPYL)ETHER	Not detected	0.07
2-CHLORONAPHTHALENE	Not detected	0.07
4-CHLOROPHENYL PHENYL ETHER	Not detected	0.10
CHRYSENE	Not detected	0.07

Data for SEMIVOLATILE ORGANICS by GCMS (continued):

Component Name	Result	Component MDL
DIBENZO(ah)ANTHRACENE	Not detected	0.03
1,2-DICHLOROBENZENE	Not detected	0.03
1,3-DICHLOROBENZENE	Not detected	0.07
1,4-DICHLOROBENZENE	Not detected	0.07
3,3'-DICHLOROBENZIDINE	Not detected	0.14
DIETHYL PHTHALATE	Not detected	0.03
DIMETHYL PHTHALATE	Not detected	0.07
DI-N-BUTYL PHTHALATE	Not detected	0.07
2,4-DINITROTOLUENE	Not detected	0.03
2,6-DINITROTOLUENE	Not detected	0.07
DI-N-OCTYL PHTHALATE	Not detected	0.03
1,2-DIPHENYLHYDRAZINE	Not detected	0.03
bis(2-ETHYLHEXYL)PHTHALATE	0.57	0.10
FLUORANTHENE	Not detected	0.14
FLUORENE	Not detected	0.07
HEXACHLOROBENZENE	Not detected	0.03
HEXACHLOROBUTADIENE	Not detected	0.07
HEXACHLOROCYCLOPENTADIENE	Not detected	0.03
HEXACHLOROETHANE	Not detected	0.07
INDENO(123-cd)PYRENE	Not detected	0.07
ISOPHORONE	Not detected	0.07
NAPHTHALENE	Not detected	0.07
NITROBENZENE	Not detected	0.03
N-NITROSODIMETHYLAMINE	Not detected	0.10
N-NITROSODI-N-PROPYLAMINE	Not detected	0.07
N-NITROSODIPHENYLAMINE	Not detected	0.03
PHENANTHRENE	0.04	0.03
PYRENE	Not detected	0.07
1,2,4-TRICHLOROBENZENE	Not detected	0.07
Surrogate compounds:	---	
0.678 mg/kg 2-Fluorophenol	0.64	
0.678 mg/kg Phenol-D6	0.61	
0.678 mg/kg 2,4,6-Tribromophenol	0.37	
0.678 mg/kg 2-Flourobiphenyl	0.57	
0.678 mg/kg Nitrobenzene-D5	0.67	
0.678 mg/kg Terphenyl-D14	0.88	

If there are any questions regarding this data, please call.

September L. Arriaga
Vice President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

October 29, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD04547 Location code: HULL
Project account code: 196
Location Description: KMCOO1-CLAY3-102398-T348
Sample collector: CLIENT Sample collection date: 10/23/98
Lab submittal date: 10/26/98 Time: 09:14
Received by: RS Validated by: SA

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 91.8 % MDL or sensitivity: 0.01
Date started: 10/26/98 Date finished: 10/27/98
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 8.5 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 136 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Result: 0.34 mg/dry kg MDL or sensitivity: 0.25
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 21.0 mg/dry kg MDL or sensitivity: 2.0
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 25.4 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 11.4 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.05
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 66.9 mg/dry kg
MDL or sensitivity: 2.0
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: JH

Parameter: ORGANOCHLORINE PESTICIDES by GC
Method reference: EPA 8081
Unit: mg/dry kg
Result: see below
Date started: 10/26/98
Date finished: 10/28/98
Time started:
Analyst: JR

Parameter: POLYCHLORINATED BIPHENYLS by GC
Method reference: EPA 8020
Unit: mg/dry kg
Result: see below
Date started: 10/27/98
Date finished: 10/27/98
Time started:
Analyst: JR

Parameter: VOCs by GCMS
Method reference: EPA 8060
Unit: mg/dry kg
Result: see below
Date started: 10/29/98
Date finished: 10/29/98
Time started:
Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 10/26/98 Date finished: 10/26/98
Time started: Analyst: JR

Data for ORGANOCHLORINE PESTICIDES by GC mg/dry kg:

Component Name	Result	Component MDL
ALDRIN	Not detected	0.0004
a-BHC	Not detected	0.0004
b-BHC	Not detected	0.0004
g-BHC (LINDANE)	Not detected	0.0004
d-BHC	Not detected	0.0004
CHLORDANE	Not detected	0.005
4,4'-DDD	Not detected	0.0004
4,4'-DDE	Not detected	0.0004
4,4'-DDT	Not detected	0.0004
DIELDRIN	Not detected	0.0004
ENDOSULFAN I	Not detected	0.0004
ENDOSULFAN II	Not detected	0.0004
ENDOSULFAN SULFATE	Not detected	0.0004
ENDRIN	Not detected	0.0004
ENDRIN ALDEHYDE	Not detected	0.0004
HEPTACHLOR	Not detected	0.0004
HEPTACHLOR EPOXIDE	Not detected	0.0004
METHOXYCHLOR	Not detected	0.0004
TOXAPHENE	Not detected	0.01

Data for POLYCHLORINATED BIPHENYLS by GC mg/dry kg:

Component Name	Result	Component MDL
PCB-1016	Not detected	0.10
PCB-1221	Not detected	0.10
PCB-1232	Not detected	0.10
PCB-1242	Not detected	0.10
PCB-1248	Not detected	0.10
PCB-1254	Not detected	0.10
PCB-1260	Not detected	0.10

Data for VOCs by GCMS mg/dry kg:

Component Name	Result	Component MDL
ACETONE	Not detected	0.05
ACROLEIN	Not detected	0.01
ACRYLONITRILE	Not detected	0.002
BENZENE	Not detected	0.001
BROMODICHLOROMETHANE	Not detected	0.001
BROMOFORM	Not detected	0.001
BROMOMETHANE	Not detected	0.005
2-BUTANONE (MEK)	Not detected	0.005

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
CARBON DISULFIDE	Not detected	0.005
CARBON TETRACHLORIDE	Not detected	0.001
CHLOROBENZENE	Not detected	0.001
CHLOROETHANE	Not detected	0.005
2-CHLOROETHYL VINYL ETHER	Not detected	0.005
CHLOROFORM	Not detected	0.001
CHLOROMETHANE	Not detected	0.005
DIBROMOCHLOROMETHANE	Not detected	0.001
DICHLORODIFLUOROMETHANE	Not detected	0.005
1,1-DICHLOROETHANE	Not detected	0.001
1,2-DICHLOROETHANE	Not detected	0.001
1,1-DICHLOROETHENE	Not detected	0.001
c-1,2-DICHLOROETHENE	Not detected	0.001
t-1,2-DICHLOROETHENE	Not detected	0.001
1,2-DICHLOROPROPANE	Not detected	0.001
c-1,3-DICHLOROPROPENE	Not detected	0.001
t-1,3-DICHLOROPROPENE	Not detected	0.001
ETHYLBENZENE	Not detected	0.001
1,2-DIBROMOETHANE	Not detected	0.001
1,2-DIBROMO-3-CHLOROPROPANE	Not detected	0.001
ETHYL METHACRYLATE	Not detected	0.005
2-HEXANONE	Not detected	0.01
METHYLENE CHLORIDE	Not detected	0.005
4-METHYL-2-PENTANONE (MIBK)	Not detected	0.01
STYRENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
TETRACHLOROETHENE	Not detected	0.001
TOLUENE	Not detected	0.001
1,1,1-TRICHLOROETHANE	Not detected	0.001
1,1,2-TRICHLOROETHANE	Not detected	0.001
TRICHLOROETHENE	Not detected	0.005
TRICHLOROFLUOROMETHANE	Not detected	0.01
VINYL ACETATE	Not detected	0.005
VINYL CHLORIDE	Not detected	0.002
m+p-XYLENE	Not detected	0.001
o-XYLENE	Not detected	0.001
DIBROMOMETHANE	Not detected	0.001
1,2-DICHLOROBENZENE	Not detected	0.001
1,3-DICHLOROBENZENE	Not detected	0.001
1,4-DICHLOROBENZENE	Not detected	0.001
t-1,4-DICHLORO-2-BUTENE	Not detected	0.01
ETHYL ETHER	Not detected	0.005
METHYL IODIDE	Not detected	0.002
NAPHTHALENE	Not detect	0.001
1,1,1,2-TETRACHLOROETHANE	Not detect	0.001
1,2,3-TRICHLOROPROPANE	Not detected	0.001
1,3-DICHLOROPROPANE	Not detected	0.001
HEXACHLOROBUTADIENE	Not detected	0.001
ISOPROPYLBENZENE	Not detected	0.001
BROMOCHLOROMETHANE	Not detected	0.001
2,2-DICHLOROPROPANE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
2-CHLOROTOLUENE	Not detected	0.001
4-CHLOROTOLUENE	Not detected	0.001
1,2,3-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRIMETHYLBENZENE	Not detected	0.001
1,3,5-TRIMETHYLBENZENE	Not detected	0.001
BROMOBENZENE	Not detected	0.001
N-PROPYLBENZENE	Not detected	0.001
N-BUTYLBENZENE	Not detected	0.001
sec-BUTYLBENZENE	Not detected	0.001
tert-BUTYLBENZENE	Not detected	0.001
4-ISOPROPYLTOLUENE	Not detected	0.001
1,1-DICHLOROPROPENE	Not detected	0.001
1,1,2-TRICHLOROTRIFLUOROETHANE	Not detected	0.005
Surrogate results:	---	
0.011 mg/kg Dibromofluoromethane	0.011	
0.011 mg/kg Toluene-D8	0.007	
0.011 mg/kg 4-Bromofluorobenzene	0.008	

Data for SEMIVOLATILE ORGANICS by GCMS mg/dry kg:

Component Name	Result	Component MDL
4-CHLORO-3-METHYLPHENOL	Not detected	0.07
2-CHLOROPHENOL	Not detected	0.07
2,4-DICHLOROPHENOL	Not detected	0.07
2,4-DIMETHYLHENOL	Not detected	0.07
2,4-DINITROPHENOL	Not detected	0.07
2-METHYL-4,6-DINITROPHENOL	Not detected	0.07
2-NITROPHENOL	Not detected	0.03
4-NITROPHENOL	Not detected	0.03
PENTACHLOROPHENOL	Not detected	0.03
PHENOL	Not detected	0.07
2,4,6-TRICHLOROPHENOL	Not detected	0.03
ACENAPHTHENE	Not detected	0.07
ACENAPHTHYLENE	Not detected	0.07
ANTHRACENE	Not detected	0.07
BENZIDINE	Not detected	0.07
BENZO(a)ANTHRACENE	Not detected	0.14
BENZO(b)FLUORANTHENE	Not detected	0.17
BENZO(k)FLUORANTHENE	Not detected	0.14
BENZO(ghi)PERYLENE	Not detected	0.07
BENZO(a)PYRENE	Not detected	0.14
4-BROMOPHENYL PHENYL ETHER	Not detected	0.07
BUTYL BENZYL PHTHALATE	Not detected	0.07
bis(2-CHLOROETHOXY)METHANE	Not detected	0.07
bis(2-CHLOROETHYL)ETHER	Not detected	0.03
bis(2-CHLOROISOPROPYL)ETHER	Not detected	0.07
2-CHLORONAPHTHALENE	Not detected	0.07
4-CHLOROPHENYL PHENYL ETHER	Not detected	0.10
CHRYSENE	Not detected	0.07

Data for SEMIVOLATILE ORGANICS by GCMS (continued):

Component Name	Result	Component MDL
DIBENZO(ah)ANTHRACENE	Not detected	0.03
1,2-DICHLOROBENZENE	Not detected	0.03
1,3-DICHLOROBENZENE	Not detected	0.07
1,4-DICHLOROBENZENE	Not detected	0.07
3,3'-DICHLOROBENZIDINE	Not detected	0.14
DIETHYL PHTHALATE	Not detected	0.03
DIMETHYL PHTHALATE	Not detected	0.07
DI-N-BUTYL PHTHALATE	Not detected	0.07
2,4-DINITROTOLUENE	Not detected	0.03
2,6-DINITROTOLUENE	Not detected	0.07
DI-N-OCTYL PHTHALATE	0.04	0.03
1,2-DIPHENYLHYDRAZINE	Not detected	0.03
bis(2-ETHYLHEXYL)PHTHALATE	4.1	0.10
FLUORANTHENE	Not detected	0.14
FLUORENE	Not detected	0.07
HEXACHLOROBENZENE	Not detected	0.03
HEXACHLOROBUTADIENE	Not detected	0.07
HEXACHLOROCYCLOPENTADIENE	Not detected	0.03
HEXACHLOROETHANE	Not detected	0.07
INDENO(123-cd)PYRENE	Not detected	0.07
ISOPHORONE	Not detected	0.07
NAPHTHALENE	Not detected	0.07
NITROBENZENE	Not detected	0.03
N-NITROSODIMETHYLAMINE	Not detected	0.10
N-NITROSODI-N-PROPYLAMINE	Not detected	0.07
N-NITROSODIPHENYLAMINE	Not detected	0.03
PHENANTHRENE	0.05	0.03
PYRENE	Not detected	0.07
1,2,4-TRICHLOROBENZENE	Not detected	0.07
Surrogate compounds:	---	
0.680 mg/kg 2-Fluorophenol	0.66	
0.680 mg/kg Phenol-D6	0.49	
0.680 mg/kg 2,4,6-Tribromophenol	0.53	
0.680 mg/kg 2-Flourobiphenyl	0.71	
0.680 mg/kg Nitrobenzene-D5	0.59	
0.680 mg/kg Terphenyl-D14	0.81	

If there are any questions regarding this data, please call.

September L. Arriaga
Vice President

AD044543

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 0435

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: SCOTT LOCKHART

Client: KERR-McGEE

Site: 40 NEBRASK AVE STOCKPILE

Project#: KMC Phase: 01, SMP

Samplers: DWH

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH<2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	PRESERVATIVES	VOCs 8260	BTEX 8260	SVOC, RCRA METALS W/ COPPER & ZINC, PCBs/PEST (8081)	COMMENTS
KMC001-TOPSOIL-102398-1348	2	2	-	10/23/98 1230	A	1	1 →		
KMC001-EMBANK-102398-1348	2	2	-	10/23/98 1200	A	1	1 →		

RELINQUISHED BY: [signature]	DATE: 10-23-98 TIME: 16-15	RECEIVED BY: K. Hylgarski	DATE: 10-23-98 TIME: 1615
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –
COOLER TEMPERATURE AS RECEIVED °C :	2.5 °C		

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HA

Deliver To: FH

Method of Delivery: HAND

Airbill Number: –

NOTES:

HA/0297289 08/14/97 CORRIER

03

AD84545-48

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 0436

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: SCOTT LOCKHART

Client: KERR-MCGEE
Site: SYLVESTER MAT - GENOA
Project#: KMC001 Phase: 01.SMP
Samplers: DWH

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	PRESERVATIVES A	A	VOC 8260 SVOC 8270, RCRA METALS w/ Cu, Zn, Ni PEST + PCB										COMMENTS
KMC001-CLAY1-102398-T348	2	2	–	10/23/98 1435	1	1	→										
KMC001-CLAY2-102398-T348	2	2	–	10/23/98 1440	1	1	→										
KMC001-CLAY3-102398-T348	2	2	–	10/23/98 1445	1	1	→										

RELINQUISHED BY:	DATE: 10-23-98	RECEIVED BY:	DATE: 10-23-98
	TIME: 14-15		TIME: 1615
RELINQUISHED BY:	DATE: – –	RECEIVED BY:	DATE: – –
	TIME: – –		TIME: – –
RELINQUISHED BY:	DATE: – –	RECEIVED FOR LAB BY:	DATE: – –
	TIME: – –		TIME: – –
COOLER TEMPERATURE AS RECEIVED °C :	2.5 °C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT) YELLOW —LAB USE PINK —RETAINED BY HAI	

Deliver To: SAH
Method of Delivery: HAND
Airbill Number: –

NOTES:

HAI\0898T269 08/14/97 CORNER

PS

SOURCE MATERIAL QUESTIONNAIRE

Please answer the following questions on a separate sheet(s) of paper. Fill out all questions in detail. Do not leave any questions blank (use none, not applicable, etc.).

General

G1. Provide the following information:

Respondent Name ~~Al Mackey Ent~~ Ryan Mackey
Title General Manager
Telephone 419-[illegible]
Date 7/13/99

Facility Operator Name Al Mackey Ent
Address PO Box [illegible]
City, State, Zip Swanton, OH [illegible]

Property Owner Name Miller Valentine
Address [illegible]
City, State, Zip Westwood, Ohio [illegible]

G2. List all structures located at the Property including the activities that are currently and historically conducted in them, associated square footage, and the dates of construction. Please provide a Property plot plan (interior, exterior, and utility maps). You may indicate activities on the Property plan, if described in detail. Building under Const.

G3. Provide all known owners, operators, and users of the Property, facility, and land, along with dates, prior to the current owner/operator. May 18th 1998, previous owner Access Private Development Limited - Dates unknown

G4. Provide a detailed description of current and past Property and facility operations. Please provide dates. Farm pasture

G5. Provide information on current and historic adjacent property owners and adjacent land uses.

G6. Provide copies of all environmental studies or reports prepared by, for, or in the possession of the facility or Property owner. This may include environmental compliance audits, environmental insurance investigations, industrial hygiene surveys, and any studies of the geophysical or hydrogeological condition underneath the Property and its vicinity. NA

G7. List any violations pertaining to environmental regulations noted at the Property. Please provide detail as to how these violations were addressed and their current status. NA

Source Material Questions

S1. What is the source of the backfill/top soil?
Al Mackey stripped the topsoil from the ground.

S2. How was the stockpile placed?
Al Mackey used a scraper to remove/excavate and stockpile the soil.

S3. When was the stockpile excavated?

Per a telephone conversation w/ Ryan Mackey from Al Mackey on 7/29/99 @ approximately 3:30 PM.

Water

W1. Identify the types, volume (per month or year), and sources of wastewater generated at the Property. Identify the method of disposal of the wastewater, and include on a plot plan the location of all points of discharge of wastewater. Provide any related federal, state, or local permits, variances, pending applications or approvals. N/A

W2. Is stormwater run-off collected, treated, and/or disposed? If so, describe the process of collection, treatment, and/or disposal. Please indicate the manner in which the Property is or intends to permit its stormwater discharges. N/A

W3. Does the Property currently have, or has it ever had, any wells that supply water for any use and/or are used for monitoring? Provide a copy of the results of any testing of the chemical quality of water from the wells. Provide a copy of any well logs and indicate their location on a Property plan. N/A

W4. Describe or locate on a plot plan the location of all floor drains, the processes performed near them, and the discharge location of each drain. In addition, indicate the location of any dry wells, french drains, cisterns, cesspools, and septic systems. N/A

Wastes

WW1. Identify the wastes, waste streams and byproducts currently generated by the Property's industrial and nonindustrial operations (e.g., air emissions, wastewater, solid wastes, used oils, spent solvents, hazardous wastes, etc.). For each waste identify its source, volume (per month or year), and whether it is currently managed as a hazardous waste under federal or state law. If any wastes are managed as hazardous wastes, what is the generator's current status (i.e., small quantity generator, large quantity generator, treatment storage and disposal facility)? N/A

WW2. Describe the methods by which the waste in WW1 is stored, treated, recycled reused, or disposed and whether the method of handling occurs on or off the Property. Please provide names of off-site facilities used. Provide locations of satellite and final storage areas and the quantity of waste stored there. N/A

WW3. Identify the wastes, waste streams and byproducts that the Property has generated in the past but no longer generates. For each waste identify its source, volume (per month or year), and whether it was a hazardous waste under federal or state law. N/A

WW4. Describe the methods by which the waste in WW3 was stored, treated, recycled reused, or disposed and whether the method of handling occurred on or off the Property. Please provide names of off-site facilities used. N/A

WW5. Please identify any inspection of the Property by a federal, state, or local agency. List the name of the agency and the date of the inspection. If an inspection report is available, please provide a copy. If any violations were noted, please provide detail on what measures were taken to correct the violations and their current status. N/A

Environmental Condition

E1. Identify all current and past surface impoundments, pits, ponds, lagoons, temporary tanks, waste piles, landfarms, landfills and disposal sites, etc. on the Property. Include the volume of each, construction, contents, history of use, and whether any of these units has leaked, spilled, or released materials into the environment. N/A

E2. Has soil or ground-water sampling ever been conducted at the Property? If so, describe the reason for sampling and provide a copy of the report. N/A

E3. Describe all known spills, discharges or other releases of any hazardous substances, extremely hazardous substances, hazardous waste or constituents, petroleum, petroleum fractions (e.g., natural gas, gasoline, kerosene, etc.) or other substances at the Property at any time, and the remedial action taken. Identify whether such spills, discharges or other releases were reported to a federal, state, or local agency. Provide a copy of any reports. N/A

Air

A1. Identify the Property's sources of stack and fugitive air emissions. Please locate all process areas, stacks, and non-point emission sources on a plot plan. N/A

A2. Describe any emission devices and provide copies of any permits, variances, or approvals. N/A

A3. Provide copies of any stack tests, ambient air monitoring, or tests conducted at the Property. N/A

Underground Storage Tanks

U1. Identify all underground storage tanks currently in the ground at the Property, whether or not currently used. Provide the following information for each tank currently in use or out of service: (a) date of installation; (b) total capacity; (c) material of construction; (d) internal and external corrosion protection and leak detection systems; (e) description of piping; and (f) a history of substances stored. N/A

U2. Have any tanks that have been, or currently are, in the ground at the Property ever been tested for leaks? If so, list the tanks that were tested and the results of each test. Please provide copies of reports for leak testing. N/A

U3. Identify all USTs formerly used at the Property that have been removed from the ground or closed-in-place. State when the tank was removed or closed-in-place, describe the steps taken to remove it or close it in place, and the steps to ensure that substances stored in the tank had not leaked into the surrounding environment. If a closure assessment was performed, please provide a copy. N/A

U4. Describe any known releases, leaks, spills, or overfills from any tanks that have been, or currently are, in the ground at the Property. Describe any notification that was given to a federal, state, or local agency and the remedial action that was taken. N/A

U5. Does the Property have a Spill Prevention, Control, and Countermeasures (SPCC) Plan? If so, please provide a copy. N/A

Aboveground Storage Tanks

AA1. Does the Property own or operate aboveground storage tanks? If so, provide the following: (a) date of installation; (b) total capacity; (c) shell material; (d) substances stored; (e) internal and external coatings; (f) internal and external corrosion protection systems; and (g) a description of any spill containment systems. Please include the location of the tanks on a Property plot plan. N/A

AA2. Does the Property have a Spill Prevention, Control, and Countermeasures (SPCC) Plan? If so, please provide copy. N/A

AA3. Identify any leaks, spills, overfills, or releases from the aboveground tanks and describe any notification that was given to a federal, state, or local agency, and any remedial action taken. N/A

AA4. Have the tanks been tested for structural integrity in the last five years? If so, please provide copies of the results of such testing. N/A

AA5. Describe any AST: that were formerly used at the Property that have been removed. State when the tank was removed, the steps taken to remove it, and the steps taken to ensure that the substances stored in the tank had not leaked into the surrounding environment. N/A

PCB Management

P1. Does the Property currently have any polychlorinated biphenyl (PCB)-containing equipment? If so, describe the type of equipment, any known releases or spills from it and the remedial action taken, and the Property's PCB regulatory compliance program. Has any PCB equipment been removed from the Property? If so, describe the equipment and the method of disposal. N/A

P3. Please provide copies of all records regarding the inspection and maintenance of any PCB-containing transformers for the last three years. N/A

Asbestos

AB1. Is any asbestos-containing material currently located on the Property (products, building materials, or waste materials)? Describe the type, asbestos content, estimated volume, and location. N/A

AB2. If asbestos-containing material was previously at the Property but was removed, describe the removal operation, the amount removed, when it was done, and the location of disposal. N/A

AB3. Has an asbestos survey or an air sampling program designed to measure air concentrations of asbestos in the workplace ever been conducted at the Property? If so, when and by whom? Please provide copies of all surveys or sampling results. N/A

AB4. Has asbestos-containing product ever been handled at this Property? If so, describe in detail the product's process from the time it is received at the Property until it is shipped from the Property. N/A

Emergency Planning and Community Right-to-Know

C1. Is the Property required to prepare or have available a Material Safety Data Sheet (MSDS) for a hazardous chemical under OSHA? Please provide copies of any Tier 1 and Tier 2 submittals. N/A

C2. Provide a list of materials or substances currently used at the Property. Are MSDSs available? Provide a list of materials or substances used in the past that are no longer used. Are MSDSs available? N/A

C3. Is the Property required to submit a toxic chemical release form (Form R)? Please provide copies of any forms for the last three years. N/A

...topsoil from Mackey alternate source

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

July 12, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD17784 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-TPS-001-T392
Sample collector: CLIENT Sample collection date: 07/01/99
Lab submittal date: 07/01/99 Time: 12:00
Received by: RS Validated by: SA

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 87.5 % MDL or sensitivity: 0.01
Date started: 07/02/99 Date finished: 07/06/99
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 7.4 mg/dry kg MDL or sensitivity: 2.0
Date started: 07/08/99 Date finished: 07/08/99
Time started: Analyst: AA

Parameter: BARIUM
Method reference: 200.7/6010
Result: 103 mg/dry kg MDL or sensitivity: 2.0
Date started: 07/08/99 Date finished: 07/08/99
Time started: Analyst: AA

Parameter: CADMIUM
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 07/08/99 Date finished: 07/08/99
Time started: Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 24.4 mg/dry kg MDL or sensitivity: 2.0
Date started: 07/08/99 Date finished: 07/08/99
Time started: Analyst: AA

Parameter: COPPER
Method reference: 200.7/6010
Result: 24.5 mg/dry kg
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: LEAD
Method reference: 200.7/6010
Result: 17.7 mg/dry kg
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: MERCURY
Method reference: 245.1/7470
Result: 0.4 mg/dry kg
MDL or sensitivity: 0.4
Date started: 07/09/
Date finished: 07/09/99
Time started:
Analyst: PL

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: ZINC
Method reference: 200.7/6010
Result: 70.5 mg/dry kg
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: ORGANOCHLORINE PESTICIDES by GC
Method reference: EPA 8081
Unit: mg/dry kg
Result: see below
Date started: 07/07/99
Date finished: 07/08/99
Time started:
Analyst: JR

Parameter: POLYCHLORINATED BIPHENYLS by GC
Method reference: EPA 8082
Unit: mg/dry kg
Result: see below
Date started: 07/07/99
Date finished: 07/08/99
Time started:
Analyst: JR

Parameter: VOCs by GCMS
Method reference: EPA 8060
Unit: mg/dry kg
Result: see below
Date started: 07/02/99
Date finished: 07/02/99
Time started:
Analyst: TH

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 07/07/99 Date finished: 07/08/99
Time started: Analyst: JR

Data for ORGANOCHLORINE PESTICIDES by GC mg/dry kg:

Component Name	Result	Component MDL
ALDRIN	Not detected	0.0004
a-BHC	Not detected	0.0004
b-BHC	Not detected	0.0004
g-BHC (LINDANE)	Not detected	0.0004
d-BHC	Not detected	0.0004
CHLORDANE	Not detected	0.005
4,4'-DDD	0.0062	0.0004
4,4'-DDE	0.078	0.008
4,4'-DDT	0.024	0.008
DIELDRIN	Not detected	0.0004
ENDOSULFAN I	Not detected	0.0004
ENDOSULFAN II	Not detected	0.0004
ENDOSULFAN SULFATE	Not detected	0.0004
ENDRIN	Not detected	0.0004
ENDRIN ALDEHYDE	Not detected	0.0004
HEPTACHLOR	Not detected	0.0004
HEPTACHLOR EPOXIDE	Not detected	0.0004
METHOXYCHLOR	Not detected	0.0004
TOXAPHENE	Not detected	0.01
Surrogate result:	---	
0.006 mg/dry kg Tetrachloro-m-xylene	0.006	

Data for POLYCHLORINATED BIPHENYLS by GC mg/dry kg:

Component Name	Result	Component MDL
PCB-1016	Not detected	0.07
PCB-1221	Not detected	0.07
PCB-1232	Not detected	0.07
PCB-1242	Not detected	0.07
PCB-1248	Not detected	0.07
PCB-1254	Not detected	0.07
PCB-1260	Not detected	0.07
Surrogate result:	---	
0.299 mg/dry kg Decachlorobiphenyl	0.204	

Data for VOCs by GCMS mg/dry kg:

Component Name	Result	Component MDL
ACETONE	Not detected	0.028
ACROLEIN	Not detected	0.01
ACRYLONITRILE	Not detected	0.002
BENZENE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	0.001
BROMOFORM	Not detected	0.001
BROMOMETHANE	Not detected	0.006
2-BUTANONE (MEK)	Not detected	0.006
CARBON DISULFIDE	Not detected	0.006
CARBON TETRACHLORIDE	Not detected	0.001
CHLOROBENZENE	Not detected	0.001
CHLOROETHANE	Not detected	0.006
2-CHLOROETHYL VINYL ETHER	Not detected	0.006
CHLOROFORM	Not detected	0.001
CHLOROMETHANE	Not detected	0.006
DIBROMOCHLOROMETHANE	Not detected	0.001
DICHLORODIFLUOROMETHANE	Not detected	0.006
1,1-DICHLOROETHANE	Not detected	0.001
1,2-DICHLOROETHANE	Not detected	0.001
1,1-DICHLOROETHENE	Not detected	0.001
c-1,2-DICHLOROETHENE	Not detected	0.001
t-1,2-DICHLOROETHENE	Not detected	0.001
1,2-DICHLOROPROPANE	Not detected	0.001
c-1,3-DICHLOROPROPENE	Not detected	0.001
t-1,3-DICHLOROPROPENE	Not detected	0.001
ETHYLBENZENE	Not detected	0.001
1,2-DIBROMOETHANE	Not detected	0.001
1,2-DIBROMO-3-CHLOROPROPANE	Not detected	0.001
ETHYL METHACRYLATE	Not detected	0.006
2-HEXANONE	Not detected	0.01
METHYLENE CHLORIDE	Not detected	0.006
4-METHYL-2-PENTANONE (MIBK)	Not detected	0.01
STYRENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
TETRACHLOROETHENE	Not detected	0.001
TOLUENE	Not detected	0.001
1,1,1-TRICHLOROETHANE	Not detected	0.001
1,1,2-TRICHLOROETHANE	Not detected	0.001
TRICHLOROETHENE	Not detected	0.001
TRICHLOROFLUOROMETHANE	Not detected	0.006
VINYL ACETATE	Not detected	0.006
VINYL CHLORIDE	Not detected	0.002
m+p-XYLENE	Not detected	0.001
o-XYLENE	Not detected	0.001
DIBROMOMETHANE	Not detected	0.001
1,2-DICHLOROBENZENE	Not detected	0.001
1,3-DICHLOROBENZENE	Not detected	0.001
1,4-DICHLOROBENZENE	Not detected	0.001
t-1,4-DICHLORO-2-BUTENE	Not detected	0.01
ETHYL ETHER	Not detected	0.006
METHYL IODIDE	Not detected	0.002
NAPHTHALENE	Not detected	0.001
1,1,1,2-TETRACHLOROETHANE	Not detected	0.001
1,2,3-TRICHLOROPROPANE	Not detected	0.001
1,3-DICHLOROPROPANE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
HEXACHLOROBUTADIENE	Not detected	0.001
ISOPROPYLBENZENE	Not detected	0.001
BROMOCHLOROMETHANE	Not detected	0.001
2,2-DICHLOROPROPANE	Not detected	0.001
2-CHLOROTOLUENE	Not detected	0.001
4-CHLOROTOLUENE	Not detected	0.001
1,2,3-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRIMETHYLBENZENE	Not detected	0.001
1,3,5-TRIMETHYLBENZENE	Not detected	0.001
BROMOBENZENE	Not detected	0.001
N-PROPYLBENZENE	Not detected	0.001
N-BUTYLBENZENE	Not detected	0.001
sec-BUTYLBENZENE	Not detected	0.001
tert-BUTYLBENZENE	Not detected	0.001
4-ISOPROPYLTOLUENE	Not detected	0.001
1,1-DICHLOROPROPENE	Not detected	0.001
1,1,2-TRICHLOROTRIFLUOROETHANE	Not detected	0.002
Surrogate results:	---	
0.011 mg/dry kg Dibromofl'methane	0.008	
0.011 mg/dry kg Toluene-D8	0.010	
0.011 mg/dry kg 4-Bromofl'benzene	0.015	

Data for SEMIVOLATILE ORGANICS by GCMS mg/dry kg:

Component Name	Result	Component MDL
BENZOIC ACID	Not detected	0.09
4-CHLORO-3-METHYLPHENOL	Not detected	0.09
2-CHLOROPHENOL	Not detected	0.09
2,4-DICHLOROPHENOL	Not detected	0.09
2,6-DICHLOROPHENOL	Not detected	0.09
2,4-DIMETHYLPHENOL	Not detected	0.09
2,4-DINITROPHENOL	Not detected	0.09
2-METHYL-4,6-DINITROPHENOL	Not detected	0.09
2-METHYLPHENOL	Not detected	0.04
4-METHYLPHENOL	Not detected	0.04
2-NITROPHENOL	Not detected	0.04
4-NITROPHENOL	Not detected	0.04
PENTACHLOROPHENOL	Not detected	0.04
PHENOL	Not detected	0.09
2,4,6-TRICHLOROPHENOL	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.04
2,3,4,6-TETRACHLOROPHENOL	Not detected	0.04
ETHYL METHANESULFONATE	Not detected	0.04
METHYL METHANESULFONATE	Not detected	0.04
ACENAPHTHENE	Not detected	0.09
ACENAPHTHYLENE	Not detected	0.09
ANTHRACENE	Not detected	0.09
BENZIDINE	Not detected	0.09
BENZO(a)ANTHRACENE	Not detected	0.18

Data for SEMIVOLATILE ORGANICS by GCMS (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	Not detected	0.23
BENZO(k)FLUORANTHENE	Not detected	0.18
BENZO(ghi)PERYLENE	Not detected	0.09
BENZO(a)PYRENE	Not detected	0.18
4-BROMOPHENYL PHENYL ETHER	Not detected	0.09
BUTYL BENZYL PHTHALATE	Not detected	0.04
bis(2-CHLOROETHOXY)METHANE	Not detected	0.09
bis(2-CHLOROETHYL)ETHER	Not detected	0.04
bis(2-CHLOROISOPROPYL)ETHER	Not detected	0.09
2-CHLORONAPHTHALENE	Not detected	0.09
4-CHLOROPHENYL PHENYL ETHER	Not detected	0.14
CHRYSENE	Not detected	0.09
DIBENZO(ah)ANTHRACENE	Not detected	0.04
1,2-DICHLOROBENZENE	Not detected	0.04
1,3-DICHLOROBENZENE	Not detected	0.09
1,4-DICHLOROBENZENE	Not detected	0.09
3,3'-DICHLOROBENZIDINE	Not detected	0.18
DIETHYL PHTHALATE	Not detected	0.04
DIMETHYL PHTHALATE	Not detected	0.09
DI-N-BUTYL PHTHALATE	Not detected	0.09
2,4-DINITROTOLUENE	Not detected	0.04
2,6-DINITROTOLUENE	Not detected	0.09
DI-N-OCTYL PHTHALATE	Not detected	0.04
1,2-DIPHENYLHYDRAZINE	Not detected	0.04
bis(2-ETHYLHEXYL)PHTHALATE	2.2	0.14
FLUORANTHENE	<0.18 (trace)	0.18
FLUORENE	Not detected	0.09
HEXACHLOROBENZENE	Not detected	0.04
HEXACHLOROBUTADIENE	Not detected	0.09
HEXACHLOROCYCLOPENTADIENE	Not detected	0.04
HEXACHLOROETHANE	Not detected	0.09
INDENO(123-cd)PYRENE	Not detected	0.09
ISOPHORONE	Not detected	0.09
NAPHTHALENE	Not detected	0.09
NITROBENZENE	Not detected	0.04
N-NITROSODIMETHYLAMINE	Not detected	0.14
N-NITROSODI-N-PROPYLAMINE	Not detected	0.09
N-NITROSODIPHENYLAMINE	Not detected	0.04
PHENANTHRENE	Not detected	0.04
PYRENE	0.10	0.09
1,2,4-TRICHLOROBENZENE	Not detected	0.09
Surrogate compounds:	---	
3.64 mg/dry kg 2-Fluorobiphenyl	1.83	
3.64 mg/dry kg 2-Fluorophenol	2.73	
3.64 mg/dry kg Nitrobenzene-D5	2.94	
3.64 mg/dry kg Phenol-D6	2.77	
3.64 mg/dry kg Terphenyl-D14	3.19	
3.64 mg/dry kg 2,4,6-Tribromophenol	2.26	

If there are any questions regarding this data, please call.

September L. Arriaga
Vice President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 26, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD12287 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-310-31999-T392
Sample collector: CLIENT Sample collection date: 03/19/99
Lab submittal date: 03/19/99 Time: 16:08
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 94.0 % MDL or sensitivity: 0.01
Date started: 03/22/99 Date finished: 03/23/99
Time started: Analyst: JC

Parameter: ARSENIC
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 2.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: BARIUM
Method reference: 200.7/6010
Result: 315 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: CADMIUM
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: CHROMIUM
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 2.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: COPP
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 2.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: LEAD
Method reference: 200.7/6010
Result: 5.9 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: MERCURY
Method reference: 245.1/7470 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 0.5
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: PL

Parameter: SELENIUM
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 2.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: SILVER
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 2.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: ZINC
Method reference: 200.7/6010
Result: 5.0 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: VW

Parameter: ORGANOCHLORINE PESTICIDES by GC
Method reference: EPA 8081 Unit: mg/dry kg
Result: see below
Date started: 03/22/99 Date finished: 03/23/99
Time started: Analyst: JR

Parameter: POLYCHLORINATED BIPHENYLS by GC
Method reference: EPA 8020 Unit: mg/dry kg
Result: see below
Date started: 03/22/99 Date finished: 03/23/99
Time started: Analyst: JR

Parameter: VOCs by GCMS
Method reference: EPA 8060 Unit: mg/dry kg
Result: see below
Date started: 03/23/99 Date finished: 03/23/99
Time started: Analyst: TH

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/22/99 Date finished: 03/22/99
Time started: Analyst: JR

Data for ORGANOCHLORINE PESTICIDES by GC mg/dry kg:

Component Name	Result	Component MDL
ALDRIN	Not detected	0.0004
a-BHC	Not detected	0.0004
b-BHC	Not detected	0.0004
g-BHC (LINDANE)	Not detected	0.0004
d-BHC	Not detected	0.0004
CHLORDANE	Not detected	0.005
4,4'-DDD	Not detected	0.0004
4,4'-DDE	Not detected	0.0004
4,4'-DDT	Not detected	0.0004
DIELDRIN	Not detected	0.0004
ENDOSULFAN I	Not detected	0.0004
ENDOSULFAN II	Not detected	0.0004
ENDOSULFAN SULFATE	Not detected	0.0004
ENDRIN	Not detected	0.0004
ENDRIN ALDEHYDE	Not detected	0.0004
HEPTACHLOR	Not detected	0.0004
HEPTACHLOR EPOXIDE	Not detected	0.0004
METHOXYCHLOR	Not detected	0.0004
TOXAPHENE	Not detected	0.01
Surrogate result:	---	
0.0028 mg/dry kg Tetrachloro-m-xylene	0.0021	

Data for POLYCHLORINATED BIPHENYLS by GC mg/dry kg:

Component Name	Result	Component MDL
PCB-1016	Not detected	0.07
PCB-1221	Not detected	0.07
PCB-1232	Not detected	0.07
PCB-1242	Not detected	0.07
PCB-1248	Not detected	0.07
PCB-1254	Not detected	0.07
PCB-1260	Not detected	0.07
Surrogate result:	---	
0.027 Tetrachloro-m-xylene	0.024	

Data for VOCs by GCMS mg/dry kg:

Component Name	Result	Component MDL
ACETONE	Not detected	0.026
ACROLEIN	Not detected	0.01
ACRYLONITRILE	Not detected	0.002
BENZENE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	0.001
BROMOFORM	Not detected	0.001
BROMOMETHANE	Not detected	0.005
2-BUTANONE (MEK)	Not detected	0.005
CARBON DISULFIDE	Not detected	0.001
CARBON TETRACHLORIDE	Not detected	0.001
CHLOROBENZENE	Not detected	0.001
CHLOROETHANE	Not detected	0.005
2-CHLOROETHYL VINYL ETHER	Not detected	0.005
CHLOROFORM	Not detected	0.001
CHLOROMETHANE	Not detected	0.005
DIBROMOCHLOROMETHANE	Not detected	0.001
DICHLORODIFLUOROMETHANE	Not detected	0.005
1,1-DICHLOROETHANE	Not detected	0.001
1,2-DICHLOROETHANE	Not detected	0.001
1,1-DICHLOROETHENE	Not detected	0.001
c-1,2-DICHLOROETHENE	Not detected	0.001
t-1,2-DICHLOROETHENE	Not detected	0.001
1,2-DICHLOROPROPANE	Not detected	0.001
c-1,3-DICHLOROPROPENE	Not detected	0.001
t-1,3-DICHLOROPROPENE	Not detected	0.001
ETHYLBENZENE	Not detected	0.001
1,2-DIBROMOETHANE	Not detected	0.001
1,2-DIBROMO-3-CHLOROPROPANE	Not detected	0.001
ETHYL METHACRYLATE	Not detected	0.005
2-HEXANONE	Not detected	0.01
METHYLENE CHLORIDE	Not detected	0.005
4-METHYL-2-PENTANONE (MIBK)	Not detected	0.01
STYRENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
TETRACHLOROETHENE	Not detected	0.001
TOLUENE	Not detected	0.001
1,1,1-TRICHLOROETHANE	Not detected	0.001
1,1,2-TRICHLOROETHANE	Not detected	0.001
TRICHLOROETHENE	Not detected	0.001
TRICHLOROFLUOROMETHANE	Not detected	0.005
VINYL ACETATE	Not detected	0.005
VINYL CHLORIDE	Not detected	0.002
m+p-XYLENE	Not detected	0.001
o-XYLENE	Not detected	0.001
DIBROMOMETHANE	Not detected	0.001
1,2-DICHLOROBENZENE	Not detected	0.001
1,3-DICHLOROBENZENE	Not detected	0.001
1,4-DICHLOROBENZENE	Not detected	0.001
t-1,4-DICHLORO-2-BUTENE	Not detected	0.01
ETHYL ETHER	Not detected	0.005
METHYL IODIDE	Not detected	0.002
NAPHTHALENE	Not detected	0.001
1,1,1,2-TETRACHLOROETHANE	Not detected	0.001
1,2,3-TRICHLOROPROPANE	Not detected	0.001
1,3-DICHLOROPROPANE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
HEXACHLOROBUTADIENE	Not detected	0.001
ISOPROPYLBENZENE	Not detected	0.001
BROMOCHLOROMETHANE	Not detected	0.001
2,2-DICHLOROPROPANE	Not detected	0.001
2-CHLOROTOLUENE	Not detected	0.001
4-CHLOROTOLUENE	Not detected	0.001
1,2,3-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRIMETHYLBENZENE	Not detected	0.001
1,3,5-TRIMETHYLBENZENE	Not detected	0.001
BROMOBENZENE	Not detected	0.001
N-PROPYLBENZENE	Not detected	0.001
N-BUTYLBENZENE	Not detected	0.001
sec-BUTYLBENZENE	Not detected	0.001
tert-BUTYLBENZENE	Not detected	0.001
4-ISOPROPYLTOLUENE	Not detected	0.001
1,1-DICHLOROPROPENE	Not detected	0.001
1,1,2-TRICHLOROTRIFLUOROETHANE	Not detected	0.002
Surrogate results:	---	
0.011 mg/dry kg Dibromofl'methane	0.007	
0.011 mg/dry kg Toluene-D8	0.007	
0.011 mg/dry kg 4-Bromofl'benzene	0.008	

Data for SEMIVOLATILE ORGANICS by GCMS mg/dry kg:

Component Name	Result	Component MDL
4-CHLORO-3-METHYLPHENOL	Not detected	0.06
2-CHLOROPHENOL	Not detected	0.06
2,4-DICHLOROPHENOL	Not detected	0.06
2,4-DIMETHYLPHENOL	Not detected	0.06
2,4-DINITROPHENOL	Not detected	0.06
2-METHYL-4,6-DINITROPHENOL	Not detected	0.06
2-NITROPHENOL	Not detected	0.03
4-NITROPHENOL	Not detected	0.03
PENTACHLOROPHENOL	Not detected	0.03
PHENOL	Not detected	0.06
2,4,6-TRICHLOROPHENOL	Not detected	0.03
ACENAPHTHENE	Not detected	0.06
ACENAPHTHYLENE	Not detected	0.06
ANTHRACENE	Not detected	0.06
BENZIDINE	Not detected	0.06
BENZO(a)ANTHRACENE	Not detected	0.13
BENZO(b)FLUORANTHENE	Not detected	0.16
BENZO(k)FLUORANTHENE	Not detected	0.13
BENZO(ghi)PERYLENE	Not detected	0.06
BENZO(a)PYRENE	Not detected	0.13
4-BROMOPHENYL PHENYL ETHER	Not detected	0.06
BUTYL BENZYL PHTHALATE	Not detected	0.03
bis(2-CHLOROETHOXY)METHANE	Not detected	0.06
bis(2-CHLOROETHYL)ETHER	Not detected	0.03

Data for SEMIVOLATILE ORGANICS by GCMS (continued):

Component Name	Result	Component MDL
bis(2-CHLOROISOPROPYL)ETHER	Not detected	0.06
2-CHLORONAPHTHALENE	Not detected	0.06
4-CHLOROPHENYL PHENYL ETHER	Not detected	0.10
CHRYSENE	Not detected	0.06
DIBENZO(ah)ANTHRACENE	Not detected	0.03
1.2-DICHLOROBENZENE	Not detected	0.03
1.3-DICHLOROBENZENE	Not detected	0.06
1.4-DICHLOROBENZENE	Not detected	0.06
3.3'-DICHLOROBENZIDINE	Not detected	0.13
DIETHYL PHTHALATE	Not detected	0.03
DIMETHYL PHTHALATE	Not detected	0.06
DI-N-BUTYL PHTHALATE	Not detected	0.06
2.4-DINITROTOLUENE	Not detected	0.03
2.6-DINITROTOLUENE	Not detected	0.06
DI-N-OCTYL PHTHALATE	Not detected	0.03
1.2-DIPHENYLHYDRAZINE	Not detected	0.03
bis(2-ETHYLHEXYL)PHTHALATE	1.6	0.10
FLUORANTHENE	Not detected	0.13
FLUORENE	Not detected	0.06
HEXACHLOROBENZENE	Not detected	0.03
HEXACHLOROBUTADIENE	Not detected	0.06
HEXACHLOROCYCLOPENTADIENE	Not detected	0.03
HEXACHLOROETHANE	Not detected	0.06
INDENO(123-cd)PYRENE	Not detected	0.06
ISOPHORONE	Not detected	0.06
NAPHTHALENE	Not detected	0.06
NITROBENZENE	Not detected	0.03
N-NITROSODIMETHYLAMINE	Not detected	0.10
N-NITROSODI-N-PROPYLAMINE	Not detected	0.06
N-NITROSODIPHENYLAMINE	Not detected	0.03
PHENANTHRENE	Not detected	0.03
PYRENE	Not detected	0.06
1.2.4-TRICHLOROBENZENE	Not detected	0.06
Surrogate compounds:	---	
2.63 mg/dry kg 2-Fluorobiphenyl	1.38	
2.63 mg/dry kg 2-Fluorophenol	1.54	
2.63 mg/dry kg Nitrobenzene-D5	1.64	
2.63 mg/dry kg Phenol-D6	1.63	
2.63 mg/dry kg Terphenyl-D14	1.46	
2.63 mg/dry kg 2.4.6-Tribromophenol	1.46	

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD12287

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF ____

NO. 1689

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FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Elena [illegible]

Client: [illegible]

Site: [illegible]

Project#: [illegible] Phase: [illegible]

Samplers: JLM

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER: ____

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

PRESERVATIVES: A, A

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	COMMENTS
[illegible]	[illegible]	2	–	3-11-99 1400	

RELINQUISHED BY: [illegible]	DATE: [illegible] TIME: [illegible]	RECEIVED BY: [illegible]	DATE: 3-19-99 TIME: -15-45
RELINQUISHED BY: [illegible]	DATE: 3-19-99 TIME: -17-00	RECEIVED BY: [illegible]	DATE: 3-19-99 TIME: 1700-
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –
COOLER TEMPERATURE AS RECEIVED °C :	°C		

DISTRIBUTION:
WHITE --LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW --LAB USE
PINK --RETAINED BY HAI

Deliver To: [illegible]

Method of Delivery: [illegible]

Airbill Number:

NOTES: samples void

HAI\0999T269
08/14/97 CORNER

10

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

June 11. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD16262 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-SEA001-6/3/99-T392
Sample collector: CLIENT Sample collection date: 06/03/99
Lab submittal date: 06/03/99 Time: 15:58
Received by: RS Validated by: FD

Parameter: SOLIDS. DRY. 104 DEG C
Method reference: SM17-2540G
Result: 88.5 % MDL or sensitivity: 0.01
Date started: 06/04/99 Date finished: 06/07/99
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 7.0 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/09/99 Date finished: 06/09/99
Time started: Analyst: VW

Parameter: BARIUM
Method reference: 200.7/6010
Result: 91.9 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/09/99 Date finished: 06/09/99
Time started: Analyst: VW

Parameter: CADMIUM
Method reference: 200.7/6010 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 06/09/99 Date finished: 06/09/99
Time started: Analyst: VW

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 20.9 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/09/99 Date finished: 06/09/99
Time started: Analyst: VW

Parameter: COPPER
Method reference: 200.7/6010
Result: 23.0 mg/dry kg
MDL or sensitivity: 2.0
Date started: 06/09/99
Date finished: 06/09/99
Time started:
Analyst: VW

Parameter: LEAD
Method reference: 200.7/6010
Result: 9.1 mg/dry kg
MDL or sensitivity: 2.0
Date started: 06/09/99
Date finished: 06/09/99
Time started:
Analyst: VW

Parameter: MERCURY
Method reference: 245.1/7470
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 06/08/99
Date finished: 06/08/99
Time started:
Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 06/09/99
Date finished: 06/09/99
Time started:
Analyst: VW

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/dry kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 06/09/99
Date finished: 06/09/99
Time started:
Analyst: VW

Parameter: ZINC
Method reference: 200.7/6010
Result: 49.9 mg/dry kg
MDL or sensitivity: 2.0
Date started: 06/09/99
Date finished: 06/09/99
Time started:
Analyst: VW

Parameter: ORGANOCHLORINE PESTICIDES by GC
Method reference: EPA 8081
Unit: mg/dry kg
Result: see below
Date started: 06/07/99
Date finished: 06/08/99
Time started:
Analyst: JR

Parameter: POLYCHLORINATED BIPHENYLS by GC
Method reference: EPA 8082
Unit: mg/dry kg
Resu : see below
Date started: 06/07/99
Date finished: 06/08/99
Time started:
Analyst: JR

Parameter: VOCs by GCMS
Method reference: EPA 8060
Unit: mg/dry kg
Result: see below
Date started: 06/08/99
Date finished: 06/08/99
Time started:
Analyst: TH

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 06/08/99 Date finished: 06/08/99
Time started: Analyst: JR

Data for ORGANOCHLORINE PESTICIDES by GC mg/dry kg:

Component Name	Result	Component MDL
ALDRIN	Not detected	0.0004
a-BHC	Not detected	0.0004
b-BHC	Not detected	0.0004
g-BHC (LINDANE)	Not detected	0.0004
d-BHC	Not detected	0.0004
CHLORDANE	Not detected	0.005
4,4'-DDD	Not detected	0.0004
4,4'-DDE	Not detected	0.0004
4,4'-DDT	Not detected	0.0004
DIELDRIN	Not detected	0.0004
ENDOSULFAN I	Not detected	0.0004
ENDOSULFAN II	Not detected	0.0004
ENDOSULFAN SULFATE	Not detected	0.0004
ENDRIN	Not detected	0.0004
ENDRIN ALDEHYDE	Not detected	0.0004
HEPTACHLOR	Not detected	0.0004
HEPTACHLOR EPOXIDE	Not detected	0.0004
METHOXYCHLOR	Not detected	0.0004
TOXAPHENE	Not detected	0.01
Surrogate result:	---	
0.0045 mg/dry kg Tetrachloro-m-xylene	*0.0038*	

Data for POLYCHLORINATED BIPHENYLS by GC mg/dry kg:

Component Name	Result	Component MDL
PCB-1016	Not detected	0.05
PCB-1221	Not detected	0.05
PCB-1232	Not detected	0.05
PCB-1242	Not detected	0.05
PCB-1248	Not detected	0.05
PCB-1254	Not detected	0.05
PCB-1260	Not detected	0.05
Surrogate result:	---	
0.219 mg/dry kg Decachlorobiphenyl	0.178	

Data for VOCs by GCMS mg/dry kg:

Component Name	Result	Component MDL
ACETONE	Not detected	0.028
ACROLEIN	Not detected	0.01
ACRYLONITRILE	Not detected	0.002
BENZENE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	0.001
BROMOFORM	Not detected	0.001
BROMOMETHANE	Not detected	0.006
2-BUTANONE (MEK)	Not detected	0.006
CARBON DISULFIDE	Not detected	0.006
CARBON TETRACHLORIDE	Not detected	0.001
CHLOROBENZENE	Not detected	0.001
CHLOROETHANE	Not detected	0.006
2-CHLOROETHYL VINYL ETHER	Not detected	0.006
CHLOROFORM	Not detected	0.001
CHLOROMETHANE	Not detected	0.006
DIBROMOCHLOROMETHANE	Not detected	0.001
DICHLORODIFLUOROMETHANE	Not detected	0.006
1,1-DICHLOROETHANE	Not detected	0.001
1,2-DICHLOROETHANE	Not detected	0.001
1,1-DICHLOROETHENE	Not detected	0.001
c-1,2-DICHLOROETHENE	Not detected	0.001
t-1,2-DICHLOROETHENE	Not detected	0.001
1,2-DICHLOROPROPANE	Not detected	0.001
c-1,3-DICHLOROPROPENE	Not detected	0.001
t-1,3-DICHLOROPROPENE	Not detected	0.001
ETHYLBENZENE	Not detected	0.001
1,2-DIBROMOETHANE	Not detected	0.001
1,2-DIBROMO-3-CHLOROPROPANE	Not detected	0.001
2-HEXANONE	Not detected	0.01
METHYLENE CHLORIDE	Not detected	0.006
4-METHYL-2-PENTANONE (MIBK)	Not detected	0.01
STYRENE	Not detected	0.001
1,1,2,2-TETRACHLOROETHANE	Not detected	0.001
TETRACHLOROETHENE	Not detected	0.001
TOLUENE	Not detected	0.001
1,1,1-TRICHLOROETHANE	Not detected	0.001
1,1,2-TRICHLOROETHANE	Not detected	0.001
TRICHLOROETHENE	Not detected	0.001
TRICHLOROFLUOROMETHANE	Not detected	0.006
VINYL ACETATE	Not detected	0.006
VINYL CHLORIDE	Not detected	0.002
m+p-XYLENE	Not detected	0.001
o-XYLENE	Not detected	0.001
DIBROMOMETHANE	Not detected	0.001
1,2-DICHLOROBENZENE	Not detected	0.001
1,3-DICHLOROBENZENE	Not detected	0.001
1,4-DICHLOROBENZENE	Not detected	0.001
t-1,4-DICHLORO-2-BUTENE	Not detected	0.01
ETHYL ETHER	Not detected	0.006
METHYL IODIDE	Not detected	0.002
NAPHTHALENE	Not detected	0.001
1,1,1,2-TETRACHLOROETHANE	Not detected	0.001
1,2,3-TRICHLOROPROPANE	Not detected	0.001
1,3-DICHLOROPROPANE	Not detected	0.001
HEXACHLOROBUTADIENE	Not detected	0.001

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
ISOPROPYLBENZENE	Not detected	0.001
BROMOCHLOROMETHANE	Not detected	0.001
2,2-DICHLOROPROPANE	Not detected	0.001
2-CHLOROTOLUENE	Not detected	0.001
4-CHLOROTOLUENE	Not detected	0.001
1,2,3-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRICHLOROBENZENE	Not detected	0.001
1,2,4-TRIMETHYLBENZENE	Not detected	0.001
1,3,5-TRIMETHYLBENZENE	Not detected	0.001
BROMOBENZENE	Not detected	0.001
N-PROPYLBENZENE	Not detected	0.001
N-BUTYLBENZENE	Not detected	0.001
sec-BUTYLBENZENE	Not detected	0.001
tert-BUTYLBENZENE	Not detected	0.001
4-ISOPROPYLTOLUENE	Not detected	0.001
1,1-DICHLOROPROPENE	Not detected	0.001
1,1,2-TRICHLOROTRIFLUOROETHANE	Not detected	0.002
Surrogate results:	---	
0.011 mg/dry kg Dibromofl'methane	0.007	
0.011 mg/dry kg Toluene-D8	0.007	
0.011 mg/dry kg 4-Bromofl'benzene	0.008	

Data for SEMIVOLATILE ORGANICS by GCMS mg/dry kg:

Component Name	Result	Component MDL
4-CHLORO-3-METHYLPHENOL	Not detected	0.07
2-CHLOROPHENOL	Not detected	0.07
2,4-DICHLOROPHENOL	Not detected	0.07
2,4-DIMETHYLPHENOL	Not detected	0.07
2,4-DINITROPHENOL	Not detected	0.07
2-METHYL-4,6-DINITROPHENOL	Not detected	0.07
2-NITROPHENOL	Not detected	0.03
4-NITROPHENOL	Not detected	0.03
PENTACHLOROPHENOL	Not detected	0.03
PHENOL	Not detected	0.07
2,4,6-TRICHLOROPHENOL	Not detected	0.03
ACENAPHTHENE	Not detected	0.07
ACENAPHTHYLENE	Not detected	0.07
ANTHRACENE	Not detected	0.07
BENZIDINE	Not detected	0.07
BENZO(a)ANTHRACENE	Not detected	0.13
BENZO(b)FLUORANTHENE	Not detected	0.16
BENZO(k)FLUORANTHENE	Not detected	0.13
BENZO(ghi)PERYLENE	Not detected	0.07
BENZO(a)PYRENE	Not detected	0.13
4-BROMOPHENYL PHENYL ETHER	Not detected	0.07
BUTYL BENZYL PHTHALATE	Not detected	0.03
bis(2-CHLOROETHOXY)METHANE	Not detected	0.07
bis(2-CHLOROETHYL)ETHER	Not detected	0.03
bis(2-CHLOROISOPROPYL)ETHER	Not detected	0.07

Data for SEMIVOLATILE ORGANICS by GCMS (continued):

Component Name	Result	Component MDL
2-CHLORONAPHTHALENE	Not detected	0.07
4-CHLOROPHENYL PHENYL ETHER	Not detected	0.10
CHRYSENE	Not detected	0.07
DIBENZO(ah)ANTHRACENE	Not detected	0.03
1,2-DICHLOROBENZENE	Not detected	0.03
1,3-DICHLOROBENZENE	Not detected	0.07
1,4-DICHLOROBENZENE	Not detected	0.07
3,3'-DICHLOROBENZIDINE	Not detected	0.13
DIETHYL PHTHALATE	Not detected	0.03
DIMETHYL PHTHALATE	Not detected	0.07
DI-N-BUTYL PHTHALATE	Not detected	0.07
2,4-DINITROTOLUENE	Not detected	0.03
2,6-DINITROTOLUENE	Not detected	0.07
DI-N-OCTYL PHTHALATE	Not detected	0.03
1,2-DIPHENYLHYDRAZINE	Not detected	0.03
bis(2-ETHYLHEXYL)PHTHALATE	3.1	0.10
FLUORANTHENE	Not detected	0.13
FLUORENE	Not detected	0.07
HEXACHLOROBENZENE	Not detected	0.03
HEXACHLOROBUTADIENE	Not detected	0.07
HEXACHLOROCYCLOPENTADIENE	Not detected	0.03
HEXACHLOROETHANE	Not detected	0.07
INDENO(123-cd)PYRENE	Not detected	0.07
ISOPHORONE	Not detected	0.07
NAPHTHALENE	Not detected	0.07
NITROBENZENE	Not detected	0.03
N-NITROSODIMETHYLAMINE	Not detected	0.10
N-NITROSODI-N-PROPYLAMINE	Not detected	0.07
N-NITROSODIPHENYLAMINE	Not detected	0.03
PHENANTHRENE	0.05	0.03
PYRENE	Not detected	0.07
1,2,4-TRICHLOROBENZENE	Not detected	0.07
Surrogate compounds:	---	
2.64 mg/dry kg 2-Fluorobiphenyl	1.52	
2.64 mg/dry kg 2-Fluorophenol	1.78	
2.64 mg/dry kg Nitrobenzene-D5	2.29	
2.64 mg/dry kg Phenol-D6	1.93	
2.64 mg/dry kg Terphenyl-D14	1.94	
2.64 mg/dry kg 2,4,6-Tribromophenol	0.65	

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD162.2

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

NO. 1923

Hull & Associates, Inc.

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☒ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR-McGEE
Site: Toledo TIE TREATMENT SITE
Project#: KMC-001 Phase: 01.SMP
Samplers: JLM

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCl pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

PRESERVATIVES: A, A, A

ANALYSES: VOC 8260; SVOC 8270 RCRA Metals Weapons & ZINC (1000); Pest-PCBs 8081

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	VOC 8260	SVOC 8270 RCRA Metals Weapons & ZINC (1000)	Pest-PCBs 8081									COMMENTS
KMC001-SEA001-6/3/99-T392	2	2	–	6/3/99 15:00	X	X	X									

RELINQUISHED BY:	DATE: 6-3-99 TIME: 15-58-00	RECEIVED BY:	DATE: 6-3-99 TIME: -15-58
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: 6-3-99 TIME: -16-05	RECEIVED FOR LAB BY:	DATE: 6-3-99 TIME: 16-05

COOLER TEMPERATURE AS RECEIVED °C : 3.0 °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: ~~HA~~ J&H Lab
Method of Delivery: HAND
Airbill Number:

NOTES: SEAWAY QUARRY - clay Sample

HAI\09997269
08/14/97 CORNER

SOURCE MATERIAL QUESTIONNAIRE

Please answer the following questions on a separate sheet(s) of paper. Fill out all questions in detail. Do not leave any questions blank (use none, not applicable, etc.).

General

G1. Provide the following information:

Respondent Name Jacqueline A. Tillman
Title office manager
Telephone (419) 865-5751
Date 6-3-99

Facility Operator Name Seaway Sand & Stone Inc.
Address 11330 Airport Hwy.
City, State, Zip Swanton, Ohio 43558

NOTE: CHG. Property Owner Name Seaway Sand & Stone Inc.
Address 11330 Airport Hwy.
City, State, Zip Swanton, Ohio 43558

G2. List all structures located at the Property including the activities that are currently and historically conducted in them, associated square footage, and the dates of construction. Please provide a Property plot plan (interior, exterior, and utility maps). You may indicate activities on the Property plan, if described in detail.

G3. Provide all known owners, operators, and users of the Property, facility, and land, along with dates, prior to the current owner/operator.

G4. Provide a detailed description of current and past Property and facility operations. Please provide dates.

G5 Provide information on current and historic adjacent property owners and adjacent land uses

G6. Provide copies of all environmental studies or reports prepared by, for, or in the possession of the facility or Property owner. This may include environmental compliance audits, environmental insurance investigations, industrial hygiene surveys, and any studies of the geophysical or hydrogeological condition underneath the Property and its vicinity.

G7. List any violations pertaining to environmental regulations noted at the Property. Please provide detail as to how these violations were addressed and their current status.

Source Material Questions

S1. What is the source of the backfill/top soil?

S2. How was the stockpile placed?

S3. When was the stockpile excavated?

SEAWAY SAND & STONE, INC.

11330 Airport Highway, Swanton, Ohio 43558
419/865-5751, Fax 419/865-6480

G-7 Land located at 11330 Airport Hwy. was purchased by Seaway Sand & Stone Inc. by Mr. Kenneth W. Moon President & Owner in 1969. This land was farm land at that time. Mr. K.W. Moon sold this property to his son Mr. Mack S. Moon, in 1980. On September 1, 1997 to Mr. Brent Gerken now President of Seaway Sand & Stone Inc.
G-8 above
G-9 above
G-10 sand quarry, stone quarry
G-11 NA
G-12 NA

S-1 on site
S-2 end loader
S-3 summer 98

W-1 NA
W-2 NA
W-3 yes, none, none
W-4 NA

WW-1 NA
WW-2 NA
WW-3 NA
WW-4 NA
WW-5 NA

E-1 NA
E-2 NA
E-3 NA

A-1 NA
A-2 NA
A-3 NA

U-1 NA
U-2 NA
U-3 NA
U-4 NA
U-5 NA

AA-1 April 1999, 10,000 gallons (diesel fuel) greater than 1,000 ft.
AA-2 NA
AA-3 NA
AA-4 NA
AA-5 NA

P-1 NA
P-2 NA

(CONT) next page

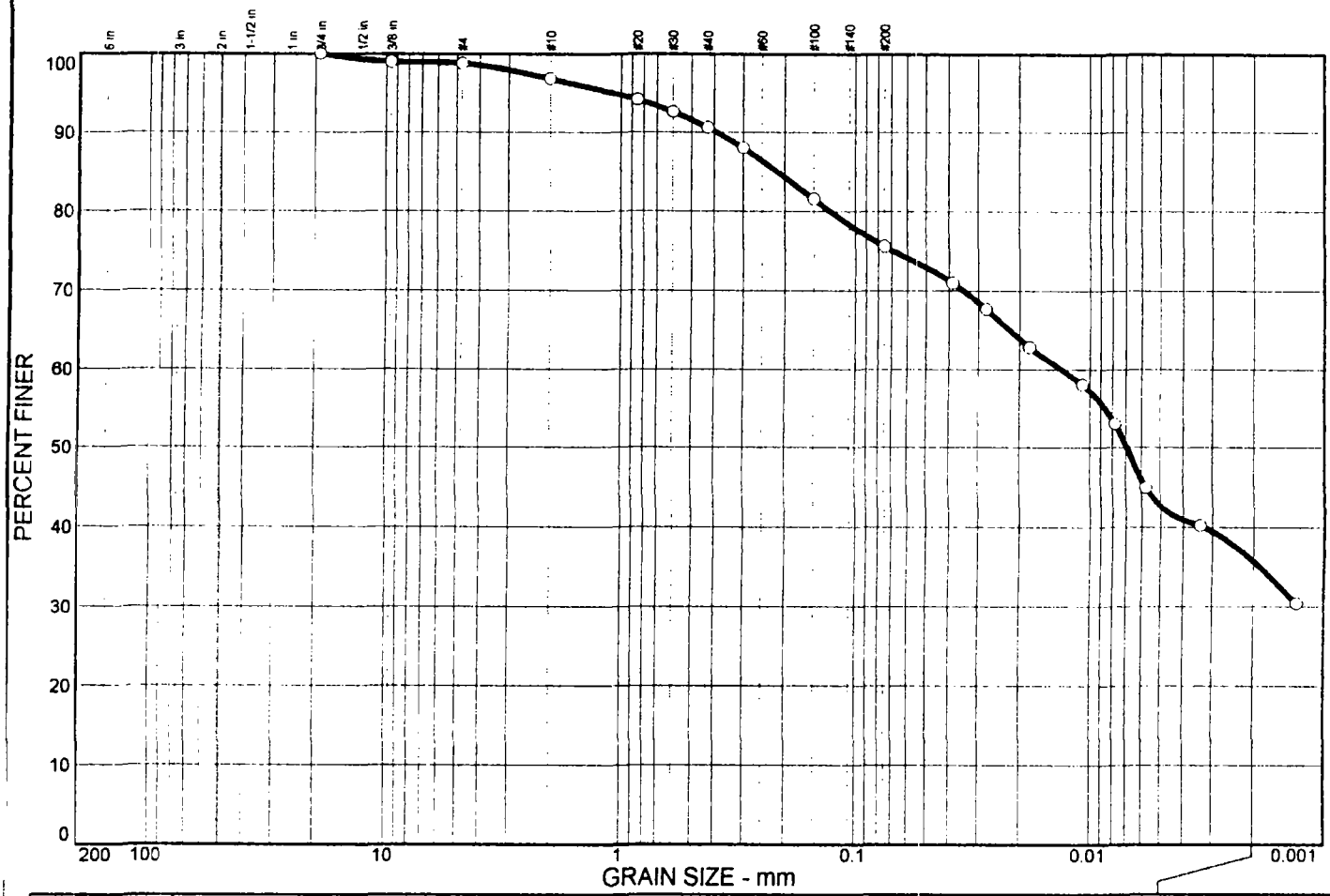
Page #2 Seaway Sand & Stone, Inc.

AB-1 NA
AB-2 NA
AB-3 NA
AB-4 NA

C-1 gas, NA
C-2 diesel, gasoline, hyd. oil, gear lube, etc., (greater than 1,000 gt.)
C-3 NA

To the best of my knowledge the above information is correct.
Jacqueline A. Tillman
Jacqueline A. Tillman
Office Manager/ Seaway Sand & Stone Inc.

USCS Particle Size Distribution Report



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	1.2	1.9	6.3	15.0	39.9	35.7

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	38	18	0.215	0.0132	0.0069					

MATERIAL DESCRIPTION	USCS	AASHTO
○ BROWN MOTTLED GREY SILTY CLAY, SOME SAND, TRACE GRAVEL.	CL	

Project No. KMC-001 **Client:** KERR-McGEE CHEMICAL, LLC
Project: TOLEDO TIE TREATMENT SITE

○ **Location:** 98-1152 CLAY SAMPLE SAMPLE #1

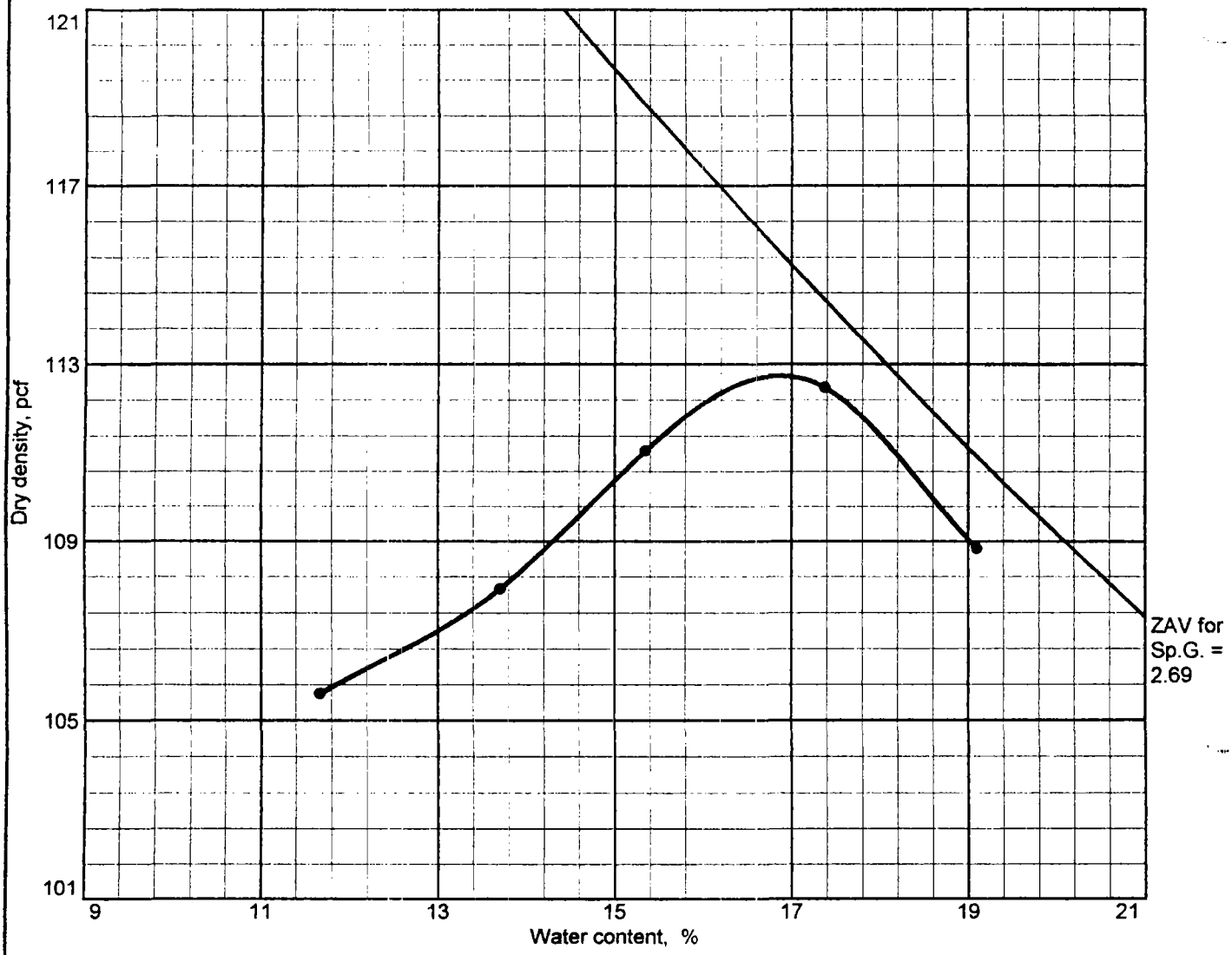
Remarks:
○ TESTED BY: MJG
CHECKED BY: JPL
NATURAL MOISTURE: 14.0%

USCS Particle Size Distribution Report

HULL & ASSOCIATES, INC.

FIGURE NUMBER

MOISTURE-DENSITY TEST REPORT



Test specification: ASTM D 698-91 Procedure A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	CL		14.0	2.69	38	20	1.2	75.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 112.7 pcf Optimum moisture = 16.9 %	BROWN MOTTLED GREY SILTY CLAY, SOME SAND, TRACE GRAVEL.

Project No. KMC-001 **Client:** KERR-McGEE CHEMICAL, LLC
Project: TOLEDO TIE TREATMENT SITE

● **Location:** 98-1152 CLAY SAMPLE SAMPLE #1

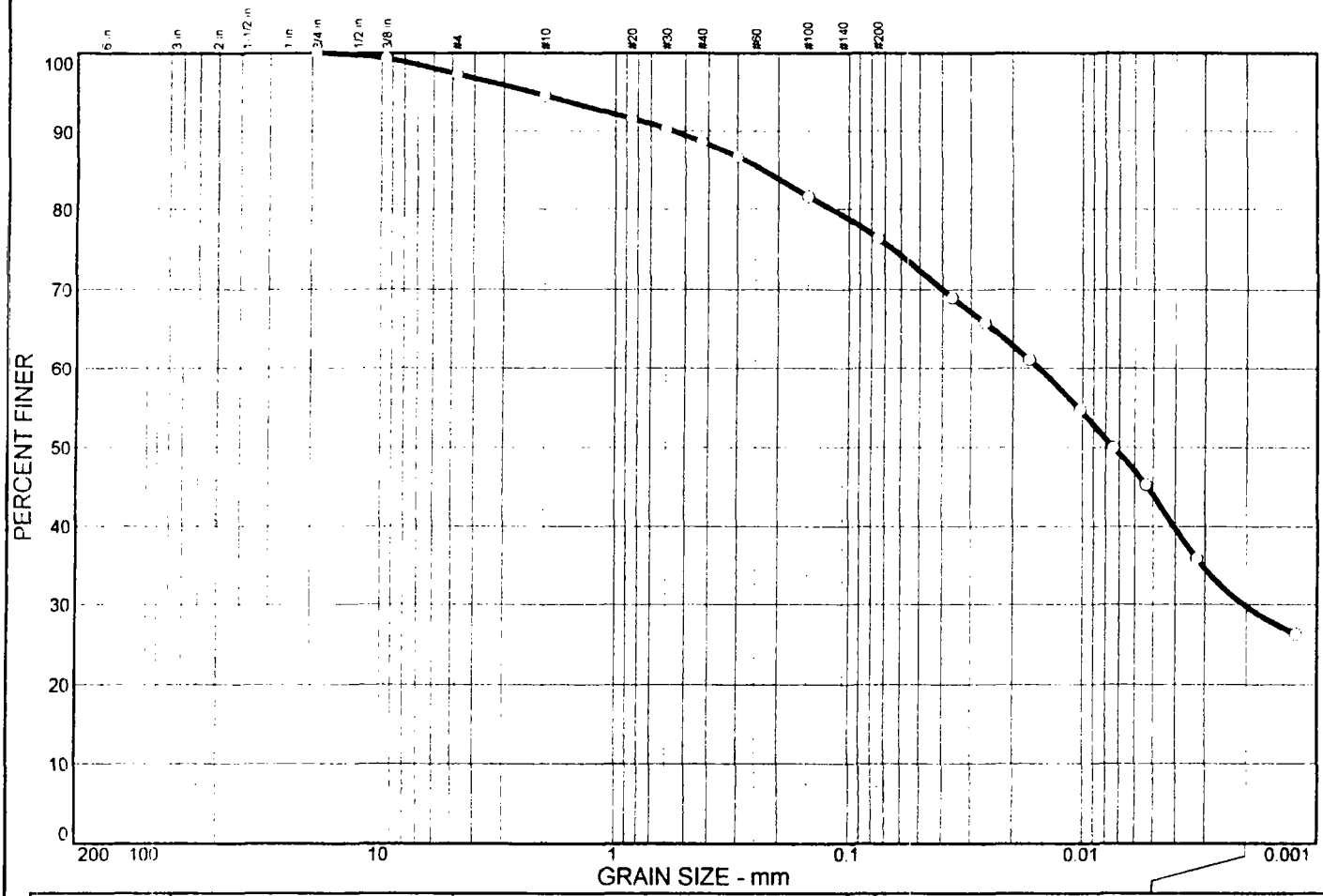
Remarks:
TESTED BY: MJG
CHECKED BY: JPL

MOISTURE-DENSITY TEST REPORT

HULL & ASSOCIATES, INC.

FIGURE NUMBER

USCS Particle Size Distribution Report



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	2.7	2.7	6.0	12.2	46.7	29.7

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
28	16	0.234	0.0155	0.0074	0.0021				

MATERIAL DESCRIPTION	USCS	AASHTO
GREY SILTY CLAY, LITTLE SAND, TRACE GRAVEL.	CL	

Project No. KMC-001 **Client:** KERR-McGEE CHEMICAL, LLC

Project: TOLEDO TIE TREATMENT SITE

Location: 99-094 SEAWAY SAND & STONE SAMPLE #1

Remarks:

TESTED BY: MJG/JPL

CHECKED BY: MJG

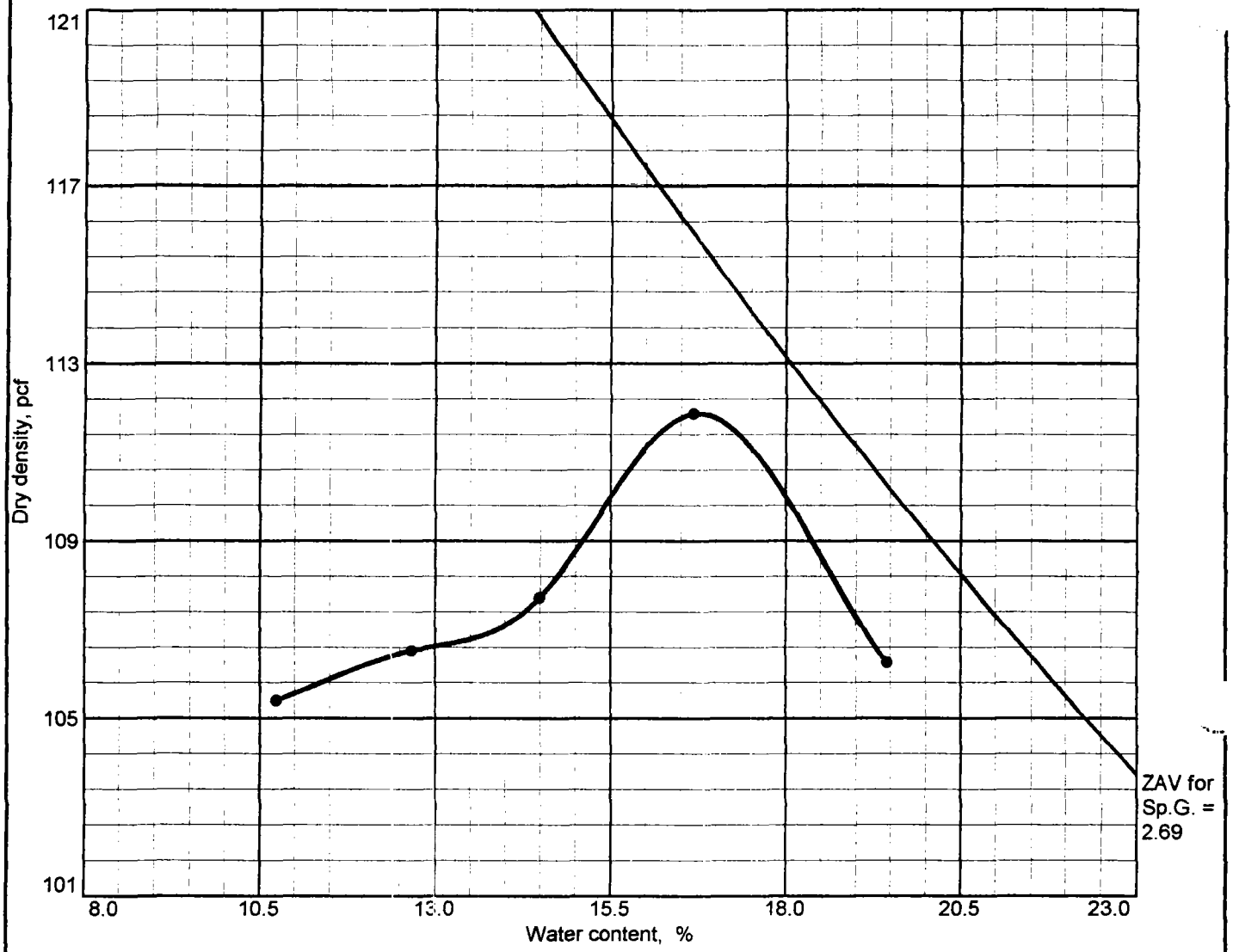
NATURAL MOISTURE: 13.2%

USCS Particle Size Distribution Report

HULL & ASSOCIATES, INC.

FIGURE NUMBER

MOISTURE-DENSITY TEST REPORT



Test specification: ASTM D 698-91 Procedure A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	CL		13.2	2.69	28	12	2.7	76.4

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 111.9 pcf Optimum moisture = 16.8 %	GREY SILTY CLAY, LITTLE SAND, TRACE GRAVEL.

Project No. KMC-001 **Client:** KERR-McGEE CHEMICAL, LLC
Project: TOLEDO TIE TREATMENT SITE

● **Location:** 99-094 SEAWAY SAND & STONE SAMPLE #1

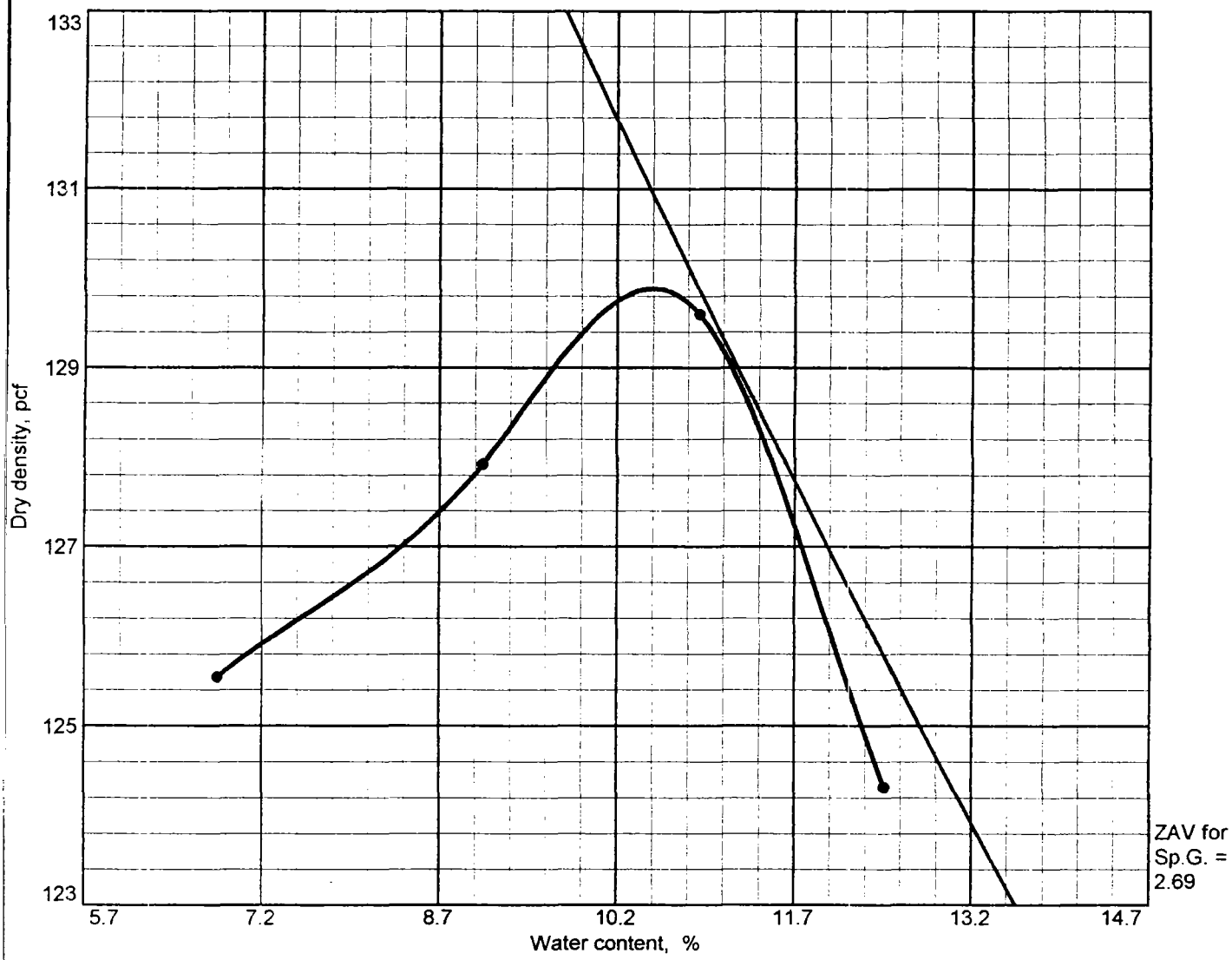
Remarks:
TESTED BY: JPL
CHECKED BY: MJG

MOISTURE-DENSITY TEST REPORT

HULL & ASSOCIATES, INC.

FIGURE NUMBER

MOISTURE-DENSITY TEST REPORT



Test specification: ASTM D 1557-91 Procedure A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	CL		13.2	2.69	28	12	2.7	76.4

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 129.9 pcf Optimum moisture = 10.5 %	GREY SILTY CLAY, LITTLE SAND, TRACE GRAVEL.

Project No. KMC-001 **Client:** KERR-McGEE CHEMICAL, LLC
Project: TOLEDO TIE TREATMENT SITE

● **Location:** 99-094 SEAWAY SAND & STONE SAMPLE #1

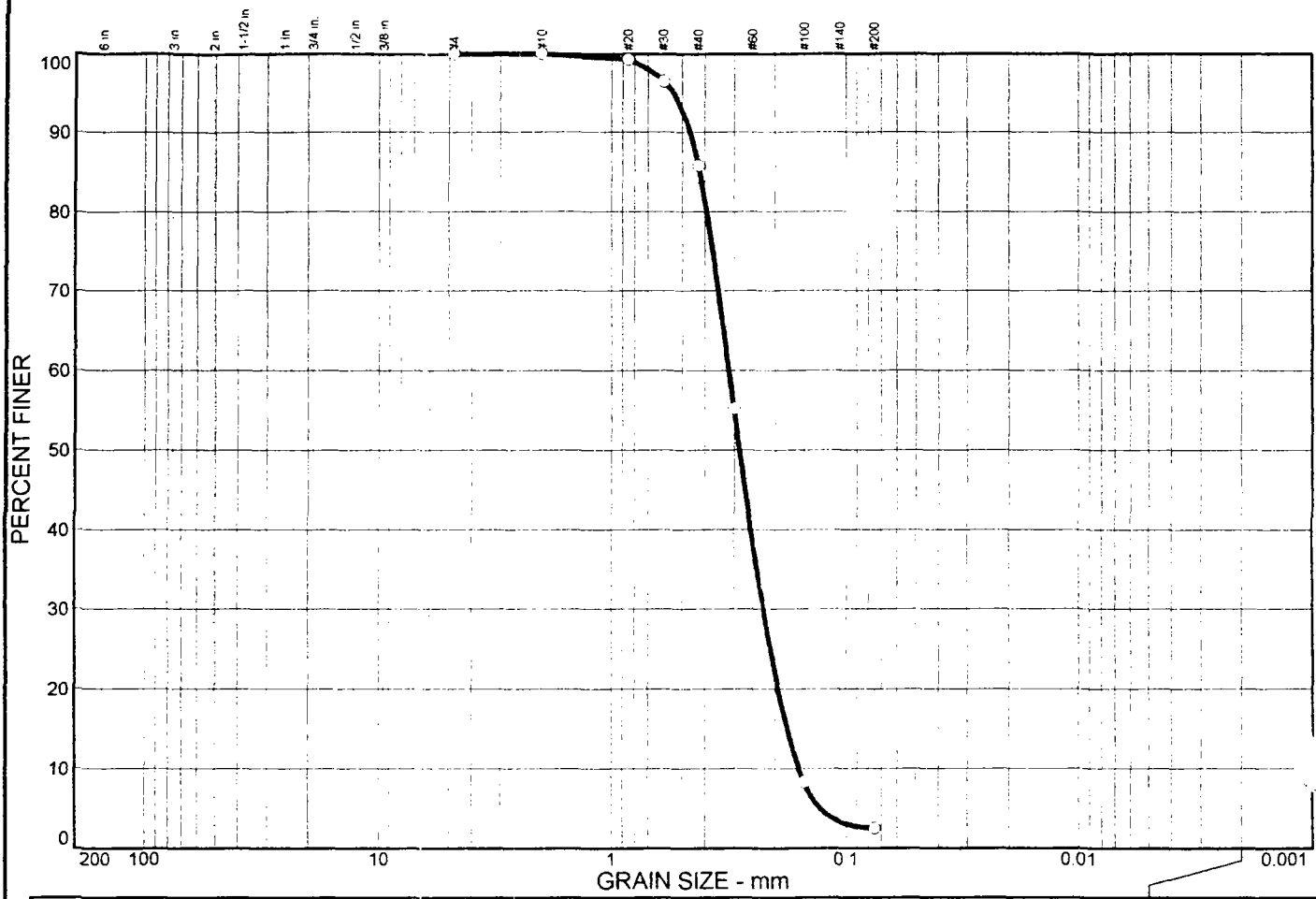
Remarks:
TESTED BY: JPL
CHECKED BY: MJG

MOISTURE-DENSITY TEST REPORT

HULL & ASSOCIATES, INC.

FIGURE NUMBER

USCS Particle Size Distribution Report



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	14.2	83.3	2.5	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	NP	NP	0.420	0.315	0.284	0.224	0.177	0.158	1.01	2.00

MATERIAL DESCRIPTION	USCS	AASHTO
○ BROWN/GREY POORLY GRADED SAND, TRACE FINES.	SP	

Project No. KMC-001 **Client:** KERR-McGEE CHEMICAL, LLC
Project: TOLEDO TIE TREATMENT SITE

Location: 98-1154 EMBANKMENT FILL SAMPLE #1

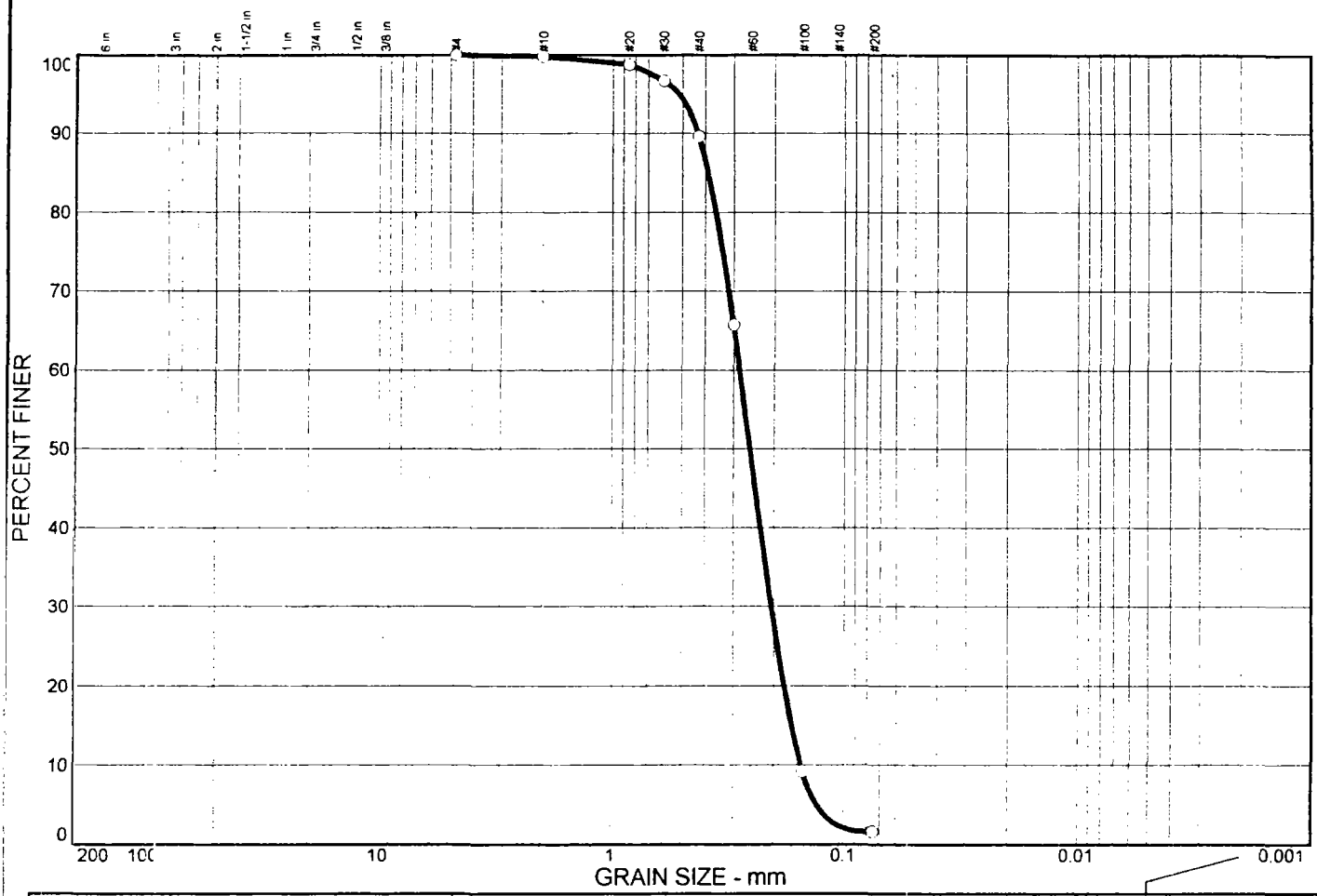
Remarks:
TESTED BY: MJG
CHECKED BY: JPL
NATURAL MOISTURE: 7.1%
Kv= 8.4E-03 cm/sec

USCS Particle Size Distribution Report

HULL & ASSOCIATES, INC.

FIGURE NUMBER

USCS Particle Size Distribution Report



% + 3"	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.2	10.2	88.0	1.6	

LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
NP	NP	0.388	0.282	0.253	0.204	0.167	0.153	0.97	1.84

MATERIAL DESCRIPTION	USCS	AASHTO
GREY POORLY GRADED SAND. TRACE FINES.	SP	

Project No. KMC-001 **Client:** KERR-McGEE CHEMICAL. LLC

Project: TOLEDO TIE TREATMENT SITE

Location: 99-008 EMBANKMENT MATERIAL SAMPLE #2

Remarks:

TESTED BY: MJG

CHECKED BY: JPL

USCS Particle Size Distribution Report

HULL & ASSOCIATES, INC.

FIGURE NUMBER

COLUMBIA GEOSYSTEMS
A WHOLLY OWNED SUBSIDIARY OF NATIONAL SEAL COMPANY

Date : 09/11/98

Shipping / Packing List

Page : 1

CUSTOMER: 117-98-77

Bill of Lading: 117-77

DESTINATION:

	Roll Number	Weight (LBS)	Square Feet	Dimensions (FT)	QC
1 PS	060 137 36744	3,607	11,960.00	23.00 x 520.00	
2 PS	060 137 36745	3,615	11,960.00	23.00 x 520.00	
3 PS	060 137 36746	3,649	11,960.00	23.00 x 520.00	
	TOTAL	10,871	35,880.00		

Columbia Geosystems Ltd. 1415 - 28 St. N.E., Calgary, Alberta T2A 2P8 Tel. (403) 273-5192 Fax. (403) 236-6864

COLUMBIA GEOSYSTEMS
A WHOLLY OWNED SUBSIDIARY OF NATIONAL SEAL COMPANY

POLYETHYLENE CERTIFICATE OF ANALYSIS

Project : 117-98-77

Customer : OHM/IT CORPORATION Resin Type:NOVA CHEMICALS

Project Name : TOLEDO TIE YARD INTERIM

Columbia Ref : 117-98-77

We hereby certify that the polyethylene resin for the above identified shipment, meets or exceeds Columbia Geosystem's specifications, below. Testing was performed on each resin blend.

Melt flow index was determined according to ASTM D 1238. Density was determined according to ASTM D 1505 or D 792. Where appropriate, pigment content was determined according to ASTM D 4218. The average test results are listed in the table below.

RESIN SPECIFICATIONS

Melt flow index 1.0 g/10 minutes Maximum
Density - HDPE 0.930 g/cc Minimum
Density - LLDPE 0.925 g/cc Maximum

Lot Number	Columbia Batch #	Melt Flow Index g/10	Density g/cc	Carbon Content %	OIT Min.
JP00011733	413	0.452	0.933	N/A	124

Q.C. TECHNICIAN

Nov 9/98
DATE

Page 1.1

NOVA Chemicals

CGL BATCH # 4 1 3

NOVA Chemicals Ltd.
Post Office Box 5006
Red Deer, Alberta
Canada T4N 6A1
Telephone (403) 342-8511
FAX (403) 342-8111

CERTIFICATE OF ANALYSIS

August 27, 1998

COLUMBIA GEO SYSTEMS
ABA TRACK M96
CALGARY, AB, CA

NOVA CHEMICALS INC. certifies that the POLYETHYLENE product described herein, meets the requirements of Nova's product specification (s) for such product.

Customer P.O. Number:	5709
Product Weight(KG):	869.26
Nova Product Designation:	TD-2120-A Hopper Car
Nova Order Number:	50427
Nova Batch Number:	JP00011733
Delivery Note Number:	400126137
Container Number:	UNPX124053
Goods Issue Number:	4900507267
Shipment Date:	27-Aug-98

THE FOLLOWING TEST RESULTS WERE OBTAINED:

PROPERTY NAME	UNITS	RESULTS
BULK DENSITY	LBS/FT3	33.7
COLOR	-	C+
DENSITY	G/CM3	0.9337
FILM APPEARANCE RATING	NUMBER	10
FLOW INDEX	G/10 MIN	15.62
MELT FLOW RATIO	-	37.2
MELT INDEX	G/10 MIN	0.42
OXIDATIVE INDUCTION @ 200 C	MIN	162

LYLE GIBSON
QUALITY SERVICES COORDINATOR

CONTACTS:

GREG SHARRUN	BRUCE WALLACE
1-403-236-6864	1-403-336-6864

B/L

COLUMBIA GEOSYSTEMS
A WHOLLY OWNED SUBSIDIARY OF NATIONAL SEAL COMPANY

GEOMEMBRANE CERTIFICATE OF ANALYSIS

Customer : OHM/IT CORPORATION

Project Name : TOLEDO TIE YARD INTERIM

Columbia Ref.# : 117-98-77

We hereby certify that the polyethylene geomembrane for the above identified shipment meets or exceeds Columbia Geosystem's specifications below. Testing was performed at the frequency indicated.

The raw polymeric material is first quality polyethylene resin containing no more than two percent clean reworked plastic by weight. Thickness was measured according to ASTM D 5199. Tensile properties were determined in accordance with ASTM D 638, NSF modified, using type IV dumbbell specimen, strain rate of two inches per minute, and grip movement for strain determinations. Carbon black dispersion slides were prepared and rated according to ASTM D 5596, under 100x magnification. Carbon black content was determined according to ASTM D 4218. Density was determined according to ASTM D 1505. Tear resistance was tested according to ASTM D1004.

GEOMEMBRANE SPECIFICATIONS

Thickness	60 mil Minimum (av)	at least every 47,840 ft^2
Stress at yield	2200 psi Minimum	at least every 47,840 ft^2
Stress at break	3800 psi Minimum	at least every 47,840 ft^2
Strain at yield	13 % Minimum	at least every 47,840 ft^2
Strain at break	700 % Minimum	at least every 47,840 ft^2
Carbon black dispersion	CAT 1 or 2	at least every 47,840 ft^2
Carbon black content	2 % Minimum	at least every 47,840 ft^2
Dimensional Stability	+/- 2 %	at least once per shift
Density	0.940 g/cc min.	at least every 47,840 ft^2
Tear resistance	750 ppi/thickness	at least once per day

Columbia Geosystems

Bruce Wallace
Quality Control Supervisor

Nov 9/98
Date

COLUMBIA GEOSYSTEMS
A WHOLLY OWNED SUBSIDIARY OF NATIONAL SEAL COMPANY

GEOMEMBRANE STANDARD TESTING CERTIFICATION

PROJECT # 117-98-77

Roll Number	Thick Min mil	Thick Ave mil	Density g/cc	Carbon Cont. %	Carbon Disp	Stress Yield MD psi	Stress Yield TD psi
413B98-36747	55.0	60.3	0.945	2.34	CAT 1	2441	2550
413B98-36751	54.0	60.1	0.944	2.15	CAT 1	2588	2624

Page 1.1 Cont...

COLUMBIA GEOSYSTEMS
A WHOLLY OWNED SUBSIDIARY OF NATIONAL SEAL COMPANY

GEOMEMBRANE STANDARD TESTING CERTIFICATION

PROJECT # 117-98-77

Roll Number	Stress Break MD psi	Stress Break TD psi	Strain Yield MD %	Strain Yield TD %	Strain Break MD %	Strain Break TD %	Dimen Stabili MD %
413B98-36747	5542	5903	19.1	17.5	974	1047	-0.26
413B98-36751	5668	6133	18.4	16.7	960	1062	-0.27

Page 1.2 Cont....

COLUMBIA GEOSYSTEMS
A WHOLLY OWNED SUBSIDIARY OF NATIONAL SEAL COMPANY

GEOMEMBRANE STANDARD TESTING CERTIFICATION

PROJECT # 117-98-77

Roll Number	Dimen Stabili TD %	Tear Resist MD ppi	Tear Resist TD ppi
413B98-36747	0.00	824	834
413B98-36751	-0.11		

US. 750

Q.C. TECHNICIAN

Nov 9/98
DATE

Page 1.3

APPENDIX D-4

Water Treatment System Analytical Results

A116873

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1921

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☒ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lakhart

Client: KERR-MCGEE
Site: Toledo TIC TREATMENT SITE
Project#: KMC-001 Phase: 01.SMP
Samplers: JLM

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$ (0.008N); G – HCL pH<2

METALS: F – FILTERED, N – NOT FILTERED, B – BOTH

All samples are kept at 4°C.

ANALYSES / PRESERVATIVES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	EXP/TSS	VPP	METALS	OIL/P	CN							COMMENTS
Groundwater-MW-6/2/99 T-512	1	6		6-2-99 / 1000	1	2	1	1	1							Cooler blank sample

RELINQUISHED BY: Jeffrey L. Monin	DATE: 6-2-99 TIME: 11-30-[illegible]	RECEIVED BY: [illegible]	DATE: 6-2-99 TIME: -11-35
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –
COOLER TEMPERATURE AS RECEIVED °C: 3°	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT); YELLOW —LAB USE; PINK —RETAINED BY HA	

Deliver To: J&H Lab
Method of Delivery: HAND
Airbill Number:
NOTES: [illegible]

HA-0997/289 06/14/97 CORNER

CF

Data for ACIDS and BASE/NEUTRALS by GCMS (continued):

Component Name	*Result*	*Component MDL*
PYRENE	Not detected	1
Surrogate results:	---	
82.5 ug/L 2-Fluorobiphenyl	60.6	
82.5 ug/L 2-Fluorophenol	59.0	
82.5 ug/L Nitrobenzene-D5	61.5	
82.5 ug/l Phenol-D6	66.9	
82.5 ug/L Terphenyl-D14	54.3	
82.5 ug/L 2,4,6-Tribromophenol	42.8	

If there are any questions regarding this data, please call.

Fred W. Doering
President

Parameter: CHROMIUM
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 10
Date started: 06/04/99 Date finished: 06/04/99
Time started: Analyst: VW

Parameter: LEAD
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 10
Date started: 06/04/99 Date finished: 06/04/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 06/04/99 Date finished: 06/04/99
Time started: Analyst: TH

Parameter: ACIDS and BASE/NEUTRALS by GCMS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 06/07/99 Date finished: 06/08/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	
10 ug/L Dibromofluoromethane	10.5	
10 ug/L Toluene-D8	9.61	
10 ug/L 4-Bromofluorobenzene	12.9	

Data for ACIDS and BASE/NEUTRALS by GCMS ug/L:

Component Name	Result	Component MDL
2,4-DIMETHYLPHENOL	Not detected	1
ACENAPHTHENE	Not detected	2
ACENAPHTHYLENE	Not detected	1
ANTHRACENE	Not detected	1
BENZO(a)ANTHRACENE	Not detected	4
BENZO(b)FLUORANTHENE	Not detected	4
BENZO(k)FLUORANTHENE	Not detected	3
BENZO(a)PYRENE	Not detected	4
CHRYSENE	Not detected	5
FLUORANTHENE	Not detected	2
FLUORENE	Not detected	1
INDENO(123-cd)PYRENE	Not detected	1
NAPHTHALENE	Not detected	2
PHENANTHRENE	Not detected	1

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

June 11. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD16073 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent19-6/2/99-T392
Sample collector: CLIENT Sample collection date: 06/02/99
Lab submittal date: 06/02/99 Time: 13:13
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 06/07/99 Date finished: 06/08/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.11 mg/L MDL or sensitivity: 0.04
Date started: 06/04/99 Date finished: 06/04/99
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 6.2 ug/L MDL or sensitivity: 5.0
Date started: 06/04/99 Date finished: 06/04/99
Time started: Analyst: VW

Parameter: BARIUM
Method reference: 200.7/6010
Result: 242 ug/L MDL or sensitivity: 20
Date started: 06/04/99 Date finished: 06/04/99
Time started: Analyst: VW

Parameter: CADMIUM
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 1.0
Date started: 06/04/99 Date finished: 06/04/99
Time started: Analyst: VW

AD15109

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1564

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☒ Toledo
2728 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR McGEE
Site: Toledo Tie Treatment Site
Project#: KMC-001 Phase: OL.SMP
Samplers: JLM

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER: _____

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	OIL & GREASE	P	PNAH	VPP	C	C	A	G	COMMENTS
KMC-001-Effluent-18-5/13/99-3127	1	5	–	5/13/99 14:30	1	1	1	2					

RELINQUISHED BY:	DATE: 5-13-99	RECEIVED BY:	DATE: 5-13-99
Jeffrey L. Monroe	TIME: 15 04	K. Przygorski	TIME: 15-55
RELINQUISHED BY:	DATE: 15 04	RECEIVED BY:	DATE: –
	TIME: –		TIME: –
RELINQUISHED BY:	DATE: 5-13-99	RECEIVED FOR LAB BY:	DATE: 5-13-99
K. Przygorski	TIME: 17-00	J. Ulmega	TIME: 1700

COOLER TEMPERATURE AS RECEIVED °C: 4° °C

DISTRIBUTION:
WHITE --LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW --LAB USE
PINK --RETAINED BY HAI

Deliver To: J&H Lab
Method of Delivery: HAND
Airbill Number:

NOTES: Field PH Pool #4 – 8.38

HAI\08987269
08/14/97 CORNER

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	9.66	
10 ug/L Toluene-D8	10.8	
10 ug/L 4-Bromofluorobenzene	12.5	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	4.7	2
FLUORANTHENE	<2 (trace)	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
82.5 ug/L 2-Fluorobiphenyl	65.9	
82.5 ug/L Nitrobenzene-D5	84.9	
82.4 ug/L Terphenyl-D14	64.3	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

May 21. 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD15104 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent18-5/13/99-392T
Sample collector: CLIENT Sample collection date: 05/13/99
Lab submittal date: 05/13/99 Time: 16:17
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 05/14/99 Date finished: 05/14/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.05 mg/L MDL or sensitivity: 0.04
Date started: 05/17/99 Date finished: 05/17/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 05/14/99 Date finished: 05/14/99
Time started: Analyst: TH

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 05/17/99 Date finished: 05/18/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

AD14335

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 2094

☐ Dublin
6130 Wilcox Road
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☐ Mason
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Mason, Ohio 45040
Phone: (513)459-9877
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR-MCGEE

Site: Toledo Tie Treatment Site

Project#: KMC-001 Phase: 01.SMP

Samplers: JLM

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER: _____

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCl pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	OIL & GREASE	P	PNAH	VPP									COMMENTS
					C	C	A	G									
KMCOOl-EFFluent 17 4/29/99 3427	1	5	-	4/29/99 11:05	1	1	1	2									

RELINQUISHED BY: Jeff J. Monnin	DATE: 4-29-99	RECEIVED BY: R. Hoyporsky	DATE: 4-29-99	Deliver To: J & H Lab	
	TIME: 14-55-00		TIME: -14-55		
RELINQUISHED BY:	DATE: - -	RECEIVED BY:	DATE: - -	Method of Delivery: HAND	
	TIME: - -		TIME: - -	Airbill Number:	
RELINQUISHED BY:	DATE: - -	RECEIVED FOR LAB BY:	DATE: 4-29-99	NOTES: Field PH Pool #3 - 8.42	
	TIME: - -		TIME: 15-15-	#4 - 8.30	
COOLER TEMPERATURE AS RECEIVED °C: 4°	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT); YELLOW —LAB USE; PINK —RETAINED BY HA			

HA\FORM\7289 06/04/97 CORNER

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	10.2	
10 ug/L Toluene-D8	10.6	
10 ug/L 4-Bromofluorobenzene	13.8	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	2
FLUORANTHENE	Not detected	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
81.6 ug/L 2-Fluorobiphenyl	54.5	
81.6 ug/L Nitrobenzene-D5	76.7	
81.6 ug/L Terphenyl-D14	69.9	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

May 7, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD14335 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent17-4/29/99-392T
Sample collector: CLIENT Sample collection date: 04/29/99
Lab submittal date: 04/29/99 Time: 15:07
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 05/03/99 Date finished: 05/03/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.13 mg/L MDL or sensitivity: 0.04
Date started: 04/30/99 Date finished: 04/30/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 05/04/99 Date finished: 05/04/99
Time started: Analyst: TH

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 04/30/99 Date finished: 05/05/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

AD139

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 2097

☐ Dublin
6130 Wilcox Road
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☒ Toledo
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☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9877
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical
Site: Toledo Tic
Project#: KMC001 Phase: 01.Smp
Samplers: D. Benecke

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	EXPP	UPP	P	O/G								COMMENTS
KMC001 Effluent 16 42199 T340	1	5		4/21/99 1625	1	2	1	1								

RELINQUISHED BY: David Benecke	DATE: 4-21-99 TIME: 17-10-	RECEIVED BY: Jason D. Finan	DATE: 4-21-99 TIME: 17-00-
RELINQUISHED BY: Jason D. Finan	DATE: 4-22-99 TIME: 8-35-	RECEIVED BY: [signature]	DATE: 4-22-99 TIME: 8-35-
RELINQUISHED BY: [signature]	DATE: 4-22-99 TIME: 9-04-	RECEIVED FOR LAB BY: [signature]	DATE: 4-22-99 TIME: 09-03
COOLER TEMPERATURE AS RECEIVED °C: 1°	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT) YELLOW —LAB USE PINK —RETAINED BY HAI	

Deliver To: J&H Labs
Method of Delivery: Hand
Airbill Number:

NOTES: Field pH = 7.64

HAI/0000T300 08/14/97 CORNER

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Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	11.7	
10 ug/L Toluene-D8	8.63	
10 ug/L 4-Bromofluorobenzene	11.3	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	21	2
FLUORANTHENE	3.5	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
80.8 ug/L 2-Fluorobiphenyl	59.8	
80.8 ug/L Nitrobenzene-D5	76.7	
80.8 ug/L Terphenyl-D14	53.2	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

April 27, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD13961 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent16-42199T340
Sample collector: CLIENT Sample collection date: 04/21/99
Lab submittal date: 04/22/99 Time: 09:07
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 04/26/99 Date finished: 04/27/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.06 mg/L MDL or sensitivity: 0.04
Date started: 04/22/99 Date finished: 04/22/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 04/23/99 Date finished: 04/23/99
Time started: Analyst: TH

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 04/23/99 Date finished: 04/23/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

AD13646

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1816

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☒ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
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☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9877
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Elena Tembreull

Client: RR-McGee
Site: Toledo Tie Treatment Site
Project#: KMC.001 Phase: 01.SMP
Samplers: JLM

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

PRESERVATIVES: C C A G

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	OIL & GREASE	P	PNAH	VPP								COMMENTS
KMC001-EFFluent 154/15/99-3927	1	5	–	4-15-99 15:00	1	1	1	2								

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
Jeff J. Monnin	4-15-99	15-01	R. Szczepanski	4-15-99	-16-00
R. Szczepanski	4-15-99	-16-45	[illegible]	4-15-99	16-45
	–	–	RECEIVED FOR LAB BY:	–	–

COOLER TEMPERATURE AS RECEIVED °C : 1° °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J&H Lab
Method of Delivery: HAND
Airbill Number:

NOTES:

HAI\0999T269 08/14/97 CORNER

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	10.0	
10 ug/L Toluene-D8	10.4	
10 ug/L 4-Bromofluorobenzene	12.8	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	2
FLUORANTHENE	Not detected	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
80.8 ug/L 2-Fluorobiphenyl	41.0	
80.8 ug/L Nitrobenzene-D5	57.5	
80.8 ug/L Terphenyl-D14	51.7	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

April 21. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD13646 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent15-4/15/99-392T
Sample collector: CLIENT Sample collection date: 04/15/99
Lab submittal date: 04/15/99 Time: 16:20
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 04/19/99 Date finished: 04/20/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.07 mg/L MDL or sensitivity: 0.04
Date started: 04/16/99 Date finished: 04/16/99
Time started: Analyst: JC

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 04/20/99 Date finished: 04/20/99
Time started: Analyst: TH

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 04/19/99 Date finished: 04/19/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	11.6	
10 ug/L Toluene-D8	8.11	
10 ug/L 4-Bromofluorobenzene	12.5	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	2
FLUORANTHENE	2.7	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
81.6 ug/L 2-Fluorobiphenyl	47.2	
81.6 ug/L Nitrobenzene-D5	49.8	
81.6 ug/L Terphenyl-D14	61.6	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

April 13, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD12980 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent14-4/5/99-392T
Sample collector: CLIENT Sample collection date: 04/05/99
Lab submittal date: 04/05/99 Time: 16:51
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 04/07/99 Date finished: 04/08/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.08 mg/L MDL or sensitivity: 0.04
Date started: 04/06/99 Date finished: 04/06/99
Time started: Analyst: JC

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 04/06/99 Date finished: 04/06/99
Time started: Analyst: TH

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 04/07/99 Date finished: 04/07/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

AD1249 -99

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1686

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-8070

☑ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9877
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Elena Jankowski

Client: [illegible]
Site: Toledo TIE TREATMENT SITE
Project#: [illegible] Phase: 01.SMI
Samplers: JLM

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER:
PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – Zn/Acetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008N); G – HCL pH<2
METALS: F – FILTERED; N – NOT FILTERED; B – BOTH
All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	SVOC'S	ARSENIC	CHROMIUM	CHLORINE	P	PNAH	VPP					COMMENTS
LMC 001 002 312T	WATER	2		3-24-99 / 14:25	X	X	X									
LMC 001 FILTER 13-3/24/99-312T	2	5	-	3-24-99 / 14:07				1	1	1	2					

RELINQUISHED BY:	DATE: 3-24-99	RECEIVED BY:	DATE: 3-24-99
Jeff J. Hemmin	TIME: 15-40	R. Grzywacki	TIME: 15-40
RELINQUISHED BY: R. Grzywacki	DATE: 3-24-99	RECEIVED BY: J. Mayer	DATE: 3-24-99
	TIME: 17-00		TIME: 17-00
RELINQUISHED BY:	DATE: – –	RECEIVED FOR LAB BY:	DATE: – –
	TIME: – –		TIME: – –

COOLER TEMPERATURE AS RECEIVED °C: -10/3° °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: [illegible] Lab
Method of Delivery: Hand
Airbill Number:
NOTES:

HAI-0001T2D 09/14/97 CORNER

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Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	11.0	
10 ug/L Toluene-D8	8.34	
10 ug/L 4-Bromofluorobenzene	12.[illegible]	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	2
FLUORANTHENE	<2 (trace)	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
81.6 ug/L 2-Fluorobiphenyl	53.2	
81.6 ug/L Nitrobenzene-D5	63.1	
81.6 ug/L Terphenyl-D14	70.1	

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD12192

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component M
10 ug/L Dibromofluoromethane	9.15	
10 ug/L Toluene-D8	9.72	
10 ug/L 4-Bromofluorobenzene	10.2	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MI
ACENAPHTHENE	Not detected	2
FLUORANTHENE	2.1	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
81.6 ug/L 2-Fluorobiphenyl	50.8	
81.6 ug/L Nitrobenzene-D5	63.8	
81.6 ug/L Terphenyl-D14	60.9	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

April 1. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD12499 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent13-3/24/99-392T
Sample collector: CLIENT Sample collection date: 03/24/99
Lab submittal date: 03/24/99 Time: 16:26
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 03/25/99 Date finished: 03/25/99
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.08 mg/L MDL or sensitivity: 0.04
Date started: 03/26/99 Date finished: 03/26/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 03/29/99 Date finished: 03/29/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 03/26/99 Date finished: 03/29/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

AD12192

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

NO. 1690

Hull & Associates, Inc.

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Dublin, Ohio 43017
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Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: ELENA Tembreull

Client: KERR-MCGEE
Site: TOLEDO TIE TREATMENT SITE
Project#: KMC-001 Phase: 01 SMP
Samplers: JLM

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	PRESERVATIVES: C	C	A	G								COMMENTS
					012/6 RE-TOC	P	FNAH	VPP								
KMC 001-Effluent 12-3/18/99-T392	2	5		3-18-99 12:05	1	1	1	2								

RELINQUISHED BY:	DATE: 3-18-99	RECEIVED BY:	DATE: 3-18-99
Jeff. Monnin	TIME: 14-20	R. Szczepanski	TIME: 14-20
RELINQUISHED BY: R. Szczepanski	DATE: 3-18-99	RECEIVED BY: J. Calvaja	DATE: 3-18-99
	TIME: 1630		TIME: 1630
RELINQUISHED BY:	DATE: –	RECEIVED FOR LAB BY:	DATE: –
	TIME: –		TIME: –

COOLER TEMPERATURE AS RECEIVED °C : °C

DISTRIBUTION:
WHITE --LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW --LAB USE
PINK --RETAINED BY HAI

Deliver To: J&H Lab
Method of Delivery: HAND
Airbill Number:

NOTES: Pool #3 PH 8.13
Pool #4 PH 8.31

HAI\09991289
08/14/97 JORMER

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	9.15	
10 ug/L Toluene-D8	9.72	
10 ug/L 4-Bromofluorobenzene	10.2	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	2
FLUORANTHENE	2.1	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
81.6 ug/L 2-Fluorobiphenyl	50.8	
81.6 ug/L Nitrobenzene-D5	63.8	
81.6 ug/L Terphenyl-D14	60.9	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 24, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD12192 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent12-3/18/99-T392
Sample collector: CLIENT Sample collection date: 03/18/99
Lab submittal date: 03/18/99 Time: 15:29
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 03/22/99 Date finished: 03/23/99
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.09 mg/L MDL or sensitivity: 0.04
Date started: 03/19/99 Date finished: 03/19/99
Time started: Analyst: JC

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 03/22/99 Date finished: 03/22/99
Time started: Analyst: TH

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 03/19/99 Date finished: 03/19/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

AD11443

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1540

☐ Dublin
6130 Wilcox Road
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☐ Mason
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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical
Site: Toledo Tie Treatment Site
Project#: KM001 Phase: 01.SMP
Samplers: M. Adams

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCl pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES: PRESERVATIVES C B G C

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	OG	metals	Flt	phos	organics							COMMENTS
KM001-Effluent 7-030399 T436	Water	6		03/03/99 9:55	✓	✓	✓	✓	✓							

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
Michael Adams	03-03-99	11-30 am	R. Szczepanski	3-3-99	-11-30
R. Szczepanski	3-3-99	-12-30	R. Wilcox	3-3-99	12-30 -
RELINQUISHED BY:	DATE: - -	TIME: - -	RECEIVED FOR LAB BY:	DATE: - -	TIME: - -

COOLER TEMPERATURE AS RECEIVED °C : 0° °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HA

Deliver To: Jones & Henry
Method of Delivery:
Airbill Number:

NOTES: Field pH · pool 3 (8.14)
· pool 4 (8.37)

HAV0997259 08/04/97 CORNER

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	<2 (trace)	2
ACENAPHTHYLENE	Not detected	1
ANTHRACENE	Not detected	1
BENZO(a)ANTHRACENE	Not detected	4
BENZO(b)FLUORANTHENE	Not detected	4
BENZO(k)FLUORANTHENE	Not detected	3
BENZO(a)PYRENE	Not detected	4
CHRYSENE	Not detected	5
FLUORANTHENE	7.3	2
FLUORENE	1.0	1
INDENO(123-cd)PYRENE	Not detected	1
NAPHTHALENE	<2 (trace)	2
PHENANTHRENE	6.2	1
PYRENE	5.8	1
Surrogate results:	---	
87.4 ug/L 2-Fluorobiphenyl	59.9	
87.4 ug/L Nitrobenzene-D5	65.9	
87.4 ug/L Terphenyl-D14	80.0	

If there are any questions regarding this data, please call.

Fred W. Doering
President

Parameter: CHROMIUM
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: LEAD
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 03/10/99 Date finished: 03/10/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT ACIDS
Method reference: EPA625/8270 Unit: ug/L
Result: see below
Date started: 03/03/99 Date finished: 03/03/99
Time started: Analyst: JR

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 03/03/99 Date finished: 03/03/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	
10 ug/L Dibromofluoromethane	8.66	
10 ug/L Toluene-D8	9.94	
10 ug/L 4-Bromofluorobenzene	11.0	

Data for PRIORITY POLLUTANT ACIDS ug/L:

Component Name	Result	Component MDL
2,4-DIMETHYLPHENOL	Not detected	1
Surrogate results:	---	
87.4 ug/L 2-Fluorophenol	53.4	
87.4 ug/L Phenol-D6	57.5	
87.4 ug/L 2,4,6-Tribromophenol	35.8	

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 11, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD11443 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent11-030399-T436
Sample collector: CLIENT Sample collection date: 03/03/99
Lab submittal date: 03/03/99 Time: 12:26
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 03/03/99 Date finished: 03/03/99
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.08 mg/L MDL or sensitivity: 0.04
Date started: 03/03/99 Date finished: 03/04/99
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: BARIUM
Method reference: 200.7/6010
Result: 104 ug/L MDL or sensitivity: 10
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: CADMIUM
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 1.0
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

AD10078

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1805

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
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☒ Toledo
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Toledo, Ohio 43606
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☐ Mason
4700 Duke Drive, Suite 172
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Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical
Site: Toledo Tie
Project#: KMC001 Phase: 01. Smp
Samplers: D. Benecke

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER: _____

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

PRESERVATIVES: C / C / A / G

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	Oil/Grease	P	PNAH	VPP								COMMENTS
KMC001Effluent10 2899T340	1	5		2/8/99 1515	1	1	1	2								
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												

RELINQUISHED BY: David Benecke	DATE: 2-8-99 TIME: 4-35-pm	RECEIVED BY: R. Szczepanski	DATE: 2-8-99 TIME: -16-35
RELINQUISHED BY: R. Szczepanski	DATE: 2-8-99 TIME: -17-00	RECEIVED BY: J. Wringa	DATE: 2-8-99 TIME: 1700
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –
COOLER TEMPERATURE AS RECEIVED °C :	4° °C		

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J+H
Method of Delivery: Hand
Airbill Number:

NOTES: pH=8.20 SU

HAI-0999T269
06/14/97 CORNER

RS

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	10.9	
10 ug/L Toluene-D8	8.47	
10 ug/L 4-Bromofluorobenzene	11.4	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	2
FLUORANTHENE	4.5	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
81.6 ug/L 2-Fluorobiphenyl	54.7	
81.6 ug/L Nitrobenzene-D5	69.8	
81.6 ug/L Terphenyl-D14	73.9	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 12. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10078 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent10-2899T340
Sample collector: CLIENT Sample collection date: 02/08/99
Lab submittal date: 02/08/99 Time: 16:51
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 02/11/99 Date finished: 02/11/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.11 mg/L MDL or sensitivity: 0.04
Date started: 02/10/99 Date finished: 02/10/99
Time started: Analyst: JC

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 02/09/99 Date finished: 02/09/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 02/10/99 Date finished: 02/10/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
400 ug/L Dibromofluoromethane	403	
400 ug/L Toluene-D8	370	
400 ug/L 4-Bromofluorobenzene	411	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	200	4
FLUORANTHENE	47	4
NAPHTHALENE	4200	110
Surrogate results:	---	
87.0 ug/L 2-Fluorobiphenyl	39.7	
87.0 ug/L Nitrobenzene-D5	62.5	
87.0 ug/L Terphenyl-D14	63.2	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 5, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD09575 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Influent2-2199-T340
Sample collector: CLIENT Sample collection date: 02/01/99
Lab submittal date: 02/02/99 Time: 09:04
Received by: JK Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 02/02/99 Date finished: 02/03/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.20 mg/L MDL or sensitivity: 0.04
Date started: 02/05/99 Date finished: 02/05/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 02/03/99 Date finished: 02/03/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 02/02/99 Date finished: 02/03/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	370	40
ETHYLBENZENE	110	40
TOLUENE	390	40
Surrogate results:	---	

AD 09575

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 2085

☐ Dublin
6130 Wilcox Road
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☒ Toledo
2726 Monroe Street
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FAX: (419)241-3117

☐ Mason
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Mason, Ohio 45040
Phone: (513)459-9877
FAX: (513)459-9869

☐ Warrensville Heights
4849 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical

Site: Toledo Tie

Project#: KMC001 Phase: 01.SMP

Samplers: D. Benecke

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER: _____

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – Zn Acetate + NaOH, pH>9; F – $Na_2S_2O_3$ (0.008%); G – HCl pH<2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES / PRESERVATIVES: G C A C

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	VPP	P	PNAH	Oil/Grease	COMMENTS
KMC001 Influent2 21997340	1	5		2/1/99 1625	1	1	1	1	
KMC001 Effluent9 21997340	1	5		2/1/99 1620	1	1	1	1	

RELINQUISHED BY: David Benecke	DATE: 2-2-99 TIME: 8-50-am	RECEIVED BY: J. Rayser	DATE: 2-2-99 TIME: 08-50-
RELINQUISHED BY: J. Rayser	DATE: 2-2-99 TIME: 09-30-	RECEIVED BY: J. Morgan	DATE: 2-2-99 TIME: 09-30-
RELINQUISHED BY:	DATE: - - TIME: - -	RECEIVED FOR LAB BY:	DATE: - - TIME: - -

COOLER TEMPERATURE AS RECEIVED °C : °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: JHI

Method of Delivery: Hand

Airbill Number:

NOTES: Cooler temp = 5 degrees

HAI-0997380 08/94/97 COMMER

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	10.5	
10 ug/L Toluene-D8	8.95	
10 ug/L 4-Bromofluorobenzene	12.0	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	2
FLUORANTHENE	4.4	2
NAPHTHALENE	<2 (trace)	2
Surrogate results:	---	
82.0 ug/L 2-Fluorobiphenyl	47.1	
82.0 ug/L Nitrobenzene-D5	57.8	
82.0 ug/L Terphenyl-D14	56.5	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 5. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD09576 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent9-2199-T340
Sample collector: CLIENT Sample collection date: 02/01/99
Lab submittal date: 02/02/99 Time: 09:04
Received by: JK Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 02/02/99 Date finished: 02/03/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.14 mg/L MDL or sensitivity: 0.04
Date started: 02/04/99 Date finished: 02/04/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 02/03/99 Date finished: 02/03/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 02/02/99 Date finished: 02/03/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

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CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 2059

☐ Dublin
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FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical
Site: Toledo Tie
Project#: KMC001 Phase: 01.5MP
Samplers: D. Benecki

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$ (0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

PRESERVATIVES: C A C G

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	O/G	Exp P	VPP								COMMENTS
KMC001 Effluent 8 12599T340	1	5		1/25/99 1650	1	1	1	2							
				/											
				/											
				/											
				/											
				/											
				/											
				/											
				/											
				/											
				/											
				/											

RELINQUISHED BY: David Benecki	DATE: 1-25-99 TIME: 5-40-pm	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY: W. Schlachter	DATE: 1-25-99 TIME: 5-40-pm
COOLER TEMPERATURE AS RECEIVED °C :	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT) YELLOW —LAB USE PINK —RETAINED BY HAI	

Deliver To: J+H Labs
Method of Delivery: Hand
Airbill Number:

NOTES: Iced WS

HAI\0999T369
08/14/97 CORNER

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6

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
200 ug/L Dibromofluoromethane	196	
200 ug/L Toluene-D8	188	
200 ug/L 4-Bromofluorobenzene	179	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	150	2
FLUORANTHENE	31	2
NAPHTHALENE	1500	100
Surrogate results:	---	
80.8 ug/L 2-Fluorobiphenyl	44.7	
80.8 ug/L Nitrobenzene-D5	64.4	
80.8 ug/L Terphenyl-D14	53.3	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 1, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD09185 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent8-12599-T340
Sample collector: CLIENT Sample collection date: 01/25/99
Lab submittal date: 01/25/99 Time: 08:21
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 01/29/99 Date finished: 01/29/99
Time started: Analyst: WS

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.14 mg/L MDL or sensitivity: 0.04
Date started: 01/28/99 Date finished: 01/28/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 01/26/99 Date finished: 01/26/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 01/26/99 Date finished: 01/26/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	190	20
ETHYLBENZENE	77	20
TOLUENE	230	20
Surrogate results:	---	

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1494

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical

Site: Toledo TSE

Project#: KMC001 Phase: 01, MNT

Samplers: D. Benecke

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES — PRESERVATIVES: C A C G A

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	Oil & Grease	TSS	P	VOP	EXP							COMMENTS
KMC001 Effluent 1 11899 T340	1	6		1/18/99 1720	1	1	1	2	1							

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
David Benecke	1-18-99	Jeff L. Thomson	1-18-99
	TIME: 5-55 pm		TIME: 6-00 pm
RELINQUISHED BY: Jeff L. Thomson	DATE: 1-19-99	RECEIVED BY: Elena Tamborell	DATE: 1-19-99
	TIME: 7-30 am		TIME: 7-35 am
RELINQUISHED BY: Elena Tamborell	DATE: 1-19-99	RECEIVED FOR LAB BY: K. Lucyanski	DATE: 1-19-99
	TIME: 8-00 am		TIME: 0828

COOLER TEMPERATURE AS RECEIVED °C : °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J+H Labs

Method of Delivery: Hand

Airbill Number:

NOTES: Cooler temp = 1 degree
[illegible] TSS per [illegible] (JK)
(S)

(S)

HAI-0997-7369
08/14/97 CORNER

Data for PRIORITY POLLUTANT VOLATILES (continued):

Component Name	Result	Component MDL
10 ug/L Dibromofluoromethane	10.4	
10 ug/L Toluene-D8	9.46	
10 ug/L 4-Bromofluorobenzene	9.71	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	10	2
FLUORANTHENE	19	2
NAPHTHALENE	Not detected	2
Surrogate results:	---	
80.8 ug/L 2-Fluorobiphenyl	80.3	
80.8 ug/L Nitrobenzene-D5	75.9	
80.8 ug/L Terphenyl-D14	82.9	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

January 21. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD08827 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent7-11899-T340
Sample collector: CLIENT Sample collection date: 01/18/99
Lab submittal date: 01/19/99 Time: 08:24
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 01/19/99 Date finished: 01/19/99
Time started: Analyst: CF

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.33 mg/L MDL or sensitivity: 0.04
Date started: 01/21/99 Date finished: 01/21/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 01/19/99 Date finished: 01/19/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 01/19/99 Date finished: 01/19/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

AD08-51

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

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NO. 1547

☐ Dublin
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FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical
Site: Toledo Tie Treatment Site
Project#: KMC001 Phase: 01-SMP
Samplers: C. Barck

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER:
PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2
METALS: F – FILTERED; N – NOT FILTERED; B – BOTH
All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	PRESERVATIVES: C	A	A	C	G							COMMENTS
					OG	Expp	pH-TSS	P	UPP							
KMC001-Effluent6-122398-1400	1	6		12/23/98 1050	✓	✓	✓	✓	✓							

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Guy Barck	12-23-98	Jeff L. Monnier	12-23-98
	TIME: 11-10-am		TIME: 11-10-AM
RELINQUISHED BY: Jeff Monnier	DATE: 12-23-98	RECEIVED BY: Paul D. Firman	DATE: 11-23-98
	TIME: 11-30-AM		TIME: 11-30-AM
RELINQUISHED BY: Paul D. Firman	DATE: 12-23-98	RECEIVED FOR LAB BY: R. Kuczynski	DATE: 12-23-98
	TIME: 12-50-PM		TIME: 1250
COOLER TEMPERATURE AS RECEIVED °C: 50	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT); YELLOW —LAB USE; PINK —RETAINED BY HAI	

Deliver To: Jones + Henry
Method of Delivery: Hand
Airbill Number:

NOTES: Per Rena Gillo's attached list, no TSS. (D)

HAI/08/97/300 08/14/97 CORNER

8
RD

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYL BENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	
10 ug/L Dibromofluoromethane	11.3	
10 ug/L Toluene-D8	9.93	
10 ug/L 4-Bromofluorobenzene	11.2	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	12	9
FLUORANTHENE	61	9
NAPHTHALENE	Not detected	9
Surrogate results:	---	
87.0 ug/L 2-Fluorobiphenyl	63.7	
87.0 ug/L Nitrobenzene-D5	59.4	
87.0 ug/L Terphenyl-D14	63.0	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

January 5, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD08051 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-EFFLUENT6-122398-T400
Sample collector: CLIENT Sample collection date: 12/23/98
Lab submittal date: 12/23/98 Time: 13:03
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C
Method reference: SM18-4500
Result: 7.72 Std. MDL or sensitivity: 1.00
Date started: 12/23/98 Date finished: 12/23/98
Time started: Analyst: JC

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 12/24/98 Date finished: 12/24/98
Time started: Analyst: CF

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.16 mg/L MDL or sensitivity: 0.04
Date started: 12/30/98 Date finished: 12/30/98
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 12/30/98 Date finished: 12/30/98
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 12/29/98 Date finished: 12/30/98
Time started: Analyst: JR

AD07682

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1531

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kelly-McGee

Site: Toledo Tie

Project#: KMC001 Phase: 01.SMP

Samplers: Jason Finan

SAMPLE MATRIX	PRESERVATIVE	METALS
1. WATER	A – Cool only, <4° C	F – FILTERED
2. SOIL	B – HNO_3 pH<2	N – NOT FILTERED
3. SLUDGE	C – H_2SO_4 pH<2	B – BOTH
4. OIL	D – NaOH pH>12	
5. TISSUE	E – Zinc acetate + NaOH, pH>9	
6. SEDIMENT	F – $Na_2S_2O_3$(0.008%)	
OTHER:	G – HCL pH <2	

All samples are kept at 4°C.

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	ANALYSES: Oil + Grease											COMMENTS
KMC001-Effluent 5-121698-T400	1	1	N	12/16/98	1											Replacement for broken sample

PRESERVATIVES: C

RELINQUISHED BY:	DATE: 12-16-98	RECEIVED BY:	DATE: 12-16-98
[signature]	TIME: 14-10-00	[signature]	TIME: 14-10-
RELINQUISHED BY: J. Kayser	DATE: 12-16-98	RECEIVED BY: J. Omega	DATE: 12-16-98
	TIME: 16-45-		TIME: 16-45-
RELINQUISHED BY:	DATE: – –	RECEIVED FOR LAB BY:	DATE: – –
	TIME: – –		TIME: – –

COOLER TEMPERATURE AS RECEIVED °C : °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: JTH Labs

Method of Delivery: Hand

Airbill Number:

NOTES:

HAI/08/97/300
08/04/97 CORNER

PO

AD07636

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

NO. 1449

Hull & Associates, Inc.

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FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical
Site: Toledo Tie Treatment Site
Project#: KMC001 Phase: 01.SMP
Samplers: C. Borck

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	EXPP	Metals	VPP	TSS	P	O/G	CN					COMMENTS
KMC001-Effluent 5-121698-T400	1	8	N	12/16/98 0845	1	1	2	1	1	1	1					[illegible]

RELINQUISHED BY:	DATE: 12-16-98	TIME: 09-11-00	RECEIVED BY:	DATE: 12-16-98	TIME: 09-16-00
[signature]			[signature]		
RELINQUISHED BY:	DATE: 12-16-98	TIME: 10-10-00	RECEIVED BY:	DATE: 12-16-98	TIME: 1010
[signature]			[signature]		
RELINQUISHED BY:	DATE: 12-16-98	TIME: 1130	RECEIVED FOR LAB BY:	DATE: 12-16-98	TIME: 11-30
[signature]			[signature]		

COOLER TEMPERATURE AS RECEIVED °C : °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J+H Labs
Method, of Delivery: Hand
Airbill Number:

NOTES: Field pH
~~[illegible]~~ Carbon Tank: 7.82
Effluent: 7.93, 7.86

HAI\0999T269
08/14/97 CORNER

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

December 23, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD07682 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-EFFLUENT5-121698-T400
Sample collector: CLIENT Sample collection date: 12/16/98
Lab submittal date: 12/16/98 Time: 14:12
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 12/16/98 Date finished: 12/17/98
Time started: Analyst: JC

If there are any questions regarding this data, please call.

September L. Arriaga

September L. Arriaga
Vice President

Data for PRIORITY POLLUTANT BASE/NEUTRALS (continued):

Component Name	Result	Component MDL
INDENO(123-cd)PYRENE	4.2	2
ISOPHORONE	Not detected	2
NAPHTHALENE	Not detected	3
NITROBENZENE	Not detected	2
N-NITROSO-DIMETHYLAMINE	Not detected	3
N-NITROSO-DI-N-PROPYLAMINE	Not detected	2
N-NITROSO-DIPHENYLAMINE	Not detected	2
PHENANTHRENE	230	3
PYRENE	140	2
1,2,4-TRICHLOROBENZENE	Not detected	2
Surrogate results:	---	
87.9 ug/L 2-Fluorobiphenyl	50.3	
87.9 ug/L Nitrobenzene-D5	48.3	
87.9 ug/L Terphenyl-D14	62.9	

If there are any questions regarding this data, please call.

September L. Arriaga
Vice President

Data for PRIORITY POLLUTANT ACIDS (continued):

Component Name	Result	Component MDL
2-NITROPHENOL	Not detected	2
4-NITROPHENOL	Not detected	8
p-CHLORO-m-CRESOL	Not detected	2
PENTACHLOROPHENOL	Not detected	2
PHENOL	Not detected	5
2,4,6-TRICHLOROPHENOL	Not detected	2
Surrogate results:	---	
87.9 ug/L 2-Fluorophenol	51.8	
87.9 ug/L Phenol-D6	47.8	
87.9 ug/L 2,4,6-Tribromophenol	39.6	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	44	3
ACENAPHTHYLENE	8.8	2
ANTHRACENE	33	2
BENZIDINE	Not detected	2
BENZO(a)ANTHRACENE	43	6
BENZO(b)FLUORANTHENE	16	6
BENZO(k)FLUORANTHENE	29	5
BENZO(a)PYRENE	27	6
BENZO(ghi)PERYLENE	4.1	2
bis(2-CHLOROETHOXY)METHANE	Not detected	2
bis(2-CHLOROETHYL)ETHER	Not detected	3
bis(2-CHLOROISOPROPYL)ETHER	Not detected	3
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	2
4-BROMOPHENYL PHENYL ETHER	Not detected	2
BUTYL BENZYL PHTHALATE	Not detected	2
2-CHLORONAPHTHALENE	Not detected	2
4-CHLOROPHENYL PHENYL ETHER	Not detected	3
CHRYSENE	34	8
DIBENZO(a,h)ANTHRACENE	Not detected	2
1,2-DICHLOROBENZENE	Not detected	2
1,3-DICHLOROBENZENE	Not detected	3
1,4-DICHLOROBENZENE	Not detected	2
3,3'-DICHLOROBENZIDINE	Not detected	2
DIETHYL PHTHALATE	Not detected	2
DIMETHYL PHTHALATE	Not detected	2
DI-N-BUTYL PHTHALATE	Not detected	2
2,4-DINITROTOLUENE	Not detected	2
2,6-DINITROTOLUENE	Not detected	2
DI-N-OCTYL PHTHALATE	Not detected	2
1,2-DIPHENYLHYDRAZINE	Not detected	2
FLUORANTHENE	180	7
FLUORENE	70	2
HEXACHLOROBENZENE	Not detected	3
HEXACHLOROBUTADIENE	Not detected	2
HEXACHLOROCYCLOPENTADIENE	Not detected	2
HEXACHLOROETHANE	Not detected	2

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 12/18/98 Date finished: 12/18/98
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
ACROLEIN	Not detected	10
ACRYLONITRILE	Not detected	5
BENZENE	Not detected	1
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	2
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	2
2-CHLOROETHYL VINYL ETHER	Not detected	2
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	2
DIBROMOCHLOROMETHANE	Not detected	1
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1
1,1-DICHLOROETHENE	Not detected	1
t-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
c-1,3-DICHLOROPROPENE	Not detected	1
t-1,3-DICHLOROPROPENE	Not detected	1
ETHYLBENZENE	Not detected	1
METHYLENE CHLORIDE	Not detected	2
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
TOLUENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	2
VINYL CHLORIDE	Not detected	2
Surrogate results:	---	
10 ug/L Dibromofluoromethane	10.8	
10 ug/L Toluene-D8	9.53	
10 ug/L 4-Bromofluorobenzene	9.35	

Data for PRIORITY POLLUTANT ACIDS ug/L:

Component Name	Result	Component MDL
2-CHLOROPHENOL	Not detected	2
2,4-DICHLOROPHENOL	Not detected	2
2,4-DIMETHYLPHENOL	Not detected	2
4,6-DINITRO-o-CRESOL	Not detected	2
2,4-DINITROPHENOL	Not detected	3

Parameter: BARIUM
Method reference: 200.7/6010
Result: 112 ug/L
MDL or sensitivity: 10
Date started: 12/18/98
Date finished: 12/18/98
Time started:
Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 1
Date started: 12/18/98
Date finished: 12/18/98
Time started:
Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 12/18/98
Date finished: 12/18/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 12/18/98
Date finished: 12/18/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: ug/L
Result: Not detected
MDL or sensitivity: 0.2
Date started: 12/17/98
Date finished: 12/17/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 12/18/98
Date finished: 12/18/98
Time started:
Analyst: JH

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 12/18/98
Date finished: 12/18/98
Time started:
Analyst: JH

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240
Unit: ug/L
Result: see below
Date started: 12/18/98
Date finished: 12/18/98
Time started:
Analyst: VW

Parameter: PRIORITY POLLUTANT ACIDS
Method reference: EPA625/8270
Unit: ug/L
Result: see below
Date started: 12/18/98
Date finished: 12/18/98
Time started:
Analyst: JR

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

December 23, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD07626 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-EFFLUENT5-121698-T400
Sample collector: CLIENT Sample collection date: 12/16/98
Lab submittal date: 12/16/98 Time: 10:16
Received by: RS Validated by: SA

Parameter: pH @ 25 DEG C
Method reference: SM18-4500
Result: 7.78 Std. MDL or sensitivity: 1.00
Date started: 12/16/98 Date finished: 12/16/98
Time started: Analyst: CF

Parameter: SOLIDS, SUSP. 104 DEG C
Method reference: SM18-2540D
Result: 11 mg/L MDL or sensitivity: 5
Date started: 12/17/98 Date finished: 12/17/98
Time started: Analyst: CF

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.005
Date started: 12/17/98 Date finished: 12/17/98
Time started: Analyst: CF

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.24 mg/L MDL or sensitivity: 0.04
Date started: 12/17/98 Date finished: 12/17/98
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 12/18/98 Date finished: 12/18/98
Time started: Analyst: JH

A DOCS

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1424

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6130 Wilcox Road
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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr McGee Chemical
Site: Toledo Tic
Project#: KMC 001 Phase: 01.SMP
Samplers: D. Benecke

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER ____

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008N); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	CN	8	EXPP	Metals	TSS	VAP	OG					COMMENTS
KMC001 EFFLUENT4 120198 T340	1	8	N	12/1/98 0930	1	1	1	1	1	2	1					

RELINQUISHED BY: David Benecke	DATE: 12-01-98 TIME: 9-45 am	RECEIVED BY: Jeff L. Monnin	DATE: 12-01-98 TIME: 9-45 am
RELINQUISHED BY: Jeff L. Monnin	DATE: 12-01-98 TIME: 10-40	RECEIVED BY: R. Szczepanski	DATE: 12-1-98 TIME: 10:40
RELINQUISHED BY: R. Szczepanski	DATE: 12-1-98 TIME: 1300	RECEIVED FOR LAB BY: S. Amaya	DATE: 12-1-98 TIME: 13-00
COOLER TEMPERATURE AS RECEIVED °C:	10 °C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT); YELLOW —LAB USE; PINK —RETAINED BY HA	

Deliver To: J+H Labs
Method of Delivery: Hand
Airbill Number:

NOTES: Field pH = 8.12 SU

HA/0898T3B 08/14/97 CORNER

Data for PRIORITY POLLUTANT BASE/NEUTRALS (continued):

Component Name	Result	Component MDL
FLUORENE	Not detected	1
HEXACHLOROBENZENE	Not detected	2
HEXACHLOROBUTADIENE	Not detected	1
HEXACHLOROCYCLOPENTADIENE	Not detected	1
HEXACHLOROETHANE	Not detected	1
INDENO(123-cd)PYRENE	Not detected	1
ISOPHORONE	Not detected	1
NAPHTHALENE	Not detected	2
NITROBENZENE	Not detected	1
N-NITROSO-DIMETHYLAMINE	Not detected	2
N-NITROSO-DI-N-PROPYLAMINE	Not detected	1
N-NITROSO-DIPHENYLAMINE	Not detected	1
PHENANTHRENE	2.5	1
PYRENE	14	1
1,2,4-TRICHLOROBENZENE	Not detected	1
Surrogate results:	---	
93.0 ug/L 2-Fluorobiphenyl	68.9	
93.0 ug/L Nitrobenzene-D5	80.9	
93.0 ug/L Terphenyl-D14	67.1	

If there are any questions regarding this data, please call.

Fred W. Doering
President

Data for PRIORITY POLLUTANT ACIDS ug/L:

Component Name	Result	Component MDL
2-CHLOROPHENOL	Not detected	1
2,4-DICHLOROPHENOL	Not detected	1
2,4-DIMETHYLPHENOL	Not detected	1
4,6-DINITRO-o-CRESOL	Not detected	1
2,4-DINITROPHENOL	Not detected	2
2-NITROPHENOL	Not detected	1
4-NITROPHENOL	Not detected	6
p-CHLORO-m-CRESOL	Not detected	1
PENTACHLOROPHENOL	Not detected	1
PHENOL	Not detected	3
2,4,6-TRICHLOROPHENOL	Not detected	1
Surrogate results:	---	
93.0 ug/L 2-Fluorophenol	78.1	
93.0 ug/L Phenol-D6	66.8	
93.0 ug/L 2,4,6-Tribromophenol	48.9	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	<2 (trace)	2
ACENAPHTHYLENE	Not detected	1
ANTHRACENE	Not detected	1
BENZIDINE	Not detected	1
BENZO(a)ANTHRACENE	<5 (trace)	5
BENZO(b)FLUORANTHENE	<5 (trace)	5
BENZO(k)FLUORANTHENE	Not detected	3
BENZO(a)PYRENE	Not detected	5
BENZO(ghi)PERYLENE	Not detected	1
bis(2-CHLOROETHOXY)METHANE	Not detected	1
bis(2-CHLOROETHYL)ETHER	Not detected	2
bis(2-CHLOROISOPROPYL)ETHER	Not detected	2
bis(2-ETHYLHEXYL)PHTHALATE	3.1	1
4-BROMOPHENYL PHENYL ETHER	Not detected	1
BUTYL BENZYL PHTHALATE	Not detected	1
2-CHLORONAPHTHALENE	Not detected	1
4-CHLOROPHENYL PHENYL ETHER	Not detected	2
CHRYSENE	Not detected	6
DIBENZO(a,h)ANTHRACENE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	2
1,4-DICHLOROBENZENE	Not detected	1
3,3'-DICHLOROBENZIDINE	Not detected	1
DIETHYL PHTHALATE	Not detected	1
DIMETHYL PHTHALATE	Not detected	1
DI-N-BUTYL PHTHALATE	Not detected	1
2,4-DINITROTOLUENE	Not detected	1
2,6-DINITROTOLUENE	Not detected	1
DI-N-OCTYL PHTHALATE	Not detected	1
1,2-DIPHENYLHYDRAZINE	Not detected	1
FLUORANTHENE	23	2

Parameter: PRIORITY POLLUTANT ACIDS
Method reference: EPA625/8270 Unit: ug/L
Result: see below
Date started: 12/04/98 Date finished: 12/07/98
Time started: Analyst: JR

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 12/04/98 Date finished: 12/07/98
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
ACROLEIN	Not detected	10
ACRYLONITRILE	Not detected	5
BENZENE	Not detected	1
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	2
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	2
2-CHLOROETHYL VINYL ETHER	Not detected	2
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	2
DIBROMOCHLOROMETHANE	Not detected	1
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1
1,1-DICHLOROETHENE	Not detected	1
t-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
c-1,3-DICHLOROPROPENE	Not detected	1
t-1,3-DICHLOROPROPENE	Not detected	1
ETHYLBENZENE	Not detected	1
METHYLENE CHLORIDE	Not detected	2
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
TOLUENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	2
VINYL CHLORIDE	Not detected	2
Surrogate results:	---	
10 ug/L Dibromofluoromethane	10.8	
10 ug/L Toluene-D8	7.89	
10 ug/L 4-Bromofluorobenzene	12.1	

Parameter: ARSENIC
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: AA

Parameter: BARIUM
Method reference: 200.7/6010
Result: 80 ug/L MDL or sensitivity: 10
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: AA

Parameter: CADMIUM
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 1
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: AA

Parameter: LEAD
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: AA

Parameter: MERCURY
Method reference: 245.1/7470 Unit: ug/L
Result: Not detected MDL or sensitivity: 0.2
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: AA

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: VW

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

December 9, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD06584 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-120198T340
Sample collector: CLIENT Sample collection date: 12/01/98
Lab submittal date: 12/01/98 Time: 11:42
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C
Method reference: SM18--4500
Result: 7.87 Std. MDL or sensitivity: 1.00
Date started: 12/01/98 Date finished: 12/01/98
Time started: Analyst: WS

Parameter: SOLIDS, SUSP. 104 DEG C
Method reference: SM18--2540D Unit: mg/L
Result: Not detected MDL or sensitivity: 5
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: JC

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500--C/335.3 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.005
Date started: 12/01/98 Date finished: 12/01/98
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.37 mg/L MDL or sensitivity: 0.04
Date started: 12/02/98 Date finished: 12/02/98
Time started: Analyst: JC

Data for PRIORITY POLLUTANT BASE/NEUTRALS (continued):

Component Name	Result	Component MDL
INDENO(123-cd)PYRENE	Not detected	6
ISOPHORONE	Not detected	6
NAPHTHALENE	Not detected	6
NITROBENZENE	Not detected	6
n-NITROSO-DIMETHYLAMINE	Not detected	6
n-NITROSO-DI-n-PROPYLAMINE	Not detected	6
n-NITROSO-DIPHENYLAMINE	Not detected	6
PHENANTHRENE	5.3	3
PYRENE	9.2	3
1,2,4-TRICHLOROBENZENE	Not detected	6
Surrogate results:	---	
92.0 ug/L 2-Fluorobiphenyl	70.0	
92.0 ug/L Nitrobenzene-D5	81.5	
92.0 ug/L Terphenyl-D14	118	

If there are any questions regarding this data, please call.

Fred W. Doering
President

Data for PRIORITY POLLUTANT ACIDS (continued):

Component Name	Result	Component MDL
2-NITROPHENOL	Not detected	6
4-NITROPHENOL	Not detected	6
p-CHLORO-m-CRESOL	Not detected	6
PENTACHLOROPHENOL	Not detected	6
PHENOL	Not detected	3
2,4,6-TRICHLOROPHENOL	Not detected	6
Surrogate results:	---	
92.0 ug/L 2-Fluorophenol	71.7	
92.0 ug/L Phenol-D6	69.7	
92.0 ug/L 2,4,6-Tribromophenol	45.0	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	3
ACENAPHTHYLENE	Not detected	3
ANTHRACENE	Not detected	3
BENZIDINE	Not detected	6
BENZO(a)ANTHRACENE	Not detected	6
BENZO(a)PYRENE	Not detected	3
3,4-BENZOFLUORANTHENE	Not detected	6
BENZO(ghi)PERYLENE	Not detected	6
BENZO(k)FLUORANTHENE	Not detected	6
bis(2-CHLOROETHOXY)METHANE	Not detected	6
bis(2-CHLOROETHYL)ETHER	Not detected	3
bis(2-CHLOROISOPROPYL)ETHER	Not detected	6
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	6
4-BROMOPHENYL PHENYL ETHER	Not detected	6
BUTYL BENZYL PHTHALATE	Not detected	6
2-CHLORONAPHTHALENE	Not detected	11
4-CHLOROPHENYL PHENYL ETHER	Not detected	6
CHRYSENE	Not detected	3
DIBENZO(a,h)ANTHRACENE	Not detected	6
1,2-DICHLOROBENZENE	Not detected	3
1,3-DICHLOROBENZENE	Not detected	3
1,4-DICHLOROBENZENE	Not detected	3
3,3'-DICHLOROBENZIDINE	Not detected	6
DIETHYL PHTHALATE	Not detected	6
DIMETHYL PHTHALATE	Not detected	6
DI-N-BUTYL PHTHALATE	Not detected	6
2,4-DINITROTOLUENE	Not detected	11
2,6-DINITROTOLUENE	Not detected	11
DI-n-OCTYL PHTHALATE	Not detected	6
1,2-DIPHENYLHYDRAZINE	Not detected	6
FLUORANTHENE	10	3
FLUORENE	Not detected	3
HEXACHLOROBENZENE	Not detected	6
HEXACHLOROBUTADIENE	Not detected	6
HEXACHLOROCYCLOPENTADIENE	Not detected	11
HEXACHLOROETHANE	Not detected	6

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 *Unit: ug/L*
Result: see below
Date started: 11/09/98 Date finished: 11/10/98
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
ACROLEIN	Not detected	10
ACRYLONITRILE	Not detected	5
BENZENE	Not detected	1
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	2
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	2
2-CHLOROETHYL VINYL ETHER	Not detected	2
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	2
DIBROMOCHLOROMETHANE	Not detected	1
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1
1,1-DICHLOROETHENE	Not detected	1
t-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
c-1,3-DICHLOROPROPENE	Not detected	1
t-1,3-DICHLOROPROPENE	Not detected	1
ETHYLBENZENE	Not detected	1
METHYLENE CHLORIDE	Not detected	2
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
TOLUENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	2
VINYL CHLORIDE	Not detected	2
Surrogate results:	---	
10 ug/L Dibromofluoromethane	10.6	
10 ug/L Toluene-D8	9.31	
10 ug/L 4-Bromofluorobenzene	9.90	

Data for PRIORITY POLLUTANT ACIDS ug/L:

Component Name	Result	Component MDL
2-CHLOROPHENOL	Not detected	3
2,4-DICHLOROPHENOL	Not detected	3
2,4-DIMETHYLPHENOL	Not detected	3
4,6-DINITRO-o-CRESOL	Not detected	6
2,4-DINITROPHENOL	Not detected	6

Parameter: BARIUM
Method reference: 200.7/6010
Result: 81 ug/L
MDL or sensitivity: 10
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 1
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: ug/L
Result: Not detected
MDL or sensitivity: 0.2
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240
Unit: ug/L
Result: see below
Date started: 11/09/98
Date finished: 11/09/98
Time started:
Analyst: VW

Parameter: PRIORITY POLLUTANT ACIDS
Method reference: EPA625/8270
Unit: ug/L
Result: see below
Date started: 11/09/98
Date finished: 11/10/98
Time started:
Analyst: JR

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

November 12, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD05416 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent 3-110998T340
Sample collector: CLIENT Sample collection date: 11/09/98
Lab submittal date: 11/09/98 Time: 13:00
Received by: RS Validated by: FD

Parameter: SOLIDS, SUSP. 104 DEG C
Method reference: SM18-2540D
Result: 6 mg/L MDL or sensitivity: 5
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: CF

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.005
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.23 mg/L MDL or sensitivity: 0.04
Date started: 11/10/98 Date finished: 11/10/98
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 11/10/98 Date finished: 11/10/98
Time started: Analyst: JH

A.D. 05395

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1988

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
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☒ Toledo
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Toledo, Ohio 43606
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Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Bill Petruzzi

Client: Kerr McGee
Site: Williams Ditch
Project#: KMC001 Phase: 01.MNT
Samplers: D. Benecke

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	EXPP	METALS	VPP	TSS	P	O/G	CN					COMMENTS
					A	B	G	A	C	C	D					
KMC001 EFFLUENT2 110698T340	1	8	N	11/6/98 1600	1	1	2	1	1	1	1					

RELINQUISHED BY: David Benecke	DATE: 11-06-98 TIME: 17-15-hrs	RECEIVED BY: J. Amiga	DATE: 11-06-98 TIME: 17-15-
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –
COOLER TEMPERATURE AS RECEIVED °C :	4.0 °C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT) YELLOW —LAB USE PINK —RETAINED BY HAI	

Deliver To: J&H Labs
Method of Delivery: Hand
Airbill Number:

NOTES:
pH in Field = 9.13 SU

HAI\0989T289
06/14/97 CORNER

Data for PRIORITY POLLUTANT BASE/NEUTRALS (continued):

Component Name	Result	Component MDL
INDENO(123-cd)PYRENE	Not detected	6
ISOPHORONE	Not detected	6
NAPHTHALENE	Not detected	6
NITROBENZENE	Not detected	6
n-NITROSO-DIMETHYLAMINE	Not detected	6
n-NITROSO-DI-n-PROPYLAMINE	Not detected	6
n-NITROSO-DIPHENYLAMINE	Not detected	6
PHENANTHRENE	27	3
PYRENE	25	3
1,2,4-TRICHLOROBENZENE	Not detected	6
Surrogate results:	---	
93.0 ug/L 2-Fluorobiphenyl	64.1	
93.0 ug/L Nitrobenzene-D5	91.4	
93.0 ug/L Terphenyl-D14	94.3	

If there are any questions regarding this data, please call.

Fred W. Doering
President

Data for PRIORITY POLLUTANT ACIDS (continued):

Component Name	Result	Component MDL
2-NITROPHENOL	Not detected	6
4-NITROPHENOL	Not detected	6
p-CHLORO-m-CRESOL	Not detected	6
PENTACHLOROPHENOL	Not detected	6
PHENOL	Not detected	3
2,4,6-TRICHLOROPHENOL	Not detected	6
Surrogate results:	---	
93.0 ug/L 2-Fluorophenol	81.5	
93.0 ug/L Phenol-D6	78.4	
93.0 ug/L 2,4,6-Tribromophenol	51.3	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	3.8	3
ACENAPHTHYLENE	Not detected	3
ANTHRACENE	4.0	3
BENZIDINE	Not detected	6
BENZO(a)ANTHRACENE	<6 (trace)	6
BENZO(a)PYRENE	Not detected	3
3,4-BENZOFLUORANTHENE	Not detected	6
BENZO(ghi)PERYLENE	Not detected	6
BENZO(k)FLUORANTHENE	Not detected	6
bis(2-CHLOROETHOXY)METHANE	Not detected	6
bis(2-CHLOROETHYL)ETHER	Not detected	3
bis(2-CHLOROISOPROPYL)ETHER	Not detected	6
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	6
4-BROMOPHENYL PHENYL ETHER	Not detected	6
BUTYL BENZYL PHTHALATE	Not detected	6
2-CHLORONAPHTHALENE	Not detected	12
4-CHLOROPHENYL PHENYL ETHER	Not detected	6
CHRYSENE	4.8	3
DIBENZO(a,h)ANTHRACENE	Not detected	6
1,2-DICHLOROBENZENE	Not detected	3
1,3-DICHLOROBENZENE	Not detected	3
1,4-DICHLOROBENZENE	Not detected	3
3,3'-DICHLOROBENZIDINE	Not detected	6
DIETHYL PHTHALATE	Not detected	6
DIMETHYL PHTHALATE	Not detected	6
DI-N-BUTYL PHTHALATE	Not detected	6
2,4-DINITROTOLUENE	Not detected	12
2,6-DINITROTOLUENE	Not detected	12
DI-n-OCTYL PHTHALATE	Not detected	6
1,2-DIPHENYLHYDRAZINE	Not detected	6
FLUORANTHENE	30	3
FLUORENE	6.2	3
HEXACHLOROBENZENE	Not detected	6
HEXACHLOROBUTADIENE	Not detected	6
HEXACHLOROCYCLOPENTADIENE	Not detected	12
HEXACHLOROETHANE	Not detected	6

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 11/09/98 Date finished: 11/10/98
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
ACROLEIN	Not detected	10
ACRYLONITRILE	Not detected	5
BENZENE	Not detected	1
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	2
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	2
2-CHLOROETHYL VINYL ETHER	Not detected	2
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	2
DIBROMOCHLOROMETHANE	Not detected	1
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1
1,1-DICHLOROETHENE	Not detected	1
t-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
c-1,3-DICHLOROPROPENE	Not detected	1
t-1,3-DICHLOROPROPENE	Not detected	1
ETHYLBENZENE	Not detected	1
METHYLENE CHLORIDE	Not detected	2
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
TOLUENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	2
VINYL CHLORIDE	Not detected	2
Surrogate results:	---	
10 ug/L Dibromofluoromethane	11.0	
10 ug/L Toluene-D8	8.86	
10 ug/L 4-Bromofluorobenzene	10.4	

Data for PRIORITY POLLUTANT ACIDS ug/L:

Component Name	Result	Component MDL
2-CHLOROPHENOL	Not detected	3
2,4-DICHLOROPHENOL	Not detected	3
2,4-DIMETHYLPHENOL	Not detected	3
4,6-DINITRO-o-CRESOL	Not detected	6
2,4-DINITROPHENOL	Not detected	6

Parameter: BARIUM
Method reference: 200.7/6010
Result: 79 ug/L
MDL or sensitivity: 10
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 1
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: ug/L
Result: Not detected
MDL or sensitivity: 0.2
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240
Unit: ug/L
Result: see below
Date started: 11/09/98
Date finished: 11/09/98
Time started:
Analyst: VW

Parameter: PRIORITY POLLUTANT ACIDS
Method reference: EPA625/8270
Unit: ug/L
Result: see below
Date started: 11/09/98
Date finished: 11/10/98
Time started:
Analyst: JR

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

November 12, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD05395 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-EFFLUENT2-110698-T340
Sample collector: CLIENT Sample collection date: 11/06/98
Lab submittal date: 11/06/98 Time: 07:19
Received by: JK Validated by: FD

Parameter: SOLIDS, SUSP. 104 DEG C
Method reference: SM18-2540D
Result: 13 mg/L MDL or sensitivity: 5
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: CF

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.005
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.17 mg/L MDL or sensitivity: 0.04
Date started: 11/10/98 Date finished: 11/10/98
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010 Unit: ug/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 11/10/98 Date finished: 11/10/98
Time started: Analyst: JH

Data for PRIORITY POLLUTANT BASE/NEUTRALS (continued):

Component Name	Result	Component MDL
FLUORENE	Not detected	3
HEXACHLOROBENZENE	Not detected	6
HEXACHLOROBUTADIENE	Not detected	6
HEXACHLOROCYCLOPENTADIENE	Not detected	11
HEXACHLOROETHANE	Not detected	6
INDENO(123-cd)PYRENE	Not detected	6
ISOPHORONE	Not detected	6
NAPHTHALENE	Not detected	6
NITROBENZENE	Not detected	6
n-NITROSO-DIMETHYLAMINE	Not detected	6
n-NITROSO-DI-n-PROPYLAMINE	Not detected	6
n-NITROSO-DIPHENYLAMINE	Not detected	6
PHENANTHRENE	Not detected	3
PYRENE	Not detected	3
1,2,4-TRICHLOROBENZENE	Not detected	6
Surrogate results:	---	
89.9 ug/L 2-Fluorobiphenyl	80.3	
89.9 ug/L Nitrobenzene-D5	85.0	
89.9 ug/L Terphenyl-D14	106	

If there are any questions regarding this data, please call.

Fred W. Doering
President

Data for PRIORITY POLLUTANT ACIDS ug/L:

Component Name	Result	Component MDL
2-CHLOROPHENOL	Not detected	3
2,4-DICHLOROPHENOL	Not detected	3
2,4-DIMETHYLPHENOL	Not detected	3
4,6-DINITRO-o-CRESOL	Not detected	6
2,4-DINITROPHENOL	Not detected	6
2-NITROPHENOL	Not detected	6
4-NITROPHENOL	Not detected	6
p-CHLORO-m-CRESOL	Not detected	6
PENTACHLOROPHENOL	Not detected	6
PHENOL	Not detected	3
2,4,6-TRICHLOROPHENOL	Not detected	6
Surrogate results:	---	
89.9 ug/L 2-Fluorophenol	75.1	
89.9 ug/L Phenol-D6	83.0	
89.9 ug/L 2,4,6-Tribromophenol	44.5	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	3
ACENAPHTHYLENE	Not detected	3
ANTHRACENE	Not detected	3
BENZIDINE	Not detected	6
BENZO(a)ANTHRACENE	Not detected	6
BENZO(a)PYRENE	Not detected	3
3,4-BENZOFLUORANTHENE	Not detected	6
BENZO(ghi)PERYLENE	Not detected	6
BENZO(k)FLUORANTHENE	Not detected	6
bis(2-CHLOROETHOXY)METHANE	Not detected	6
bis(2-CHLOROETHYL)ETHER	Not detected	3
bis(2-CHLOROISOPROPYL)ETHER	Not detected	6
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	6
4-BROMOPHENYL PHENYL ETHER	Not detected	6
BUTYL BENZYL PHTHALATE	Not detected	6
2-CHLORONAPHTHALENE	Not detected	11
4-CHLOROPHENYL PHENYL ETHER	Not detected	6
CHRYSENE	Not detected	3
DIBENZO(a,h)ANTHRACENE	Not detected	6
1,2-DICHLOROBENZENE	Not detected	3
1,3-DICHLOROBENZENE	Not detected	3
1,4-DICHLOROBENZENE	Not detected	3
3,3'-DICHLOROBENZIDINE	Not detected	6
DIETHYL PHTHALATE	Not detected	6
DIMETHYL PHTHALATE	Not detected	6
DI-N-BUTYL PHTHALATE	Not detected	6
2,4-DINITROTOLUENE	Not detected	11
2,6-DINITROTOLUENE	Not detected	11
DI-n-OCTYL PHTHALATE	Not detected	6
1,2-DIPHENYLHYDRAZINE	Not detected	6
FLUORANTHENE	Not detected	3

Parameter: PRIORITY POLLUTANT ACIDS
Method reference: EPA625/8270 Unit: ug/L
Result: see below
Date started: 10/30/98 Date finished: 11/03/98
Time started: Analyst: JR

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 10/30/98 Date finished: 11/03/98
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
ACROLEIN	Not detected	10
ACRYLONITRILE	Not detected	5
BENZENE	Not detected	1
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	2
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	2
2-CHLOROETHYL VINYL ETHER	Not detected	2
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	2
DIBROMOCHLOROMETHANE	Not detected	1
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1
1,1-DICHLOROETHENE	Not detected	1
t-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
c-1,3-DICHLOROPROPENE	Not detected	1
t-1,3-DICHLOROPROPENE	Not detected	1
ETHYLBENZENE	Not detected	1
METHYLENE CHLORIDE	Not detected	2
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
TOLUENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	2
VINYL CHLORIDE	Not detected	2
Surrogate results:	---	
10 ug/L Dibromofluoromethane	10.6	
10 ug/L Toluene-D8	10.0	
10 ug/L 4-Bromofluorobenzene	10.6	

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 5.2 ug/L
MDL or sensitivity: 5.0
Date started: 11/03/98
Date finished: 11/03/98
Time started:
Analyst: AA

Parameter: BARIUM
Method reference: 200.7/6010
Result: 46 ug/L
MDL or sensitivity: 10
Date started: 11/03/98
Date finished: 11/03/98
Time started:
Analyst: AA

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 1
Date started: 11/03/98
Date finished: 11/03/98
Time started:
Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/03/98
Date finished: 11/03/98
Time started:
Analyst: AA

Parameter: LEAD
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/03/98
Date finished: 11/03/98
Time started:
Analyst: AA

Parameter: MERCURY
Method reference: 245.1/7470
Unit: ug/L
Result: Not detected
MDL or sensitivity: 0.2
Date started: 11/03/98
Date finished: 11/03/98
Time started:
Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/03/98
Date finished: 11/03/98
Time started:
Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/03/98
Date finished: 11/03/98
Time started:
Analyst: AA

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240
Unit: ug/L
Result: see below
Date started: 11/02/98
Date finished: 11/02/98
Time started:
Analyst: VW

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

November 3, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD04854 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-EFF1-102998-T348
Sample collector: CLIENT Sample collection date: 10/29/98
Lab submittal date: 10/29/98 Time: 16:31
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C
Method reference: SM18-4500
Result: 8.98 Std. MDL or sensitivity: 1.00
Date started: 10/29/98 Date finished: 10/29/98
Time started: Analyst: WS

Parameter: SOLIDS, SUSP. 104 DEG C
Method reference: SM18-2540D Unit: mg/L
Result: Not detected MDL or sensitivity: 5
Date started: 11/02/98 Date finished: 11/02/98
Time started: Analyst: CF

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 10/30/98 Date finished: 10/30/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.005
Date started: 10/30/98 Date finished: 10/30/98
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.36 mg/L MDL or sensitivity: 0.04
Date started: 11/03/98 Date finished: 11/03/98
Time started: Analyst: CF

~~AD03~~ AD05 '5-16

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 11

NO. 1413

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☒ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: William Petruzzi

Client: Kerr-McGee Chemical
Site: Toledo Tie Treatment Site
Project#: KMC001 Phase: 01.SMP
Samplers: D. Benecke

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	EXPP (A)	Metals (B)	VPP (G)	TSS (A)	P (C)	O/G (C)	CN (D)					COMMENTS
KMC001 Influent 1 110998 T340	1	8	N	11/9/98 1015	1	1	2	1	1	1	1					
KMC001 Effluent 3 110998 T340	1	8	N	11/9/98 1030	1	1	2	1	1	1	1					

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
David Benecke	11-9-98	12-42	R. Szczepanski	11-9-98	12:42
R. Szczepanski	11-9-98	1330	J. Amaya	11-9-98	13-30
	–	–		–	–

COOLER TEMPERATURE AS RECEIVED °C: 2 °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J&H Labs
Method of Delivery: Hand
Airbill Number:

NOTES: Field pH:
Influent = 7.56 SU
Effluent = 8.66 SU

HAI\0989T289
08/14/97 CORNER

Data for PRIORITY POLLUTANT BASE/NEUTRALS (continued):

Component Name	Result	Component MDL
INDENO(123-cd)PYRENE	Not detected	44
ISOPHORONE	Not detected	44
NAPHTHALENE	1500	220
NITROBENZENE	Not detected	44
n-NITROSO-DIMETHYLAMINE	Not detected	44
n-NITROSO-DI-n-PROPYLAMINE	Not detected	44
n-NITROSO-DIPHENYLAMINE	Not detected	44
PHENANTHRENE	730	26
PYRENE	280	26
1,2,4-TRICHLOROBENZENE	Not detected	44
Surrogate results:	---	
87.4 ug/L 2-Fluorobiphenyl	62.3	
87.4 ug/L Nitrobenzene-D5	64.4	
87.4 ug/L Terphenyl-D14	99.1	

If there are any questions regarding this data, please call.

Fred W. Doering
President

Data for PRIORITY POLLUTANT ACIDS (continued):

Component Name	Result	Component MDL
2-NITROPHENOL	Not detected	44
4-NITROPHENOL	Not detected	44
p-CHLORO-m-CRESOL	Not detected	44
PENTACHLOROPHENOL	Not detected	44
PHENOL	Not detected	26
2,4,6-TRICHLOROPHENOL	Not detected	44
Surrogate results:	---	
87.4 ug/L 2-Fluorophenol	44.3	
87.4 ug/L Phenol-D6	53.4	
87.4 ug/L 2,4,6-Tribromophenol	53.0	

Data for PRIORITY POLLUTANT BASE/NEUTRALS ug/L:

Component Name	Result	Component MDL
ACENAPHTHENE	260	26
ACENAPHTHYLENE	43	26
ANTHRACENE	67	26
BENZIDINE	Not detected	44
BENZO(a)ANTHRACENE	61	44
BENZO(a)PYRENE	<26 (trace)	26
3,4-BENZOFLUORANTHENE	79	44
BENZO(ghi)PERYLENE	Not detected	44
BENZO(k)FLUORANTHENE	61	44
bis(2-CHLOROETHOXY)METHANE	Not detected	44
bis(2-CHLOROETHYL)ETHER	Not detected	26
bis(2-CHLOROISOPROPYL)ETHER	Not detected	44
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	44
4-BROMOPHENYL PHENYL ETHER	Not detected	44
BUTYL BENZYL PHTHALATE	Not detected	44
2-CHLORONAPHTHALENE	Not detected	87
4-CHLOROPHENYL PHENYL ETHER	Not detected	44
CHRYSENE	72	26
DIBENZO(a,h)ANTHRACENE	Not detected	44
1,2-DICHLOROBENZENE	Not detected	26
1,3-DICHLOROBENZENE	Not detected	26
1,4-DICHLOROBENZENE	Not detected	26
3,3'-DICHLOROBENZIDINE	Not detected	44
DIETHYL PHTHALATE	Not detected	44
DIMETHYL PHTHALATE	Not detected	44
DI-N-BUTYL PHTHALATE	Not detected	44
2,4-DINITROTOLUENE	Not detected	87
2,6-DINITROTOLUENE	Not detected	87
DI-n-OCTYL PHTHALATE	Not detected	44
1,2-DIPHENYLHYDRAZINE	Not detected	44
FLUORANTHENE	540	26
FLUORENE	260	26
HEXACHLOROBENZENE	Not detected	44
HEXACHLOROBUTADIENE	Not detected	44
HEXACHLOROCYCLOPENTADIENE	Not detected	87
HEXACHLOROETHANE	Not detected	44

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 11/09/98 Date finished: 11/10/98
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
ACROLEIN	Not detected	400
ACRYLONITRILE	Not detected	200
BENZENE	110	40
BROMODICHLOROMETHANE	Not detected	40
BROMOFORM	Not detected	40
BROMOMETHANE	Not detected	80
CARBON TETRACHLORIDE	Not detected	40
CHLOROBENZENE	Not detected	40
CHLOROETHANE	Not detected	80
2-CHLOROETHYL VINYL ETHER	Not detected	80
CHLOROFORM	Not detected	40
CHLOROMETHANE	Not detected	80
DIBROMOCHLOROMETHANE	Not detected	40
1,1-DICHLOROETHANE	Not detected	40
1,2-DICHLOROETHANE	Not detected	40
1,1-DICHLOROETHENE	Not detected	40
t-1,2-DICHLOROETHENE	Not detected	40
1,2-DICHLOROPROPANE	Not detected	40
c-1,3-DICHLOROPROPENE	Not detected	40
t-1,3-DICHLOROPROPENE	Not detected	40
ETHYLBENZENE	47	40
METHYLENE CHLORIDE	Not detected	80
1,1,2,2-TETRACHLOROETHANE	Not detected	40
TETRACHLOROETHENE	Not detected	40
TOLUENE	120	40
1,1,1-TRICHLOROETHANE	Not detected	40
1,1,2-TRICHLOROETHANE	Not detected	40
TRICHLOROETHENE	Not detected	40
TRICHLOROFLUOROMETHANE	Not detected	80
VINYL CHLORIDE	Not detected	80
Surrogate results:	---	
400 ug/L Dibromofluoromethane	426	
400 ug/L Toluene-D8	378	
400 ug/L 4-Bromofluorobenzene	387	

Data for PRIORITY POLLUTANT ACIDS ug/L:

Component Name	Result	Component MDL
2-CHLOROPHENOL	Not detected	26
2,4-DICHLOROPHENOL	Not detected	26
2,4-DIMETHYLPHENOL	160	26
4,6-DINITRO-o-CRESOL	Not detected	44
2,4-DINITROPHENOL	Not detected	44

Parameter: BARIUM
Method reference: 200.7/6010
Result: 186 ug/L
MDL or sensitivity: 10
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 1
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 20 ug/L
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 186 ug/L
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: 245.1/7470
Unit: ug/L
Result: Not detected
MDL or sensitivity: 0.2
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: ug/L
Result: Not detected
MDL or sensitivity: 5
Date started: 11/10/98
Date finished: 11/10/98
Time started:
Analyst: JH

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240
Unit: ug/L
Result: see below
Date started: 11/09/98
Date finished: 11/09/98
Time started:
Analyst: VW

Parameter: PRIORITY POLLUTANT ACIDS
Method reference: EPA625/8270
Unit: ug/L
Result: see below
Date started: 11/09/98
Date finished: 11/10/98
Time started:
Analyst: JR

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

November 12, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD05415 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Influent 1-110998T340
Sample collector: CLIENT Sample collection date: 11/09/98
Lab submittal date: 11/09/98 Time: 13:00
Received by: RS Validated by: FD

Parameter: SOLIDS, SUSP. 104 DEG C
Method reference: SM18-2540D
Result: 1530 mg/L MDL or sensitivity: 5
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: CF

Parameter: OIL & GREASE
Method reference: EPA 1664
Result: 126 mg/L MDL or sensitivity: 5.0
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.005
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.96 mg/L MDL or sensitivity: 0.04
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 7.6 ug/L MDL or sensitivity: 5.0
Date started: 11/10/98 Date finished: 11/10/98
Time started: Analyst: JH

Please advise should you have questions concerning these data.

Respectfully submitted,

Fred W. Doering
President

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: PRIORITY POLLUTANT BASE/NEUTRALS (continued)			
bis(2-CHLOROISOPROPYL)ETHER	ug/L	Not detected	26
bis(2-ETHYLHEXYL)PHTHALATE	ug/L	Not detected	26
4-BROMOPHENYL PHENYL ETHER	ug/L	Not detected	26
BUTYL BENZYL PHTHALATE	ug/L	Not detected	26
2-CHLORONAPHTHALENE	ug/L	Not detected	51
4-CHLOROPHENYL PHENYL ETHER	ug/L	Not detected	26
CHRYSENE	ug/L	150	15
DIBENZO(a,h)ANTHRACENE	ug/L	Not detected	26
1,2-DICHLOROBENZENE	ug/L	Not detected	15
1,3-DICHLOROBENZENE	ug/L	Not detected	15
1,4-DICHLOROBENZENE	ug/L	Not detected	15
3,3'-DICHLOROBENZIDINE	ug/L	Not detected	26
DIETHYL PHTHALATE	ug/L	Not detected	26
DIMETHYL PHTHALATE	ug/L	Not detected	26
DI-N-BUTYL PHTHALATE	ug/L	Not detected	26
2,4-DINITROTOLUENE	ug/L	Not detected	51
2,6-DINITROTOLUENE	ug/L	Not detected	51
DI-n-OCTYL PHTHALATE	ug/L	Not detected	26
1,2-DIPHENYLHYDRAZINE	ug/L	Not detected	26
FLUORANTHENE	ug/L	970	150
FLUORENE	ug/L	660	15
HEXACHLOROBENZENE	ug/L	Not detected	26
HEXACHLOROBUTADIENE	ug/L	Not detected	26
HEXACHLOROCYCLOPENTADIENE	ug/L	Not detected	51
HEXACHLOROETHANE	ug/L	Not detected	26
INDENO(123-cd)PYRENE	ug/L	40	26
ISOPHORONE	ug/L	Not detected	26
NAPHTHALENE	ug/L	7300	260
NITROBENZENE	ug/L	Not detected	26
n-NITROSO-DIMETHYLAMINE	ug/L	Not detected	26
n-NITROSO-DI-n-PROPYLAMINE	ug/L	Not detected	26
n-NITROSO-DIPHENYLAMINE	ug/L	Not detected	26
PHENANTHRENE	ug/L	1600	150
PYRENE	ug/L	440	15
1,2,4-TRICHLOROBENZENE	ug/L	Not detected	26
Surrogate results:	ug/L	---	
205 ug/L 2-Fluorobiphenyl	ug/L	131	
205 ug/L Nitrobenzene-D5	ug/L	133	
205 ug/L Terphenyl-D14	ug/L	174	

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
Multicomponent analysis: PRIORITY POLLUTANT VOLATILES (continued)			
1,1-DICHLOROETHENE	ug/L	Not detected	40
t-1,2-DICHLOROETHENE	ug/L	Not detected	40
1,2-DICHLOROPROPANE	ug/L	Not detected	40
c-1,3-DICHLOROPROPENE	ug/L	Not detected	40
t-1,3-DICHLOROPROPENE	ug/L	Not detected	40
ETHYLBENZENE	ug/L	460	40
METHYLENE CHLORIDE	ug/L	Not detected	80
1,1,2,2-TETRACHLOROETHANE	ug/L	Not detected	40
TETRACHLOROETHENE	ug/L	Not detected	40
TOLUENE	ug/L	950	40
1,1,1-TRICHLOROETHANE	ug/L	Not detected	40
1,1,2-TRICHLOROETHANE	ug/L	Not detected	40
TRICHLOROETHENE	ug/L	Not detected	40
TRICHLOROFLUOROMETHANE	ug/L	Not detected	80
VINYL CHLORIDE	ug/L	Not detected	80
Surrogate results:	ug/L	---	
400 ug/L Dibromofluoromethane	ug/L	457	
400 ug/L Toluene-D8	ug/L	334	
400 ug/L 4-Bromofluorobenzene	ug/L	378	
Multicomponent analysis: PRIORITY POLLUTANT ACIDS			
2-CHLOROPHENOL	ug/L	Not detected	15
2,4-DICHLOROPHENOL	ug/L	Not detected	15
2,4-DIMETHYLPHENOL	ug/L	420	15
4,6-DINITRO-o-CRESOL	ug/L	Not detected	26
2,4-DINITROPHENOL	ug/L	Not detected	26
2-NITROPHENOL	ug/L	Not detected	26
4-NITROPHENOL	ug/L	Not detected	26
p-CHLORO-m-CRESOL	ug/L	Not detected	26
PENTACHLOROPHENOL	ug/L	Not detected	26
PHENOL	ug/L	Not detected	15
2,4,6-TRICHLOROPHENOL	ug/L	Not detected	26
Surrogate results:	ug/L	---	
205 ug/L 2-Fluorophenol	ug/L	126	
205 ug/L Phenol-D6	ug/L	106	
205 ug/L 2,4,6-Tribromophenol	ug/L	61.0	
Multicomponent analysis: PRIORITY POLLUTANT BASE/NEUTRALS			
ACENAPHTHENE	ug/L	600	150
ACENAPHTHYLENE	ug/L	100	15
ANTHRACENE	ug/L	190	15
BENZIDINE	ug/L	Not detected	26
BENZO(a)ANTHRACENE	ug/L	220	26
BENZO(a)PYRENE	ug/L	85	15
3,4-BENZOFLUORANTHENE	ug/L	64	26
BENZO(ghi)PERYLENE	ug/L	Not detected	26
BENZO(k)FLUORANTHENE	ug/L	82	26
bis(2-CHLOROETHOXY)METHANE	ug/L	Not detected	26
bis(2-CHLOROETHYL)ETHER	ug/L	Not detected	15

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

April 1, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD12499 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-Effluent13-3/24/99-392T
Sample collector: CLIENT Sample collection date: 03/24/99
Lab submittal date: 03/24/99 Time: 16:26
Received by: RS Validated by: FD

Parameter: OIL & GREASE
Method reference: EPA 1664 Unit: mg/L
Result: Not detected MDL or sensitivity: 5.0
Date started: 03/25/99 Date finished: 03/25/99
Time started: Analyst: JC

Parameter: PHOSPHORUS
Method reference: SM18 4500B5E
Result: 0.08 mg/L MDL or sensitivity: 0.04
Date started: 03/26/99 Date finished: 03/26/99
Time started: Analyst: CF

Parameter: PRIORITY POLLUTANT VOLATILES
Method reference: EPA624/8240 Unit: ug/L
Result: see below
Date started: 03/29/99 Date finished: 03/29/99
Time started: Analyst: VW

Parameter: PRIORITY POLLUTANT BASE/NEUTRALS
Method reference: EPA 625/8270 Unit: ug/L
Result: see below
Date started: 03/26/99 Date finished: 03/29/99
Time started: Analyst: JR

Data for PRIORITY POLLUTANT VOLATILES ug/L:

Component Name	Result	Component MDL
BENZENE	Not detected	1
ETHYLBENZENE	Not detected	1
TOLUENE	Not detected	1
Surrogate results:	---	

Kerr-McGee Chemical, LLC
Toledo Tie Treatment Site
Time Critical Removal

Summary of Water Treatment System Chemicals of Concern Analytical Results

ANALYTE NAME	CHEMICAL OF CONCERN	QUARTERLY SAMPLING	METHOD	UNITS	OHIO EPA SURFACE WATER DISCHARGE STANDARD OUTSIDE MIXING ZONE MAXIMUM FOR WARMWATER HABITATS	KMC001-BKGD-101398-T348 COLLECTION DATE: 10/13/98 Williams Ditch Water Sample		KMC001-Influent 1-110998-T340 COLLECTION DATE: 11/09/98 Influent Sample		KMC001-EFF1-102998-T348 COLLECTION DATE: 10/29/98 Batch Treatment Effluent Sample		KMC001-Effluent 2-110698-T340 COLLECTION DATE: 11/06/98 Continuous Discharge Effluent Sample		KMC001-Effluent 3-110998-T340 COLLECTION DATE: 11/09/98 Continuous Discharge Effluent Sample		KMC001-Effluent 4-120198-T340 COLLECTION DATE: 12/01/98 Continuous Discharge Effluent Sample	
						RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL
pH	X	X	SM18-4500	Std	6.5-9.0	7.19+	1	7.56	N/A	8.98+	1	7.76	N/A	8.66	N/A	8.12	N/A
SOLIDS, SUSP 104 DEG C			SM18-2540D	mg/L	*	1180	5	1530	5	Not detect	5	13	5	6	5	Not detect	5
OIL & GREASE	X	X	EPA 1664	mg/L	10	392	5	126	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5
CYANIDE			4500-C/335.3	mg/L	0.046	0.006	0.005	Not detect	0.005	Not detect	0.005	Not detect	0.005	Not detect	0.005	Not detect	0.005
PHOSPHORUS	X	X	SM18-4500B5E	mg/L	1*	4.79	0.04	0.96	0.04	0.36	0.04	0.17	0.04	0.23	0.04	0.37	0.04
ARSENIC		X	200.7/6010	ug/L	360	12.4	5	7.6	5	5.2	5	Not detect	5	Not detect	5	Not detect	5
BARIUM		X	200.7/6010	ug/L	*	296	10	186	10	46	10	79	10	81	10	80	10
CADMIUM		X	200.7/6010	ug/L	12'	1	1	Not detect	1	Not detect	1	Not detect	1	Not detect	1	Not detect	1
CHROMIUM		X	200.7/6010	ug/L	3200'	10	5	20	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5
LEAD		X	200.7/6010	ug/L	320'	51	5	186	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5
MERCURY			245.1/7470	ug/L	1.1	Not detected	0.2	Not detect	0.2	Not detect	0.2	Not detect	0.2	Not detect	0.2	Not detect	0.2
SILVER			200.7/6010	ug/L	5.3	Not detected	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5
SELENIUM			200.7/6010	ug/L	20	Not detected	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5
PRIORITY POLLUTANT VOLATILES																	
ACROLEIN			EPA624/8240	ug/L	780	Not detected	400	Not detect	400	Not detect	10	Not detect	10	Not detect	10	Not detect	10
ACRYLONITRILE			EPA624/8240	ug/L	460	Not detected	200	Not detect	200	Not detect	5	Not detect	5	Not detect	5	Not detect	5
BENZENE	X	X	EPA624/8240	ug/L	1100	500	40	110	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
BROMODICHLOROMETHANE			EPA624/8240	ug/L	*	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
BROMOFORM			EPA624/8240	ug/L	1500	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
BROMOMETHANE			EPA624/8240	ug/L	*	Not detected	80	Not detect	80	Not detect	2	Not detect	2	Not detect	2	Not detect	2
CARBON TETRACHLORIDE			EPA624/8240	ug/L	1800	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
CHLOROBENZENE			EPA624/8240	ug/L	590	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
CHLOROETHANE			EPA624/8240	ug/L	*	Not detected	80	Not detect	80	Not detect	2	Not detect	2	Not detect	2	Not detect	2
2-CHLOROETHYL VINYL ETHER			EPA624/8240	ug/L	*	Not detected	80	Not detect	80	Not detect	2	Not detect	2	Not detect	2	Not detect	2
CHLOROFORM			EPA624/8240	ug/L	1800	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
CHLOROMETHANE			EPA624/8240	ug/L	*	Not detected	80	Not detect	80	Not detect	2	Not detect	2	Not detect	2	Not detect	2
DIBROMOCHLOROMETHANE			EPA624/8240	ug/L	*	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
1,1-DICHLOROETHANE			EPA624/8240	ug/L	*	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
1,2-DICHLOROETHANE			EPA624/8240	ug/L	12000	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
1,1-DICHLOROETHENE			EPA624/8240	ug/L	*	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
c-1,2-DICHLOROETHENE			EPA624/8240	ug/L	*	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
1,2-DICHLOROPROPANE			EPA624/8240	ug/L	*	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
c-1,3-DICHLOROPROPENE			EPA624/8240	ug/L	*	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
t-1,3-DICHLOROPROPENE			EPA624/8240	ug/L	*	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
ETHYLBENZENE	X	X	EPA624/8240	ug/L	1400	460	40	47	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
METHYLENE CHLORIDE			EPA624/8240	ug/L	9700	Not detected	80	Not detect	80	Not detect	2	Not detect	2	Not detect	2	Not detect	2
1,1,2,2-TETRACHLOROETHANE			EPA624/8240	ug/L	1000	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
TETRACHLOROETHENE			EPA624/8240	ug/L	540	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
TOLUENE	X	X	EPA624/8240	ug/L	2400	950	40	120	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
1,1,1-TRICHLOROETHANE			EPA624/8240	ug/L	2000	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
1,1,2-TRICHLOROETHANE			EPA624/8240	ug/L	2000	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
TRICHLOROETHENE			EPA624/8240	ug/L	1700	Not detected	40	Not detect	40	Not detect	1	Not detect	1	Not detect	1	Not detect	1
TRICHLOROFLUOROMETHANE			EPA624/8240	ug/L	*	Not detected	80	Not detect	80	Not detect	2	Not detect	2	Not detect	2	Not detect	2
VINYL CHLORIDE			EPA624/8240	ug/L	5250	Not detected	80	Not detect	80	Not detect	2	Not detect	2	Not detect	2	Not detect	2
PRIORITY POLLUTANT ACIDS																	
2-CHLOROPHENOL			EPA625/8270	ug/L	200	Not detected	15	Not detect	26	Not detect	3	Not detect	3	Not detect	3	Not detect	1
2,4-DICHLOROPHENOL			EPA625/8270	ug/L	200	Not detected	15	Not detect	26	Not detect	3	Not detect	3	Not detect	3	Not detect	1
2,4-DIMETHYLPHENOL		X	EPA625/8270	ug/L	*	420	15	160	26	Not detect	3	Not detect	3	Not detect	3	Not detect	1
4,6-DINITRO-o-CRESOL			EPA625/8270	ug/L	765^	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
2,4-DINITROPHENOL			EPA625/8270	ug/L	14300^	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	2
2-NITROPHENOL			EPA625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
4-NITROPHENOL			EPA625/8270	ug/L	790	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	6
p-CHLORO-m-CRESOL			EPA625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
PENTACHLOROPHENOL			EPA625/8270	ug/L	TABLE 7-13	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
PHENOL			EPA625/8270	ug/L	5300	Not detected	15	Not detect	26	Not detect	3	Not detect	3	Not detect	3	Not detect	3
2,4,6-TRICHLOROPHENOL			EPA625/8270	ug/L	16	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
PRIORITY POLLUTANT BASE/NEUTRALS																	
ACENAPHTHENE	X	X	EPA 625/8270	ug/L	67	600	150	260	26	Not detect	3	3.8	3	Not detect	3	<7 (trace)	2
ACENAPHTHYLENE		X	EPA 625/8270	ug/L	*	100	15	43	26	Not detect	3	Not detect	3	Not detect	3	Not detect	1
ANTHRACENE		X	EPA 625/8270	ug/L	*	190	15	67	26	Not detect	3	4	3	Not detect	3	Not detect	1
BENZIDINE			EPA 625/8270	ug/L	0.0053	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
BENZO(a)ANTHRACENE		X	EPA 625/8270	ug/L	*	220	26	61	44	Not detect	6	<6 (trace)	6	Not detect	6	<5 (trace)	5
BENZO(a)PYRENE		X	EPA 625/8270	ug/L	*	85	15	<26 (trace)	26	Not detect	3	Not detect	3	Not detect	3	<5 (trace)	5
3,4-BENZOFLUORANTHENE		X	EPA 625/8270	ug/L	*	64	26	79	44	Not detect	6	Not detect	6	Not detect	6	Not detect	3
BENZO(ghi)PERYLENE			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	5
BENZO(k)FLUORANTHENE		X	EPA 625/8270	ug/L	*	82	26	61	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
bis(2-CHLOROETHOXY)METHANE			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
bis(2-CHLOROETHYL)ETHER			EPA 625/8270	ug/L	13.6^	Not detected	15	Not detect	26	Not detect	3	Not detect	3	Not detect	3	Not detect	2
bis(2-CHLOROISOPROPYL)ETHER			EPA 625/8270	ug/L	4360^	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	2
bis(2-ETHYLHEXYL)PHTHALATE			EPA 625/8270	ug/L	1100	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	3.1	1
4-BROMOPHENYL PHENYL ETHER			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
BUTYL BENZYL PHTHALATE			EPA 625/8270	ug/L	230	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
2-CHLORONAPHTHALENE			EPA 625/8270	ug/L	*	Not detected	51	Not detect	87	Not detect	11	Not detect	12	Not detect	11	Not detect	1
4-CHLOROPHENYL PHENYL ETHER			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	2
CHRYSENE		X	EPA 625/8270	ug/L	*	190	15	72	26	Not detect	3	4.8	3	Not detect	3	Not detect	6
DIBENZO(a,h)ANTHRACENE			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
1,2-DICHLOROBENZENE			EPA 625/8270	ug/L	160	Not detected	15	Not detect	26	Not detect	3	Not detect	3	Not detect	3	Not detect	1

Kerr-McGee Chemical, LLC
Toledo Tie Treatment Site
Time Critical Removal

Summary of Water Treatment System Chemicals of Concern Analytical Results

ANALYTE NAME	CHEMICAL OF CONCERN	QUARTERLY SAMPLING	METHOD	UNITS	OHIO EPA SURFACE WATER DISCHARGE STANDARD OUTSIDE MIXING ZONE MAXIMUM FOR WARMWATER HABITATS	KMC001-BKGD-101398-T348 COLLECTION DATE: 10/13/98 Williams Ditch Water Sample		KMC001 Influent 1-110998T340 COLLECTION DATE: 11/09/98 Influent Sample		KMC001-EFFL-102998-T348 COLLECTION DATE: 10/29/98 Batch Treatment Effluent Sample		KMC001 Effluent 2-110698-T340 COLLECTION DATE: 11/06/98 Continuous Discharge Effluent Sample		KMC001 Effluent 3-110998-T340 COLLECTION DATE: 11/09/98 Continuous Discharge Effluent Sample		KMC001-Effluent 4-120198T340 COLLECTION DATE: 12/01/98 Continuous Discharge Effluent Sample	
						RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL
1,3-DICHLOROBENZENE			EPA 625/8270	ug/L	250	Not detect	15	Not detect	26	Not detect	3	Not detect	3	Not detect	3	Not detect	2
1,4-DICHLOROBENZENE			EPA 625/8270	ug/L	110	Not detected	15	Not detect	26	Not detect	3	Not detect	3	Not detect	3	Not detect	1
3,3-DICHLOROBENZIDINE			EPA 625/8270	ug/L	0.2	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
DIETHYL PHTHALATE			EPA 625/8270	ug/L	2600	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
DIMETHYL PHTHALATE			EPA 625/8270	ug/L	1700	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
DI-N-BUTYL PHTHALATE			EPA 625/8270	ug/L	350	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
2,4-DINITROTOLUENE			EPA 625/8270	ug/L	91	Not detected	51	Not detect	87	Not detect	11	Not detect	12	Not detect	11	Not detect	1
2,6-DINITROTOLUENE			EPA 625/8270	ug/L	950	Not detected	51	Not detect	87	Not detect	11	Not detect	12	Not detect	11	Not detect	1
DI-n-OCTYL PHTHALATE			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
1,2-DIPHENYLHYDRAZINE			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
FLUORANTHENE	X	X	EPA 625/8270	ug/L	200	970	150	540	26	Not detect	3	30	3	10	3	23	2
FLUORENE		X	EPA 625/8270	ug/L	*	660	15	260	26	Not detect	3	6.2	3	Not detect	3	Not detect	1
HEXACHLOROBENZENE			EPA 625/8270	ug/L	0.99	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	2
HEXACHLOROBUTADIENE			EPA 625/8270	ug/L	500^	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
HEXACHLOROCYCLOPENTADIENE			EPA 625/8270	ug/L	*	Not detected	51	Not detect	87	Not detect	11	Not detect	12	Not detect	11	Not detect	1
HEXACHLOROETHANE			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
INDENO(123-cd)PYRENE		X	EPA 625/8270	ug/L	*	40	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
ISOPHORONE			EPA 625/8270	ug/L	6000	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
NAPHTHALENE	X	X	EPA 625/8270	ug/L	160	7300	260	1500	220	Not detect	6	Not detect	6	Not detect	6	Not detect	2
NITROBENZENE			EPA 625/8270	ug/L	*	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
n-NITROSO-DIMETHYLAMINE			EPA 625/8270	ug/L	160^	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	2
n-NITROSO-DI-n-PROPYLAMINE			EPA 625/8270	ug/L	12.4^	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
n-NITROSO-DIPHENYLAMINE			EPA 625/8270	ug/L	290	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1
PHENANTHRENE		X	EPA 625/8270	ug/L	*	1600	150	730	26	Not detect	3	27	3	5.3	3	2.5	1
PYRENE		X	EPA 625/8270	ug/L	*	440	15	280	26	Not detect	3	25	3	9.2	3	14	1
1,2,4-TRICHLOROBENZENE			EPA 625/8270	ug/L	150	Not detected	26	Not detect	44	Not detect	6	Not detect	6	Not detect	6	Not detect	1

** Although the pH measured at the carbon filter was above the Ohio EPA Standard, the pH of both effluent pools did meet the standard. As a result, IT Group continued to monitor the pH of the effluent pools to insure that the pH of the discharge met the Ohio EPA Standard

^ Standard determined assuming an average water hardness of 200 mg/l.

* pH result is based on laboratory measurements. Unless otherwise indicated, all other pH measurements were taken in the field

Indicates exceedances of the Ohio EPA Standard

Kerr-McGee Chemical, LLC
Toledo Tie Treatment Site
Time Critical Removal

Summary of Water Treatment System Chemicals of Concern Analytical Results

ANALYTE NAME	CHEMICAL OF CONCERN	QUARTERLY SAMPLING	METHOD	UNITS	OHIO EPA SURFACE WATER DISCHARGE STANDARD OUTSIDE MIXING ZONE MAXIMUM FOR WARMWATER HABITATS	KMC001-Effluent 5-121698-T400 COLLECTION DATE: 12/16/98 Continuous Discharge Effluent Sample		KMC001-Effluent6-122398-T400 COLLECTION DATE: 12/23/98 Continuous Discharge Effluent Sample		KMC001-Effluent7-011899-T340 COLLECTION DATE: 1/18/99 Continuous Discharge Effluent Sample		KMC001-Effluent8-012599-T340 COLLECTION DATE: 1/25/99 Continuous Discharge Effluent Sample		KMC001-Effluent9-020199-T340 COLLECTION DATE: 2/1/99 Continuous Discharge Effluent Sample		KMC001-Influent 2-020199-T340 COLLECTION DATE: 2/1/99 Continuous Discharge Influent Sample	
						RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL
pH	X	X	SM18-4500	Std	6.5-9.0	7.82	1	8.25	1	9.02**	1	8.78	1		1		1
SOLIDS, SUSP. 104 DEG C			SM18-2540D	mg/L	*	11	5										
OIL & GREASE	X	X	EPA 1664	mg/L	10	Not detect	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5	Not detect	5
CYANIDE			4500-C/335.3	mg/L	0.046	Not detect	0.005										
PHOSPHORUS	X	X	SM18-4500D,E	mg/L	1*	0.24	0.04	0.16	0.04	0.33	0.04	0.14	0.04	0.14	0.04	0.2	0.04
ARSENIC		X	200.7/6010	ug/L	360	Not detect	5										
BARIUM		X	200.7/6010	ug/L	*	112	10										
CADMIUM		X	200.7/6010	ug/L	12'	Not detect	1										
CHROMIUM		X	200.7/6010	ug/L	3200'	Not detect	5										
LEAD		X	200.7/6010	ug/L	320'	Not detect	5										
MERCURY			245.1/7470	ug/l	1.1	Not detect	0.2										
SILVER			200.7/6010	ug/L	5.3	Not detect	5										
SELENIUM			200.7/6010	ug/L	20	Not detect	5										
PRIORITY POLLUTANT VOLATILES																	
ACROLEIN			EPA624/8240	ug/L	780	Not detect	10										
ACRYLONITRILE			EPA624/8240	ug/L	460	Not detect	5										
BENZENE	X	X	EPA624/8240	ug/L	1100	Not detect	1	Not detect	1	Not detect	1	190	20	Not detect	1	370	40
BROMODICHLOROMETHANE			EPA624/8240	ug/L	*	Not detect	1										
BROMOFORM			EPA624/8240	ug/L	1500	Not detect	1										
BROMOMETHANE			EPA624/8240	ug/L	*	Not detect	2										
CARBON TETRACHLORIDE			EPA624/8240	ug/L	1800	Not detect	1										
CHLOROBENZENE			EPA624/8240	ug/L	590	Not detect	1										
CHLOROETHANE			EPA624/8240	ug/L	*	Not detect	2										
2-CHLOROETHYL VINYL ETHER			EPA624/8240	ug/L	*	Not detect	2										
CHLOROFORM			EPA624/8240	ug/L	1800	Not detect	1										
CHLOROMETHANE			EPA624/8240	ug/L	*	Not detect	2										
DIBROMOCHLOROMETHANE			EPA624/8240	ug/L	*	Not detect	1										
1,1-DICHLOROETHANE			EPA624/8240	ug/L	*	Not detect	1										
1,2-DICHLOROETHANE			EPA624/8240	ug/L	12000	Not detect	1										
1,1-DICHLOROETHENE			EPA624/8240	ug/L	*	Not detect	1										
t-1,2-DICHLOROETHENE			EPA624/8240	ug/L	*	Not detect	1										
1,2-DICHLOROPROPANE			EPA624/8240	ug/L	*	Not detect	1										
c-1,3-DICHLOROPROPENE			EPA624/8240	ug/L	*	Not detect	1										
t-1,3-DICHLOROPROPENE			EPA624/8240	ug/L	*	Not detect	1										
ETHYLBENZENE	X	X	EPA624/8240	ug/L	1400	Not detect	1	Not detect	1	Not detect	1	77	20	Not detect	1	110	40
METHYLENE CHLORIDE			EPA624/8240	ug/L	9700	Not detect	2										
1,1,2,2-TETRACHLOROETHANE			EPA624/8240	ug/L	3000	Not detect	1										
TETRACHLOROETHENE			EPA624/8240	ug/L	540	Not detect	1										
TOLUENE	X	X	EPA624/8240	ug/L	2400	Not detect	1	Not detect	1	Not detect	1	230	20	Not detect	1	390	40
1,1,1-TRICHLOROETHANE			EPA624/8240	ug/L	2000	Not detect	1										
1,1,2-TRICHLOROETHANE			EPA624/8240	ug/L	2000	Not detect	1										
TRICHLOROETHENE			EPA624/8240	ug/L	1700	Not detect	1										
TRICHLOROFLUOROMETHANE			EPA624/8240	ug/L	*	Not detect	2										
VINYL CHLORIDE			EPA624/8240	ug/L	5250	Not detect	2										
PRIORITY POLLUTANT ACIDS																	
2-CHLOROPHENOL			EPA625/8270	ug/L	200	Not detect	2										
2,4-DICHLOROPHENOL			EPA625/8270	ug/L	200	Not detect	2										
2,4-DIMETHYLPHENOL		X	EPA625/8270	ug/L	*	Not detect	2										
4,6-DINITRO-o-CRESOL			EPA625/8270	ug/L	765^	Not detect	2										
2,4-DINITROPHENOL			EPA625/8270	ug/L	14300^	Not detect	3										
2-NITROPHENOL			EPA625/8270	ug/L	*	Not detect	2										
4-NITROPHENOL			EPA625/8270	ug/L	790	Not detect	8										
p-CHLORO-m-CRESOL			EPA625/8270	ug/L	*	Not detect	2										
PENTACHLOROPHENOL			EPA625/8270	ug/L	TABLE 7-13	Not detect	2										
PHENOL			EPA625/8270	ug/L	5300	Not detect	5										
2,4,6-TRICHLOROPHENOL			EPA625/8270	ug/L	16	Not detect	2										
PRIORITY POLLUTANT BASE/NEUTRALS																	
ACENAPHTHENE	X	X	EPA 625/8270	ug/L	67	44	3	12	9	10	2	150	2	Not detect	2	200	4
ACENAPHTHYLENE		X	EPA 625/8270	ug/L	*	8.8	2										
ANTHRACENE		X	EPA 625/8270	ug/L	*	33	2										
BENZIDINE			EPA 625/8270	ug/L	0.0053	Not detect	2										
BENZO(a)ANTHRACENE		X	EPA 625/8270	ug/L	*	43	6										
BENZO(a)PYRENE		X	EPA 625/8270	ug/L	*	16	6										
3,4-BENZOFLUORANTHENE		X	EPA 625/8270	ug/L	*	29	5										
BENZO(ghi)PERYLENE			EPA 625/8270	ug/L	*	27	6										
BENZO(k)FLUORANTHENE		X	EPA 625/8270	ug/L	*	4.1	2										
bis(2-CHLOROETHOXY)METHANE			EPA 625/8270	ug/L	*	Not detect	2										
bis(2-CHLOROETHYL)ETHER			EPA 625/8270	ug/L	13.6^	Not detect	3										
bis(2-CHLOROISOPROPYL)ETHER			EPA 625/8270	ug/L	4360^	Not detect	3										
bis(2-ETHYLHEXYL)PHTHALATE			EPA 625/8270	ug/L	1100	Not detect	2										
4-BROMOPHENYL PHENYL ETHER			EPA 625/8270	ug/L	*	Not detect	2										
BUTYL BENZYL PHTHALATE			EPA 625/8270	ug/L	230	Not detect	2										
CHLORONAPHTHALENE			EPA 625/8270	ug/l	*	Not detect	2										
CHLOROPHENYL PHENYL ETHER			EPA 625/8270	ug/L	*	Not detect	3										
CHRYSENE		X	EPA 625/8270	ug/L	*	34	8										
DIBENZO(a,h)ANTHRACENE			EPA 625/8270	ug/L	*	Not detect	2										
1,2-DICHLOROBENZENE			EPA 625/8270	ug/L	160	Not detect	2										

Kerr-McGee Chemical, LLC
Toledo Tie Treatment Site
Time Critical Removal

Summary of Water Treatment System Chemicals of Concern Analytical Results

ANALYTE NAME	CHEMICAL OF CONCERN	QUARTERLY SAMPLING	METHOD	UNITS	OHIO EPA SURFACE WATER DISCHARGE STANDARD OUTSIDE MIXING ZONE MAXIMUM FOR WARMWATER HABITATS	KMC001 Effluent 5 121698-T400 COLLECTION DATE: 12/16/98 Continuous Discharge Effluent Sample		KMC001-Effluent6-122398-T400 COLLECTION DATE: 12/23/98 Continuous Discharge Effluent Sample		KMC001 Effluent7 011899 T340 COLLECTION DATE: 1/18/99 Continuous Discharge Effluent Sample		KMC001-Effluent8-012599-T340 COLLECTION DATE: 1/25/99 Continuous Discharge Effluent Sample		KMC001-Effluent9-020199-T340 COLLECTION DATE: 2/1/99 Continuous Discharge Effluent Sample		KMC001 Influent 2 020199 T340 COLLECTION DATE: 2/1/99 Continuous Discharge Influent Sample	
						RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL
1,3-DICHLOROBENZENE			EPA 625/8270	ug/L	250	Not detect	3										
1,4-DICHLOROBENZENE			EPA 625/8270	ug/L	110	Not detect	2										
3,3'-DICHLOROBENZIDINE			EPA 625/8270	ug/L	0.2	Not detect	2										
DIETHYL PHTHALATE			EPA 625/8270	ug/L	2600	Not detect	2										
DIMETHYL PHTHALATE			EPA 625/8270	ug/L	1700	Not detect	2										
DI-N-BUTYL PHTHALATE			EPA 625/8270	ug/L	350	Not detect	2										
2,4-DINITROTOLUENE			EPA 625/8270	ug/L	91	Not detect	2										
2,6-DINITROTOLUENE			EPA 625/8270	ug/L	950	Not detect	2										
DI-n-OCTYL PHTHALATE			EPA 625/8270	ug/L	*	Not detect	2										
1,2-DIPHENYLHYDRAZINE			EPA 625/8270	ug/L	*	Not detect	2										
FLUORANTHENE	X	X	EPA 625/8270	ug/L	200	180	7	61	9	19	2	31	2	4.4	2	47	4
FLUORENE		X	EPA 625/8270	ug/L	*	70	2										
HEXACHLOROBENZENE			EPA 625/8270	ug/L	0.99	Not detect	3										
HEXACHLOROBUTADIENE			EPA 625/8270	ug/L	500^	Not detect	2										
HEXACHLOROCYCLOPENTADIENE			EPA 625/8270	ug/L	*	Not detect	2										
HEXACHLOROETHANE			EPA 625/8270	ug/L	*	Not detect	2										
INDENO(123-cd)PYRENE		X	EPA 625/8270	ug/L	*	4.2	2										
ISOPHORONE			EPA 625/8270	ug/L	6000	Not detect	2										
NAPHTHALENE	X	X	EPA 625/8270	ug/L	160	Not detect	3	Not detect	9	Not detect	2	1500	100	<2 (trace)	2	4200	110
NITROBENZENE			EPA 625/8270	ug/L	*	Not detect	2										
n-NITROSO-DIMETHYLAMINE			EPA 625/8270	ug/L	160^	Not detect	3										
n-NITROSO-DI-n-PROPYLAMINE			EPA 625/8270	ug/L	12.4^	Not detect	2										
n-NITROSO-DIPHENYLAMINE			EPA 625/8270	ug/L	290	Not detect	2										
PHENANTHRENE		X	EPA 625/8270	ug/L	*	230	3										
PYRENE		X	EPA 625/8270	ug/L	*	140	2										
1,2,4-TRICHLOROBENZENE			EPA 625/8270	ug/L	150	Not detect	2										

** Although the pH measured at the carbon filter was above the Ohio EPA Standard, the pH of both effluent pools did meet the standard. As a result, IT Group continued to monitor the pH of the effluent pools to insure that the pH of the discharge met the Ohio EPA Standard

^ Standard determined assuming an average water hardness of 200 mg/l.

* pH result is based on laboratory measurements. Unless otherwise indicated, all other pH measurements were taken in the field

Indicates exceedances of the Ohio EPA Standard

Kerr-McGee Chemical, LLC
Toledo Tie Treatment Site
Time Critical Removal

Summary of Water Treatment System Chemicals of Concern Analytical Results

ANALYTE NAME	CHEMICAL OF CONCERN	QUARTERLY SAMPLING	METHOD	UNITS	OHIO EPA SURFACE WATER DISCHARGE STANDARD OUTSIDE MIXING ZONE MAXIMUM FOR WARMWATER HABITATS	KMC001-Effluent10-020899-T340 COLLECTION DATE: 2/8/99 Continuous Discharge Effluent Sample		KMC001-Effluent11-030399-T436 COLLECTION DATE: 3/3/99 Continuous Discharge Quarterly Effluent Sample		KMC001-Effluent12-031899-T392 COLLECTION DATE: 3/18/99 Continuous Discharge Effluent Sample		KMC001-Effluent13-032499-T392 COLLECTION DATE: 3/24/99 Continuous Discharge Effluent Sample		KMC001-Effluent14-040599-T392 COLLECTION DATE: 4/5/99 Continuous Discharge Effluent Sample	
						RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL
pH	X	X	SM18-4500	Std	6.5-9.0		1		1		1		1		1
SOLIDS, SUSP 104 DEG C			SM18-2540D	mg/L	*										
OIL & GREASE	X	X	EPA 1664	mg/L	10	Not detect	5	Not Detect	5	Not Detect	5	Not Detect	5	Not Detect	5
CYANIDE			4500-C/335.3	mg/L	0.046										
PHOSPHORUS	X	X	SM18 4500B5F	mg/L	1*	0.11	0.04	0.08	0.04	0.09	0.04	0.08	0.04	0.08	0.04
ARSENIC		X	200.7/6010	ug/L	460			Not Detect	5						
BARIUM		X	200.7/6010	ug/L	*			104	10						
CADMIUM		X	200.7/6010	ug/L	12'			Not Detect	1						
CHROMIUM		X	200.7/6010	ug/L	3200'			Not Detect	5						
LEAD		X	200.7/6010	ug/L	320'			Not Detect	5						
MERCURY			245.1/7470	ug/L	1.1										
SILVER			200.7/6010	ug/L	5.3										
SELENIUM			200.7/6010	ug/L	20										
PRIORITY POLLUTANT VOLATILES															
ACROLEIN			EPA624/8240	ug/L	780										
ACRYLONITRILE			EPA624/8240	ug/L	460										
BENZENE	X	X	EPA624/8240	ug/L	1100	Not detect	1	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1
BROMODICHLOROMETHANE			EPA624/8240	ug/L	*										
BROMOFORM			EPA624/8240	ug/L	1500										
BROMOMETHANE			EPA624/8240	ug/L	*										
CARBON TETRACHLORIDE			EPA624/8240	ug/L	1800										
CHLOROBENZENE			EPA624/8240	ug/L	590										
CHLOROETHANE			EPA624/8240	ug/L	*										
2-CHLOROETHYL VINYL ETHER			EPA624/8240	ug/L	*										
CHLOROFORM			EPA624/8240	ug/L	1800										
CHLOROMETHANE			EPA624/8240	ug/L	*										
DIBROMOCHLOROMETHANE			EPA624/8240	ug/L	*										
1,1-DICHLOROETHANE			EPA624/8240	ug/L	*										
1,2-DICHLOROETHANE			EPA624/8240	ug/L	12000										
1,1-DICHLOROETHENE			EPA624/8240	ug/L	*										
t-1,2-DICHLOROETHENE			EPA624/8240	ug/L	*										
1,2-DICHLOROPROPANE			EPA624/8240	ug/L	*										
c-1,3-DICHLOROPROPENE			EPA624/8240	ug/L	*										
t-1,3-DICHLOROPROPENE			EPA624/8240	ug/L	*										
ETHYLBENZENE	X	X	EPA624/8240	ug/L	1400	Not detect	1	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1
METHYLENE CHLORIDE			EPA624/8240	ug/L	9700										
1,1,2,2-TETRACHLOROETHANE			EPA624/8240	ug/L	1000										
TETRACHLOROETHENE			EPA624/8240	ug/L	540										
TOLUENE	X	X	EPA624/8240	ug/L	2400	Not detect	1	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1
1,1,1-TRICHLOROETHANE			EPA624/8240	ug/L	2000										
1,1,2-TRICHLOROETHANE			EPA624/8240	ug/L	2000										
TRICHLOROETHENE			EPA624/8240	ug/L	1700										
TRICHLOROFLUOROMETHANE			EPA624/8240	ug/L	*										
VINYL CHLORIDE			EPA624/8240	ug/L	5250										
PRIORITY POLLUTANT ACIDS															
2-CHLOROPHENOL			EPA625/8270	ug/L	200										
2,4-DICHLOROPHENOL			EPA625/8270	ug/L	200										
2,4-DIMETHYLPHENOL		X	EPA625/8270	ug/L	*			Not Detect	1						
4,6-DINITRO-o-CRESOL			EPA625/8270	ug/L	765^										
2,4-DINITROPHENOL			EPA625/8270	ug/L	14300^										
2-NITROPHENOL			EPA625/8270	ug/L	*										
4-NITROPHENOL			EPA625/8270	ug/L	790										
p-CHLORO-m-CRESOL			EPA625/8270	ug/L	*										
PENTACHLOROPHENOL			EPA625/8270	ug/L	TABLE 7-13										
PHENOL			EPA625/8270	ug/L	5300										
2,4,6-TRICHLOROPHENOL			EPA625/8270	ug/L	16										
PRIORITY POLLUTANT BASE/NEUTRALS															
ACENAPHTHENE	X	X	EPA 625/8270	ug/L	67	Not detect	2	2 (trace)	2	Not Detect	2	Not Detect	2	Not Detect	2
ACENAPHTHYLENE		X	EPA 625/8270	ug/L	*			Not Detect	1						
ANTHRACENE		X	EPA 625/8270	ug/L	*			Not Detect	1						
BENZIDINE			EPA 625/8270	ug/L	0.0053										
BENZO(a)ANTHRACENE		X	EPA 625/8270	ug/L	*			Not Detect	4						
BENZO(a)PYRENE		X	EPA 625/8270	ug/L	*			Not Detect	4						
3,4-BENZOFLUORANTHENE		X	EPA 625/8270	ug/L	*										
BENZO(ghi)PERYLENE			EPA 625/8270	ug/L	*										
BENZO(k)FLUORANTHENE		X	EPA 625/8270	ug/L	*			Not Detect	3						
bis(2-CHLOROETHOXY)METHANE			EPA 625/8270	ug/L	*										
bis(2-CHLOROETHYL)ETHER			EPA 625/8270	ug/L	13.6^										
bis(2-CHLOROISOPROPYL)ETHER			EPA 625/8270	ug/L	4360^										
bis(2-ETHYLHEXYL)PHTHALATE			EPA 625/8270	ug/L	1100										
4-BROMOPHENYL PHENYL ETHER			EPA 625/8270	ug/L	*										
BUTYL BENZYL PHTHALATE			EPA 625/8270	ug/L	230										
2-CHLORONAPHTHALENE			EPA 625/8270	ug/L	*										
4-CHLOROPHENYL PHENYL ETHER			EPA 625/8270	ug/L	*										
CHRYSENE		X	EPA 625/8270	ug/L	*			Not Detect	5						
DIBENZO(a,h)ANTHRACENE			EPA 625/8270	ug/L	*										
1,2-DICHLOROBENZENE			EPA 625/8270	ug/L	160										

Kerr-McGee Chemical, LLC
Toledo Tie Treatment Site
Time Critical Removal

Summary of Water Treatment System Chemicals of Concern Analytical Results

ANALYTE NAME	CHEMICAL OF CONCERN	QUARTERLY SAMPLING	METHOD	UNITS	OHIO EPA SURFACE WATER DISCHARGE STANDARD OUTSIDE MIXING ZONE MAXIMUM FOR WARMWATER HABITATS	KMC001-Effluent10-020899-T340 COLLECTION DATE: 2/8/99 Continuous Discharge Effluent Sample		KMC001-Effluent11-030399-T436 COLLECTION DATE: 3/3/99 Continuous Discharge Quarterly Effluent Sample		KMC001-Effluent12-041899-T392 COLLECTION DATE: 3/18/99 Continuous Discharge Effluent Sample		KMC001-Effluent13-032499-T392 COLLECTION DATE: 3/24/99 Continuous Discharge Effluent Sample		KMC001-Effluent14-040599-T392 COLLECTION DATE: 4/5/99 Continuous Discharge Effluent Sample	
						RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL
1,3-DICHLOROBENZENE			EPA 625/8270	ug/L	250										
1,4-DICHLOROBENZENE			EPA 625/8270	ug/l	110										
3,3'-DICHLOROBENZIDINE			EPA 625/8270	ug/l	0.2										
DIETHYL PHTHALATE			EPA 625/8270	ug/L	2600										
DIMETHYL PHTHALATE			EPA 625/8270	ug/L	1700										
DI-N-BUTYL PHTHALATE			EPA 625/8270	ug/L	350										
2,4-DINITROTOLUENE			EPA 625/8270	ug/L	91										
2,6-DINITROTOLUENE			EPA 625/8270	ug/L	950										
DI-n-OCTYL PHTHALATE			EPA 625/8270	ug/L	*										
1,2-DIPHENYLHYDRAZINE			EPA 625/8270	ug/L	*										
FLUORANTHENE	X	X	EPA 625/8270	ug/L	200	4.5	2	7.3	2	2.1	2	<2 (trace)	2	2.7	2
FLUORENE		X	EPA 625/8270	ug/L	*			1	1						
HEXACHLOROBENZENE			EPA 625/8270	ug/L	0.99										
HEXACHLOROBUTADIENE			EPA 625/8270	ug/L	500^										
HEXACHLOROCYCLOPENTADIENE			EPA 625/8270	ug/L	*										
HEXACHLOROETHANE			EPA 625/8270	ug/L	*										
INDENO(123-cd)PYRENE		X	EPA 625/8270	ug/L	*			Not Detect	1						
ISOPHORONE			EPA 625/8270	ug/L	6000										
NAPHTHALENE	X	X	EPA 625/8270	ug/L	160	Not detect	2	<2 (trace)	2	Not Detect	2	Not Detect	2	Not Detect	2
NITROBENZENE			EPA 625/8270	ug/L	*										
n-NITROSO-DIMETHYLAMINE			EPA 625/8270	ug/L	160^										
n-NITROSO-DI-n-PROPYLAMINE			EPA 625/8270	ug/L	12.4^										
n-NITROSO-DIPHENYLAMINE			EPA 625/8270	ug/L	290										
PHENANTHRENE		X	EPA 625/8270	ug/L	*			6.2	1						
PYRENE		X	EPA 625/8270	ug/L	*			5.8	1						
1,2,4-TRICHLOROBENZENE			EPA 625/8270	ug/L	150										

** Although the pH measured at the carbon filter was above the Ohio EPA Standard, the pH of both effluent pools did meet the standard. As a result, TI Group continued to monitor the pH of the effluent pools to insure that the pH of the discharge met the Ohio EPA Standard.

^ Standard determined assuming an average water hardness of 200 mg/l.

* pH result is based on laboratory measurements. Unless otherwise indicated, all other pH measurements were taken in the field.

Indicates exceedances of the Ohio EPA Standard.

Kerr-McGee Chemical, LLC
Toledo Tie Treatment Site
Time Critical Removal

Summary of Water Treatment System Chemicals of Concern Analytical Results

ANALYTE NAME	CHEMICAL OF CONCERN	QUARTERLY SAMPLING	METHOD	UNITS	OHIO EPA SURFACE WATER DISCHARGE STANDARD OUTSIDE MIXING ZONE MAXIMUM FOR WARMWATER HABITATS	KMC001-Effluent15-041599-1392 COLLECTION DATE: 4/15/99 Continuous Discharge Effluent Sample		KMC001-Effluent16-042199-T340 COLLECTION DATE: 4/21/99 Continuous Discharge Effluent Sample		KMC001-Effluent17-042999-1392 COLLECTION DATE: 4/29/99 Continuous Discharge Effluent Sample		KMC001-Effluent18-051399-1392 COLLECTION DATE: 5/13/99 Continuous Discharge Effluent Sample		KMC001-Effluent19-060299-1392 COLLECTION DATE: 6/2/99 Continuous Discharge Effluent Sample	
						RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL
pH	X	X	SM18-4500	Std	6.5-9.0		1		1		1		1		1
SOLIDS, SUSP ..04 DEG C			SM18-2540D	mg/L	*										
OIL & GREASE	X	X	EPA 1664	mg/L	10	Not Detect	5	Not Detect	5	Not Detect	5	Not Detect	5	Not Detect	5
CYANIDE			4500-C/335.3	mg/L	0.046										
PHOSPHORUS	X	X	SM18 4500BSF	mg/l	1*	0.07	0.04	0.06	0.04	0.13	0.04	0.05	0.04	0.11	0.04
ARSENIC		X	200.7/6010	ug/L	360									6.2	5
BARIUM		X	200.7/6010	ug/L	*									242	10
CADMIUM		X	200.7/6010	ug/L	12'									Not Detect	1
CHROMIUM		X	200.7/6010	ug/L	3200'									Not Detect	5
LEAD		X	200.7/6010	ug/L	320'									Not Detect	5
MERCURY			245.1/7470	ug/L	1.1										
SILVER			200.7/6010	ug/L	5.3										
SELENIUM			200.7/6010	ug/L	20										
PRIORITY POLLUTANT VOLATILES															
ACROLEIN			EPA624/8240	ug/L	780										
ACRYLONITRILE			EPA624/8240	ug/L	460										
BENZENE	X	X	EPA624/8240	ug/L	1100	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1
BROMODICHLOROMETHANE			EPA624/8240	ug/L	*										
BROMOFORM			EPA624/8240	ug/L	1500										
BROMOMETHANE			EPA624/8240	ug/L	*										
CARBON TETRACHLORIDE			EPA624/8240	ug/L	1800										
CHLOROBENZENE			EPA624/8240	ug/L	590										
CHLOROETHANE			EPA624/8240	ug/L	*										
2-CHLOROETHYL VINYL ETHER			EPA624/8240	ug/L	*										
CHLOROFORM			EPA624/8240	ug/L	1800										
CHLOROMETHANE			EPA624/8240	ug/L	*										
DIBROMOCHLOROMETHANE			EPA624/8240	ug/L	*										
1,1-DICHLOROETHANE			EPA624/8240	ug/L	*										
1,2-DICHLOROETHANE			EPA624/8240	ug/L	12000										
1,1-DICHLOROETHENE			EPA624/8240	ug/L	*										
t-1,2-DICHLOROETHENE			EPA624/8240	ug/L	*										
1,2-DICHLOROPROPANE			EPA624/8240	ug/L	*										
c-1,3-DICHLOROPROPENE			EPA624/8240	ug/L	*										
t-1,3-DICHLOROPROPENE			EPA624/8240	ug/L	*										
ETHYLBENZENE	X	X	EPA624/8240	ug/L	1400	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1
METHYLENE CHLORIDE			EPA624/8240	ug/L	9700										
1,1,2,2-TETRACHLOROETHANE			EPA624/8240	ug/L	1000										
TETRACHLOROETHENE			EPA624/8240	ug/L	540										
TOLUENE	X	X	EPA624/8240	ug/L	2400	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1	Not Detect	1
1,1,1-TRICHLOROETHANE			EPA624/8240	ug/L	2000										
1,1,2-TRICHLOROETHANE			EPA624/8240	ug/L	2000										
TRICHLOROETHENE			EPA624/8240	ug/L	1700										
TRICHLOROFLUOROMETHANE			EPA624/8240	ug/L	*										
VINYL CHLORIDE			EPA624/8240	ug/L	5250										
PRIORITY POLLUTANT ACIDS															
2-CHLOROPHENOL			EPA625/8270	ug/L	200										
2,4-DICHLOROPHENOL			EPA625/8270	ug/L	200										
2,4-DIMETHYLPHENOL		X	EPA625/8270	ug/L	*									Not Detect	1
4,6-DINITRO-o-CRESOL			EPA625/8270	ug/L	765^										
2,4-DINITROPHENOL			EPA625/8270	ug/L	14300^										
2-NITROPHENOL			EPA625/8270	ug/L	*										
4-NITROPHENOL			EPA625/8270	ug/L	790										
p-CHLORO-m-CRESOL			EPA625/8270	ug/L	*										
PENTACHLOROPHENOL			EPA625/8270	ug/l	TABLE 7-13										
PHENOL			EPA625/8270	ug/L	5300										
2,4,6-TRICHLOROPHENOL			EPA625/8270	ug/L	16										
PRIORITY POLLUTANT BASE/NEUTRALS															
ACENAPHTHENE	X	X	EPA 625/8270	ug/L	67	Not Detect	2	21	2	Not Detect	2	4.7	2	Not Detect	2
ACENAPHTHYLENE		X	EPA 625/8270	ug/L	*									Not Detect	1
ANTHRACENE		X	EPA 625/8270	ug/L	*									Not Detect	1
BENZIDINE			EPA 625/8270	ug/L	0.0053										
BENZO(a)ANTHRACENE		X	EPA 625/8270	ug/L	*									Not Detect	4
BENZO(a)PYRENE		X	EPA 625/8270	ug/L	*									Not Detect	4
3,4-BENZOFLUORANTHENE		X	EPA 625/8270	ug/L	*										
BENZO(ghi)PERYLENE			EPA 625/8270	ug/L	*										
BENZO(k)FLUORANTHENE		X	EPA 625/8270	ug/L	*									Not Detect	3
bis(2-CHLOROETHOXY)METHANE			EPA 625/8270	ug/L	*										
bis(2-CHLOROETHYL)ETHER			EPA 625/8270	ug/L	13.6^										
bis(2-CHLOROISOPROPYL)ETHER			EPA 625/8270	ug/L	4360^										
bis(2-ETHYLHEXYL)PHTHALATE			EPA 625/8270	ug/L	1100										
4-BROMOPHENYL PHENYL ETHER			EPA 625/8270	ug/L	*										
BUTYL BENZYL PHTHALATE			EPA 625/8270	ug/L	230										
2-CHLORONAPHTHALENE			EPA 625/8270	ug/L	*										
4-CHLOROPHENYL PHENYL ETHER			EPA 625/8270	ug/L	*										
CHRYSENE		X	EPA 625/8270	ug/L	*									Not Detect	5
DIBENZO(a,h)ANTHRACENE			EPA 625/8270	ug/L	*										
1,2-DICHLOROBENZENE			EPA 625/8270	ug/L	160										

Kerr-McGee Chemical, LLC
Toledo Tic Treatment Site
Time Critical Removal

Summary of Water Treatment System Chemicals of Concern Analytical Results

ANALYTE NAME	CHEMICAL OF CONCERN	QUARTERLY SAMPLING	METHOD	UNITS	OHIO EPA SURFACE WATER DISCHARGE STANDARD OUTSIDE MIXING ZONE MAXIMUM FOR WARMWATER HABITATS	KMC001-Effluent15-041599-T392 COLLECTION DATE: 4/15/99 Continuous Discharge Effluent Sample		KMC001-Effluent16-042199-T340 COLLECTION DATE: 4/21/99 Continuous Discharge Effluent Sample		KMC001-Effluent17-042999-T392 COLLECTION DATE: 4/29/99 Continuous Discharge Effluent Sample		KMC001-Effluent18-051399-T392 COLLECTION DATE: 5/13/99 Continuous Discharge Effluent Sample		KMC001-Effluent19-060299-T392 COLLECTION DATE: 6/2/99 Continuous Discharge Effluent Sample	
						RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL	RESULT	MDL
1,3-DICHLOROBENZENE			EPA 625/8270	ug/L	250										
1,4-DICHLOROBENZENE			EPA 625/8270	ug/L	110										
3,3'-DICHLOROBENZIDINE			EPA 625/8270	ug/L	0.2										
DIETHYL PHTHALATE			EPA 625/8270	ug/L	2600										
DIMETHYL PHTHALATE			EPA 625/8270	ug/L	1700										
DI-N-BUTYL PHTHALATE			EPA 625/8270	ug/L	350										
2,4-DINITROTOLUENE			EPA 625/8270	ug/L	91										
2,6-DINITROTOLUENE			EPA 625/8270	ug/L	950										
DI-n-OCTYL PHTHALATE			EPA 625/8270	ug/L	*										
1,2-DIPHENYLHYDRAZINE			EPA 625/8270	ug/L	*										
FLUORANTHENE	X	X	EPA 625/8270	ug/L	700	Not Detect	2	3.5	2	Not Detect	2	Trace	2	Not Detect	2
FLUORENE		X	EPA 625/8270	ug/L	*									Not Detect	1
HEXACHLOROBENZENE			EPA 625/8270	ug/L	0.99										
HEXACHLOROBUTADIENE			EPA 625/8270	ug/L	500^										
HEXACHLOROCYCLOPENTADIENE			EPA 625/8270	ug/L	*										
HEXACHLOROETHANE			EPA 625/8270	ug/L	*										
INDENO(123-cd)PYRENE		X	EPA 625/8270	ug/L	*									Not Detect	1
ISOPHORONE			EPA 625/8270	ug/L	6000										
NAPHTHALENE	X	X	EPA 625/8270	ug/L	160	Not Detect	2	Not Detect	2	Not Detect	2	Not Detect	2	Not Detect	2
NITROBENZENE			EPA 625/8270	ug/L	*										
n-NITROSO-DIMETHYLAMINE			EPA 625/8270	ug/L	160^										
n-NITROSO-DI-n-PROPYLAMINE			EPA 625/8270	ug/L	12.4^										
n-NITROSO-DIPHENYLAMINE			EPA 625/8270	ug/L	290										
PHENANTHRENE		X	EPA 625/8270	ug/L	*									Not Detect	1
PYRENE		X	EPA 625/8270	ug/L	*									Not Detect	1
1,2,4-TRICHLOROBENZENE			EPA 625/8270	ug/L	150										

** Although the pH measured at the carbon filter was above the Ohio EPA Standard, the pH of both effluent pools did meet the standard. As a result, IT Group continued to monitor the pH of the effluent pools to insure that the pH of the discharge met the Ohio EPA Standard.

^ Standard determined assuming an average water hardness of 200 mg/l.

* pH result is based on laboratory measurements. Unless otherwise indicated, all other pH measurements were taken in the field.

Indicates exceedances of the Ohio EPA Standard

APPENDIX D-5

Williams Ditch Post-Sediment Removal Analytical Results

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094598
Collected: 2/18/99 at 13:35

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-004-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT04 SDG#: TOL07-09

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	66.3		0.19	mg/kg	84.		0.25
1649	Cadmium	0.87	J	0.16	mg/kg	1.11	J	0.20
1651	Chromium	14.1		0.73	mg/kg	17.9		0.93
1653	Copper	18.8		0.24	mg/kg	23.9		0.31
1655	Lead	8.9	J	3.6	mg/kg	11.4	J	4.6
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	50.4		0.87	mg/kg	64.		1.1
6935	Arsenic TR	4.6		0.38	mg/kg	5.9		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.51
0159	Mercury	0.0272	J	0.0047	mg/kg	0.0346	J	0.0060
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	21.4		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:42:53 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094598
Collected: 2/18/99 at 13:35

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-004-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT04 SDG#: TOL07-09

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B								
5460	Benzene	1,100.		170.	ug/kg	1,400.		220.
5466	Toluene	230.	J	170.	ug/kg	290.	J	220.
5474	Ethylbenzene	2,500.		170.	ug/kg	3,200.		220.
6301	Xylene (Total)	5,300.		170.	ug/kg	6,700.		220.

The quantitation limits for the GC/MS volatile compounds were raised due to the level of non-target compounds.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094598
Collected: 2/18/99 at 13:35

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-004-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT04 SDG#: TOL07-09

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	45,000.		670.	ug/kg	57,000.		850.
3765	acenaphthylene	290.	J	33.	ug/kg	370.	J	42.
1191	acenaphthene	6,300.		170.	ug/kg	8,100.		210.
3768	fluorene	6,400.		170.	ug/kg	8,100.		210.
3775	phenanthrene	19,000.		170.	ug/kg	24,000.		210.
3776	anthracene	2,100.		33.	ug/kg	2,600.		42.
3778	fluoranthene	9,400.		170.	ug/kg	12,000.		210.
1195	pyrene	6,800.		170.	ug/kg	8,600.		210.
3781	benzo(a)anthracene	2,300.		33.	ug/kg	3,000.		42.
3782	chrysene	2,000.		33.	ug/kg	2,500.		42.
3786	benzo(b)fluoranthene	1,400.		33.	ug/kg	1,800.		42.
3787	benzo(k)fluoranthene	600.		33.	ug/kg	770.		42.
3789	indeno(1,2,3-cd)pyrene	610.		33.	ug/kg	770.		42.
3790	dibenz(a,h)anthracene	170.	J	33.	ug/kg	210.	J	42.
3791	benzo(g,h,i)perylene	540.		33.	ug/kg	690.		42.
3788	benzo(a)pyrene	1,200.		33.	ug/kg	1,500.		42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094598
Collected: 02/18/99 at 13:35

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-004-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT04 SDG#: TOL07-09

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/28/99 2329	Christina R. Sharland
1646	Barium	SW-846 6010B	1		02/23/99 1159	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1159	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1159	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1159	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1159	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1159	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1159	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2236	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2236	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1838	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/24/99 0301	Jeffrey S. Kochubka
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2200	Janet H. Scholl
			3		02/19/99 2225	Janet H. Scholl

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094598
KMC001-DIT-004-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AD									
5460 Benzene											
170.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
170.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
170.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
170.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.19	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.73	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
Copper		Batch: 990535708005									
0.24	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
165[illegible] Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.87	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0047	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
670.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
170.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
170.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
170.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
170.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
170.	ug/kg	N.D.		96	100	5	84			52	115

(1) The result for one or both determinations was less than five times the LOQ.

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094598
KMC001-DIT-004-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
0111 Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094598
KMC001-DIT-004-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

	TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B		DBFM	94	80	120
		d4-1,2-DCA	90	80	120
		d8-toluene	84	81	117
		4-BFB	93	74	121
7804 PAHs in Soil by GC/MS		Nitrobz-d5	65	31	126
		2-Fbiphnyl	75	45	113
		Tphenyld14	89	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094597
Collected: 2/18/99 at 13:00

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT05 SDG#: TOL07-08

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	67.5		0.20	mg/kg	85.		0.25
1649	Cadmium	0.82	J	0.16	mg/kg	1.03	J	0.20
1651	Chromium	14.2		0.74	mg/kg	18.0		0.93
1653	Copper	17.9		0.25	mg/kg	22.6		0.31
1655	Lead	8.9	J	3.6	mg/kg	11.2	J	4.6
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	47.0		0.88	mg/kg	59.		1.1
6935	Arsenic TR	6.7		0.38	mg/kg	8.4		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.51
0159	Mercury	0.0276	J	0.0047	mg/kg	0.0348	J	0.0059
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.8		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:41:34 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094597
Collected: 2/18/99 at 13:00

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT05 SDG#: TOL07-08

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B								
5460	Benzene	1,100.		170.	ug/kg	1,400.		220.
5466	Toluene	340.	J	170.	ug/kg	440.	J	220.
5474	Ethylbenzene	1,700.		170.	ug/kg	2,100.		220.
6301	Xylene (Total)	3,700.		170.	ug/kg	4,700.		220.

The quantitation limits for the GC/MS volatile compounds were raised due to the level of non-target compounds.

Poor surrogate recoveries were observed for the GC/MS volatile fraction due to the dilution needed to perform the analysis.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094597
Collected: 2/18/99 at 13:00

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT05 SDG#: TOL07-08

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	33,000.		330.	ug/kg	41,000.		420.
3765	acenaphthylene	N.D.		33.	ug/kg	N.D.		42.
1191	acenaphthene	200.	J	33.	ug/kg	250.	J	42.
3768	fluorene	35.	J	33.	ug/kg	45.	J	42.
3775	phenanthrene	N.D.		33.	ug/kg	N.D.		42.
3776	anthracene	N.D.		33.	ug/kg	N.D.		42.
3778	fluoranthene	N.D.		33.	ug/kg	N.D.		42.
1195	pyrene	N.D.		33.	ug/kg	N.D.		42.
3781	benzo(a)anthracene	N.D.		33.	ug/kg	N.D.		42.
3782	chrysene	N.D.		33.	ug/kg	N.D.		42.
3786	benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3787	benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3789	indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		42.
3790	dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		42.
3791	benzo(g,h,i)perylene	N.D.		33.	ug/kg	N.D.		42.
3788	benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094597
Collected: 02/18/99 at 13:00

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT05 SDG#: TOL07-08

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/28/99 2253	Susan A. McMahon
1646	Barium	SW-846 6010B	1		02/23/99 1154	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1154	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1154	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1154	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1154	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1154	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1154	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2231	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2231	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1836	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/24/99 0211	Timothy Trees
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2200	Janet H. Scholl
			3		02/19/99 2225	Janet H. Scholl

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094597
KMC001-DIT-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AD									
5460 Benzene											
170.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
170.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
170.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
170.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.20	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.74	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
16[illegible] Copper		Batch: 990535708005									
0.25	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.88	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0047	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
330.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

(1) The result for one or both determinations was less than five times the LOQ.

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094597
KMC001-DIT-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
0111 Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094597
KMC001-DIT-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	72	80	120
	d4-1,2-DCA	69	80	120
	d8-toluene	65	81	117
	4-BFB	71	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	74	31	126
	2-Fbiphnyl	87	45	113
	Tphenyld14	98	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094599
Collected: 2/18/99 at 13:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-BAN-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN05 SDG#: TOL07-10

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	55.9		0.20	mg/kg	71.		0.25
1649	Cadmium	0.73	J	0.16	mg/kg	0.93	J	0.20
1651	Chromium	12.1		0.74	mg/kg	15.3		0.93
1653	Copper	17.9		0.25	mg/kg	22.6		0.31
1655	Lead	8.8	J	3.6	mg/kg	11.1	J	4.6
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	45.4		0.88	mg/kg	57.		1.1
6935	Arsenic TR	4.2		0.38	mg/kg	5.3		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.51
0159	Mercury	0.0477	J	0.0048	mg/kg	0.0602	J	0.0060
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.8		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:44:19 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094599
Collected: 2/18/99 at 13:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-BAN-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN05 SDG#: TOL07-10

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	1,600.	170.	ug/kg	2,000.	220.
5466	Toluene	N.D.	170.	ug/kg	N.D.	220.
5474	Ethylbenzene	4,400.	170.	ug/kg	5,600.	220.
6301	Xylene (Total)	11,000.	170.	ug/kg	13,000.	220.

The quantitation limits for the GC/MS volatile compounds were raised due to the level of non-target compounds.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094599
Collected: 2/18/99 at 13:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-BAN-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN05 SDG#: TOL07-10

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	110,000.		1,700.	ug/kg	140,000.		2,100.
3765	acenaphthylene	180.	J	33.	ug/kg	220.	J	42.
1191	acenaphthene	10,000.		170.	ug/kg	13,000.		210.
3768	fluorene	7,700.		170.	ug/kg	9,800.		210.
3775	phenanthrene	16,000.		170.	ug/kg	21,000.		210.
3776	anthracene	1,800.		33.	ug/kg	2,300.		42.
3778	fluoranthene	6,000.		170.	ug/kg	7,500.		210.
1195	pyrene	4,200.		33.	ug/kg	5,400.		42.
3781	benzo(a)anthracene	1,400.		33.	ug/kg	1,700.		42.
3782	chrysene	1,200.		33.	ug/kg	1,500.		42.
3786	benzo(b)fluoranthene	800.		33.	ug/kg	1,000.		42.
3787	benzo(k)fluoranthene	310.	J	33.	ug/kg	390.	J	42.
3789	indeno(1,2,3-cd)pyrene	340.		33.	ug/kg	430.		42.
3790	dibenz(a,h)anthracene	84.	J	33.	ug/kg	110.	J	42.
3791	benzo(g,h,i)perylene	280.	J	33.	ug/kg	350.	J	42.
3788	benzo(a)pyrene	640.		33.	ug/kg	810.		42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094599
Collected: 02/18/99 at 13:15

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-BAN-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN05 SDG#: TOL07-10

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		03/01/99 0018	Christina R. Sharland
1646	Barium	SW-846 6010B	1		02/23/99 1205	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1205	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1205	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1205	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1205	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1205	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1205	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2241	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2241	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1839	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/24/99 0351	Jeffrey S. Kochubka
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2200	Janet H. Scholl
			3		02/19/99 2227	Janet H. Scholl

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094599
KMC001-BAN-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AD									
5460 Benzene											
170.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
170.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
170.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
170.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.20	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.74	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
Copper		Batch: 990535708005									
0.25	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.88	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0048	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
1,700.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
170.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
170.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
170.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
170.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

(1) The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094599
KMC001-BAN-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
0111 Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094599
KMC001-BAN-005-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	97	80	120
	d4-1,2-DCA	92	80	120
	d8-toluene	89	81	117
	4-BFB	96	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	80	31	126
	2-Fbiphnyl	86	45	113
	Tphenyld14	98	37	130

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094595
Collected: 2/18/99 at 12:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT06 SDG#: TOL07-06

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	57.4		0.20	mg/kg	73.		0.25
1649	Cadmium	0.77	J	0.16	mg/kg	0.97	J	0.20
1651	Chromium	12.3		0.74	mg/kg	15.6		0.93
1653	Copper	17.6		0.25	mg/kg	22.3		0.31
1655	Lead	8.7	J	3.6	mg/kg	11.0	J	4.6
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	44.7		0.88	mg/kg	57.		1.1
6935	Arsenic TR	4.2		0.38	mg/kg	5.3		0.49
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.51
0159	Mercury	0.0341	J	0.0047	mg/kg	0.0433	J	0.0060
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	21.3		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:39:24 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094595
Collected: 2/18/99 at 12:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT06 SDG#: TOL07-06

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
	UST-Unleaded Soils by 8260B					
5460	Benzene	500.	44.	ug/kg	640.	56.
5466	Toluene	N.D.	44.	ug/kg	N.D.	56.
5474	Ethylbenzene	N.D.	44.	ug/kg	N.D.	56.
6301	Xylene (Total)	N.D.	44.	ug/kg	N.D.	56.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094595
Collected: 2/18/99 at 12:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT06 SDG#: TOL07-06

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	49.	J	33.	ug/kg	62.	J	42.
3765	acenaphthylene	N.D.		33.	ug/kg	N.D.		42.
1191	acenaphthene	N.D.		33.	ug/kg	N.D.		42.
3768	fluorene	N.D.		33.	ug/kg	N.D.		42.
3775	phenanthrene	N.D.		33.	ug/kg	N.D.		42.
3776	anthracene	N.D.		33.	ug/kg	N.D.		42.
3778	fluoranthene	N.D.		33.	ug/kg	N.D.		42.
1195	pyrene	N.D.		33.	ug/kg	N.D.		42.
3781	benzo(a)anthracene	N.D.		33.	ug/kg	N.D.		42.
3782	chrysene	N.D.		33.	ug/kg	N.D.		42.
3786	benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3787	benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3789	indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		42.
3790	dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		42.
3791	benzo(g,h,i)perylene	N.D.		33.	ug/kg	N.D.		42.
3788	benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094595
Collected: 02/18/99 at 12:15

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT06 SDG#: TOL07-06

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/27/99 0125	Christina R. Sharland
1646	Barium	SW-846 6010B	1		02/23/99 1144	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1144	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1144	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1144	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1144	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1144	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1144	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2221	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2221	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1833	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/24/99 0031	Timothy Trees
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	
			2		02/19/99 2200	
			3		02/19/99 2223	

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094595
KMC001-DIT-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AC									
5460 Benzene											
44.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
44.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
44.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
44.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.20	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.74	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
3 Copper		Batch: 990535708005									
0.25	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.88	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0047	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
33.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

(1) The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094595
KMC001-DIT-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094595
KMC001-DIT-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	94	80	120
	d4-1,2-DCA	83	80	120
	d8-toluene	88	81	117
	4-BFB	96	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	86	31	126
	2-Fbiphnyl	94	45	113
	Tphenyld14	104	37	130

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094596
Collected: 2/18/99 at 12:30

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-BAN-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN06 SDG#: TOL07-07

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	66.1		0.19	mg/kg	85.		0.25
1649	Cadmium	0.74	J	0.16	mg/kg	0.95	J	0.20
1651	Chromium	13.0		0.73	mg/kg	16.7		0.93
1653	Copper	18.0		0.24	mg/kg	23.0		0.31
1655	Lead	8.8	J	3.6	mg/kg	11.3	J	4.6
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	45.6		0.87	mg/kg	58.		1.1
6935	Arsenic TR	4.1		0.38	mg/kg	5.2		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.51
0159	Mercury	0.0315	J	0.0048	mg/kg	0.0402	J	0.0061
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	21.8		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:40:28 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094596
Collected: 2/18/99 at 12:30

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-BAN-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN06 SDG#: TOL07-07

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B								
5460	Benzene	N.D.		45.	ug/kg	N.D.		58.
5466	Toluene	45.	J	45.	ug/kg	58.	J	58.
5474	Ethylbenzene	110.	J	45.	ug/kg	140.	J	58.
6301	Xylene (Total)	240.		45.	ug/kg	310.		58.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094596
Collected: 2/18/99 at 12:30

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-BAN-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN06 SDG#: TOL07-07

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	9,800.		67.	ug/kg	13,000.		85.
3765	acenaphthylene	110.	J	33.	ug/kg	140.	J	43.
1191	acenaphthene	1,700.		33.	ug/kg	2,200.		43.
3768	fluorene	1,800.		33.	ug/kg	2,300.		43.
3775	phenanthrene	5,200.		33.	ug/kg	6,600.		43.
3776	anthracene	600.		33.	ug/kg	770.		43.
3778	fluoranthene	2,400.		33.	ug/kg	3,000.		43.
1195	pyrene	2,000.		33.	ug/kg	2,600.		43.
3781	benzo(a)anthracene	700.		33.	ug/kg	890.		43.
3782	chrysene	580.		33.	ug/kg	740.		43.
3786	benzo(b)fluoranthene	430.		33.	ug/kg	540.		43.
3787	benzo(k)fluoranthene	200.	J	33.	ug/kg	260.	J	43.
3789	indeno(1,2,3-cd)pyrene	170.	J	33.	ug/kg	220.	J	43.
3790	dibenz(a,h)anthracene	48.	J	33.	ug/kg	61.	J	43.
3791	benzo(g,h,i)perylene	160.	J	33.	ug/kg	200.	J	43.
3788	benzo(a)pyrene	350.		33.	ug/kg	440.		43.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

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Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094596
Collected: 02/18/99 at 12:30

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-BAN-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN06 SDG#: TOL07-07

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/27/99 0315	Christina R. Sharland
1646	Barium	SW-846 6010B	1		02/23/99 1150	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1150	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1150	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1150	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1150	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1150	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1150	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2226	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2226	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1834	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/24/99 0121	Timothy Trees
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2200	Janet H. Scholl
			3		02/19/99 2224	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094596
KMC001-BAN-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AC									
5460 Benzene											
45.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
45.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
45.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
45.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.19	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.73	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
Copper		Batch: 990535708005									
0.24	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.87	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0048	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
67.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

* The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094596
KMC001-BAN-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
0111 Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094596
KMC001-BAN-006-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	90	80	120
	d4-1,2-DCA	82	80	120
	d8-toluene	83	81	117
	4-BFB	89	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	81	31	126
	2-Fbiphnyl	94	45	113
	Tphenyld14	108	37	130

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094594
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT07 SDG#: TOL07-05

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	59.0		0.20	mg/kg	75.		0.25
1649	Cadmium	0.75	J	0.16	mg/kg	0.96	J	0.20
1651	Chromium	13.8		0.74	mg/kg	17.5		0.94
1653	Copper	18.2		0.25	mg/kg	23.1		0.31
1655	Lead	9.6	J	3.7	mg/kg	12.2	J	4.6
1666	Silver	N.D.		0.77	mg/kg	N.D.		1.0
1672	Zinc	46.2		0.89	mg/kg	59.		1.1
6935	Arsenic TR	5.5		0.39	mg/kg	7.0		0.49
6936	Selenium TR	N.D.		0.41	mg/kg	N.D.		0.51
0159	Mercury	0.0267	J	0.0047	mg/kg	0.0338	J	0.0059
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	21.1		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:38:23 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094594
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT07 SDG#: TOL07-05

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	N.D.	46.	ug/kg	N.D.	58.
5466	Toluene	N.D.	46.	ug/kg	N.D.	58.
5474	Ethylbenzene	N.D.	46.	ug/kg	N.D.	58.
6301	Xylene (Total)	N.D.	46.	ug/kg	N.D.	58.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094594
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT07 SDG#: TOL07-05

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
PAHs in Soil by GC/MS						
3761	naphthalene	N.D.	33.	ug/kg	N.D.	42.
3765	acenaphthylene	N.D.	33.	ug/kg	N.D.	42.
1191	acenaphthene	N.D.	33.	ug/kg	N.D.	42.
3768	fluorene	N.D.	33.	ug/kg	N.D.	42.
3775	phenanthrene	N.D.	33.	ug/kg	N.D.	42.
3776	anthracene	N.D.	33.	ug/kg	N.D.	42.
3778	fluoranthene	N.D.	33.	ug/kg	N.D.	42.
1195	pyrene	N.D.	33.	ug/kg	N.D.	42.
3781	benzo(a)anthracene	N.D.	33.	ug/kg	N.D.	42.
3782	chrysene	N.D.	33.	ug/kg	N.D.	42.
3786	benzo(b)fluoranthene	N.D.	33.	ug/kg	N.D.	42.
3787	benzo(k)fluoranthene	N.D.	33.	ug/kg	N.D.	42.
3789	indeno(1,2,3-cd)pyrene	N.D.	33.	ug/kg	N.D.	42.
3790	dibenz(a,h)anthracene	N.D.	33.	ug/kg	N.D.	42.
3791	benzo(g,h,i)perylene	N.D.	33.	ug/kg	N.D.	42.
3788	benzo(a)pyrene	N.D.	33.	ug/kg	N.D.	42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094594
Collected: 02/18/99 at 11:55

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT07 SDG#: TOL07-05

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/26/99 1937	Roy R. Mellott, Jr.
1646	Barium	SW-846 6010B	1		02/23/99 1139	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1139	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1139	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1139	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1139	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1139	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1139	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2216	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2216	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1832	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/23/99 2341	Timothy Trees
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2200	Janet H. Scholl
			3		02/19/99 2222	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094594
KMC001-DIT-007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AB									
5460 Benzene											
46.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
46.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
46.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
46.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.20	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.74	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
3 Copper		Batch: 990535708005									
0.25	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.7	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.77	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.89	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.39	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.41	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0047	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
33.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

) The result for one or both determinations was less than five times the LOQ.

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094594
KMC001-DIT-007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
0111 Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094594
KMC001-DIT-007-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	98	80	120
	d4-1,2-DCA	93	80	120
	d8-toluene	95	81	117
	4-BFB	99	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	79	31	126
	2-Fbiphnyl	91	45	113
	Tphenyld14	103	37	130

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

missing page 2 of 3

LLI Sample No. SW 3094593
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Duplicate Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04DUP

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
1646	Barium	67.8		0.19	mg/kg	85.		0.24
1649	Cadmium	0.80	J	0.16	mg/kg	1.00	J	0.20
1651	Chromium	13.5		0.73	mg/kg	16.9		0.92
1653	Copper	19.7		0.24	mg/kg	24.8		0.31
1655	Lead	9.3	J	3.6	mg/kg	11.7	J	4.5
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	48.0		0.87	mg/kg	60.		1.1
6935	Arsenic TR	6.2		0.38	mg/kg	7.8		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.50
0159	Mercury	0.0310	J	0.0046	mg/kg	0.0390	J	0.0058
0118	Moisture	20.5		0.080	% by wt.			
0121	Moisture Duplicate	20.9		0.080	% by wt.			

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:37:45 D 0003 15 653693
243 25.00 00020600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094593
KMC001-DIT-QA7-392T Duplicate Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

	SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
1646 Barium			Batch: 990535708005									
	0.19	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium			Batch: 990535708005									
	0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium			Batch: 990535708005									
	0.73	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
1653 Copper			Batch: 990535708005									
	0.24	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead			Batch: 990535708005									
	3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver			Batch: 990535708005									
	0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc			Batch: 990535708005									
	0.87	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR			Batch: 990535708005									
	0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR			Batch: 990535708005									
	0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
[illegible]59 Mercury			Batch: 990535711001									
	0.0046	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
0118 Moisture			Batch: 990520091820003A									
	0.080	% by wt.										
0121 Moisture Duplicate			Batch: 990520091820003A									
	0.080	% by wt.										

) The result for one or both determinations was less than five times the LOQ.

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094592
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Matrix Spike Dup. Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04MSD

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B			See Page 2		
1646	Barium	273.	0.20	mg/kg	344.	0.25
1649	Cadmium	5.3	0.16	mg/kg	6.6	0.20
1651	Chromium	38.8	0.74	mg/kg	48.8	0.92
1653	Copper	46.8	0.25	mg/kg	58.9	0.31
1655	Lead	55.0	3.6	mg/kg	69.	4.6
1666	Silver	5.1	0.76	mg/kg	6.4	1.0
1672	Zinc	98.5	0.88	mg/kg	124.	1.1
6935	Arsenic TR	189.	0.38	mg/kg	238.	0.48
6936	Selenium TR	183.	0.40	mg/kg	230.	0.51
0159	Mercury	0.239	0.0046	mg/kg	0.30	0.0058
7804	PAHs in Soil by GC/MS			See Page 3		
0118	Moisture	20.5	0.080	% by wt.		

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:36:33 D 0003 15 653693
243 60.00 00077400 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094592
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Matrix Spike Dup. Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04MSD

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	850.	44.	ug/kg	1,100.	55.
5466	Toluene	860.	44.	ug/kg	1,100.	55.
5474	Ethylbenzene	860.	44.	ug/kg	1,100.	55.
6301	Xylene (Total)	2,600.	44.	ug/kg	3,300.	55.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094592
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Matrix Spike Dup. Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04MSD

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
PAHs in Soil by GC/MS						
3761	naphthalene	2,900.	33.	ug/kg	3,600.	42.
3765	acenaphthylene	2,900.	33.	ug/kg	3,600.	42.
1191	acenaphthene	2,900.	33.	ug/kg	3,700.	42.
3768	fluorene	3,000.	33.	ug/kg	3,800.	42.
3775	phenanthrene	3,100.	33.	ug/kg	3,900.	42.
3776	anthracene	2,900.	33.	ug/kg	3,700.	42.
3778	fluoranthene	3,000.	33.	ug/kg	3,800.	42.
1195	pyrene	3,300.	33.	ug/kg	4,200.	42.
3781	benzo(a)anthracene	3,100.	33.	ug/kg	3,900.	42.
3782	chrysene	3,100.	33.	ug/kg	3,900.	42.
3786	benzo(b)fluoranthene	2,700.	33.	ug/kg	3,400.	42.
3787	benzo(k)fluoranthene	3,200.	33.	ug/kg	4,000.	42.
3789	indeno(1,2,3-cd)pyrene	3,000.	33.	ug/kg	3,800.	42.
3790	dibenz(a,h)anthracene	3,000.	33.	ug/kg	3,800.	42.
3791	benzo(g,h,i)perylene	3,100.	33.	ug/kg	3,900.	42.
3788	benzo(a)pyrene	2,900.	33.	ug/kg	3,600.	42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094592
Collected: 02/18/99 at 11:55

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-QA7-392T Matrix Spike Dup. Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04MSD

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/27/99 0239	Christina R. Sharland
1646	Barium	SW-846 6010B	1		02/23/99 1104	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1104	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1104	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1104	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1104	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1104	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1104	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2141	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2141	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1827	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/23/99 1516	Jeffrey S. Kochubka
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0118	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2221	Janet H. Scholl

Lancaster Laboratories
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LLI Sample No. 3094592
KMC001-DIT-QA7-392T Matrix Spike Dup. Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AC									
5460 Benzene											
44.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
44.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
44.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
44.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.20	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.74	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
Copper		Batch: 990535708005									
0.25	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.88	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0046	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
33.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
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LLI Sample No. 3094592
KMC001-DIT-QA7-392T Matrix Spike Dup. Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
0118 Moisture		Batch: 990520091820003A									
0.080	% by wt.										

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LLI Sample No. 3094592
KMC001-DIT-QA7-392T Matrix Spike Dup. Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	93	80	120
	d4-1,2-DCA	84	80	120
	d8-toluene	89	81	117
	4-BFB	95	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	82	31	126
	2-Fbiphnyl	89	45	113
	Tphenyld14	104	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094591
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Matrix Spike Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04MS

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B			See Page 2		
1646	Barium	270.	0.20	mg/kg	340.	0.25
1649	Cadmium	5.2	0.16	mg/kg	6.6	0.20
1651	Chromium	37.3	0.74	mg/kg	47.0	0.93
1653	Copper	45.7	0.25	mg/kg	57.5	0.31
1655	Lead	53.8	3.7	mg/kg	68.	4.6
1666	Silver	5.1	0.77	mg/kg	6.4	1.0
1672	Zinc	96.6	0.89	mg/kg	121.	1.1
6935	Arsenic TR	190.	0.39	mg/kg	239.	0.49
6936	Selenium TR	184.	0.41	mg/kg	232.	0.51
0159	Mercury	0.245	0.0048	mg/kg	0.31	0.0060
7804	PAHs in Soil by GC/MS			See Page 3		
0118	Moisture	20.5	0.080	% by wt.		

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:35:25 D 0003 15 653693
243 60.00 00077400 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094591
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Matrix Spike Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04MS

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	900.	45.	ug/kg	1,100.	57.
5466	Toluene	890.	45.	ug/kg	1,100.	57.
5474	Ethylbenzene	910.	45.	ug/kg	1,100.	57.
6301	Xylene (Total)	2,700.	45.	ug/kg	3,400.	57.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094591
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Matrix Spike Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04MS

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
PAHs in Soil by GC/MS						
3761	naphthalene	2,800.	33.	ug/kg	3,500.	42.
3765	acenaphthylene	2,700.	33.	ug/kg	3,400.	42.
1191	acenaphthene	2,700.	33.	ug/kg	3,500.	42.
3768	fluorene	2,900.	33.	ug/kg	3,600.	42.
3775	phenanthrene	2,900.	33.	ug/kg	3,600.	42.
3776	anthracene	2,800.	33.	ug/kg	3,500.	42.
3778	fluoranthene	2,900.	33.	ug/kg	3,600.	42.
1195	pyrene	3,200.	33.	ug/kg	4,000.	42.
3781	benzo(a)anthracene	2,900.	33.	ug/kg	3,700.	42.
3782	chrysene	3,000.	33.	ug/kg	3,700.	42.
3786	benzo(b)fluoranthene	2,400.	33.	ug/kg	3,000.	42.
3787	benzo(k)fluoranthene	2,900.	33.	ug/kg	3,600.	42.
3789	indeno(1,2,3-cd)pyrene	2,900.	33.	ug/kg	3,700.	42.
3790	dibenz(a,h)anthracene	3,000.	33.	ug/kg	3,800.	42.
3791	benzo(g,h,i)perylene	3,000.	33.	ug/kg	3,800.	42.
3788	benzo(a)pyrene	2,700.	33.	ug/kg	3,400.	42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094591
Collected: 02/18/99 at 11:55

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-QA7-392T Matrix Spike Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04MS

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/27/99 0201	Christina R. Sharland
1646	Barium	SW-846 6010B	1		02/23/99 1059	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1059	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1059	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1059	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1059	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1059	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1059	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2136	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2136	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1826	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/23/99 1425	Jeffrey S. Kochubka
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0118	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2220	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094591
KMC001-DIT-QA7-392T Matrix Spike Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AC									
5460 Benzene											
45.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
45.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
45.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
45.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.20	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.74	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
3 Copper		Batch: 990535708005									
0.25	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.7	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.77	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.89	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.39	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.41	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0048	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
33.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

) The result for one or both determinations was less than five times the LOQ.

LLI Sample No. 3094591
KMC001-DIT-QA7-392T Matrix Spike Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
Moisture		Batch: 990520091820003A									
0.080	% by wt.										

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LLI Sample No. 3094591
KMC001-DIT-QA7-392T Matrix Spike Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	96	80	120
	d4-1,2-DCA	88	80	120
	d8-toluene	92	81	117
	4-BFB	98	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	74	31	126
	2-Fbiphnyl	79	45	113
	Tphenyld14	98	37	130

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094590
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Unspiked Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04BKG

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	69.8		0.20	mg/kg	88.		0.25
1649	Cadmium	0.87	J	0.16	mg/kg	1.09	J	0.20
1651	Chromium	14.6		0.74	mg/kg	18.4		0.92
1653	Copper	20.0		0.25	mg/kg	25.2		0.31
1655	Lead	9.2	J	3.6	mg/kg	11.6	J	4.6
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	51.1		0.88	mg/kg	64.		1.1
6935	Arsenic TR	6.6		0.38	mg/kg	8.3		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.51
0159	Mercury	0.0297	J	0.0048	mg/kg	0.0373	J	0.0060
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.5		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:34:08 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094590
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Unspiked Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04BKG

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	N.D.	43.	ug/kg	N.D.	55.
5466	Toluene	N.D.	43.	ug/kg	N.D.	55.
5474	Ethylbenzene	N.D.	43.	ug/kg	N.D.	55.
6301	Xylene (Total)	N.D.	43.	ug/kg	N.D.	55.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094590
Collected: 2/18/99 at 11:55

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-QA7-392T Unspiked Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04BKG

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
PAHs in Soil by GC/MS								
3761	naphthalene	41.	J	33.	ug/kg	52.	J	42.
3765	acenaphthylene	N.D.		33.	ug/kg	N.D.		42.
1191	acenaphthene	N.D.		33.	ug/kg	N.D.		42.
3768	fluorene	N.D.		33.	ug/kg	N.D.		42.
3775	phenanthrene	N.D.		33.	ug/kg	N.D.		42.
3776	anthracene	N.D.		33.	ug/kg	N.D.		42.
3778	fluoranthene	N.D.		33.	ug/kg	N.D.		42.
1195	pyrene	N.D.		33.	ug/kg	N.D.		42.
3781	benzo(a)anthracene	N.D.		33.	ug/kg	N.D.		42.
3782	chrysene	N.D.		33.	ug/kg	N.D.		42.
3786	benzo(b)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3787	benzo(k)fluoranthene	N.D.		33.	ug/kg	N.D.		42.
3789	indeno(1,2,3-cd)pyrene	N.D.		33.	ug/kg	N.D.		42.
3790	dibenz(a,h)anthracene	N.D.		33.	ug/kg	N.D.		42.
3791	benzo(g,h,i)perylene	N.D.		33.	ug/kg	N.D.		42.
3788	benzo(a)pyrene	N.D.		33.	ug/kg	N.D.		42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094590
Collected: 02/18/99 at 11:55

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-QA7-392T Unspiked Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-7 SDG#: TOL07-04BKG

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/26/99 1902	Roy R. Mellott, Jr.
1646	Barium	SW-846 6010B	1		02/23/99 1044	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1044	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1044	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1044	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1044	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1044	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1044	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2121	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2121	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1824	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/23/99 1334	Jeffrey S. Kochubka
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2218	Janet H. Scholl
			3		02/19/99 2219	Janet H. Scholl

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094590
KMC001-DIT-QA7-392T Unspiked Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AB									
5460 Benzene											
43.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
43.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
43.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
43.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.20	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.74	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
Copper		Batch: 990535708005									
0.25	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.88	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0048	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
33.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

e result for one or both determinations was less than five times the LOQ.

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094590
KMC001-DIT-QA7-392T Unspiked Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
`1 Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094590
KMC001-DIT-QA7-392T Unspiked Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	98	80	120
	d4-1,2-DCA	91	80	120
	d8-toluene	94	81	117
	4-BFB	97	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	83	31	126
	2-Fbiphnyl	86	45	113
	Tphenyld14	99	37	130

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094589
Collected: 2/18/99 at 11:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-8 SDG#: TOL07-03

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	55.6		0.19	mg/kg	70.		0.25
1649	Cadmium	0.80	J	0.16	mg/kg	1.01	J	0.20
1651	Chromium	16.1		0.73	mg/kg	20.3		0.92
1653	Copper	18.5		0.24	mg/kg	23.4		0.31
1655	Lead	9.2	J	3.6	mg/kg	11.6	J	4.5
1666	Silver	N.D.		0.76	mg/kg	N.D.		1.0
1672	Zinc	48.5		0.87	mg/kg	61.		1.1
6935	Arsenic TR	6.4		0.38	mg/kg	8.1		0.48
6936	Selenium TR	N.D.		0.40	mg/kg	N.D.		0.50
0159	Mercury	0.0382	J	0.0048	mg/kg	0.0483	J	0.0061
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	21.0		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:32:48 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094589
Collected: 2/18/99 at 11:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-8 SDG#: TOL07-03

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	N.D.	43.	ug/kg	N.D.	54.
5466	Toluene	N.D.	43.	ug/kg	N.D.	54.
5474	Ethylbenzene	N.D.	43.	ug/kg	N.D.	54.
6301	Xylene (Total)	N.D.	43.	ug/kg	N.D.	54.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094589
Collected: 2/18/99 at 11:15

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-8 SDG#: TOL07-03

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
PAHs in Soil by GC/MS						
3761	naphthalene	N.D.	33.	ug/kg	N.D.	42.
3765	acenaphthylene	N.D.	33.	ug/kg	N.D.	42.
1191	acenaphthene	N.D.	33.	ug/kg	N.D.	42.
3768	fluorene	N.D.	33.	ug/kg	N.D.	42.
3775	phenanthrene	N.D.	33.	ug/kg	N.D.	42.
3776	anthracene	N.D.	33.	ug/kg	N.D.	42.
3778	fluoranthene	N.D.	33.	ug/kg	N.D.	42.
1195	pyrene	N.D.	33.	ug/kg	N.D.	42.
3781	benzo(a)anthracene	N.D.	33.	ug/kg	N.D.	42.
3782	chrysene	N.D.	33.	ug/kg	N.D.	42.
3786	benzo(b)fluoranthene	N.D.	33.	ug/kg	N.D.	42.
3787	benzo(k)fluoranthene	N.D.	33.	ug/kg	N.D.	42.
3789	indeno(1,2,3-cd)pyrene	N.D.	33.	ug/kg	N.D.	42.
3790	dibenz(a,h)anthracene	N.D.	33.	ug/kg	N.D.	42.
3791	benzo(g,h,i)perylene	N.D.	33.	ug/kg	N.D.	42.
3788	benzo(a)pyrene	N.D.	33.	ug/kg	N.D.	42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094589
Collected: 02/18/99 at 11:15

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-8 SDG#: TOL07-03

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/26/99 1826	Roy R. Mellott, Jr.
1646	Barium	SW-846 6010B	1		02/23/99 1134	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1134	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1134	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1134	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1134	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1134	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1134	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2211	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2211	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1823	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/23/99 2252	Timothy Trees
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2200	Janet H. Scholl
			3		02/19/99 2217	Janet H. Scholl

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094589
KMC001-DIT-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AB									
5460 Benzene											
43.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
43.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
43.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
43.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.19	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.73	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
3 Copper		Batch: 990535708005									
0.24	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.76	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.87	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.40	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0048	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
33.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

.) The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094589
KMC001-DIT-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094589
KMC001-DIT-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	95	80	120
	d4-1,2-DCA	87	80	120
	d8-toluene	90	81	117
	4-BFB	94	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	76	31	126
	2-Fbiphnyl	87	45	113
	Tphenyld14	105	37	130

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094588
Collected: 2/18/99 at 11:25

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-BAN-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN-8 SDG#: TOL07-02

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	78.2		0.19	mg/kg	99.		0.24
1649	Cadmium	0.91	J	0.15	mg/kg	1.15	J	0.19
1651	Chromium	15.1		0.72	mg/kg	19.1		0.91
1653	Copper	18.9		0.24	mg/kg	23.9		0.30
1655	Lead	9.2	J	3.6	mg/kg	11.7	J	4.5
1666	Silver	N.D.		0.75	mg/kg	N.D.		0.95
1672	Zinc	48.4		0.87	mg/kg	61.		1.1
6935	Arsenic TR	7.8		0.38	mg/kg	9.8		0.47
6936	Selenium TR	N.D.		0.39	mg/kg	N.D.		0.50
0159	Mercury	0.0319	J	0.0045	mg/kg	0.0403	J	0.0057
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.9		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:31:23 D 0003 15 653693
243 60.00 00078600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094588
Collected: 2/18/99 at 11:25

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-BAN-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN-8 SDG#: TOL07-02

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B								
5460	Benzene	190.	J	45.	ug/kg	250.	J	57.
5466	Toluene	250.		45.	ug/kg	320.		57.
5474	Ethylbenzene	2,300.		45.	ug/kg	2,900.		57.
6301	Xylene (Total)	8,800.		45.	ug/kg	11,000.		57.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094588
Collected: 2/18/99 at 11:25

Submitted: 2/19/99 Reported: 3/ 8/99
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KMC001-BAN-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN-8 SDG#: TOL07-02

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
PAHs in Soil by GC/MS						
3761	naphthalene	240,000.	3,300.	ug/kg	310,000.	4,200.
3765	acenaphthylene	8,300.	330.	ug/kg	11,000.	420.
1191	acenaphthene	48,000.	330.	ug/kg	60,000.	420.
3768	fluorene	53,000.	330.	ug/kg	67,000.	420.
3775	phenanthrene	160,000.	3,300.	ug/kg	210,000.	4,200.
3776	anthracene	18,000.	330.	ug/kg	22,000.	420.
3778	fluoranthene	80,000.	3,300.	ug/kg	100,000.	4,200.
1195	pyrene	51,000.	330.	ug/kg	64,000.	420.
3781	benzo(a)anthracene	21,000.	330.	ug/kg	26,000.	420.
3782	chrysene	16,000.	330.	ug/kg	20,000.	420.
3786	benzo(b)fluoranthene	14,000.	330.	ug/kg	18,000.	420.
3787	benzo(k)fluoranthene	6,000.	330.	ug/kg	7,600.	420.
3789	indeno(1,2,3-cd)pyrene	5,800.	330.	ug/kg	7,300.	420.
3790	dibenz(a,h)anthracene	740. J	330.	ug/kg	930. J	420.
3791	benzo(g,h,i)perylene	5,000.	330.	ug/kg	6,300.	420.
3788	benzo(a)pyrene	12,000.	330.	ug/kg	15,000.	420.

The quantitation limits for the GC/MS semivolatile compounds were raised due to the high concentration of non-target compounds.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&.

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094588
Collected: 02/18/99 at 11:25

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-BAN-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
BAN-8 SDG#: TOL07-02

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/26/99 1404	Michael E. McAdams
1646	Barium	SW-846 6010B	1		02/23/99 1119	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1119	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1119	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1119	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1119	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1119	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1119	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2156	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2156	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1821	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/24/99 1012	Timothy Trees
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/19/99 2200	Janet H. Scholl
			3		02/19/99 2216	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094588
KMC001-BAN-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AB									
5460 Benzene											
45.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
45.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
45.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
45.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.19	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.15	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.72	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
Copper		Batch: 990535708005									
0.24	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.6	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.75	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.87	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.38	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.39	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0045	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
3,300.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
330.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
330.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
330.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
3,300.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
330.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
3,300.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
330.	ug/kg	N.D.		96	100	5	84			52	115

he result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094588
KMC001-BAN-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
330.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
330.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
330.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
330.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
330.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
330.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
330.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
330.	ug/kg	N.D.		81	87	7	81			61	107
0001 Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094588
KMC001-BAN-008-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	95	80	120
	d4-1,2-DCA	90	80	120
	d8-toluene	89	81	117
	4-BFB	96	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	(5)	31	126
	2-Fbiphnyl	(5)	45	113
	Tphenyld14	(5)	37	130

(5) Accurate surrogate recoveries could not be determined due to interferences or dilution necessary for this sample.

Analysis Report

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094587
Collected: 2/18/99 at 10:56

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-9 SDG#: TOL07-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS		METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS		METHOD DETECTION LIMIT
2304	UST-Unleaded Soils by 8260B				See Page 2			
1646	Barium	79.		0.20	mg/kg	99.		0.25
1649	Cadmium	0.88	J	0.16	mg/kg	1.11	J	0.20
1651	Chromium	16.4		0.75	mg/kg	20.6		0.94
1653	Copper	19.2		0.25	mg/kg	24.1		0.31
1655	Lead	9.4	J	3.7	mg/kg	11.8	J	4.7
1666	Silver	N.D.		0.78	mg/kg	N.D.		1.0
1672	Zinc	50.		0.90	mg/kg	63.		1.1
6935	Arsenic TR	6.4		0.39	mg/kg	8.0		0.49
6936	Selenium TR	N.D.		0.41	mg/kg	N.D.		0.52
0159	Mercury	0.0224	J	0.0048	mg/kg	0.0282	J	0.0060
7804	PAHs in Soil by GC/MS				See Page 3			
0111	Moisture	20.5		0.080	% by wt.			

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:30:08 D 0003 15 653693
243 100.00 00082600 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094587
Collected: 2/18/99 at 10:56

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

KMC001-DIT-009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-9 SDG#: TOL07-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
UST-Unleaded Soils by 8260B						
5460	Benzene	N.D.	44.	ug/kg	N.D.	56.
5466	Toluene	N.D.	44.	ug/kg	N.D.	56.
5474	Ethylbenzene	N.D.	44.	ug/kg	N.D.	56.
6301	Xylene (Total)	N.D.	44.	ug/kg	N.D.	56.

The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

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A division of Thermo Analytical Inc.

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Discard: 5/ 8/99

KMC001-DIT-009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-9 SDG#: TOL07-01

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS	DRY WEIGHT RESULTS	METHOD DETECTION LIMIT
PAHs in Soil by GC/MS						
3761	naphthalene	N.D.	33.	ug/kg	N.D.	42.
3765	acenaphthylene	N.D.	33.	ug/kg	N.D.	42.
1191	acenaphthene	N.D.	33.	ug/kg	N.D.	42.
3768	fluorene	N.D.	33.	ug/kg	N.D.	42.
3775	phenanthrene	N.D.	33.	ug/kg	N.D.	42.
3776	anthracene	N.D.	33.	ug/kg	N.D.	42.
3778	fluoranthene	N.D.	33.	ug/kg	N.D.	42.
1195	pyrene	N.D.	33.	ug/kg	N.D.	42.
3781	benzo(a)anthracene	N.D.	33.	ug/kg	N.D.	42.
3782	chrysene	N.D.	33.	ug/kg	N.D.	42.
3786	benzo(b)fluoranthene	N.D.	33.	ug/kg	N.D.	42.
3787	benzo(k)fluoranthene	N.D.	33.	ug/kg	N.D.	42.
3789	indeno(1,2,3-cd)pyrene	N.D.	33.	ug/kg	N.D.	42.
3790	dibenz(a,h)anthracene	N.D.	33.	ug/kg	N.D.	42.
3791	benzo(g,h,i)perylene	N.D.	33.	ug/kg	N.D.	42.
3788	benzo(a)pyrene	N.D.	33.	ug/kg	N.D.	42.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

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Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. SW 3094587
Collected: 02/18/99 at 10:56

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

KMC001-DIT-009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
DIT-9 SDG#: TOL07-01

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2304	UST-Unleaded Soils by 8260B	SW-846 8260B	1		02/26/99 1325	Michael E. McAdams
1646	Barium	SW-846 6010B	1		02/23/99 1114	Eric Walter Cuba
1649	Cadmium	SW-846 6010B	1		02/23/99 1114	Eric Walter Cuba
1651	Chromium	SW-846 6010B	1		02/23/99 1114	Eric Walter Cuba
1653	Copper	SW-846 6010B	1		02/23/99 1114	Eric Walter Cuba
1655	Lead	SW-846 6010B	1		02/23/99 1114	Eric Walter Cuba
1666	Silver	SW-846 6010B	1		02/23/99 1114	Eric Walter Cuba
1672	Zinc	SW-846 6010B	1		02/23/99 1114	Eric Walter Cuba
5708	SW SW846 ICP Digest	SW-846 3050B	1		02/22/99 2355	Annamaria Stipkovits
6935	Arsenic TR	SW-846 6010B	1		02/23/99 2151	Christine R. Fritz
6936	Selenium TR	SW-846 6010B	1		02/23/99 2151	Christine R. Fritz
0159	Mercury	SW-846 7471A	1		02/23/99 1819	Nelli S. Markaryan
5711	SW SW846 Hg Digest	SW-846 7471A modified	1		02/22/99 2355	Annamaria Stipkovits
7804	PAHs in Soil by GC/MS	SW-846 8270C	1		02/23/99 2112	Timothy Trees
7806	BNA Soil Extraction	SW-846 3550B	1		02/22/99 2230	Clara L. Medina
0111	Moisture	EPA 160.3 modified	1		02/21/99 1851	Gabriel Agosto
8390	High Level Volatile Soil Prep	EPA SW846 Method 5035	1		02/19/99 2200	Janet H. Scholl
			2		02/13/99 2200	Janet H. Scholl
			3		02/13/99 2215	Janet H. Scholl

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094587
KMC001-DIT-009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2304 UST-Unleaded Soils by 8260B		Batch: J990551AB									
5460 Benzene											
44.	ug/kg	N.D.		100	98	6	105			77	126
5466 Toluene											
44.	ug/kg	N.D.		99	99	3	104			74	128
5474 Ethylbenzene											
44.	ug/kg	N.D.		101	99	5	103			86	129
6301 Xylene (Total)											
44.	ug/kg	N.D.		101	100	4	102			88	128
1646 Barium		Batch: 990535708005									
0.20	mg/kg	N.D.	3	101	104	1	96			56	143
1649 Cadmium		Batch: 990535708005									
0.16	mg/kg	N.D.	0 (1)	88	90	1	95			55	145
1651 Chromium		Batch: 990535708005									
0.75	mg/kg	N.D.	0 (1)	115	123	4	102			69	131
Copper		Batch: 990535708005									
0.25	mg/kg	0.47 J mg/kg	2	104	109	2	102			62	138
1655 Lead		Batch: 990535708005									
3.7	mg/kg	N.D.	0 (1)	90	94	2	97			60	140
1666 Silver		Batch: 990535708005									
0.78	mg/kg	N.D.	0 (1)	102	103	0	97			57	144
1672 Zinc		Batch: 990535708005									
0.90	mg/kg	1.56 J mg/kg	0 (1)	92	97	2	96			61	139
6935 Arsenic TR		Batch: 990535708005									
0.39	mg/kg	N.D.	7	93	93	1	100			62	138
6936 Selenium TR		Batch: 990535708005									
0.41	mg/kg	N.D.	0 (1)	93	93	1	96			65	134
0159 Mercury		Batch: 990535711001									
0.0048	mg/kg	0.0062 J mg/kg	0 (1)	130	132	2	145			49	151
7804 PAHs in Soil by GC/MS		Batch: 99053SLB026									
3761 naphthalene											
33.	ug/kg	N.D.		82	86	5	78			58	99
3765 acenaphthylene											
33.	ug/kg	N.D.		81	86	6	76			62	101
1191 acenaphthene											
33.	ug/kg	N.D.		82	88	7	80			61	100
3768 fluorene											
33.	ug/kg	N.D.		86	91	6	83			59	109
3775 phenanthrene											
33.	ug/kg	N.D.		87	93	7	86			62	107
3776 anthracene											
33.	ug/kg	N.D.		83	88	6	81			62	105
3778 fluoranthene											
33.	ug/kg	N.D.		86	91	6	88			58	110
1195 pyrene											
33.	ug/kg	N.D.		96	100	5	84			52	115

) The result for one or both determinations was less than five times the LOQ.

LLI Sample No. 3094587
KMC001-DIT-009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3781 benzo(a)anthracene											
33.	ug/kg	N.D.		88	93	6	86			63	106
3782 chrysene											
33.	ug/kg	N.D.		89	92	4	86			60	107
3786 benzo(b)fluoranthene											
33.	ug/kg	N.D.		72	80	11	79			59	105
3787 benzo(k)fluoranthene											
33.	ug/kg	N.D.		86	95	10	94			63	108
3789 indeno(1,2,3-cd)pyrene											
33.	ug/kg	N.D.		88	90	3	84			55	111
3790 dibenz(a,h)anthracene											
33.	ug/kg	N.D.		90	91	1	87			60	117
3791 benzo(g,h,i)perylene											
33.	ug/kg	N.D.		91	92	2	84			52	113
3788 benzo(a)pyrene											
33.	ug/kg	N.D.		81	87	7	81			61	107
Moisture		Batch: 990520091820003A									
0.080	% by wt.		2				100	100	0	99	101

LLI Sample No. 3094587
KMC001-DIT-009-392T Soil Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2304 UST-Unleaded Soils by 8260B	DBFM	103	80	120
	d4-1,2-DCA	97	80	120
	d8-toluene	97	81	117
	4-BFB	101	74	121
7804 PAHs in Soil by GC/MS	Nitrobz-d5	79	31	126
	2-Fbiphnyl	88	45	113
	Tphenyld14	99	37	130

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3094601
Collected:

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
TB218 SDG#: TOL07-12FB*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
2300	UST-Unleaded Waters by 8260B			

See Page 2

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:46:26 D 0003 15 653693
243 0.00 00021500 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3094601
Collected:

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
TB218 SDG#: TOL07-12FB*

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
UST-Unleaded Waters by 8260B				
5401	Benzene	N.D.	1.	ug/l
5407	Toluene	N.D.	2.	ug/l
5415	Ethylbenzene	N.D.	2.	ug/l
6310	Xylene (Total)	N.D.	1.	ug/l

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3094601
Collected:

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
TB218 SDG#: TOL07-12FB*

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2300	UST-Unleaded Waters by 8260B	SW-846 8260B	1		02/20/99 0456	Marc S. Neal

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094601
Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2300 UST-Unleaded Waters by 8260B		Batch: P990501AB									
5401 Benzene											
1.	ug/l	N.D.		103	102	1	112			82	123
5407 Toluene											
2.	ug/l	N.D.		104	101	3	112			80	126
5415 Ethylbenzene											
2.	ug/l	N.D.		107	102	5	113			89	124
6310 Xylene (Total)											
1.	ug/l	N.D.		106	101	5	112			89	123

QUALITY CONTROL REPORT

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094601
Trip Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2300 UST-Unleaded Waters by 8260B	DBFM	95	86	118
	d4-1,2-DCA	96	80	120
	d8-toluene	101	88	110
	4-BFB	97	86	115

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3094600
Collected: 2/18/99 at 14:00

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

Field Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
FB218 SDG#: TOL07-11FB

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
2300	UST-Unleaded Waters by 8260B			See Page 2
1746	Barium	N.D.	0.0015	mg/l
1749	Cadmium	N.D.	0.0017	mg/l
1751	Chromium	0.0258 J	0.0054	mg/l
1753	Copper	N.D.	0.0058	mg/l
1755	Lead	N.D.	0.023	mg/l
1766	Silver	N.D.	0.0057	mg/l
1772	Zinc	0.0042 J	0.0030	mg/l
7035	Arsenic TR	N.D.	0.0070	mg/l
7036	Selenium TR	N.D.	0.0059	mg/l
0259	Mercury	N.D.	0.000042	mg/l
7805	PAHs in Water by GC/MS			See Page 3

1 COPY TO Kerr-McGee Corporation ATTN: Mr. Keith Watson
1 COPY TO Hull & Associates ATTN: Mr. Kevin Wildman
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300
20:45:28 D 0003 15 653693
243 15.00 00067900 ASR000

Respectfully Submitted
Robert Strocko, Jr., B.S.
Group Leader, Metals Analysis

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3094600
Collected: 2/18/99 at 14:00

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

Field Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
FB218 SDG#: TOL07-11FB

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
UST-Unleaded Waters by 8260B				
5401	Benzene	N.D.	1.	ug/l
5407	Toluene	N.D.	2.	ug/l
5415	Ethylbenzene	N.D.	2.	ug/l
6310	Xylene (Total)	N.D.	1.	ug/l

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Duane A. Luckenbill, B.S.
Group Leader, GC/MS Volatiles

MEMBER ACIL

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3094600
Collected: 2/18/99 at 14:00

Submitted: 2/19/99 Reported: 3/ 8/99
Discard: 5/ 8/99

Field Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
FB218 SDG#: TOL07-11FB

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

P.O. KMC001
Rel.

CAT NO.	ANALYSIS NAME	AS RECEIVED RESULTS	METHOD DETECTION LIMIT	UNITS
PAHs in Water by GC/MS				
3956	fluorene	N.D.	0.9	ug/l
3951	acenaphthylene	N.D.	0.9	ug/l
3954	acenaphthene	N.D.	0.9	ug/l
3947	naphthalene	N.D.	0.9	ug/l
3963	phenanthrene	N.D.	0.9	ug/l
3964	anthracene	N.D.	0.9	ug/l
3966	fluoranthene	N.D.	0.9	ug/l
3967	pyrene	N.D.	0.9	ug/l
3970	benzo(a)anthracene	N.D.	0.9	ug/l
3971	chrysene	N.D.	0.9	ug/l
3975	benzo(b)fluoranthene	N.D.	0.9	ug/l
3976	benzo(k)fluoranthene	N.D.	0.9	ug/l
3978	indeno(1,2,3-cd)pyrene	N.D.	0.9	ug/l
3979	dibenz(a,h)anthracene	N.D.	0.9	ug/l
3980	benzo(g,h,i)perylene	N.D.	0.9	ug/l
3977	benzo(a)pyrene	N.D.	0.9	ug/l

Sufficient sample volume was not available to perform an MS/MSD for this analysis. Therefore, an LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

Questions? Contact your Client Services Representative
Kay G. Hower at (717) 656-2300

Respectfully Submitted
Charles J. Neslund, B.S.
Group Leader, GC/MS SVOA

MEMBER ACIL

&&&

Analysis Report

LABORATORY CHRONICLE

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. WW 3094600
Collected: 02/18/99 at 14:00

Submitted: 02/19/99

Account No: 07802
Kerr-McGee Corporation
P.O. Box 25861
Oklahoma City OK 73125

Field Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP
FB218 SDG#: TOL07-11FB

CAT NO	ANALYSIS NAME	METHOD	TRIAL	ANALYSIS ID	DATE AND TIME	ANALYST
2300	UST-Unleaded Waters by 8260B	SW-846 8260B	1		02/20/99 0429	Marc S. Neal
1746	Barium	SW-846 6010B	1		02/24/99 0850	Jennifer Garrett
1749	Cadmium	SW-846 6010B	1		02/24/99 0850	Jennifer Garrett
1751	Chromium	SW-846 6010B	1		02/24/99 0850	Jennifer Garrett
1753	Copper	SW-846 6010B	1		02/24/99 2204	Christine R. Fritz
1755	Lead	SW-846 6010B	1		02/24/99 2204	Christine R. Fritz
1766	Silver	SW-846 6010B	1		02/24/99 0850	Jennifer Garrett
1772	Zinc	SW-846 6010B	1		02/24/99 0850	Jennifer Garrett
1848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1		02/23/99 1300	Christine M. Conlin
7035	Arsenic TR	SW-846 6010B	1		02/24/99 0850	Jennifer Garrett
7036	Selenium TR	SW-846 6010B	1		02/24/99 0850	Jennifer Garrett
0259	Mercury	SW-846 7470A	1		02/23/99 0818	Damary S. Valentin
5713	WW SW846 Hg Digest	SW-846 7470A	1		02/22/99 2251	Nelli S. Markaryan
7805	PAHs in Water by GC/MS	SW-846 8270C	1		02/25/99 2129	Douglas D. Seitz
7807	BNA Water Extraction	SW-846 3510C	1		02/24/99 1530	Wanda F. Oswald

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094600
Field Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
2300 UST-Unleaded Waters by 8260B		Batch: P990501AB									
5401 Benzene											
1.	ug/l	N.D.		103	102	1	112			82	123
5407 Toluene											
2.	ug/l	N.D.		104	101	3	112			80	126
5415 Ethylbenzene											
2.	ug/l	N.D.		107	102	5	113			89	124
6310 Xylene (Total)											
1.	ug/l	N.D.		106	101	5	112			89	123
1746 Barium		Batch: 990541848002									
0.0015	mg/l	N.D.	0 (1)	107	107	0	105			80	120
1749 Cadmium		Batch: 990541848002									
0.0017	mg/l	N.D.	0 (1)	111	106	5	110			80	120
1751 Chromium		Batch: 990541848002									
0.0054	mg/l	N.D.	0 (1)	114	112	2	111			80	120
17[illegible] Copper		Batch: 990541848002									
0.0058	mg/l	N.D.	0 (1)	113	107	4	104			80	120
175[illegible] Lead		Batch: 990541848002									
0.023	mg/l	N.D.	0 (1)	105	104	1	103			80	120
1766 Silver		Batch: 990541848002									
0.0057	mg/l	N.D.	0 (1)	116	114	2	106			80	120
1772 Zinc		Batch: 990541848002									
0.0030	mg/l	0.0045 J mg/l	0 (1)	103	101	2	110			80	120
7035 Arsenic TR		Batch: 990541848002									
0.0070	mg/l	N.D.	0 (1)	110	110	0	111			80	120
7036 Selenium TR		Batch: 990541848002									
0.0059	mg/l	N.D.	0 (1)	110	109	1	110			80	120
0259 Mercury		Batch: 990535713002									
0.000042	mg/l	0.000065J mg/l	0 (1)	109	108	1	96			80	120
7805 PAHs in Water by GC/MS		Batch: 99055WAB026									
3956 fluorene											
0.9	ug/l	N.D.					90	91	1	61	108
3951 acenaphthylene											
0.9	ug/l	N.D.					86	83	3	64	100
3954 acenaphthene											
0.9	ug/l	N.D.					86	86	1	61	100
3947 naphthalene											
0.9	ug/l	N.D.					82	84	3	60	97
3963 phenanthrene											
0.9	ug/l	N.D.					90	90	0	68	102
3964 anthracene											
0.9	ug/l	N.D.					88	86	3	66	101
3966 fluoranthene											
0.9	ug/l	N.D.					88	88	1	66	106
3967 pyrene											
0.9	ug/l	N.D.					96	98	2	58	112

(1) The result for one or both determinations was less than five times the LOQ.

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094600
Field Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

	SAMPLE MDL	SAMPLE UNITS	BLANK	DUP RPD	MS	MSD	MS RPD	LCS	LCS DUP	LCS RPD	LCS LIMITS LOW	LCS LIMITS HIGH
3970	benzo(a)anthracene											
	0.9	ug/l	N.D.					94	95	1	69	101
3971	chrysene											
	0.9	ug/l	N.D.					93	93	0	67	101
3975	benzo(b)fluoranthene											
	0.9	ug/l	N.D.					84	88	4	64	101
3976	benzo(k)fluoranthene											
	0.9	ug/l	N.D.					91	92	1	67	105
3978	indeno(1,2,3-cd)pyrene											
	0.9	ug/l	N.D.					96	98	2	59	111
3979	dibenz(a,h)anthracene											
	0.9	ug/l	N.D.					97	95	2	66	117
3980	benzo(g,h,i)perylene											
	0.9	ug/l	N.D.					94	95	0	55	115
3977	benzo(a)pyrene											
	0.9	ug/l	N.D.					92	94	2	65	101

Lancaster Laboratories
A division of Thermo Analytical Inc.

LLI Sample No. 3094600
Field Blank Water Sample

Toledo Tie Treatment Site - OH KMC001/01.SMP

Group No. 653693
Kerr-McGee Corporation

SURROGATE SUMMARY

TRIAL ID	SURROGATE	RECOVERY %	SURROGATE LIMITS LOW	HIGH
2300 UST-Unleaded Waters by 8260B	DBFM	93	86	118
	d4-1,2-DCA	92	80	120
	d8-toluene	101	88	110
	4-BFB	97	86	115
7805 PAHs in Water by GC/MS	Nitrobz-d5	89	47	114
	2-Fbiphnyl	92	51	106
	Tphenyld14	99	37	119

7802/3094587-601

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

NO. 1542

Hull & Associates, Inc.

☒ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☐ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: KEVIN WILDMAN

Client: KERR-McGEE
Site: TOLEDO TIE
Project#: KMC001 Phase: 01, SMP
Samplers: 392

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	8260-BTEX ONLY	8270 (BNA)	8RCRA METALS+CU+ZN								COMMENTS
KMC001-DIT-009-392T	2	4	N	2/18/99 10:56	X	X	X								
KMC001-BAN-008-392T	2	4	N	2/18/99 11:25	X	X	X								
KMC001-DIT-008-392T	2	4	N	2/18/99 11:15	X	X	X								
KMC001-DIT-QA7-392T	2	8	N	2/18/99 11:55	X	X	X								
KMC001-DIT-007-392T	2	4	N	2/18/99 11:55	X	X	X								
KMC001-DIT-006-392T	2	4	N	2/18/99 12:15	X	X	X								
KMC001-BAN-006-392T	2	4	N	2/18/99 12:30	X	X	X								
KMC001-DIT-005-392T	2	4	N	2/18/99 1:00	X	X	X								
KMC001-DIT-004-392T	2	4	N	2/18/99 1:35	X	X	X								
KMC001-BAN-005-392T	2	4	N	2/18/99 1:15	X	X	X								
FIELD BLANK	1	6	N	2/18/99 2:00	X	X	X								2-SODIUM THIOSULFATE 1-NITRIC ACID 3-HCL

RELINQUISHED BY: Jeff L. Monnin	DATE: 02-18-99 TIME: 17-00-00	RECEIVED BY:	DATE: - - TIME: - -
RELINQUISHED BY:	DATE: - - TIME: - -	RECEIVED BY:	DATE: - - TIME: - -
RELINQUISHED BY:	DATE: - - TIME: - -	RECEIVED FOR LAB BY: [signature]	DATE: 2-19-99 TIME: 0900
COOLER TEMPERATURE AS RECEIVED °C:	2 °C	DISTRIBUTION: WHITE --LAB USE (MUST BE RETURNED WITH REPORT) YELLOW --LAB USE PINK --RETAINED BY HAI	

Deliver To: LANCASTER LABS
Method of Delivery: FEDEX
Airbill Number: 805670976738

NOTES: NORMAL TAT
SCR#1118646

HAI\0999T263 08/14/97 CORNER

APPENDIX D-6

Air Sampling Data

Hull & Associates, Inc.

3 dale Avenue
Suite 300
Toledo, Ohio 43614
(419) 385-2018
fax: (419) 385-5487

August 16, 1999

Ms. Ying Feng
Ohio Department of Health
246 N. High St.
Columbus, Ohio 43215

RE: Ambient Air Sampling at the Perimeter of the Toledo Tie Treatment Site
KMC001.100.0084

Dear Ms. Feng:

Kerr-McGee Chemical, LLC has as of July 22, 1999 completed the perimeter air sampling program designed to sample for benzene and naphthalene at the Toledo Tie Treatment Site. Site activities associated with waste management were complete.

Please find enclosed a table of all the analytical data collected by Hull & Associates, Inc. and the contractor, IT Group. We appreciate your assistance on this project and trust the enclosed information is adequate for your records.

If you have any questions or require additional information, please feel free to contact me at (419) 385-2018.

Sincerely,

Scott Lockhart, P.E.
Senior Project Manager

SL/tb

ct: Keith Watson, Kerr-McGee Chemical, LLC (w/enclosure)
Peter Goetz, Goetz Associates
Ralph Dollhopf, US EPA, Region V
Bill Spedding, IT Group

KERR-MCGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL
HULL & ASSOCIATES, INC. AIR SAMPLING RESULTS

Date	Sample I.D.	Sample Location	Analysis Conducted	Results (ppm)	Average Flow Rate Q (L/min)	Duration (min)	Volume (L)
11/03/98	KMC-BN-110398-001	Personal	Benzene/ Naphthalene	<0.0011/ 0.00072	0.9137	303	276.85
11/03/98	KMC-BN-110398-002	Upwind Perimeter of Excavation	Benzene/ Naphthalene	<0.00079/ 0.00048	0.9067	438	397.13
11/03/98	KMC-BN-110398-003	Downwind Perimeter	Benzene/ Naphthalene	<0.0017/ 0.002	0.9237	454	419.36
11/03/98	KMC-BN-110398-004	Field Blank	Benzene/ Naphthalene	<1/ <1	N/A	N/A	N/A
11/04/98	KMC-BN-110498-006	Personal	Benzene/ Naphthalene	0.0016/ 0.0045	0.9154	438	400.95
11/04/98	KMC-BN-110498-007	Upwind Perimeter of Excavation	Benzene/ Naphthalene	0.0038/ 0.0057	0.9125	480	438.00
11/04/98	KMC-BN-110498-008	Downwind Perimeter	Benzene/ Naphthalene	<0.0072/ <0.00044	0.9102	480	436.90
11/04/98	KMC-BN-110498-009	Field Blank	Benzene/ Naphthalene	<1/ <1	N/A	N/A	N/A
11/23/98	KMC-BN-112398-010-T388	Downwind Perimeter of Excavation	Benzene/ Naphthalene	<0.00076/ 0.027	0.8904	465	414.04
11/23/98	KMC-BN-112398-011-T388	Upwind Perimeter	Benzene/ Naphthalene	<0.00073/ <0.00045	0.9166	467	428.05
11/23/98	KMC-BN-112398-012-T388	Field Blank	Benzene/ Naphthalene	<1/ <1	N/A	N/A	N/A

KERR-MCGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL
HULL & ASSOCIATES, INC. AIR SAMPLING RESULTS (cont.)

Date	Sample I.D.	Sample Location	Analysis Conducted	Results (ppm)	Average Flow Rate Q (L/min)	Duration (min)	Volume (L)
12/02/98	KMC001-120298-001-T388	Upwind Perimeter	Benzene/ Naphthalene	<0.038/ <0.023	≈0.016/ (OVB) 0.0122	514	≈8.22/ 6.27
12/02/98	KMC001-120298-002-T388	Downwind Perimeter	Benzene/ Naphthalene	<0.038/ <0.023	≈0.016/ (OVB) 0.0122	512	≈8.19/ 6.25
12/02/98	KMC001-120298-003-T388	Downwind Perimeter	Benzene/ Naphthalene	<0.038/ <0.023	≈0.016/ (OVB) 0.0122	511	≈8.18/ 6.23
12/02/98	KMC001-120298-004-T388	Field Blank	Benzene/ Naphthalene	<1.0/ <1.0	N/A (OVB)	N/A	N/A
12/10/98	KMC001-120108-013-T388	Upwind Perimeter	Benzene/ Naphthalene	<0.0007/ <0.00086	0.9156	480	439.49
12/10/98	KMC001-121098-014-T388	Downwind Perimeter	Benzene/ Naphthalene	<0.0007/ 0.023	0.9291	480	445.97
12/10/98	KMC001-121098-015-T388	Downwind Perimeter	Benzene/ Naphthalene	0.0068/ 0.047	0.9253	480	444.14
12/10/98	KMC001-121098-016-T388	Field Blank	Benzene/ Naphthalene	<1/ <2	N/A	N/A	N/A
12/10/98	KMC001-121098-005-T388	Spiked Sample	Benzene/ Naphthalene	7.6/ 1.8	≈0.016 / (OVB) 0.0122	291	≈4.66/ 3.55
12/10/98	KMC001-121098-006-T388	Field Blank	Benzene/ Naphthalene	<1/ <2	N/A (OVB)	N/A	N/A
12/29/98	KMC001-122998-017-T388	Upwind Perimeter	Benzene/ Naphthalene	0.0008/ <0.0004	0.9099	480	436.75
12/29/98	KMC001-122998-018-T388	Downwind Perimeter	Benzene/ Naphthalene	0.0009/ 0.0091	0.8945	480	429.36
12/29/98	KMC001-122998-019-T388	Field Blank	Benzene/ Naphthalene	<1/ <1	N/A	N/A	N/A

KERR-MCGEE CHEMICAL, LLC
TOLEDO TIE TREATMENT SITE
TIME CRITICAL REMOVAL
HULL & ASSOCIATES, INC. AIR SAMPLING RESULTS (cont.)

Date	Sample I.D.	Sample Location	Analysis Conducted	Results (ppm)	Average Flow Rate Q (L/min)	Duration (min)	Volume (L)
01/28/99	KMC001-012899-020-T388	Upwind Perimeter	Benzene/ Naphthalene	<0.0007/ <0.0004	0.8934	480	428.83
01/28/99	KMC001-012899-021-T388	Downwind Perimeter	Benzene/ Naphthalene	<0.0004/ <0.0044	1.027	359	368.69
01/28/99	KMC001-012899-022-T388	Field Blank	Benzene/ Naphthalene	<1/ <1	N/A	N/A	N/A
03/31/99	KMC001-033199-023-T388	Downwind Perimeter	Benzene/ Naphthalene	<0.0007/ <0.0004	0.9092	480	436.4
03/31/99	KMC001-033199-024-T388	Upwind Perimeter	Benzene/ Naphthalene	<0.0007/ 0.0004	0.9046	480	434.2
03/31/99	KMC001-033199-025-T388	Field Blank	Benzene/ Naphthalene	<1/ <1	N/A	N/A	N/A

OVB - Organic Vapor Badge
≈ - Each gas or vapor has specific diffusion coefficient that can be used with the sampler geometry to determine a theoretical sampling rate.

OHM/IT CORPORATION
KERR-MCGEE / TOLEDO TIE TREATMENT SITE
AIR SAMPLING RESULTS

SAMPLE DATE	LOCATION SAMPLED	CHEMICAL SAMPLED	RESULT	NIOSH METHOD	OSHA PEL/ACTION LEVEL
10/13/98	AMS W-2	Benzene	< 0.22 ppm	1501	1 ppm/0.5 ppm
10/13/98	AMS E-2	Benzene	<0.25 ppm	1501	1 ppm/0.5 ppm
10/15/98	AMS N-2	Benzene	<0.27 ppm	1501	1 ppm/0.5 ppm
10/15/98	AMS W-2	Benzene	<0.27 ppm	1501	1 ppm/0.5 ppm
10/20/98	AMS W-2	Naphthalene	<0.0071 ppm	5515	10 ppm/5 ppm
10/20/98	AMS E-2	Naphthalene	<0.0068 ppm	5515	10 ppm/5 ppm

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
11/02/98	BN-110298-01	Downwind Perimeter	Benzene/ Naphthalene	<0.017/ <0.032	0.831	434	360.44
11/02/98	BN-110298-02	Downwind Perimeter	Benzene/ Naphthalene	<0.018/ <0.033	0.805	434	349.37
11/02/98	BN-110298-03	Upwind Perimeter	Benzene/ Naphthalene	Defective Sample*	N/A	N/A	N/A
11/02/98	BN-110298-04	Field Blank	Benzene/ Naphthalene	<20μg/ <60μg	N/A	N/A	N/A
11/02/98	BN-110298-05	Personal	Benzene/ Naphthalene	<0.047/ <0.085	0.727	185	134.46
11/03/98	BN-110398-01	Personal	Benzene/ Naphthalene	<0.018/ <0.033	0.799	437	348.92
11/03/98	BN-110398-02	Downwind Perimeter	Benzene/ Naphthalene	<0.019/ <0.035	0.801	413	330.94
11/03/98	BN-110398-03	Personal	Benzene/ Naphthalene	<0.024/ <0.043	0.739	357	263.98
11/03/98	BN-110398-04	Downwind Perimeter	Benzene/ Naphthalene	<0.020/ <0.037	0.759	413	313.41
11/03/98	BN-110398-05	Upwind Perimeter	Benzene/ Naphthalene	<0.020/ <0.037	0.745	419	312.35
11/04/98	BN-110498-01	Personal Truck Decon	Benzene/ Naphthalene	<0.017/ <0.031	0.847	437	370.25
11/04/98	BN-110498-02	Personal	Benzene/	<0.019/	0.779	413	321.81

		Excavator Operator	Naphthalene	0.157			
11/04/98	BN-110498-03	Area Ameritech Workers	Benzene/ Naphthalene	<0.027/ <0.050	0.879	259	227.70

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
11/04/98	BN-110498-04	Downwind Perimeter	Benzene/ Naphthalene	<0.015/ 0.032	0.982	413	405.56
11/04/98	BN-110498-05	Downwind Perimeter	Benzene/ Naphthalene	<0.018/ <0.032	0.844	419	353.63
11/04/98	BN-110498-06	Upwind Perimeter	Benzene/ Naphthalene	<0.015/ <0.027	0.954	447	426.57
11/05/98	BN-110598-01	Personal Operator	Benzene/ Naphthalene	<0.019/ <0.036	0.810	397	321.49
11/05/98	BN-110598-02	Personal Operator	Benzene/ Naphthalene	<0.017/ <0.031	0.879	423	371.90
11/05/98	BN-110598-03	Upwind Perimeter	Benzene/ Naphthalene	<0.017/ <0.032	0.909	396	359.92
11/05/98	BN-110598-04	Downwind Perimeter	Benzene/ Naphthalene	<0.015/ <0.028	1.002	415	415.91
11/06/98	BN-110698-01	Personal	Benzene/ Naphthalene	Defective Sample*	N/A	N/A	N/A
11/06/98	BN-110698-02	Area Gradel Workers	Benzene/ Naphthalene	<0.013/ <0.023	0.920	544	500.34
11/09/98	BN-110998-01	Perimeter Downwind	Benzene/ Naphthalene	<0.055/ <0.100	0.797	144	114.70
11/10/98	BN-111098-01	Perimeter	Benzene/ Naphthalene	Defective Sample*	N/A	N/A	N/A

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
11/10/98	BN-111098-02	Perimeter	Benzene/ Naphthalene	Defective Sample*	N/A	N/A	N/A
11/10/98	BN-111098-03	Personal Operator	Benzene/ Naphthalene	<0.021/ <0.039	0.994	295	293.23
11/10/98	BN-111098-04	Field Blank	Benzene/ Naphthalene	<20μg/ <60μg	N/A	N/A	N/A
11/17/98	BN-111798-01	Area MPW Workers	Benzene/ Naphthalene	<0.051/ <0.093	0.929	133	123.62

11/17/98	BN-111798-02	Downwind Perimeter	Benzene/ Naphthalene	<0.015/ <0.027	0.979	426	417.22
11/23/98	BN-112398-01	Downwind Perimeter of Excavation	Benzene/ Naphthalene	<0.018/ 0.0652	0.990	349	345.34
11/23/98	BN-112398-02	Field Blank	Benzene/ Naphthalene	<20μg/ <60μg	N/A	N/A	N/A
12/02/98	BN-120298-04	Personal – Truck Spotter	Benzene/ Naphthalene	<0.010/ <0.220	Passive[1]	492	7.87/ 6.00 **
12/03/98	BN-120398-01	Upwind Perimeter	Benzene/ Naphthalene	<0.0014/ <0.013	0.906	486	440.34
12/03/98	BN-120398-02	Downwind Perimeter	Benzene/ Naphthalene	<0.0014/ <0.013	1.003	444	445.11
12/03/98	BN-120398-03	Downwind Perimeter	Benzene/ Naphthalene	<0.0013/ <0.012	0.995	485	482.74

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
12/03/98	BN-120398-04	Passive - Track Loader Operator	Benzene/ Naphthalene	<0.010/ <0.230	Passive[1]	488	7.808/ 5.954
12/04/98	BN-120498-01	Upwind Perimeter	Benzene/ Naphthalene	<0.0021/ <0.019	0.904	336	303.81
12/04/98	BN-120498-02	Downwind Perimeter	Benzene/ Naphthalene	0.0054/ 0.147	0.857	342	292.99
12/04/98	BN-120498-03	LBA Fence	Benzene/ Naphthalene	<0.0014/ <0.012	0.988	337	332.92
12/04/98	BN-120498-04	Field Blank	Benzene/ Naphthalene	<2μg/ <30μg	Passive[1]	N/A	N/A
12/04/98	LBA Fence	LBA Fence	Benzene/ Naphthalene	<0.010/ <0.240	Passive[1]	464	7.424/ 5.661
12/05/98	BN-120598-01MB	Personal	Benzene/ Naphthalene	<0.003/ 0.200	0.988	387	382.38
12/05/98	BN-120598-02Blank	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	Passive[1]	N/A	N/A

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
12/07/98	BN-120798-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003/ <0.005	0.903	503	454.59
12/07/98	BN-120798-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004/ 0.008	0.851	338	287.75
12/09/98	BN-120998-TL01	Personal in truck and Volvo loader	Benzene/ Naphthalene	<0.200/ <0.100	Passive[1]	480	7.680/ 5.959
12/09/98	BN-120998-WG	Personal- Water Treatment	Benzene/ Naphthalene	<0.200/ <0.200	Passive[1]	411	6.576/ 5.014
12/09/98	BN-120998-01KK	Personal-In track loader	Benzene/ Naphthalene	0.030/ 0.500	0.965	418	403.26

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
12/10/98	BN-121098-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003/ <0.005	0.915	456	417.08
12/10/98	BN-121098-02DW	Downwind Perimeter	Benzene/ Naphthalene	0.007/ 0.100	0.852	467	397.72
12/10/98	BN-121098-03DW	Downwind Perimeter	Benzene/ Naphthalene	0.007/ 0.100	1.003	467	468.24
12/11/98	BN-121198-01	Personal Volvo Loader	Benzene/ Naphthalene	Defective Sample*	N/A	N/A	N/A
12/11/98	BN-121198-02	Downwind Perimeter	Benzene/ Naphthalene	Defective Sample*	N/A	N/A	N/A
12/15/98	MB-01	Personal Mark Breyman	Benzene/ Naphthalene	<0.200/ <0.100	Passive[1]	521	8.336/ 6.246
12/15/98	BN-121598-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.004/ 0.100	0.844	418	352.60
12/15/98	BN-121598-02DW	Downwind Perimeter	Benzene/ Naphthalene	0.003/ 0.100	0.990	429	424.77
12/17/98	BN-121798-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003/ <0.008	0.868	503	436.60
12/17/98	BN-121798-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.002/ 0.040	1.000	499	499.15
12/17/98	BN-121798-03DW	Downwind	Benzene/	<0.003/	0.919	499	458.43

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
		Perimeter	Naphthalene	0.020			
12/17/98	Lab Blank	Lab Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
12/19/98	BN-121998-01	Downwind Perimeter	Benzene/ Naphthalene	<0.003/ <0.004	0.921	503	463.06

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
12/19/98	BN-121998-02	Upwind Perimeter	Benzene/ Naphthalene	<0.003/ 0.004	0.885	499	441.76
12/21/98	BN-122198-01	Perimeter Pepsi Fence	Benzene/ Naphthalene	<0.003/ 0.020	0.948	464	440.06
12/21/98	BN-122198-02	Perimeter LBA Fence	Benzene/ Naphthalene	<0.006/ <0.008	0.884	253	223.60
12/21/98	BN-122198-03	Perimeter LBA Fence	Benzene/ Naphthalene	<0.003/ 0.010	1.019	439	447.12
12/21/98	BN-122198-04	Personal - Inside Link Belt	Benzene/ Naphthalene	0.003/ 0.030	1.002	440	440.73
12/22/98	BN-122298-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003/ <0.004	0.939	444	417.09
12/22/98	BN-122298-02DW	Downwind Perimeter	Benzene/ Naphthalene	0.003/ 0.060	0.928	488	452.86
12/23/98	BN-122398-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.002/ <0.003	1.023	488	499.47
12/23/98	BN-122398-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.002/ 0.010	1.013	487	493.34
12/23/98	BN-122398-LAB BLANK	Lab Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
12/28/98	BN-122898-01	AMS E-2 Downwind Perimeter[1]	Benzene/ Naphthalene	0.008 0.040	0.919	448	411.71
12/28/98	BN-122898-02DW	AMS W-1 Upwind Perimeter[1]	Benzene/ Naphthalene	<0.003 <0.006	0.836	443	370.55
12/29/98	BN-122998-01	Upwind Perimeter	Benzene/ Naphthalene	<0.002 <0.004	0.909	559	507.99
12/29/98	BN-122998-02	Downwind	Benzene/	<0.003	0.839	434	364.04

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
		Perimeter	Naphthalene	0.030			
12/30/98	BN-123098-01	Upwind Perimeter	Benzene/ Naphthalene	<0.007 <0.010	0.931	187	174.11
12/30/98	BN-123098-02	Downwind Perimeter	Benzene/ Naphthalene	<0.008 <0.010	0.869	185	160.77
12/31/98	BN-123198-02	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.886	384	340.20
01/05/99	BN-010599-01	Upwind Perimeter	Benzene/ Naphthalene	<0.005 <0.010	0.974	245	238.56
01/05/99	BN-010599-02	Downwind Perimeter	Benzene/ Naphthalene	<0.005 <0.01	0.939	244	229.14
01/06/99	BN-010699-01	Outside the break trailer (overnight)	Benzene/ Naphthalene	<0.003 <0.006	0.867	480	416.09
01/08/99	BN-010899-01	Upwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.938	338	316.96
01/08/99	BN-010899-02	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.912	337	307.18
01/08/99	BN-010899-03	Inside Link Belt (Personal)	Benzene/ Naphthalene	<0.007 <0.010	0.823	204	167.81
01/11/99	BN-011199-01	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.932	439	409.17
01/11/99	BN-011199-02	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.008	0.903	319	288.04
01/12/99	BN-011299-01	Upwind Perimeter	Benzene/ Naphthalene	<0.003 0.008	0.953	494	470.78
01/12/99	BN-011299-02	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.845	503	424.81
01/15/99	BN-011599-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.963	400	385.32
01/15/99	BN-011599-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.949	332	314.97
01/16/99	BN-011699-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.832	525	436.67
01/16/99	BN-011699-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.846	528	446.58
01/15/99	BN-011599-03 BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
01/18/99	BN-011899-01UW	Upwind	Benzene/	<0.003	0.933	452	421.87

Date	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm) (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
		Perimeter	Naphthalene	<0.005			
01/18/99	BN-011899-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 0.01	0.952	367	349.33
01/19/99	BN-011999-01	Upwind Perimeter	Benzene/ Naphthalene	<0.003 0.009	0.951	466	442.98
01/19/99	BN-011999-02	Downwind Perimeter	Benzene/ Naphthalene	<0.003 0.03	0.838	469	393.04
01/20/99	BN-012099-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 0.01	0.924	423	389.46
01/20/99	BN-012099-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.846	474	401.57
01/20/99	BN-012099-03	Personal – In the Track Loader	Benzene/ Naphthalene	<0.003 0.3	0.905	497	450.03
01/21/99	BN-012199-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.002 <0.004	0.934	549	512.53
01/21/99	BN-012199-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.829	546	452.69
01/22/99	BN-012299-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.898	431	388.40
01/22/99	BN-012299-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.911	432	394.02
01/22/99	BN-012299-BLANK	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	N/A	N/A	N/A
01/25/99	BN-012599-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.923	418	385.47
01/25/99	BN-012599-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 0.01	0.930	424	394.30
01/26/99	BN-012699-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.827	447	369.49
01/26/99	BN-012699-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 0.03	0.841	447	376.02
01/27/99	BN-012799-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.911	466	424.43
01/27/99	BN-012799-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 0.02	0.872	480	418.46
01/28/99	BN-012899-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.827	451	373.18
01/28/99	BN-012899-02DW	Downwind	Benzene/	<0.003	0.845	463	391.40

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
		Perimeter	Naphthalene	0.02			
01/29/99	BN-012999-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.918	461	423.38
01/29/99	BN-012999-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 0.02	0.895	459	410.71
01/29/99	BN-012999-BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
02/01/99	BN-020199-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.949	357	338.94
02/01/99	BN-020199-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 0.06	0.912	343	312.83
02/02/99	BN-020299-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.964	411	396.27
02/02/99	BN-020299-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 0.06	0.830	407	337.83
02/04/99	BN-020499-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.004 <0.006	0.813	433	351.86
02/04/99	BN-020499-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 0.08	0.836	440	367.77
02/05/99	BN-020599-BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
02/08/99	BN-020899-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.917	411	376.70
02/08/99	BN-020899-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.887	430	381.47
Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
02/10/99	BN-021099-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.903	486	438.74
02/10/99	BN-021099-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.807	494	398.61
02/10/99	BN-021099-03DK	Personal	Benzene/ Naphthalene	<0.003 0.008	0.830	486	403.38
02/11/99	BN-021199-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.005 <0.008	0.922	293	270.22
02/11/99	BN-021199-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.008	0.951	313	297.63
02/12/99	BN-021299-BLANK	Field Blank	Benzene/	<4µg/	N/A	N/A	N/A

Date	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min).	Volume (L).
			Naphthalene	<4µg			
02/15/99	BN-021599-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.960	332	318.69
02/15/99	BN-021599-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.006	0.919	381	350.35
02/17/99	BN-021799-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.004 <0.008	0.822	358	294.22
02/17/99	BN-021799-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 0.020	0.861	365	314.33
02/18/99	BN-021899-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.004 <0.008	0.983	288	283.15
02/18/99	BN-021899-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.006	0.923	378	348.86
02/19/99	BN-021999-BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
0303/99	BN-030399-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.824	473	389.28
03/03/99	BN-030399-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.842	466	392.40
03/05/99	BN-030599-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.831	381	314.02
03/05/99	BN-030599-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.848	381	323.05
03/05/99	BN-030599-BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
03/16/99	BN-031699-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.007 <0.01	0.973	187	182
03/16/99	BN-031699-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.929	492	457.44
03/18/99	BN-031899-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.824	479	394.84
03/18/99	BN-031899-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 0.006	0.841	476	400.51
03/19/99	BN-031999-BLANK	Field blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
03/22/99	BN-032299-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.008 <0.01	0.973	167	162.57

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
03/22/99	BN-032299-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.905	450	407.42
03/24/99	BN-032499-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.832	462	384.66
03/24/99	BN-032499-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.858	461	395.52
03/26/99	BN 032699-BLANK	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	N/A	N/A	N/A
03/29/99	BN-032999-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.815	406	331.03
03/29/99	BN-032999-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 0.01	0.854	406	346.74
04/01/99	BN-040199-01	Downwind Perimeter	Benzene/ Naphthalene	<0.004 0.02	0.821	351	287.35
04/02/99	BN-040299-BLANK	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	N/A	N/A	N/A
04/07/99	BN-040799-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.01 <0.02	0.947	137	129.71
04/07/99	BN-040799-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 0.01	0.895	495	442.78
04/07/99	BN-040799-BLANK	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	N/A	N/A	N/A
04/14/99	BN-041499-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.008 <0.01	0.954	165	157.42
04/14/99	BN-041499-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.812	461	374.10
04/15/99	BN-041599-MD	Personal – Truck Decon Person	Benzene/ Naphthalene	<0.2 <0.2	Passive[1]	474	7.58* 5.78
04/15/99	BN-041599-BB	Personal – Excavator Oper.	Benzene/ Naphthalene	<0.2 <0.2	Passive[1]	480	7.68 5.86
04/15/99	BN-041599-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.006 <0.01	0.804	279	224.29
04/15/99	BN-041599-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.006 <0.01	0.840	265	222.60
04/16/99	BN-041699-BLANK	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	N/A	N/A	N/A
04/21/99	BN-042199-01UW	Upwind	Benzene/	<0.005	0.819	307	251.56

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
		Perimeter	Naphthalene	<0.009			
04/21/99	BN-042199-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.849	424	359.85
04/22/99	BN-042299-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.008 <0.010	0.972	169	164.29
04/22/99	BN-042299-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.955	480	458.35
04/23/99	BN-042399-BLANK	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	N/A	N/A	N/A
04/27/99	BN-042799-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.950	505	479.75
04/27/99	BN-042799-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.007	0.828	377	312.29
04/29/99	BN-042999-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.970	427	414.28
04/29/99	BN-042999-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.869	435	378.21
4/30/99	BN-043099-BLANK	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	N/A	N/A	N/A
05/04/99	BN-050499-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.002 0.006	0.941	585	550.43
05/04/99	BN-050499-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.002 0.01	0.850	583	495.58
05/06/99	BN-050699-01DW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 0.006	0.960	453	435.36
05/06/99	BN-050699-02UW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.880	439	386.39
05/07/99	BN-050799-BLANK	Field Blank	Benzene/ Naphthalene	<4μg/ <4μg	N/A	N/A	N/A
05/11/99	BN-051199-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.940	487	457.97
05/11/99	BN-051199-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.861	480	413.04
05/14/99	BN-051499-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.008 <0.01	0.989	160	159.11
05/14/99	BN-051499-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.004 <0.008	0.950	295	280.24

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
05/14/99	BN-051499-BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
05/20/99	BN-052099-01UW	Upwind Perimeter	Benzene/ Naphthalene	<0.006 <0.01	0.817	269	219.65
05/20/99	BN-052099-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.008 <0.01	1.019	153	155.91
05/21/99	BN-052199-02DW	Downwind Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.842	477	401.66
05/21/99	BN-052199-BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
06/09/99	BN-060999-01UW	Upwind Site Perimeter	Benzene/ Naphthalene	0.005 0.06	0.980	329	322.57
06/09/99	BN-060999-02DW	Downwind Site Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.915	496	454.28
06/10/99	BN-061099-01	Downwind Site Perimeter	Benzene/ Naphthalene	<0.001 <0.002	0.939	957	898.19
06/11/99	BN-061199-BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
06/15/99	BN-061599-01UW	Upwind Site Perimeter	Benzene/ Naphthalene	<0.003 <0.005	0.919	475	436.50
06/15/99	BN-061599-02DW	Downwind Site Perimeter	Benzene/ Naphthalene	<0.003 <0.006	0.847	475	402.25
06/18/99	BN-061899-BLANK	Field Blank	Benzene/ Naphthalene	<4µg/ <4µg	N/A	N/A	N/A
0714//99	BN-071499-01UW	Upwind Perimeter	Benzene/ Naphthalene	<.003 <.010	0.947	401	379.69
07/14/99	BN-071499-02DW	Downwind Perimeter	Benzene/ Naphthalene	<.004 <.010	0.841	401	337.34
07/16/99	BN-071699-01UW	Upwind Site Perimeter	Benzene/ Naphthalene	<.006 <.020	0.920	241	221.79
07/16/99	BN-071699-02DW	Downwind Site Perimeter	Benzene/ Naphthalene	<.006 <.020	0.844	248	209.21
07/16/99	BN-071699-BLANK	Field Blank	Benzene/ Naphthalene	N/A N/A	N/A	N/A	N/A
07/19/99	BN-071999-01UW	Upwind Site Perimeter	Benzene/ Naphthalene	<.003 <.010	0.928	393	364.70
07/19/99	BN-071999-02DW	Downwind Site	Benzene/	<.003	0.911	399	363.55

Date:	Sample I.D.:	Sample Location:	Analysis Conducted:	Results(ppm): (Unless Specified)	Average Flow Rate Q(L/min):	Duration (min):	Volume (L):
		Perimeter	Naphthalene	.010			
07/20/99	BN-072099-01UW	Upwind Site Perimeter	Benzene/ Naphthalene	<.003 <.010	0.928	417	386.96
07/20/99	BN-072099-02DW	Downwind Site Perimeter	Benzene/ Naphthalene	<.003 <.010	0.922	426	393.79
07/22/99	BN-072099-BLANK	Field Blank	Benzene/ Naphthalene	N/A N/A	N/A	N/A	N/A

* Defective samples may have resulted from changing weather conditions, invalid sampling time, sample breakage, or the like.

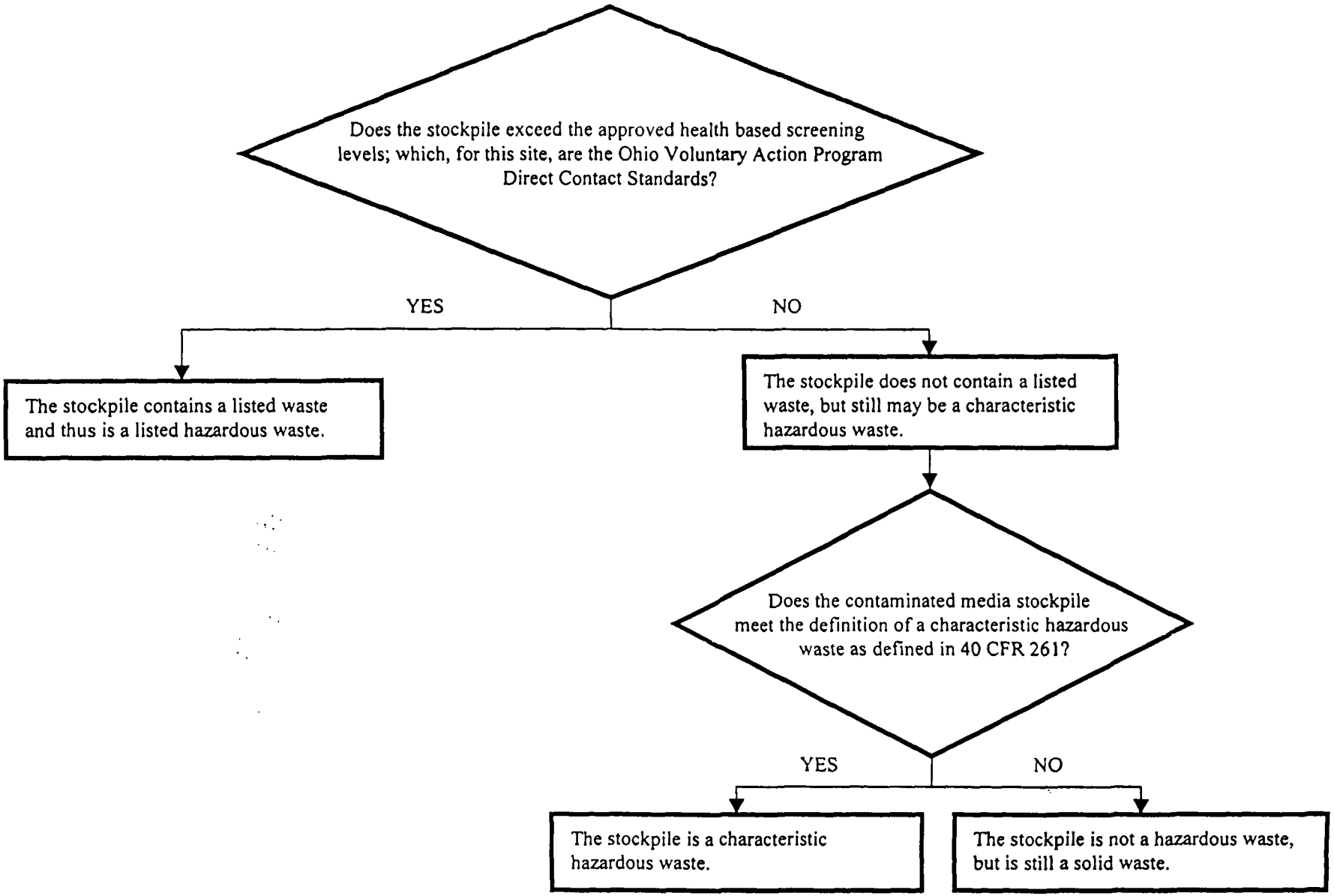
" Calculation - SKC Essential Reference for Air Sampling 1998/1999 Comprehensive Catalog for Air Sampling pp. 88-89. International Edition.

[1] Sampling Rate (Diffusion Rate): 16.0 ml/min for benzene, 12.2 ml/min for naphthalene.

APPENDIX D-7

Waste Material Analytical Results

Stockpile Waste Classification Determination Decision Process



JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

Questionable File -

November 16, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD05432 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-QPA-001
Sample collector: CLIENT Sample collection date: 11/09/98
Lab submittal date: 11/09/98 Time: 08:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C, 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.61 Std. MDL or sensitivity: 1.00
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3
Result: 1.3 mg/kg MDL or sensitivity: 1.0
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: CF

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 5.9 mg/kg MDL or sensitivity: 2.0
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 34.8 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 1.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 8.9 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 10.5 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 22.7 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: EPA7470
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: PL

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 138 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: ND

Parameter: VOCs by GCMS
Method reference: EPA 8260 Unit: mg/kg
Result: see below
Date started: 11/10/98 Date finished: 11/10/98
Time started: Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/kg
Result: see below
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: JR

Parameter: TCLP METALS (MI)
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/12/98
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/12/98
Time started: Analyst: JR

Data for VOCs by GCMS mg/kg:

Component Name	Result	Component MDL
ACETONE	Not detected	15
BENZENE	Not detected	0.3

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
ETHYLBENZENE	0.56	0.3
STYRENE	0.73	0.3
TOLUENE	0.62	0.3
m+p-XYLENE	3.4	0.3
o-XYLENE	1.6	0.3
Surrogate results:	---	
1.22 mg/kg Dibromofluoromethane	1.41	
1.22 mg/kg Toluene-D8	1.10	
1.22 mg/kg 4-Bromofluorobenzene	0.943	

Data for SEMIVOLATILE ORGANICS by GCMS mg/kg:

Component Name	Result	Component MDL
2,4-DIMETHYLHENOL	Not detected	4.0
2-METHYLPHENOL	Not detected	2.0
4-METHYLPHENOL	Not detected	2.0
PHENOL	Not detected	4.0
ACENAPHTHENE	72	4.0
ACENAPHTHYLENE	19	4.0
ANTHRACENE	200	4.0
BENZO(a)ANTHRACENE	130	8.0
BENZO(b)FLUORANTHENE	190	10
BENZO(k)FLUORANTHENE	35	8.0
BENZO(ghi)PERYLENE	11	4.0
BENZO(a)PYRENE	100	8.0
CHRYSENE	120	4.0
DIBENZO(ah)ANTHRACENE	2.8	2.0
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	6.0
FLUORANTHENE	220	8.0
FLUORENE	Not detected	4.0
INDENO(123-cd)PYRENE	23	4.0
ISOPHORONE	Not detected	4.0
NAPHTHALENE	220	4.0
PHENANTHRENE	220	2.0
PYRENE	140	4.0
Surrogate compounds:	---	
50.0 mg/kg 2-Fluorophenol	43.2	
50.0 mg/kg Phenol-D6	38.2	
50.0 mg/kg 2,4,6-Tribromophenol	25.5	
50.0 mg/kg 2-Flourobiphenyl	39.4	
50.0 mg/kg Nitrobenzene-D5	52.9	
50.0 mg/kg Terphenyl-D14	48.4	

Data for TCLP METALS (MI) mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2
CADMIUM	Not detected	0.01

Data for TCLP METALS (MI) (continued):

Component Name	Result	Component MDL
CHROMIUM	Not detected	0.1
COPPER	Not detected	0.2
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1
ZINC	0.5	0.2

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Additional requested compounds:	---	
ACENAPHTHENE	0.25	0.007
ACENAPHTHYLENE	0.079	0.003
ANTHRACENE	0.028	0.003

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
BENZO(a)ANTHRACENE	Not detected	0.013
BENZO(b)FLUORANTHENE	Not detected	0.013
BENZO(k)FLUORANTHENE	Not detected	0.010
BENZO(a)PYRENE	Not detected	0.013
BENZO(ghi)PERYLENE	Not detected	0.003
CHRYSENE	Not detected	0.016
DIBENZO(ah)ANTHRACENE	Not detected	0.003
FLUORANTHENE	0.041	0.007
FLUORENE	0.16	0.003
INDENO(1,2,3-cd)PYRENE	Not detected	0.003
ISOPHORONE	Not detected	0.003
NAPHTHALENE	2.9	0.066
PHENANTHRENE	0.027	0.003
PYRENE	0.018	0.003

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

Sample comments:

This sample does not ignite in the presence of an open butane flame.

Listed below are additional requested parameters and their approximate concentrations:

1.	1-Methylnaphthalene (total)	90 mg/kg
2.	2-Methylnaphthalene (total)	40 mg/kg
3.	TCLP 1-Methylnaphthalene	0.4 mg/L
4.	TCLP 2-Methylnaphthalene	0.3 mg/L

If there are any questions regarding this data, please call.

Fred W. Doering
President

Questionable Pile

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

November 16, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD05433 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-QPA-002
Sample collector: CLIENT Sample collection date: 11/09/98
Lab submittal date: 11/09/98 Time: 08:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C, 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.63 Std. MDL or sensitivity: 1.00
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3
Result: 1.4 mg/kg MDL or sensitivity: 1.0
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: CF

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 5.8 mg/kg MDL or sensitivity: 2.0
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 34.0 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 1.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 9.8 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 10.0 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 19.2 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: EPA7470
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: PL

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 118 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: ND

Parameter: VOCs by GCMS
Method reference: EPA 8260 Unit: mg/kg
Result: see below
Date started: 11/10/98 Date finished: 11/10/98
Time started: Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/kg
Result: see below
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: JR

Parameter: TCLP METALS (MI)
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/12/98
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/12/98
Time started: Analyst: JR

Data for VOCs by GCMS mg/kg:

Component Name	Result	Component MDL
ACETONE	Not detected	16
BENZENE	Not detected	0.3

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
ETHYLBENZENE	0.50	0.3
STYRENE	0.54	0.3
TOLUENE	0.55	0.3
m+p-XYLENE	3.0	0.3
o-XYLENE	1.5	0.3
Surrogate results:	---	
1.24 mg/kg Dibromofluoromethane	1.39	
1.24 mg/kg Toluene-D8	1.13	
1.24 mg/kg 4-Bromofluorobenzene	0.912	

Data for SEMIVOLATILE ORGANICS by GCMS mg/kg:

Component Name	Result	Component MDL
2,4-DIMETHYLHENOL	Not detected	4.0
2-METHYLPHENOL	Not detected	2.0
4-METHYLPHENOL	Not detected	2.0
PHENOL	Not detected	4.0
ACENAPHTHENE	76	4.0
ACENAPHTHYLENE	45	4.0
ANTHRACENE	180	4.0
BENZO(a)ANTHRACENE	43	8.0
BENZO(b)FLUORANTHENE	230	10
BENZO(k)FLUORANTHENE	190	8.0
BENZO(ghi)PERYLENE	10	4.0
BENZO(a)PYRENE	81	8.0
CHRYSENE	110	4.0
DIBENZO(ah)ANTHRACENE	2.8	2.0
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	6.0
FLUORANTHENE	310	8.0
FLUORENE	94	4.0
INDENO(123-cd)PYRENE	Not detected	4.0
ISOPHORONE	Not detected	4.0
NAPHTHALENE	230	4.0
PHENANTHRENE	270	2.0
PYRENE	97	4.0
Surrogate compounds:	---	
40.0 mg/kg 2-Fluorophenol	18.5	
40.0 mg/kg Phenol-D6	15.0	
40.0 mg/kg 2,4,6-Tribromophenol	25.1	
40.0 mg/kg 2-Fluorobiphenyl	20.2	
40.0 mg/kg Nitrobenzene-D5	41.6	
40.0 mg/kg Terphenyl-D14	37.7	

Data for TCLP METALS (MI) mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2
CADMIUM	Not detected	0.01

Data for TCLP METALS (MI) (continued):

Component Name	Result	Component MDL
CHROMIUM	Not detected	0.1
COPPER	Not detected	0.2
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1
ZINC	0.3	0.2

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Additional requested compounds:	---	
ACENAPHTHENE	0.24	0.007
ACENAPHTHYLENE	0.073	0.003
ANTHRACENE	0.020	0.003

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
BENZO(a)ANTHRACENE	Not detected	0.013
BENZO(b)FLUORANTHENE	Not detected	0.013
BENZO(k)FLUORANTHENE	Not detected	0.010
BENZO(a)PYRENE	Not detected	0.013
BENZO(ghi)PERYLENE	Not detected	0.003
CHRYSENE	Not detected	0.016
DIBENZO(ah)ANTHRACENE	Not detected	0.003
FLUORANTHENE	0.037	0.007
FLUORENE	0.16	0.003
INDENO(1,2,3-cd)PYRENE	Not detected	0.003
ISOPHORONE	Not detected	0.003
NAPHTHALENE	3.4	0.066
PHENANTHRENE	0.14	0.003
PYRENE	0.022	0.003

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

Sample comments:

This sample does not ignite in the presence of an open butane flame.

Listed below are additional requested parameters and their approximate concentrations:

1. 1-Methylnaphthalene (total) 80 mg/kg
2. 2-Methylnaphthalene (total) 50 mg/kg
3. TCLP 1-Methylnaphthalene 0.5 mg/L
4. TCLP 2-Methylnaphthalene 0.3 mg/L

If there are any questions regarding this data, please call.

Fred W. Doering
President

Questionable Pine

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

November 16, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD05434 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-QPA-003
Sample collector: CLIENT Sample collection date: 11/09/98
Lab submittal date: 11/09/98 Time: 08:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C, 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.69 Std. MDL or sensitivity: 1.00
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: CF

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 4.8 mg/kg MDL or sensitivity: 2.0
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 30.2 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 1.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 8.0 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 8.5 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 15.1 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: EPA7470
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: PL

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 90.5 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: ND

Parameter: VOCs by GCMS
Method reference: EPA 8260 Unit: mg/kg
Result: see below
Date started: 11/10/98 Date finished: 11/10/98
Time started: Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/kg
Result: see below
Date started: 11/10/98 Date finished: 11/11/98
Time started: Analyst: JR

Parameter: TCLP METALS (MI)
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/12/98
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 11/11/98 Date finished: 11/12/98
Time started: Analyst: JR

Data for VOCs by GCMS mg/kg:

Component Name	Result	Component MDL
ACETONE	Not detected	15
BENZENE	Not detected	0.3

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
ETHYLBENZENE	Not detected	0.3
STYRENE	Not detected	0.3
TOLUENE	<0.3 (trace)	0.3
m+p-XYLENE	0.54	0.3
o-XYLENE	<0.3 (trace)	0.3
Surrogate results:	---	
1.22 mg/kg Dibromofluoromethane	1.20	
1.22 mg/kg Toluene-D8	1.05	
1.22 mg/kg 4-Bromofluorobenzene	0.879	

Data for SEMIVOLATILE ORGANICS by GCMS mg/kg:

Component Name	Result	Component MDL
2,4-DIMETHYLHENOL	Not detected	4.0
2-METHYLPHENOL	Not detected	2.0
4-METHYLPHENOL	Not detected	2.0
PHENOL	Not detected	4.0
ACENAPHTHENE	76	4.0
ACENAPHTHYLENE	16	4.0
ANTHRACENE	180	4.0
BENZO(a)ANTHRACENE	120	8.0
BENZO(b)FLUORANTHENE	190	10
BENZO(k)FLUORANTHENE	29	8.0
BENZO(ghi)PERYLENE	25	4.0
BENZO(a)PYRENE	89	8.0
CHRYSENE	110	4.0
DIBENZO(ah)ANTHRACENE	4.9	2.0
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	6.0
FLUORANTHENE	290	8.0
FLUORENE	100	4.0
INDENO(123-cd)PYRENE	45	4.0
ISOPHORONE	Not detected	4.0
NAPHTHALENE	170	4.0
PHENANTHRENE	200	2.0
PYRENE	170	4.0
Surrogate compounds:	---	
50.0 mg/kg 2-Fluorophenol	46.9	
50.0 mg/kg Phenol-D6	41.0	
50.0 mg/kg 2,4,6-Tribromophenol	26.5	
50.0 mg/kg 2-Fluorobiphenyl	42.7	
50.0 mg/kg Nitrobenzene-D5	45.8	
50.0 mg/kg Terphenyl-D14	52.7	

Data for TCLP METALS (MI) mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.4	0.2
CADMIUM	Not detected	0.01

Data for TCLP METALS (MI) (continued):

Component Name	Result	Component MDL
CHROMIUM	Not detected	0.1
COPPER	Not detected	0.2
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1
ZINC	0.3	0.2

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Additional requested compounds:	---	
ACENAPHTHENE	0.19	0.007
ACENAPHTHYLENE	0.057	0.003
ANTHRACENE	0.020	0.003

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
BENZO(a)ANTHRACENE	Not detected	0.013
BENZO(b)FLUORANTHENE	Not detected	0.013
BENZO(k)FLUORANTHENE	Not detected	0.010
BENZO(a)PYRENE	Not detected	0.013
BENZO(ghi)PERYLENE	Not detected	0.003
CHRYSENE	Not detected	0.016
DIBENZO(ah)ANTHRACENE	Not detected	0.003
FLUORANTHENE	0.037	0.007
FLUORENE	0.16	0.003
INDENO(1,2,3-cd)PYRENE	Not detected	0.003
ISOPHORONE	Not detected	0.003
NAPHTHALENE	1.4	0.066
PHENANTHRENE	0.019	0.003
PYRENE	0.018	0.003

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

Sample comments:

This sample does not ignite in the presence of an open butane flame.

Listed below are additional requested parameters and their approximate concentrations:

1.	1-Methylnaphthalene (total)	50 mg/kg
2.	2-Methylnaphthalene (total)	30 mg/kg
3.	TCLP 1-Methylnaphthalene	0.4 mg/L
4.	TCLP 2-Methylnaphthalene	0.3 mg/L

If there are any questions regarding this data, please call.

Fred W. Doering
President

Questionable Pine

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

November 16, 1998

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD05435 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-QPA-004
Sample collector: CLIENT Sample collection date: 11/09/98
Lab submittal date: 11/09/98 Time: 08:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C, 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.81 Std. MDL or sensitivity: 1.00
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: CF

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 4.2 mg/kg MDL or sensitivity: 2.0
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: JH

Parameter: BARIUM
Method reference: 200.7/6010
Result: 21.8 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: CADMIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 1.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 7.0 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: COPPER
Method reference: 200.7/6010
Result: 6.7 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: LEAD
Method reference: 200.7/6010
Result: 13.7 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: MERCURY
Method reference: EPA7470
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 0.5
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: PL

Parameter: SELENIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: ZINC
Method reference: 200.7/6010
Result: 60.0 mg/kg
MDL or sensitivity: 2.0
Date started: 11/13/98
Date finished: 11/13/98
Time started:
Analyst: JH

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 11/11/98 Date finished: 11/12/98
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 11/11/98 Date finished: 11/12/98
Time started: Analyst: ND

Parameter: VOCs by GCMS
Method reference: EPA 8260 Unit: mg/kg
Result: see below
Date started: 11/13/98 Date finished: 11/13/98
Time started: Analyst: VW

Parameter: SEMIVOLATILE ORGANICS by GCMS
Method reference: EPA 8270 Unit: mg/kg
Result: see below
Date started: 11/11/98 Date finished: 11/11/98
Time started: Analyst: JR

Parameter: TCLP METALS (MI)
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15 Unit: mg/L
Result: see below
Date started: 11/12/98 Date finished: 11/12/98
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 11/12/98 Date finished: 11/12/98
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 11/12/98 Date finished: 11/13/98
Time started: Analyst: JR

Data for VOCs by GCMS mg/kg:

Component Name	Result	Component MDL
ACETONE	Not detected	15
BENZENE	Not detected	0.3

Data for VOCs by GCMS (continued):

Component Name	Result	Component MDL
ETHYLBENZENE	<0.3 (trace)	0.3
STYRENE	<0.3 (trace)	0.3
TOLUENE	0.31	0.3
m+p-XYLENE	1.1	0.3
o-XYLENE	0.60	0.3
Surrogate results:	---	
1.24 mg/kg Dibromofluoromethane	1.13	
1.24 mg/kg Toluene-D8	1.13	
1.24 mg/kg 4-Bromofluorobenzene	1.07	

Data for SEMIVOLATILE ORGANICS by GCMS mg/kg:

Component Name	Result	Component MDL
2,4-DIMETHYLHENOL	Not detected	10
2-METHYLPHENOL	Not detected	5.0
4-METHYLPHENOL	Not detected	5.0
PHENOL	Not detected	10
ACENAPHTHENE	600	10
ACENAPHTHYLENE	51	10
ANTHRACENE	540	100
BENZO(a)ANTHRACENE	520	20
BENZO(b)FLUORANTHENE	600	25
BENZO(k)FLUORANTHENE	480	20
BENZO(ghi)PERYLENE	53	20
BENZO(a)PYRENE	280	20
CHRYSENE	570	10
DIBENZO(ah)ANTHRACENE	7.9	5.0
bis(2-ETHYLHEXYL)PHTHALATE	Not detected	15
FLUORANTHENE	1400	200
FLUORENE	500	10
INDENO(123-cd)PYRENE	46	10
ISOPHORONE	Not detected	10
NAPHTHALENE	190	10
PHENANTHRENE	900	50
PYRENE	1100	100
Surrogate compounds:	---	
500 mg/kg 2-Fluorophenol	465	
500 mg/kg Phenol-D6	445	
500 mg/kg 2,4,6-Tribromophenol	378	
500 mg/kg 2-Fluorobiphenyl	382	
500 mg/kg Nitrobenzene-D5	386	
500 mg/kg Terphenyl-D14	396	

Data for TCLP METALS (MI) mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	Not detected	0.2
CADMIUM	Not detected	0.01

Data for TCLP METALS (MI) (continued):

Component Name	Result	Component MDL
CHROMIUM	Not detected	0.1
COPPER	Not detected	0.2
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1
ZINC	Not detected	0.2

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Additional requested compounds:	---	
ACENAPHTHENE	0.39	0.007
ACENAPHTHYLENE	0.031	0.003
ANTHRACENE	Not detected	0.003

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
BENZO(a)ANTHRACENE	Not detected	0.013
BENZO(b)FLUORANTHENE	Not detected	0.013
BENZO(k)FLUORANTHENE	Not detected	0.010
BENZO(a)PYRENE	Not detected	0.013
BENZO(ghi)PERYLENE	Not detected	0.003
CHRYSENE	Not detected	0.016
DIBENZO(ah)ANTHRACENE	Not detected	0.003
FLUORANTHENE	0.10	0.007
FLUORENE	0.15	0.003
INDENO(1,2,3-cd)PYRENE	Not detected	0.003
ISOPHORONE	Not detected	0.003
NAPHTHALENE	0.42	0.007
PHENANTHRENE	0.20	0.003
PYRENE	0.025	0.003

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

Sample comments:

This sample does not ignite in the presence of an open butane flame.

Listed below are additional requested parameters and their approximate concentrations:

1.	1-Methylnaphthalene (total)	70 mg/kg
2.	2-Methylnaphthalene (total)	50 mg/kg
3.	TCLP 1-Methylnaphthalene	0.07 mg/L
4.	TCLP 2-Methylnaphthalene	0.05 mg/L

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD05432-3

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1990

☐ Dublin — 6130 Wilcox Road, Dublin, Ohio 43017, Phone: (614)793-8777, FAX: (614)793-9070

☒ Toledo — 2726 Monroe Street, Toledo, Ohio 43606, Phone: (419)241-7171, FAX: (419)241-3117

☐ Mason — 4700 Duke Drive, Suite 172, Mason, Ohio 45040, Phone: (513)459-9677, FAX: (513)459-9869

☐ Warrensville Heights — 4949 Galaxy Parkway, Suite S, Warrensville Heights, Ohio 44128, Phone: (216)514-7100, FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: Kerr-McGee Chemical, LLC

Site: Toledo Tie Treatment Site

Project#: KMC001 Phase: 01, SMP

Samplers: Jason Finan

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	SVOC's 8270	RCRA Metals+Cu,Zn	BTEX 8260	TCLP-1311*	Reactivity	Corrosivity	Ignitability					COMMENTS
					PRESERVATIVES	A	A	A	A	A	A	A				
KMC001-QPA-001-	2	2	N	11-9-98 1500	✓	✓	✓	✓	✓	✓	✓					
KMC001-QPA-002-	2	2	N	1505	✓	✓	✓	✓	✓	✓	✓					
KMC001-QPA-003-	2	2	N	1510	✓	✓	✓	✓	✓	✓	✓					
KMC001-QPA-004-	2	2	N	1515	✓	✓	✓	✓	✓	✓	✓					
(32) ~~KMC001-QPA-005-~~																
KMC001-QPB-001-	2	2	N	1520												HOLD
KMC001-QPB-002	2	2	N	1525												HOLD
KMC001-QPB-003	2	2	N	1530												HOLD

RELINQUISHED BY: Jason Finan	DATE: 11-9-98 TIME: 17-29-00	RECEIVED BY: [signature]	DATE: 11-9-98 TIME: 17-29-
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –
COOLER TEMPERATURE AS RECEIVED °C: 4.5°	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT); YELLOW —LAB USE; PINK —RETAINED BY HA	

Deliver To: Jones & Henry Labs

Method of Delivery: Hand Deliver

Airbill Number:

NOTES: * Also Run DAH's (18) + Cu, Zn on Extract from TCLP

HA/OR997258 08/14/97 CORNER

PD

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 25. 1999

Questionable pile for "contained" assessment

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10594 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-QP-010-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 16:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.64 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE. REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/24/99 Date finished: 02/25/99
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/19/99 Date finished: 02/19/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/19/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/23/99
Time started: Analyst: JR

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.478	
0.600 mg/L 1,4-Dichlorobutane	0.495	
0.600 mg/L 2-Br-1-chlorobenzene	0.469	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.601	
0.600 mg/L 2-Br-1-chlorobenzene	0.523	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.152	
0.267 mg/L 2-Fluorophenol	0.187	
0.267 mg/L Nitrobenzene-D5	0.189	
0.267 mg/L Phenol-D6	0.158	
0.267 mg/L Terphenyl-D14	0.336	
0.267 mg/L 2,4,6-Tribromophenol	0.159	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.081	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 25. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10595 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-QP-011-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 16:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.63 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE. REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/18/99 Date finished: 02/19/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/24/99 Date finished: 02/24/99
Time started: Analyst: AA

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/23/99
Time started: Analyst: JR

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results. HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.505	
0.600 mg/L 1,4-Dichlorobutane	0.632	
0.600 mg/L 2-Br-1-chlorobenzene	0.595	
Surrogate results. PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.611	
0.600 mg/L 2-Br-1-chlorobenzene	0.594	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.157	
0.267 mg/L 2-Fluorophenol	0.212	
0.267 mg/L Nitrobenzene-D5	0.236	
0.267 mg/L Phenol-D6	0.205	
0.267 mg/L Terphenyl-D14	0.198	
0.267 mg/L 2,4,6-Tribromophenol	0.111	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.083	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, IN 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 25, 1999

To: Hull & Associates
3401 endale Ave., Suite 300
Tole... Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10596 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-OP-012-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 16:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.63 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/24/99 Date finished: 02/24/99
Time started: Analyst: AA

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/19/99 Date finished: 02/19/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/23/99
Time started: Analyst: JR

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.558	
0.600 mg/L 1,4-Dichlorobutane	0.606	
0.600 mg/L 2-Br-1-chlorobenzene	0.518	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.595	
0.600 mg/L 2-Br-1-chlorobenzene	0.534	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.145	
0.267 mg/L 2-Fluorophenol	0.218	
0.267 mg/L Nitrobenzene-D5	0.219	
0.267 mg/L Phenol-D6	0.204	
0.267 mg/L Terphenyl-D14	0.220	
0.267 mg/L 2,4,6-Tribromophenol	0.105	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.080	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 25, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10597 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-QP-013-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 16:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.50 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H_2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/18/99 Date finished: 02/19/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/24/99 Date finished: 02/24/99
Time started: Analyst: AA

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/23/99
Time started: Analyst: JR

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.482	
0.600 mg/L 1,4-Dichlorobutane	0.534	
0.600 mg/L 2-Br-1-chlorobenzene	0.511	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.600	
0.600 mg/L 2-Br-1-chlorobenzene	0.606	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.179	
0.267 mg/L 2-Fluorophenol	0.234	
0.267 mg/L Nitrobenzene-D5	0.234	
0.267 mg/L Phenol-D6	0.208	
0.267 mg/L Terphenyl-D14	0.255	
0.267 mg/L 2,4,6-Tribromophenol	0.104	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.075	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 25, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10598 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CDP-001-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 16:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 8.48 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/18/99 Date finished: 02/19/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/18/99 Date finished: 02/19/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/24/99 Date finished: 02/24/99
Time started: Analyst: AA

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/19/99 Date finished: 02/19/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/23/99 Date finished: 02/24/99
Time started: Analyst: JR

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	1.1	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.497	
0.600 mg/L 1,4-Dichlorobutane	0.551	
0.600 mg/L 2-Br-1-chlorobenzene	0.505	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.615	
0.600 mg/L 2-Br-1-chlorobenzene	0.640	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.166	
0.267 mg/L 2-Fluorophenol	0.218	
0.267 mg/L Nitrobenzene-D5	0.204	
0.267 mg/L Phenol-D6	0.199	
0.267 mg/L Terphenyl-D14	0.219	
0.267 mg/L 2,4,6-Tribromophenol	0.092	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.170 mg/L 2,4-Dichlorophenylacetic acid	0.138	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 25, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10599 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CDP-002-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 16:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 8.77 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/18/99 Date finished: 02/19/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/18/99 Date finished: 02/19/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/24/99 Date finished: 02/24/99
Time started: Analyst: AA

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/19/99 Date finished: 02/19/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/23/99 Date finished: 02/24/99
Time started: Analyst: JR

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.6	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.489	
0.600 mg/L 1,4-Dichlorobutane	0.513	
0.600 mg/L 2-Br-1-chlorobenzene	0.485	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.585	
0.600 mg/L 2-Br-1-chlorobenzene	0.583	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.210	
0.267 mg/L 2-Fluorophenol	0.260	
0.267 mg/L Nitrobenzene-D5	0.291	
0.267 mg/L Phenol-D6	0.201	
0.267 mg/L Terphenyl-D14	0.253	
0.267 mg/L 2,4,6-Tribromophenol	0.089	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.079	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

Sub-base
TCLP

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 25, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10600 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-SPB-001-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 16:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 9.99 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 0 17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/24/99 Date finished: 02/24/99
Time started: Analyst: AA

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/19/99 Date finished: 02/19/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/23/99 Date finished: 02/24/99
Time started: Analyst: JR

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.9	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.447	
0.600 mg/L 1,4-Dichlorobutane	0.543	
0.600 mg/L 2-Br-1-chlorobenzene	0.450	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.589	
0.600 mg/L 2-Br-1-chlorobenzene	0.549	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.163	
0.267 mg/L 2-Fluorophenol	0.238	
0.267 mg/L Nitrobenzene-D5	0.258	
0.267 mg/L Phenol-D6	0.201	
0.267 mg/L Terphenyl-D14	0.231	
0.267 mg/L 2,4,6-Tribromophenol	0.099	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.079	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

asphalt - TCLP

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 25, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10601 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-AP-001-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 16:35
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 9.98 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/24/99 Date finished: 02/24/99
Time started: Analyst: AA

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/22/99 Date finished: 02/22/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/23/99 Date finished: 02/24/99
Time started: Analyst: JR

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.2	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.470	
0.600 mg/L 1,4-Dichlorobutane	0.588	
0.600 mg/L 2-Br-1-chlorobenzene	0.604	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.621	
0.600 mg/L 2-Br-1-chlorobenzene	0.676	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.182	
0.267 mg/L 2-Fluorophenol	0.264	
0.267 mg/L Nitrobenzene-D5	0.273	
0.267 mg/L Phenol-D6	0.240	
0.267 mg/L Terphenyl-D14	0.238	
0.267 mg/L 2,4,6-Tribromophenol	0.096	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.084	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD105 [illegible]-10601

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1543

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☐ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR McGEE
Site: TOLEDO TIE TREATMENT SHC
Project#: KMC-001 Phase: 01, SMP
Samplers: J.L.M.

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER: ____

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES / PRESERVATIVES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	TCLP	ICR	PCB								COMMENTS
KMC001-QP-010-392T	2	2		2-16-99 13:40	X	X	X								South
KMC001-QP-011-392T	2	2		2-16-99 13:50	X	X	X								South center
KMC001-QP-012-392T	2	2		2-16-99 14:00	X	X	X								North center
KMC001-QP-013-392T	2	2		2-16-99 14:10	X	X	X								North
KMC001-CDP-001-392T	2	2		2-16-99 14:20	X	X	X								East
KMC001-CDP-002-392T	2	2		2-16-99 14:40	X	X	X								West
KMC001-SBP-001-392T	Gravel	2		2-16-99 14:55	X	X	X								
KMC001-AP-001-392T	Asphalt	2		2-16-99 15:05	X	X	X								
				/											
				/											
				/											
				/											

RELINQUISHED BY: [signature]	DATE: 2-16-99 TIME: 16-35	RECEIVED BY: [signature]	DATE: 2-16-99 TIME: 16-35
RELINQUISHED BY: [signature]	DATE: 2-16-99 TIME: 17-00	RECEIVED BY: [signature]	DATE: 2-16-99 TIME: 17-00
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –

COOLER TEMPERATURE AS RECEIVED °C: 1° °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J&H Lab
Method of Delivery: CAR
Airbill Number:

NOTES:

HAI\0999T289
08/14/97 CORNER

10

Clean file — TCLP

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

contained in assessment.

February 19, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10562 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CP-001-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 15:01
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.58 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: PL

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: TH

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.197	
0.267 mg/L 2-Fluorophenol	0.229	
0.267 mg/L Nitrobenzene-D5	0.243	
0.267 mg/L Phenol-D6	0.213	

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
0.267 mg/L Terphenyl-D14	0.252	
0.267 mg/L 2,4,6-Tribromophenol	0.107	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 19, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10563 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CP-002-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 15:01
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.65 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H_2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: PL

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: TH

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.166	
0.267 mg/L 2-Fluorophenol	0.232	
0.267 mg/L Nitrobenzene-D5	0.261	
0.267 mg/L Phenol-D6	0.223	

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
0.267 mg/L Terphenyl-D14	0.276	
0.267 mg/L 2,4,6-Tribromophenol	0.094	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 19, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10564 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CP-003-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 15:01
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.68 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: JE

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: TH

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.214	
0.267 mg/L 2-Fluorophenol	0.232	
0.267 mg/L Nitrobenzene-D5	0.295	
0.267 mg/L Phenol-D6	0.212	

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
0.267 mg/L Terphenyl-D14	0.271	
0.267 mg/L 2,4,6-Tribromophenol	0.124	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 19, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD10565 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CP-004-392T
Sample collector: CLIENT Sample collection date: 02/16/99
Lab submittal date: 02/16/99 Time: 15:01
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C. 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.69 Std. MDL or sensitivity: 1.00
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JC

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: CF

Parameter: PCB IN RESIDUE
Method reference: SW846 8080 Unit: mg/kg
Result: see below
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: ND

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 02/16/99 Date finished: 02/17/99
Time started: Analyst: ND

Parameter: TCLP METALS
Method reference: 6010A/7470 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: JH

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15 Unit: mg/L
Result: see below
Date started: 02/18/99 Date finished: 02/18/99
Time started: Analyst: TH

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/l
Result: see below
Date started: 02/17/99 Date finished: 02/17/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 02/17/99 Date finished: 02/18/99
Time started: Analyst: TH

Data for PCB IN RESIDUE mg/kg:

Component Name	Result	Component MDL
PCB 1016	Not detected	1.0
PCB 1221	Not detected	1.0
PCB 1232	Not detected	1.0
PCB 1242	Not detected	1.0
PCB 1248	Not detected	1.0
PCB 1254	Not detected	1.0
PCB 1260	Not detected	1.0

Data for TCLP METALS mg/L:

Component Name	Result	Component MDL
ARSENIC	Not detected	0.1
BARIUM	0.3	0.2

Data for TCLP METALS (continued):

Component Name	Result	Component MDL
CADMIUM	Not detected	0.01
CHROMIUM	Not detected	0.1
LEAD	Not detected	0.1
MERCURY	Not detected	0.004
SELENIUM	Not detected	0.1
SILVER	Not detected	0.1

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.158	
0.267 mg/L 2-Fluorophenol	0.247	
0.267 mg/L Nitrobenzene-D5	0.284	
0.267 mg/L Phenol-D6	0.208	

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
0.267 mg/L Terphenyl-D14	0.238	
0.267 mg/L 2,4,6-Tribromophenol	0.103	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD1056 65

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE ____ OF ____

NO. 1545

☐ Dublin
6130 Wilcox Road
Dublin, Ohio 43017
Phone: (614)793-8777
FAX: (614)793-9070

☒ Toledo
2726 Monroe Street
Toledo, Ohio 43606
Phone: (419)241-7171
FAX: (419)241-3117

☐ Mason
4700 Duke Drive, Suite 172
Mason, Ohio 45040
Phone: (513)459-9677
FAX: (513)459-9869

☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: ELENA TEMBREULL

Client: KERR-McGEE
Site: TOLEDO TIE TREATMENT SITE
Project#: KMC 001 Phase: 01 SMP
Samplers: JLM/ERT

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER: ____

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

PRESERVATIVES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	TCLP (40CFR261.24)	ICR	PCBs									COMMENTS
KMC001-CP-001-392T	2	2		2/16/99 13:00	X	X	X									
KMC001-CP-002-392T	2	2		2/16/99 13:00	X	X	X									
KMC001-CP-003-392T	2	2		2/16/99 13:00	X	X	X									
KMC001-CP-004-392T	2	2		2/16/99 13:00	X	X	X									
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												

RELINQUISHED BY: Elena K Tembreull	DATE: 2-16-99 TIME: 2-35-PM	RECEIVED BY: R. Szczepanski	DATE: 2-16-99 TIME: -14-35
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY: [illegible]	DATE: 2-16-99 TIME: 15-45-
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –

COOLER TEMPERATURE AS RECEIVED °C: 3° °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: JONES + HENRY
Method of Delivery: HAND DELIVERED
Airbill Number: ——
NOTES: RUSH TURNAROUND

HAI\0899T269
08/14/97 CORNER

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

dry dam pile

totals to assess whether exceeds VAP standard per USEPA

March 11, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD11585 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CDP003-392T
Sample collector: CLIENT Sample collection date: 03/03/99
Lab submittal date: 03/03/99 Time: 17:05
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 81.5 % MDL or sensitivity: 0.01
Date started: 03/04/99 Date finished: 03/05/99
Time started: Analyst: JC

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 7.5 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 11.1 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: SEMIVOLATILES by GC/MS 8270
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/05/99 Date finished: 03/05/99
Time started: Analyst: JR

Data for SEMIVOLATILES by GC/MS 8270 mg/dry kg:

Component Name	*Result*	*Component MDL*
ACENAPHTHENE	7.4	0.12
ACENAPHTHYLENE	2.9	0.12
ANTHRACENE	8.6	0.12
BENZO(a)ANTHRACENE	8.0	0.25

Data for SEMIVOLATILES by GC/MS 8270 (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	7.1	0.31
BENZO(k)FLUORANTHENE	6.7	0.25
BENZO(a)PYRENE	7.2	0.25
BENZO(ghi)PERYLENE	3.0	0.12
CHRYSENE	7.1	0.12
DIBENZO(ah)ANTHRACENE	Not detected	0.06
FLUORANTHENE	21	0.25
FLUORENE	8.4	0.12
INDENO(1.2.3-cd)PYRENE	3.4	0.12
NAPHTHALENE	14	0.12
PHENANTHRENE	31	0.06
PYRENE	13	0.12
Surrogate results:	---	
4.91 mg/dry kg 2-Fluorobiphenyl	2.72	
4.91 mg/dry kg Nitrobenzene-D5	3.65	
4.91 mg/dry kg Terphenyl-D14	3.73	

If there are any questions regarding this data, please call.

Fred W. Doering
President

clay dam pile - levels to assess whether VAP standard exceeded per US EPA.

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 11, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD11586 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CDP004-392T
Sample collector: CLIENT Sample collection date: 03/03/99
Lab submittal date: 03/03/99 Time: 17:05
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 81.2 % MDL or sensitivity: 0.01
Date started: 03/04/99 Date finished: 03/05/99
Time started: Analyst: JC

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 4.2 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 10.2 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: SEMIVOLATILES by GC/MS 8270
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/05/99 Date finished: 03/05/99
Time started: Analyst: JR

Data for SEMIVOLATILES by GC/MS 8270 mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	7.1	0.12
ACENAPHTHYLENE	3.3	0.12
ANTHRACENE	7.7	0.12
BENZO(a)ANTHRACENE	5.2	0.24

Data for SEMIVOLATILES by GC/MS 8270 (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	8.4	0.30
BENZO(k)FLUORANTHENE	6.7	0.24
BENZO(a)PYRENE	8.1	0.24
BENZO(ghi)PERYLENE	3.6	0.12
CHRYSENE	7.0	0.12
DIBENZO(ah)ANTHRACENE	0.49	0.06
FLUORANTHENE	19	0.24
FLUORENE	9.4	0.12
INDENO(1.2.3-cd)PYRENE	4.1	0.12
NAPHTHALENE	16	0.12
PHENANTHRENE	31	0.06
PYRENE	14	0.12
Surrogate results:	---	
4.83 mg/dry kg 2-Fluorobiphenyl	2.78	
4.83 mg/dry kg Nitrobenzene-D5	4.51	
4.83 mg/dry kg Terphenyl-D14	4.18	

If there are any questions regarding this data. please call.

Fred W. Doering
President

Subbase pile totals to assess whether exceed VAP standards per US EPA

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 11. 1999

To: Hull & Associates
3401 Glendale Ave.. Suite 300
Toledo. Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD11587 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-SBP002-392T
Sample collector: CLIENT Sample collection date: 03/03/99
Lab submittal date: 03/03/99 Time: 17:05
Received by: RS Validated by: FD

Parameter: SOLIDS. DRY. 104 DEG C
Method reference: SM17-2540G
Result: 84.2 % MDL or sensitivity: 0.01
Date started: 03/04/99 Date finished: 03/05/99
Time started: Analyst: JC

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 22.4 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 10.7 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/09/99 Date finished: 03/09/99
Time started: Analyst: PL

Parameter: SEMIVOLATILES by GC/MS 8270
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/05/99 Date finished: 03/05/99
Time started: Analyst: JR

Data for SEMIVOLATILES by GC/MS 8270 mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	0.66	0.11
ACENAPHTHYLENE	0.31	0.11
ANTHRACENE	1.0	0.11
BENZO(a)ANTHRACENE	0.88	0.23

Data for SEMIVOLATILES by GC/MS 8270 (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	0.51	0.28
BENZO(k)FLUORANTHENE	0.82	0.23
BENZO(a)PYRENE	0.77	0.23
BENZO(ghi)PERYLENE	0.27	0.11
CHRYSENE	0.89	0.11
DIBENZO(ah)ANTHRACENE	Not detected	0.06
FLUORANTHENE	3.0	0.23
FLUORENE	1.0	0.11
INDENO(1,2,3-cd)PYRENE	0.17	0.11
NAPHTHALENE	0.31	0.11
PHENANTHRENE	2.9	0.06
PYRENE	2.2	0.11
Surrogate results:	---	
4.52 mg/dry kg 2-Fluorobiphenyl	2.98	
4.52 mg/dry kg Nitrobenzene-D5	3.33	
4.52 mg/dry kg Terphenyl-D14	3.37	

If there are any questions regarding this data, please call.

Fred W. Doering
President

Clean file - for VAP standards

Contained in assessment per US EPA

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 17, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD11750 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CP005-392T
Sample collector: CLIENT Sample collection date: 03/03/99
Lab submittal date: 03/03/99 Time: 13:58
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 89.9 % MDL or sensitivity: 0.01
Date started: 03/09/99 Date finished: 03/10/99
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 4.6 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/12/99 Date finished: 03/12/99
Time started: Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 8.4 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/12/99 Date finished: 03/12/99
Time started: Analyst: AA

Parameter: SEMIVOLATILES by GC/MS 8270
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/09/99 Date finished: 03/11/99
Time started: Analyst: JR

Data for SEMIVOLATILES by GC/MS 8270 mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	13	2.2
ACENAPHTHYLENE	19	2.2
ANTHRACENE	40	2.2
BENZO(a)ANTHRACENE	70	4.3

Data for SEMIVOLATILES by GC/MS 8270 (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	87	5.4
BENZO(k)FLUORANTHENE	59	4.3
BENZO(a)PYRENE	78	4.3
BENZO(ghi)PERYLENE	37	2.2
CHRYSENE	68	2.2
DIBENZO(ah)ANTHRACENE	4.1	0.06
FLUORANTHENE	130	4.3
FLUORENE	18	2.2
INDENO(1.2.3-cd)PYRENE	42	2.2
NAPHTHALENE	1.6	0.2
PHENANTHRENE	54	1.1
PYRENE	130	2.2
Surrogate results:	---	
4.34 mg/dry kg 2-Fluorobiphenyl	1.98	
4.34 mg/dry kg Nitrobenzene-D5	3.36	
4.34.mg/dry kg Terphenyl-D14	4.16	

If there are any questions regarding this data. please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 17, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD11751 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CP006-392T
Sample collector: CLIENT Sample collection date: 03/03/99
Lab submittal date: 03/03/99 Time: 13:58
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 88.5 % MDL or sensitivity: 0.01
Date started: 03/09/99 Date finished: 03/10/99
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 6.1 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/12/99 Date finished: 03/12/99
Time started: Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 9.1 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/12/99 Date finished: 03/12/99
Time started: Analyst: AA

Parameter: SEMIVOLATILES by GC/MS 8270
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/09/99 Date finished: 03/11/99
Time started: Analyst: JR

Data for SEMIVOLATILES by GC/MS 8270 mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	6.1	0.2
ACENAPHTHYLENE	23	2.2
ANTHRACENE	53	2.2
BENZO(a)ANTHRACENE	61	4.4

Data for SEMIVOLATILES by GC/MS 8270 (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	110	5.5
BENZO(k)FLUORANTHENE	66	4.4
BENZO(a)PYRENE	90	4.4
BENZO(ghi)PERYLENE	43	2.2
CHRYSENE	58	2.2
DIBENZO(ah)ANTHRACENE	5.4	0.06
FLUORANTHENE	110	4.4
FLUORENE	13	2.2
INDENO(1,2,3-cd)PYRENE	51	2.2
NAPHTHALENE	2.0	0.2
PHENANTHRENE	28	1.1
PYRENE	99	2.2
Surrogate results:	---	
4.43 mg/dry kg 2-Fluorobiphenyl	2.09	
4.43 mg/dry kg Nitrobenzene-D5	3.69	
4.43 mg/dry kg Terphenyl-D14	4.84	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 17, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD11752 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CP007-392T
Sample collector: CLIENT Sample collection date: 03/03/99
Lab submittal date: 03/03/99 Time: 13:58
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 89.9 % MDL or sensitivity: 0.01
Date started: 03/09/99 Date finished: 03/10/99
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 5.2 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/12/99 Date finished: 03/12/99
Time started: Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 10.3 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/12/99 Date finished: 03/12/99
Time started: Analyst: AA

Parameter: SEMIVOLATILES by GC/MS 8270
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/09/99 Date finished: 03/11/99
Time started: Analyst: JR

Data for SEMIVOLATILES by GC/MS 8270 mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	5.2	0.2
ACENAPHTHYLENE	19	2.2
ANTHRACENE	52	2.2
BENZO(a)ANTHRACENE	61	4.3

Data for SEMIVOLATILES by GC/MS 8270 (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	100	5.4
BENZO(k)FLUORANTHENE	65	4.3
BENZO(a)PYRENE	91	4.3
BENZO(ghi)PERYLENE	42	2.2
CHRYSENE	62	2.2
DIBENZO(ah)ANTHRACENE	5.1	0.06
FLUORANTHENE	100	4.3
FLUORENE	10	2.2
INDENO(1,2,3-cd)PYRENE	50	2.2
NAPHTHALENE	1.9	0.2
PHENANTHRENE	32	1.1
PYRENE	100	2.2
Surrogate results:	---	
4.29 mg/dry kg 2-Fluorobiphenyl	2.49	
4.29 mg/dry kg Nitrobenzene-D5	3.60	
4.29 mg/dry kg Terphenyl-D14	4.76	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 17, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD11753 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CP008-392T
Sample collector: CLIENT Sample collection date: 03/03/99
Lab submittal date: 03/03/99 Time: 13:58
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 89.6 % MDL or sensitivity: 0.01
Date started: 03/09/99 Date finished: 03/10/99
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 5.0 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/12/99 Date finished: 03/12/99
Time started: Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 8.3 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/12/99 Date finished: 03/12/99
Time started: Analyst: AA

Parameter: SEMIVOLATILES by GC/MS 8270
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/09/99 Date finished: 03/11/99
Time started: Analyst: JR

Data for SEMIVOLATILES by GC/MS 8270 mg/dry kg:

Component Name	*Result*	*Component MDL*
ACENAPHTHENE	17	1.1
ACENAPHTHYLENE	29	1.1
ANTHRACENE	230	5.4
BENZO(a)ANTHRACENE	92	10.9

Data for SEMIVOLATILES by GC/MS 8270 (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	140	13.6
BENZO(k)FLUORANTHENE	92	10.9
BENZO(a)PYRENE	130	10.9
BENZO(ghi)PERYLENE	58	1.1
CHRYSENE	100	5.4
DIBENZO(ah)ANTHRACENE	10	0.6
FLUORANTHENE	160	10.9
FLUORENE	40	1.1
INDENO(1.2.3-cd)PYRENE	71	1.1
NAPHTHALENE	9.3	1.1
PHENANTHRENE	110	2.7
PYRENE	160	5.4
Surrogate results:	---	
4.35 mg/dry kg 2-Fluorobiphenyl	2.09	
4.35 mg/dry kg Nitrobenzene-D5	3.91	
4.35 mg/dry kg Terphenyl-D14	5.61	

If there are any questions regarding this data. please call.

Fred W. Doering
President

AD11585-87
AD11750-53

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

Hull & Associates, Inc.

NO. 1541

☐ Dublin: 6130 Wilcox Road, Dublin, Ohio 43017, Phone: (614)793-8777, FAX: (614)793-9070
☑ Toledo: 2728 Monroe Street, Toledo, Ohio 43606, Phone: (419)241-7171, FAX: (419)241-3117
☐ Mason: 4700 Duke Drive, Suite 172, Mason, Ohio 45040, Phone: (513)459-9577, FAX: (513)459-9869
☐ Warrensville Heights: 4949 Galaxy Parkway, Suite S, Warrensville Heights, Ohio 44128, Phone: (216)514-7100, FAX: (216)514-7104

REPORT TO: Elena Tomblevill

Client: KRR
Site: Tiffin
Project#: [illegible] Phase: 1 SMP
Samplers: [illegible]

SAMPLE MATRIX: 1. WATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. TISSUE, 6. SEDIMENT, OTHER:
PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2
METALS: F – FILTERED; N – NOT FILTERED; B – BOTH
All samples are kept at 4°C.

ANALYSES: PRESERVATIVES; SVOC; Inorganics; DS% added per Elena (SA)

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	SVOC	Inorganics	DS% added per Elena	COMMENTS
[illegible]	2	2		3-3-99 15:30	X	X	X	*HOLD PER ELENA 3/4 (SA)
[illegible]-006-392T	2	2		3-3-99 15:35	X	X	X	↓ ↓
[illegible]-CP 7-392T	2	2		3-3-99 15:45	X	X	X	
[illegible]-CP [illegible] 392T	2	2		3-3-99 15:55	X	X	X	
[illegible]-DP-03-392T	2	2		3-3-99 16:00	X	X	X	
[illegible]-CDP004-392T	2	2		3-3-99 16:10	X	X	X	
[illegible]-SRP002-392T	[illegible]	2		3-3-99 17:20	X	X	X	

RELINQUISHED BY: [illegible]	DATE: 3-3-99 TIME: 17:00	RECEIVED BY: [illegible]	DATE: 3-3-99 TIME: 17:00
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY: [illegible]	DATE: 3-3-99 TIME: 17:05
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY:	DATE: – – TIME: – –
COOLER TEMPERATURE AS RECEIVED °C:	°C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT); YELLOW —LAB USE; PINK —RETAINED BY HAI	

Deliver To: [illegible]
Method of Delivery: Hand
Airbill Number:
NOTES: HOLD 2ND CONTAINER FOR POSSIBLE FUTURE ANALYTICAL

Cooler temp = 4.5°

*Client requested analysis on [illegible] samples 2-9-99

HAI-08997289 08/14/97 CORNER

totals again in comparison to VAP standards per USEPA!

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

April 1, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD12498 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-AP002-392T
Sample collector: CLIENT Sample collection date: 03/24/99
Lab submittal date: 03/24/99 Time: 16:21
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 99.6 % MDL or sensitivity: 0.01
Date started: 03/25/99 Date finished: 03/26/99
Time started: Analyst: JC

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 2.8 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/26/99 Date finished: 03/26/99
Time started: Analyst: PL

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 2.6 mg/dry kg MDL or sensitivity: 2.0
Date started: 03/26/99 Date finished: 03/26/99
Time started: Analyst: PL

Parameter: SEMIVOLATILES by GC/MS 8270
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 03/29/99 Date finished: 03/30/99
Time started: Analyst: JR

Data for SEMIVOLATILES by GC/MS 8270 mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	2.0
ACENAPHTHYLENE	Not detected	2.0
ANTHRACENE	Not detected	2.0
BENZO(a)ANTHRACENE	Not detected	4.0

Data for SEMIVOLATILES by GC/MS 8270 (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	<5.0 (trace)	5.0
BENZO(k)FLUORANTHENE	Not detected	4.0
BENZO(a)PYRENE	Not detected	4.0
BENZO(ghi)PERYLENE	Not detected	2.0
CHRYSENE	Not detected	2.0
DIBENZO(ah)ANTHRACENE	Not detected	1.0
FLUORANTHENE	<4.0 (trace)	4.0
FLUORENE	Not detected	2.0
INDENO(1.2.3-cd)PYRENE	Not detected	2.0
NAPHTHALENE	Not detected	2.0
PHENANTHRENE	3.6	1.0
PYRENE	<2.0 (trace)	2.0
Surrogate results:	---	
16.1 mg/dry kg 2-Fluorobiphenyl	11.8	
16.1 mg/dry kg Nitrobenzene-D5	10.9	
16.1 mg/dry kg Terphenyl-D14	13.7	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

June 23, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD16001 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-SPW001-T392
Sample collector: CLIENT Sample collection date: 06/01/99
Lab submittal date: 06/01/99 Time: 14:38
Received by: SA Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 87.2 % MDL or sensitivity: 0.01
Date started: 06/07/99 Date finished: 06/08/99
Time started: Analyst: WS

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 6.4 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/09/99 Date finished: 06/09/99
Time started: Analyst: VW

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 16.1 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/09/99 Date finished: 06/09/99
Time started: Analyst: VW

Parameter: POLYNUCLEAR AROMATICS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 06/08/99 Date finished: 06/09/99
Time started: Analyst: JR

Parameter: pH @ 25 DEG C, 20g+20ml @ 60 min
Method reference: EPA9045
Result: 10.90 Std. MDL or sensitivity: 1.00
Date started: 06/18/99 Date finished: 06/18/99
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 06/15/99 Date finished: 06/16/99
Time started: Analyst: CF

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 06/14/99 Date finished: 06/14/99
Time started: Analyst: CF

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: CF

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 06/14/99 Date finished: 06/15/99
Time started: Analyst: JC

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 06/14/99 Date finished: 06/15/99
Time started: Analyst: JC

Parameter: TCLP ARSENIC
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.1
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP BARIUM
Method reference: EPA 6010B
Result: 0.7 mg/L MDL or sensitivity: 0.2
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP CADMIUM
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.01
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP CHROMIUM
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.1
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP LEAD
Method reference: EPA 6010B
Result: Not detected
Date started: 06/22/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 06/22/99
Analyst: VW

Parameter: TCLP MERCURY
Method reference: EPA7470
Result: Not detected
Date started: 06/21/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.004
Date finished: 06/21/99
Analyst: AA

Parameter: TCLP SELENIUM
Method reference: EPA 6010B
Result: Not detected
Date started: 06/22/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 06/22/99
Analyst: VW

Parameter: TCLP SILVER
Method reference: EPA 6010B
Result: Not detected
Date started: 06/22/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 06/22/99
Analyst: VW

Parameter: TCLP VOLATILES
Method reference: 80-10.20.15
Result: see below
Date started: 06/15/99
Time started:
Unit: mg/L
Date finished: 06/15/99
Analyst: ND

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270
Result: see below
Date started: 06/15/99
Time started:
Unit: mg/L
Date finished: 06/15/99
Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150
Result: see below
Date started: 06/17/99
Time started:
Unit: mg/L
Date finished: 06/21/99
Analyst: JR

Data for POLYNUCLEAR AROMATICS mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	<0.14 (trace)	0.14
ACENAPHTHYLENE	<0.14 (trace)	0.1[illegible]
ANTHRACENE	0.64	0.1[illegible]
BENZO(a)ANTHRACENE	0.33	0.28
BENZO(b)FLUORANTHENE	<0.35 (trace)	0.35
BENZO(k)FLUORANTHENE	<0.28 (trace)	0.28
BENZO(a)PYRENE	<0.28 (trace)	0.28
BENZO(ghi)PERYLENE	Not detected	0.14

Data for POLYNUCLEAR AROMATICS (continued):

Component Name	Result	Component MDL
CHRYSENE	0.38	0.14
DIBENZO(ah)ANTHRACENE	Not detected	0.07
FLUORANTHENE	0.99	0.28
FLUORENE	0.17	0.14
INDENO(1,2,3-cd)PYRENE	Not detected	0.14
NAPHTHALENE	0.17	0.14
PHENANTHRENE	0.46	0.07
PYRENE	0.74	0.14
Surrogate results:	---	
5.56 mg/dry kg 2-Fluorobiphenyl	3.74	
5.56 mg/dry kg Nitrobenzene-D5	4.27	
5.56 mg/dry kg Terphenyl-D14	4.56	

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.750 mg/L 1-Cl-2-fluorobenzene	0.686	
0.750 mg/L 1,4-Dichlorobutane	0.720	
0.750 mg/L 2-Br-1-chlorobenzene	0.812	
Surrogate results, PID detector:	---	
0.750 mg/L 1-Cl-2-fluorobenzene	0.769	
0.750 mg/L 2-Br-1-chlorobenzene	0.822	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.130	
0.267 mg/L 2-Fluorophenol	0.189	
0.267 mg/L Nitrobenzene-D5	0.187	
0.267 mg/L Phenol-D6	0.166	
0.267 mg/L Terphenyl-D14	0.174	
0.267 mg/L 2,4,6-Tribromophenol	0.147	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.102	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

Per your request of June 14, 1999, this sample was analyzed for TCLP and other RCRA parameters. The sample was reported previously on June 11, 1999.

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD16001

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

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NO. 1919

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
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FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR-McGEE

Site: KMC - Toledo Tie Treatment Site

Project#: KMC-001 Phase: 01.SMP

Samplers: JLM

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	PRESERVATIVES	PAH: azo C	As, Cr (total)										COMMENTS
KMC001-SPW001-T392	2	2		6-1-99 / 1300		X	X										*Hold 2nd Container Nc'd glass 1L & glass 250 ml.

RELINQUISHED BY: Jeff L. Hannah	DATE: 6-01-99 TIME: 13-15-00	RECEIVED BY: J. Amaya	DATE: 6-1-99 TIME: 1345	Deliver To: JLH Lab	
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED BY:	DATE: – – TIME: – –	Method of Delivery: HAND	
RELINQUISHED BY:	DATE: – – TIME: – –	RECEIVED FOR LAB BY: J. Amaya	DATE: 6-1-99 TIME: 13-45	Airbill Number:	
COOLER TEMPERATURE AS RECEIVED °C:	2.0 °C	DISTRIBUTION: WHITE —LAB USE (MUST BE RETURNED WITH REPORT); YELLOW —LAB USE; PINK —RETAINED BY HAI		NOTES: * Hold 2nd Container for Possible Future Analytical (TCLP, ICP)	

HAI/QSF/TSB 08/04/97 CORNER

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

June 16, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD16296 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-SCD-001-T392
Sample collector: CLIENT Sample collection date: 06/04/99
Lab submittal date: 06/04/99 Time: 15:40
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 84.0 % MDL or sensitivity: 0.01
Date started: 06/08/99 Date finished: 06/09/99
Time started: Analyst: JC

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 8.2 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/14/99 Date finished: 06/14/99
Time started: Analyst: VW

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 16.1 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/14/99 Date finished: 06/14/99
Time started: Analyst: VW

Parameter: POLYNUCLEAR AROMATICS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 06/08/99 Date finished: 06/08/99
Time started: Analyst: JR

Data for POLYNUCLEAR AROMATICS mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	0.35	0.15
ACENAPHTHYLENE	Not detected	0.15
ANTHRACENE	0.27	0.15
BENZO(a)ANTHRACENE	<0.30 (trace)	0.30

Data for POLYNUCLEAR AROMATICS (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	Not detected	0.37
BENZO(k)FLUORANTHENE	<0.30 (trace)	0.30
BENZO(a)PYRENE	<0.30 (trace)	0.30
BENZO(ghi)PERYLENE	Not detected	0.15
CHRYSENE	0.39	0.15
DIBENZO(ah)ANTHRACENE	Not detected	0.07
FLUORANTHENE	1.2	0.30
FLUORENE	0.32	0.15
INDENO(1,2,3-cd)PYRENE	Not detected	0.15
NAPHTHALENE	0.17	0.15
PHENANTHRENE	1.3	0.07
PYRENE	0.93	0.15
Surrogate results:	---	
5.92 mg/dry kg 2-Fluorobiphenyl	2.92	
5.92 mg/dry kg Nitrobenzene-D5	4.93	
5.92 mg/dry kg Terphenyl-D14	4.64	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

June 16, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD16297 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CCD-001-T392
Sample collector: CLIENT Sample collection date: 06/04/99
Lab submittal date: 06/04/99 Time: 15:40
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 80.0 % MDL or sensitivity: 0.01
Date started: 06/08/99 Date finished: 06/09/99
Time started: Analyst: JC

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 8.2 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/14/99 Date finished: 06/14/99
Time started: Analyst: VW

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 18.2 mg/dry kg MDL or sensitivity: 2.0
Date started: 06/14/99 Date finished: 06/14/99
Time started: Analyst: VW

Parameter: POLYNUCLEAR AROMATICS
Method reference: EPA 8270 Unit: mg/dry kg
Result: see below
Date started: 06/08/99 Date finished: 06/08/99
Time started: Analyst: JR

Data for POLYNUCLEAR AROMATICS mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	0.33	0.16
ACENAPHTHYLENE	Not detected	0.16
ANTHRACENE	0.43	0.16
BENZO(a)ANTHRACENE	<0.32 (trace)	0.32

Data for POLYNUCLEAR AROMATICS (continued):

Component Name	Result	Component MDL
BENZO(b)FLUORANTHENE	0.51	0.40
BENZO(k)FLUORANTHENE	<0.32 (trace)	0.32
BENZO(a)PYRENE	<0.32 (trace)	0.32
BENZO(ghi)PERYLENE	Not detected	0.16
CHRYSENE	0.38	0.16
DIBENZO(ah)ANTHRACENE	Not detected	0.08
FLUORANTHENE	1.5	0.32
FLUORENE	0.40	0.16
INDENO(1,2,3-cd)PYRENE	Not detected	0.16
NAPHTHALENE	0.22	0.16
PHENANTHRENE	1.0	0.08
PYRENE	1.1	0.16
Surrogate results:	---	
6.36 mg/dry kg 2-Fluorobiphenyl	4.00	
6.36 mg/dry kg Nitrobenzene-D5	5.47	
6.36 mg/dry kg Terphenyl-D14	5.22	

If there are any questions regarding this data, please call.

Fred W. Doering
President

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

June 25, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD17044 Location code: HULLKMC
Project account code: 196
Location Description: Soil composite
Sample collector: CLIENT Sample collection date: 06/04/99
Lab submittal date: 06/04/99 Time: 15:40
Received by: RS Validated by: FD

Parameter: pH @ 25 DEG C, 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.57 Std. MDL or sensitivity: 1.00
Date started: 06/18/99 Date finished: 06/18/99
Time started: Analyst: WS

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 06/17/99 Date finished: 06/18/99
Time started: Analyst: CF

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: CF

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: CF

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 06/17/99 Date finished: 06/18/99
Time started: Analyst: AA

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311 Unit:
Result: Completed MDL or sensitivity:
Date started: 06/17/99 Date finished: 06/18/99
Time started: Analyst: AA

Parameter: TCLP ARSENIC
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.1
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP BARIUM
Method reference: EPA 6010B
Result: 0.6 mg/L MDL or sensitivity: 0.2
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP CADMIUM
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.01
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP CHROMIUM
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.1
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP LEAD
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.1
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP MERCURY
Method reference: EPA7470 Unit: mg/L
Result: Not detected MDL or sensitivity: 0.004
Date started: 06/21/99 Date finished: 06/21/99
Time started: Analyst: AA

Parameter: TCLP SELENIUM
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.1
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP SILVER
Method reference: EPA 6010B Unit: mg/L
Result: Not detected MDL or sensitivity: 0.1
Date started: 06/22/99 Date finished: 06/22/99
Time started: Analyst: VW

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15 Unit: mg/L
Result: see below
Date started: 06/18/99 Date finished: 06/18/99
Time started: Analyst: ND

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270 Unit: mg/L
Result: see below
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150 Unit: mg/L
Result: see below
Date started: 06/18/99 Date finished: 06/25/99
Time started: Analyst: JR

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.750 mg/L 1-Cl-2-fluorobenzene	0.626	
0.750 mg/L 1,4-Dichlorobutane	0.641	
0.750 mg/L 2-Br-1-chlorobenzene	0.733	
Surrogate results, PID detector:	---	
0.750 mg/L 1-Cl-2-fluorobenzene	0.777	
0.750 mg/L 2-Br-1-chlorobenzene	0.801	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.165	
0.267 mg/L 2-Fluorophenol	0.245	
0.267 mg/L Nitrobenzene-D5	0.236	
0.267 mg/L Phenol-D6	0.242	
0.267 mg/L Terphenyl-D14	0.176	
0.267 mg/L 2,4,6-Tribromophenol	0.189	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.099	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

Complete ID: KMC001-SCD-001-T392/KMC001-CCD-001-T392 Composite.

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD162 97

CHAIN OF CUSTODY RECORD

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NO. 1922

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☐ Warrensville Heights
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Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR-McGEE
Site: Toledo TIE Treatment Site.
Project#: KMC-001 Phase: 01.SMP
Samplers: JLM

SAMPLE MATRIX: 1. WATER 2. SOIL 3. SLUDGE 4. OIL 5. TISSUE 6. SEDIMENT OTHER:

PRESERVATIVES: A – Cool only, <4° C; B – HNO_3 pH<2; C – H_2SO_4 pH<2; D – NaOH pH>12; E – ZnAcetate + NaOH, pH>9; F – $Na_2S_2O_3$(0.008%); G – HCL pH <2

METALS: F – FILTERED; N – NOT FILTERED; B – BOTH

All samples are kept at 4°C.

ANALYSES

PRESERVATIVES: A A

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	PAH's 8270C	AS, CR. (total)										COMMENTS
KMC-001-SCD-001-T392	2	1	–	6-4-99 11:24	X	X										Clay Dam At Sump Approx STA 0+30
KMC-001-CCD001-T392	2	1	–	6-4-99 14:00	X	X										Clay Dam S of SD Approx STA 11+50

RELINQUISHED BY: Jeff L. Monnin	DATE: 6-4-99 TIME: 15-40-00	RECEIVED BY: [signature]	DATE: 6-4-99 TIME: -15-40
RELINQUISHED BY:	DATE: - - TIME: - -	RECEIVED BY:	DATE: - - TIME: - -
RELINQUISHED BY: [signature]	DATE: 6-4-99 TIME: -16-00	RECEIVED FOR LAB BY: [signature]	DATE: 6-4-99 TIME: 16-00-
COOLER TEMPERATURE AS RECEIVED °C :	3 °C		

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J&H Lab
Method of Delivery: HAND
Airbill Number:

NOTES: * Reserve Some Material in 2nd Container for Possible Future Analytical. (TCLP, ICR)

HAI\0999T289 08/14/97 CORNER

waste. Soil Stockpile

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

July 8, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD16865 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-WSS001-T392
Sample collector: CLIENT Sample collection date: 06/15/99
Lab submittal date: 06/15/99 Time: 12:13
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 86.2 % MDL or sensitivity: 0.01
Date started: 06/21/99 Date finished: 06/22/99
Time started: Analyst: WS

Parameter: FLASH POINT
Method reference: EPA1020 Unit: deg F
Result: >160 MDL or sensitivity: 70
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: CF

Parameter: EXTRACTABLE TOX
Method reference: EPA 9023
Result: 282 mg Cl/kg MDL or sensitivity: 100
Date started: 06/21/99 Date finished: 06/21/99
Time started: Analyst: SUB

Parameter: HEATING VALUE
Method reference: ASTM D 3286
Result: 1400 BTU/lb MDL or sensitivity:
Date started: 07/02/99 Date finished: 07/02/99
Time started: Analyst: SUB

Parameter: POLYNUCLEAR AROMATICS
Method reference: 8270 Unit: mg/kg
Result: see below
Date started: 06/21/99 Date finished: 06/21/99
Time started: Analyst: JR

Parameter: ANTIMONY
Method reference: 200.7/6010 Unit: mg/kg
Result: Not detected MDL or sensitivity: 5.0
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: AA

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 5.2 mg/kg MDL or sensitivity: 2.0
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: AA

Parameter: BERYLLIUM
Method reference: 200.7/6010 Unit: mg/kg
Result: Not detected MDL or sensitivity: 2.0
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: AA

Parameter: CADMIUM
Method reference: 200.7/6010 Unit: mg/kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 12.3 mg/kg MDL or sensitivity: 2.0
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: AA

Parameter: COPPER
Method reference: 200.7/6010
Result: 11.2 mg/kg MDL or sensitivity: 2.0
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: AA

Parameter: LEAD
Method reference: 200.7/6010
Result: 10.9 mg/kg MDL or sensitivity: 2.0
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: AA

Parameter: MERCURY
Method reference: EPA7470
Result: 0.6 mg/kg MDL or sensitivity: 0.5
Date started: 06/25/99 Date finished: 06/25/99
Time started: Analyst: JC

Parameter: NICKEL
Method reference: 200.7/6010
Result: 11.2 mg/kg MDL or sensitivity: 2.0
Date started: 06/23/99 Date finished: 06/23/99
Time started: Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010
Result: 1.1 mg/kg
MDL or sensitivity: 2.0
Date started: 06/23/99
Date finished: 06/23/99
Time started:
Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 2.0
Date started: 06/23/99
Date finished: 06/23/99
Time started:
Analyst: AA

Parameter: THALLIUM
Method reference: 200.7/6010
Unit: mg/kg
Result: Not detected
MDL or sensitivity: 5.0
Date started: 06/23/99
Date finished: 06/23/99
Time started:
Analyst: AA

Parameter: ZINC
Method reference: 200.7/6010
Result: 32.3 mg/kg
MDL or sensitivity: 2.0
Date started: 06/23/99
Date finished: 06/23/99
Time started:
Analyst: AA

Data for POLYNUCLEAR AROMATICS mg/kg:

Component Name	Result	Component MDL
ACENAPHTHENE	660	35.1
ACENAPHTHYLENE	65	35.1
ANTHRACENE	160	35.1
BENZO(a)ANTHRACENE	230	70.2
BENZO(b)FLUORANTHENE	110	87.7
BENZO(k)FLUORANTHENE	160	70.2
BENZO(a)PYRENE	120	70.2
BENZO(ghi)PERYLENE	48	35.1
CHRYSENE	150	35.1
DIBENZO(ah)ANTHRACENE	<17.5 (trace)	17.5
FLUORANTHENE	850	70.2
FLUORENE	Not detected	35.1
INDENO(1,2,3-cd)PYRENE	61	35.1
NAPHTHALENE	2200	35.1
PHENANTHRENE	1800	17.5
PYRENE	820	35.1
Surrogate results:	---	
351 mg/kg 2-Fluorobiphenyl	176	
351 mg/kg Nitrobenzene-D5	285	
351 mg/kg Terphenyl-D14	204	

If there are any questions regarding this data, please call.

Fred W. Doering
President

AD/[illegible]

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

NO. 1926

Hull & Associates, Inc.

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR - McGEE
Site: Toledo TIE TREATMENT Site
Project#: KMC-001 Phase: 01.SMP
Samplers: JLM

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	PP Metals (A)	PAH 8270C (A)	Total Halogens (A)	% Solids (A)	BTU (A)	Flash Point (PMCC) (A)						COMMENTS
KMC001-WSS001-T392	2	3	-	6-15-99 10:00	X	X	X	X	X	X						waste soils stockpile
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												
				/												

RELINQUISHED BY: Jeff L. Monnin	DATE: 6-15-99 TIME: 11-00-00	RECEIVED BY: J. Kayser	DATE: 6-15-99 TIME: 11-00
RELINQUISHED BY: J. Kayser	DATE: 6-15-99 TIME: 13:30-	RECEIVED BY: J. Araja	DATE: 6-15-99 TIME: 13-30-
RELINQUISHED BY:	DATE: - - TIME: - -	RECEIVED FOR LAB BY:	DATE: - - TIME: - -
COOLER TEMPERATURE AS RECEIVED °C :	1° °C		

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J&H Lab
Method of Delivery: HAND
Airbill Number:

NOTES:

HAI\0999T289
08/14/97 CORNER

p

"Bumble Bee" stockpiles

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

July 12, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD17783 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-BBS-001-T392
Sample collector: CLIENT Sample collection date: 07/01/99
Lab submittal date: 07/01/99 Time: 11:52
Received by: RS Validated by: SA

Parameter: pH @ 25 DEG C, 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.84 Std. MDL or sensitivity: 1.00
Date started: 07/06/99 Date finished: 07/06/99
Time started: Analyst: WS

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 85.9 % MDL or sensitivity: 0.01
Date started: 07/02/99 Date finished: 07/06/99
Time started: Analyst: CF

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 07/07/99 Date finished: 07/08/99
Time started: Analyst: WS

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 07/12/99 Date finished: 07/12/99
Time started: Analyst: CF

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 07/02/99 Date finished: 07/02/99
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 6.7 mg/dry kg
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 14.8 mg/dry kg
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: POLYNUCLEAR AROMATICS
Method reference: EPA 8270
Unit: mg/dry kg
Result: see below
Date started: 07/07/99
Date finished: 07/09/99
Time started:
Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311
Unit:
Result: Completed
MDL or sensitivity:
Date started: 07/01/99
Date finished: 07/02/99
Time started:
Analyst: JC

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311
Unit:
Result: Completed
MDL or sensitivity:
Date started: 07/01/99
Date finished: 07/02/99
Time started:
Analyst: JC

Parameter: TCLP ARSENIC
Method reference: EPA 6010B
Unit: mg/L
Result: Not detected
MDL or sensitivity: 0.1
Date started: 07/06/99
Date finished: 07/06/99
Time started:
Analyst: VW

Parameter: TCLP BARIUM
Method reference: EPA 6010B
Result: 0.8 mg/L
MDL or sensitivity: 0.2
Date started: 07/06/99
Date finished: 07/06/99
Time started:
Analyst: VW

Parameter: TCLP CADMIUM
Method reference: EPA 6010B
Unit: mg/L
Result: Not detected
MDL or sensitivity: 0.01
Date started: 07/06/99
Date finished: 07/06/99
Time started:
Analyst: VW

Parameter: TCLP CHROMIUM
Method reference: EPA 6010B
Unit: mg/L
Result: Not detected
MDL or sensitivity: 0.1
Date started: 07/06/99
Date finished: 07/06/99
Time started:
Analyst: VW

Parameter: TCLP LEAD
Method reference: EPA 6010B
Result: Not detected
Date started: 07/06/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 07/06/99
Analyst: VW

Parameter: TCLP MERCURY
Method reference: EPA7470
Result: Not detected
Date started: 07/09/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.004
Date finished: 07/09/99
Analyst: PL

Parameter: TCLP SELENIUM
Method reference: EPA 6010B
Result: Not detected
Date started: 07/06/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 07/06/99
Analyst: VW

Parameter: TCLP SILVER
Method reference: EPA 6010B
Result: Not detected
Date started: 07/06/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 07/06/99
Analyst: VW

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15
Result: see below
Date started: 07/02/99
Time started:
Unit: mg/L
Date finished: 07/02/99
Analyst: ND

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270
Result: see below
Date started: 07/06/99
Time started:
Unit: mg/L
Date finished: 07/06/99
Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150
Result: see below
Date started: 07/06/99
Time started:
Unit: mg/L
Date finished: 07/08/99
Analyst: JR

Data for POLYNUCLEAR AROMATICS mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	0.86	0.12
ACENAPHTHYLENE	2.6	0.12
ANTHRACENE	3.2	0.12
BENZO(a)ANTHRACENE	11	2.4
BENZO(b)FLUORANTHENE	15	3.0
BENZO(k)FLUORANTHENE	11	2.4
BENZO(a)PYRENE	14	2.4
BENZO(ghi)PERYLENE	6.6	0.12

Data for POLYNUCLEAR AROMATICS (continued):

Component Name	Result	Component MDL
CHRYSENE	11	1.2
DIBENZO(ah)ANTHRACENE	0.90	0.06
FLUORANTHENE	28	2.4
FLUORENE	1.2	0.12
INDENO(1,2,3-cd)PYRENE	7.6	0.12
NAPHTHALENE	0.18	0.12
PHENANTHRENE	9.4	0.60
PYRENE	30	1.2
Surrogate results:	---	
4.82 mg/dry kg 2-Fluorobiphenyl	2.97	
4.82 mg/dry kg Nitrobenzene-D5	4.37	
4.82 mg/dry kg Terphenyl-D14	5.86	

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.512	
0.600 mg/L 1,4-Dichlorobutane	0.574	
0.600 mg/L 2-Br-1-chlorobenzene	0.554	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.545	
0.600 mg/L 2-Br-1-chlorobenzene	0.587	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.121	
0.267 mg/L 2-Fluorophenol	0.175	
0.267 mg/L Nitrobenzene-D5	0.179	
0.267 mg/L Phenol-D6	0.156	
0.267 mg/L Terphenyl-D14	0.188	
0.267 mg/L 2,4,6-Tribromophenol	0.137	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.068	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

September L. Arriaga

September L. Arriaga
Vice President

AD17783-84

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1872

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: KERR-MCGEE
Site: Toledo TIE Treatment Site
Project#: KMC-001 Phase: 01.SMP
Samplers: JLM

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	ARSENIC	CHROMIUM	PNA/PAH's 8270	TCLP	ICP	VOC's	SVOC's	Pest	Herb	Pcb's	PP metals*	COMMENTS
					A	A	A	A	A	A	A	A	A	A	A	
KMC-001-BBS-001-T392	2	2	–	7/1/99 10:20	X	X	X	X	X							
KMC-001-TPS-001-T392	2	2	–	7/1/99 11:00						X	X	X	X	X	X	

RELINQUISHED BY: [signature]	DATE: 7-1-99 TIME: 11-18-00	RECEIVED BY: [signature]	DATE: 7-1-99 TIME: -11-18
RELINQUISHED BY: [signature]	DATE: 7-1-99 TIME: -12-15	RECEIVED BY: [signature]	DATE: 7-1-99 TIME: 12-15 -
RELINQUISHED BY:	DATE: - - TIME: - -	RECEIVED FOR LAB BY:	DATE: - - TIME: - -

COOLER TEMPERATURE AS RECEIVED °C : 3° °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J&H Lab
Method of Delivery: HAND
Airbill Number:

NOTES: * Per Scott Lockhart, analyze for the 10 RCRA metals only.

HAI\0999T289
08/14/97 CORNER

last Siphon Dam material.

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

July 12, 1999

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD17812 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-SPD-COL-T143
Sample collector: CLIENT Sample collection date: 07/01/99
Lab submittal date: 07/01/99 Time: 16:05
Received by: RS Validated by: SA

Parameter: pH @ 25 DEG C, 20g+20ml @ 60 min
Method reference: EPA9045
Result: 7.64 Std. MDL or sensitivity: 1.00
Date started: 07/06/99 Date finished: 07/06/99
Time started: Analyst: WS

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 85.5 % MDL or sensitivity: 0.01
Date started: 07/02/99 Date finished: 07/06/99
Time started: Analyst: CF

Parameter: CYANIDE
Method reference: 4500-C/335.3 Unit: mg/dry kg
Result: Not detected MDL or sensitivity: 1.0
Date started: 07/07/99 Date finished: 07/08/99
Time started: Analyst: WS

Parameter: IGNITABILITY
Method reference: 40CFR261.21 Unit:
Result: See comment MDL or sensitivity:
Date started: 07/12/99 Date finished: 07/12/99
Time started: Analyst: CF

Parameter: SULFIDE, REACTIVE
Method reference: SW846IC77342 Unit: mg H2S/kg
Result: Not detected MDL or sensitivity: 50
Date started: 07/02/99 Date finished: 07/02/99
Time started: Analyst: CF

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 8.6 mg/dry kg
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 19.3 mg/dry kg
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: POLYNUCLEAR AROMATICS
Method reference: EPA 8270
Unit: mg/dry kg
Result: see below
Date started: 07/07/99
Date finished: 07/09/99
Time started:
Analyst: JR

Parameter: TCLP ZERO HEADSPACE EXTRACTION
Method reference: EPA 1311
Unit:
Result: Completed
MDL or sensitivity:
Date started: 07/01/99
Date finished: 07/02/99
Time started:
Analyst: JC

Parameter: TCLP NON-VOLATILE EXTRACTION
Method reference: EPA 1311
Unit:
Result: Completed
MDL or sensitivity:
Date started: 07/01/99
Date finished: 07/02/99
Time started:
Analyst: JC

Parameter: TCLP ARSENIC
Method reference: EPA 6010B
Unit: mg/L
Result: Not detected
MDL or sensitivity: 0.1
Date started: 07/06/99
Date finished: 07/06/99
Time started:
Analyst: VW

Parameter: TCLP BARIUM
Method reference: EPA 6010B
Result: 0.7 mg/L
MDL or sensitivity: 0.2
Date started: 07/06/99
Date finished: 07/06/99
Time started:
Analyst: VW

Parameter: TCLP CADMIUM
Method reference: EPA 6010B
Unit: mg/L
Result: Not detected
MDL or sensitivity: 0.01
Date started: 07/06/99
Date finished: 07/06/99
Time started:
Analyst: VW

Parameter: TCLP CHROMIUM
Method reference: EPA 6010B
Unit: mg/L
Result: Not detected
MDL or sensitivity: 0.1
Date started: 07/06/99
Date finished: 07/06/99
Time started:
Analyst: VW

Parameter: TCLP LEAD
Method reference: EPA 6010B
Result: Not detected
Date started: 07/06/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 07/06/99
Analyst: VW

Parameter: TCLP MERCURY
Method reference: EPA7470
Result: Not detected
Date started: 07/09/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.004
Date finished: 07/09/99
Analyst: PL

Parameter: TCLP SELENIUM
Method reference: EPA 6010B
Result: Not detected
Date started: 07/06/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 07/06/99
Analyst: VW

Parameter: TCLP SILVER
Method reference: EPA 6010B
Result: Not detected
Date started: 07/06/99
Time started:
Unit: mg/L
MDL or sensitivity: 0.1
Date finished: 07/06/99
Analyst: VW

Parameter: TCLP VOLATILES
Method reference: 80-10,20,15
Result: see below
Date started: 07/02/99
Time started:
Unit: mg/L
Date finished: 07/02/99
Analyst: ND

Parameter: TCLP SEMIVOLATILES
Method reference: EPA8270
Result: see below
Date started: 07/06/99
Time started:
Unit: mg/L
Date finished: 07/06/99
Analyst: JR

Parameter: TCLP HERBICIDES
Method reference: EPA8150
Result: see below
Date started: 07/06/99
Time started:
Unit: mg/L
Date finished: 07/08/99
Analyst: JR

Data for POLYNUCLEAR AROMATICS mg/dry kg:

Component Name	Result	Component MDL
ACENAPHTHENE	Not detected	0.12
ACENAPHTHYLENE	Not detected	0.12
ANTHRACENE	Not detected	0.12
BENZO(a)ANTHRACENE	Not detected	0.24
BENZO(b)FLUORANTHENE	Not detected	0.30
BENZO(k)FLUORANTHENE	Not detected	0.24
BENZO(a)PYRENE	Not detected	0.24
BENZO(ghi)PERYLENE	Not detected	0.12

Data for POLYNUCLEAR AROMATICS (continued):

Component Name	Result	Component MDL
CHRYSENE	Not detected	0.12
DIBENZO(ah)ANTHRACENE	Not detected	0.06
FLUORANTHENE	Not detected	0.24
FLUORENE	Not detected	0.12
INDENO(1,2,3-cd)PYRENE	Not detected	0.12
NAPHTHALENE	Not detected	0.12
PHENANTHRENE	Not detected	0.06
PYRENE	Not detected	0.12
Surrogate results:	---	
4.85 mg/dry kg 2-Fluorobiphenyl	3.65	
4.85 mg/dry kg Nitrobenzene-D5	5.18	
4.85 mg/dry kg Terphenyl-D14	4.87	

Data for TCLP VOLATILES mg/L:

Component Name	Result	Component MDL
BENZENE	Not detected	0.05
CARBON TETRACHLORIDE	Not detected	0.05
CHLOROBENZENE	Not detected	0.05
CHLOROFORM	Not detected	0.05
1,4-DICHLOROBENZENE	Not detected	0.05
1,2-DICHLOROETHANE	Not detected	0.05
1,1-DICHLOROETHENE	Not detected	0.05
METHYL ETHYL KETONE	Not detected	0.05
TETRACHLOROETHENE	Not detected	0.05
TRICHLOROETHENE	Not detected	0.05
VINYL CHLORIDE	Not detected	0.02
Surrogate results, HALL detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.453	
0.600 mg/L 1,4-Dichlorobutane	0.538	
0.600 mg/L 2-Br-1-chlorobenzene	0.520	
Surrogate results, PID detector:	---	
0.600 mg/L 1-Cl-2-fluorobenzene	0.546	
0.600 mg/L 2-Br-1-chlorobenzene	0.600	

Data for TCLP SEMIVOLATILES mg/L:

Component Name	Result	Component MDL
CHLORDANE	Not detected	0.02
o-CRESOL	Not detected	0.4
m+p-CRESOL	Not detected	0.4
1,4-DICHLOROBENZENE	Not detected	0.2
2,4-DINITROTOLUENE	Not detected	0.07
ENDRIN	Not detected	0.005
HEPTACHLOR	Not detected	0.004
HEPTACHLOR EPOXIDE	Not detected	0.004
HEXACHLOROBENZENE	Not detected	0.05
HEXACHLOROBUTADIENE	Not detected	0.1
HEXACHLOROETHANE	Not detected	0.1

Data for TCLP SEMIVOLATILES (continued):

Component Name	Result	Component MDL
g-BHC (LINDANE)	Not detected	0.01
METHOXYCHLOR	Not detected	0.01
NITROBENZENE	Not detected	0.1
PENTACHLOROPHENOL	Not detected	0.4
PYRIDINE	Not detected	0.2
TOXAPHENE	Not detected	0.04
2,4,5-TRICHLOROPHENOL	Not detected	0.4
2,4,6-TRICHLOROPHENOL	Not detected	0.4
Surrogate results:	---	
0.267 mg/L 2-Fluorobiphenyl	0.147	
0.267 mg/L 2-Fluorophenol	0.168	
0.267 mg/L Nitrobenzene-D5	0.212	
0.267 mg/L Phenol-D6	0.201	
0.267 mg/L Terphenyl-D14	0.227	
0.267 mg/L 2,4,6-Tribromophenol	0.155	

Data for TCLP HERBICIDES mg/L:

Component Name	Result	Component MDL
2,4-D	Not detected	0.10
2,4,5-TP (SILVEX)	Not detected	0.02
Surrogate result:	---	
0.085 mg/L 2,4-Dichlorophenylacetic acid	0.085	

Sample comments:

This sample does not ignite in the presence of an open butane flame.

If there are any questions regarding this data, please call.

September L. Arriaga
Vice President

ADI 12

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE 1 OF 1

NO. 1874

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: Kerr-McGee
Site: Toledo Tie Treatment Site
Project#: KMC-001 Phase: 01.SMP
Samplers: J. UNGENDERFER

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER:

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	ARSENIC	Chromium	PNA/PAH'S 8270	TCLP	ICR	BTU	FP	Total Halogen	PP metals	PNA/PAH'S 8270	COMMENTS
KMC-001-SPD-COL-TH3	2	2		7-1-99 13:30	X	X	X	X	X						
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~7-1-99~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~[illegible]~~	will sample 7/2

RELINQUISHED BY:	DATE: 7-1-99	RECEIVED BY:	DATE: 7-1-99
	TIME: 16-05		TIME: 16-05
RELINQUISHED BY:	DATE: 7-1-99	RECEIVED BY:	DATE: 7-1-99
	TIME: 16-20		TIME: 16-20
RELINQUISHED BY:	DATE: – –	RECEIVED FOR LAB BY:	DATE: – –
	TIME: – –		TIME: – –

COOLER TEMPERATURE AS RECEIVED °C : °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: J & H LABS
Method of Delivery: HAND
Airbill Number:
NOTES: samples not iced @

HAI\09987259
08/14/97 CORNER

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

July 16, 1999

Cuebe Stockpile

To: Hull & Associates
3401 Glendale Ave., Suite 300
Toledo, Ohio 43614
ATTN: Mr. Bill Petruzzi

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AD17836 Location code: HULLKMC
Project account code: 196
Location Description: KMC001-CBS-COL-T143
Sample collector: CLIENT Sample collection date: 07/02/99
Lab submittal date: 07/02/99 Time: 13:00
Received by: RS Validated by: FD

Parameter: SOLIDS, DRY, 104 DEG C
Method reference: SM17-2540G
Result: 88.4 % MDL or sensitivity: 0.01
Date started: 07/07/99 Date finished: 07/08/99
Time started: Analyst: JC

Parameter: FLASH POINT
Method reference: EPA1020 Unit: deg F
Result: >160 MDL or sensitivity: 70
Date started: 07/02/99 Date finished: 07/02/99
Time started: Analyst: CF

Parameter: ANTIMONY
Method reference: 200.7/6010 Unit: mg/kg
Result: Not detected MDL or sensitivity: 5.0
Date started: 07/08/99 Date finished: 07/08/99
Time started: Analyst: AA

Parameter: ARSENIC
Method reference: 200.7/6010
Result: 3.8 mg/kg MDL or sensitivity: 2.0
Date started: 07/08/99 Date finished: 07/08/99
Time started: Analyst: AA

Parameter: BERYLLIUM
Method reference: 200.7/6010 Unit: mg/kg
Result: Not detected MDL or sensitivity: 2.0
Date started: 07/08/99 Date finished: 07/08/99
Time started: Analyst: AA

Parameter: CADMIUM
Method reference: 200.7/6010
Result: Not detected
Date started: 07/08/99
Time started:
Unit: mg/kg
MDL or sensitivity: 1.0
Date finished: 07/08/99
Analyst: AA

Parameter: CHROMIUM
Method reference: 200.7/6010
Result: 5.7 mg/kg
Date started: 07/08/99
Time started:
MDL or sensitivity: 2.0
Date finished: 07/08/99
Analyst: AA

Parameter: COPPER
Method reference: 200.7/6010
Result: 6.1 mg/kg
Date started: 07/08/99
Time started:
MDL or sensitivity: 2.0
Date finished: 07/08/99
Analyst: AA

Parameter: LEAD
Method reference: 200.7/6010
Result: 12.1 mg/kg
Date started: 07/08/99
Time started:
MDL or sensitivity: 2.0
Date finished: 07/08/99
Analyst: AA

Parameter: MERCURY
Method reference: EPA7470
Result: Not detected
Date started: 07/12/99
Time started:
Unit: mg/kg
MDL or sensitivity: 0.5
Date finished: 07/12/99
Analyst: AA

Parameter: NICKEL
Method reference: 200.7/6010
Result: 5.1 mg/kg
Date started: 07/08/99
Time started:
MDL or sensitivity: 2.0
Date finished: 07/08/99
Analyst: AA

Parameter: SELENIUM
Method reference: 200.7/6010
Result: Not detected
Date started: 07/08/99
Time started:
Unit: mg/kg
MDL or sensitivity: 2.0
Date finished: 07/08/99
Analyst: AA

Parameter: SILVER
Method reference: 200.7/6010
Result: Not detected
Date started: 07/08/99
Time started:
Unit: mg/kg
MDL or sensitivity: 2.0
Date finished: 07/08/99
Analyst: AA

Parameter: THALLIUM
Method reference: 200.7/6010
Result: Not detected
Date started: 07/08/99
Time started:
Unit: mg/kg
MDL or sensitivity: 5.0
Date finished: 07/08/99
Analyst: AA

Parameter: ZINC
Method reference: 200.7/6010
Result: 34.1 mg/kg
MDL or sensitivity: 2.0
Date started: 07/08/99
Date finished: 07/08/99
Time started:
Analyst: AA

Parameter: POLYNUCLEAR AROMATICS
Method reference: 8270
Unit: mg/kg
Result: see below
Date started: 07/07/99
Date finished: 07/09/99
Time started:
Analyst: JR

Parameter: HEATING VALUE
Method reference: ASTM D 3286
Result: 0 BTU/lb
MDL or sensitivity:
Date started: 07/09/99
Date finished: 07/09/99
Time started:
Analyst: SUB

Parameter: EXTRACTABLE TOX
Method reference: EPA 9023
Unit: mg Cl/kg
Result: Not detected
MDL or sensitivity: 25
Date started: 07/12/99
Date finished: 07/12/99
Time started:
Analyst: SUB

Data for POLYNUCLEAR AROMATICS mg/kg:

Component Name	Result	Component MDL
ACENAPHTHENE	1.2	0.10
ACENAPHTHYLENE	7.6	1.0
ANTHRACENE	8.1	1.0
BENZO(a)ANTHRACENE	21	2.1
BENZO(b)FLUORANTHENE	41	2.6
BENZO(k)FLUORANTHENE	29	2.1
BENZO(a)PYRENE	38	2.1
BENZO(ghi)PERYLENE	20	1.0
CHRYSENE	26	1.0
DIBENZO(ah)ANTHRACENE	7.0	0.52
FLUORANTHENE	47	2.1
FLUORENE	1.1	0.10
INDENO(1,2,3-cd)PYRENE	21	1.0
NAPHTHALENE	0.54	0.10
PHENANTHRENE	4.4	0.05
PYRENE	56	1.0
Surrogate results:	---	
4.19 mg/kg 2-Fluorobiphenyl	2.94	
4.19 mg/kg Nitrobenzene-D5	3.55	
4.19 mg/kg Terphenyl-D14	4.41	

If there are any questions regarding this data, please call.

Fred W. Doering
President

ADI 4

CHAIN OF CUSTODY RECORD

Hull & Associates, Inc.

PAGE ____ OF ____

NO. 1565

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☐ Warrensville Heights
4949 Galaxy Parkway, Suite S
Warrensville Heights, Ohio 44128
Phone: (216)514-7100
FAX: (216)514-7104

REPORT TO: Scott Lockhart

Client: Toledo Tie Treatment

Site: Kenwood

Project#: KMC001 Phase: 01. Sump

Samplers: J. LANGENDERFER

SAMPLE MATRIX
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. TISSUE
6. SEDIMENT
OTHER: _____

PRESERVATIVES
A – Cool only, <4° C
B – HNO_3 pH<2
C – H_2SO_4 pH<2
D – NaOH pH>12
E – ZnAcetate + NaOH, pH>9
F – $Na_2S_2O_3$(0.008%)
G – HCL pH <2

METALS
F – FILTERED
N – NOT FILTERED
B – BOTH

All samples are kept at 4°C.

ANALYSES

SAMPLE IDENTIFICATION	SAMPLE MATRIX	NO. OF CONT.	METALS	SAMPLING DATE/TIME	BTU	FP	Total Halogen	PP metals	PNA/PAH'S 827D							COMMENTS
					PRESERVATIVES	A	A	A	A	A						
KMC001CBSCOLT143	2	4		7-2-99 11:45am												

RELINQUISHED BY: [signature]	DATE: 7-2-99	RECEIVED BY: [signature]	DATE: 7-2-99
	TIME: 12-14 pm		TIME: 12:-14 -
RELINQUISHED BY: [signature]	DATE: 7-2-99	RECEIVED BY: [signature]	DATE: 7-2-99
	TIME: 13:-55 -		TIME: 13-55 -
RELINQUISHED BY:	DATE: - -	RECEIVED FOR LAB BY:	DATE: - -
	TIME: - -		TIME: - -

COOLER TEMPERATURE AS RECEIVED °C : 20 °C

DISTRIBUTION:
WHITE —LAB USE (MUST BE RETURNED WITH REPORT)
YELLOW —LAB USE
PINK —RETAINED BY HAI

Deliver To: _____

Method of Delivery: Client

Airbill Number: _____

NOTES: _____

HAI\0897269
08/4/97 CORNER

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