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Project No. 313234
RD-IT-P-L366

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Ms. Kay Gilmer
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AlliedSignal Inc.
Ironton Coke Plant Site
Lagoon No. 5 Field Characterization Program
Summary of Data

Dear Ms. Gilmer and Mr. Alcamo:

Please find enclosed a summary of the pertinent field and analytical information obtained from the Lagoon No. 5 Field Characterization Program performed at the Ironton Coke Plant site during May-June 1997. Specifically, the package includes a data summary table for each of the borings drilled (LB-100 through LB-121) which presents analytical data, field HNu readings and brief descriptions of the field observed materials encountered in each boring. Additionally, three color figures have been developed and are also included in the package. These figures consist of a plan view of the Lagoon 5 boring locations (new and previous borings); a depiction of the measured benzene concentrations in each of the borings; and a depiction of the visually observed materials in each of the borings (i.e., hard tar, soft tar, and clay).

Two copies of the complete package as described above are included for your use and discussion at the upcoming meeting with AlliedSignal planned for early September 1997. Should you have any questions or comments, please contact Mr. Robert Ford or Mr. Morey Lewis at AlliedSignal Inc.

Respectfully submitted,

A handwritten signature in dark ink that reads 'David J. Shott'.

David J. Shott, CHMM
Project Manager

DJS:djs

cc: Robert Ford, AlliedSignal
Charles Grapes, Ohio EPA
Morey Lewis, AlliedSignal
Project Files-313234

LAGOON N.J. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1987) BORING LB-100

	LB-100 10COMP1	LB-100 10COMP2	LB-100 10COMP3	LB-100 10COMP4
10-FOOT COMPOSITE SAMPLE RESULTS				
TCLP - Volatiles (mg/L)	ND	ND	0.016J	ND
Benzene	ND	ND	ND	ND
TCLP - Semivolatiles (mg/L)	ND	ND	ND	ND
TCLP - Metals (mg/L)	ND	ND	ND	ND
Arsenic	0.00008	0.00008	0.00008	0.00008
Barium	0.00008	0.00008	0.00008	0.00008
Cadmium	0.00008	0.00008	0.00008	0.00008
Chromium	0.00008	0.00008	0.00008	0.00008
Lead	0.00008	0.00008	0.00008	0.00008
Mercury	0.00008	0.00008	0.00008	0.00008
Manganese	ND	ND	ND	ND
Selenium	ND	ND	ND	ND
Silver	ND	ND	ND	ND
TCLP (PASS/FAIL)	ALL PASS	ALL PASS	ALL PASS	ALL PASS
Arsenic (mg/kg)	7.6	8.0	5.7	3.6
Cyanide (mg/kg)	28	9	9	160
PAHs (mg/kg)	391.7	230.8	235.6	192.4
PAH ₁ (mg/kg)	107.1	88.4	58.7	47.2
Phenol (mg/kg)	ND	ND	ND	ND

1-FOOT SUMMARY OF BTX RESULTS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-100BTX1 (3-4 foot interval)	ND	ND	ND									
LB-100BTX2 (6-7 foot interval)	ND	ND	ND									
LB-100BTX3 (10-11 foot interval)				ND	ND	ND						
LB-100BTX4 (16-19 foot interval)				ND	ND	ND						
LB-100BTX5 (23-24 foot interval)							ND	ND	ND			
LB-100BTX6 (28-29 foot interval)							ND	ND	ND			
LB-100BTX7 (34-35 foot interval)										ND	ND	ND
LB-100BTX8 (38-39 foot interval)										ND	ND	ND

MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, INCLUDING HNu readings)

0-1	HNu = ND (ppm)	Coal & coke fines, some trace rocks				
1-2	ND	Coal fines, trace rock, trace sand/gravel				
2-3	ND	Coal fines, trace rock				
3-4	ND	Coal fines, trace rock				
4-5	ND	Coal fines, trace rock				
5-6	—	No recovery				
6-7	ND	Coal fines, slightly moist, trace sand				
7-8	ND	Coal fines, slightly moist, trace sand				
8-9	ND	Coal fines, slightly moist, trace sand, trace slag				
9-10	ND	Coal fines, slightly moist, trace sand, olive-brown clay				
10-11	Not Recorded	Coal fines, granular coke, some pieces of coal				
11-12	Not Recorded	Coal fines, granular coke, some pieces of coal				
12-13	Not Recorded	Coal fines, granular coke, some pieces of coal, furnace brick (crushed), moist				
13-14	Not Recorded	Coal fines, granular coke, some pieces of coal				
14-15	—	No recovery				
15-16	ND	Coal/coke fines				
16-17	ND	Coal/coke fines, large piece of furnace brick				
17-18	ND	Coal/coke fines				
18-19	ND	Coal/coke fines				
19-20	ND	Coal/coke fines, thin layer of clay, small pieces of rock				
20-21	ND					
21-22	ND					
22-23	ND					
23-24	ND					
24-25	—					
25-26	ND					
26-27	ND					
27-28	ND					
28-29	ND					
29-30	—					
30-31	ND					
31-32	ND					
32-33	ND					
33-34	ND					
34-35	ND					
35-36	ND					
36-37	ND					
37-38	ND					
38-39	ND					
39-40	—					

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-101

LB-101 10COMP1					LB-101 10COMP2					LB-101 10COMP3					LB-101 10COMP4				
10-FOOT COMPOSITE SAMPLE RESULTS																			
TCLP - Volatiles (mg/L) Benzene					ND					ND					ND				
TCLP - Semivolatiles (mg/L) Creosols					0.025J					0.040J					0.062				
TCLP - Metals (mg/L)					ND					ND					ND				
Arsenic					0.578					0.348					0.498				
Barium					ND					ND					ND				
Cadmium					ND					0.0028B					0.0044B				
Chromium					0.0098B					0.0098B					0.0031B				
Copper					ND					ND					ND				
Lead					0.074B					0.074B					0.055B				
Mercury					ND					ND					ND				
Selenium					ND					ND					ND				
Silver					ND					ND					ND				
TCLP (PASS/FAIL)					ALL PASS					ALL PASS					ALL PASS				
Arsenic (mg/kg)					11.9					7.6					5.1				
Cyanide (mg/kg)					28					90					26				
PAHs (mg/kg)					4077					4231					2138				
PAH ₄ (mg/kg)					850					779					390				
Phenol (mg/kg)					ND					ND					ND				

65001 SUMMARY OF BIA REJULIS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-101BTX1 (2-3 foot interval)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LB-101BTX2 (7-8 foot interval)	6200	4400	11,000									
LB-101BTX3 (10-11 foot interval)				230	150	260						
LB-101BTX4 (17-18 foot interval)				ND	ND	ND						
LB-101BTX5 (23-24 foot interval)							ND	1.6J	8.9J			
LB-101BTX6 (29-30 foot interval)							1.3J	1.9J	3.2J			
LB-101BTX7 (30-31 foot interval)										ND	ND	ND
LB-101BTX8 (39-39 foot interval)										1.8J	2.6J	4.5J

MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, INCLUDING RNU readings)

0-1	HNu = ND (ppm)	Coal/coke fines			
1-2	ND	Coal fines			
2-3	ND	Coal fines, some rocks, cinders			
3-4	ND	Coal fines, trace brick			
4-5	ND	Coal fines, trace brick			
5-6	ND	Coal fines			
6-7	ND	Coal fines, chunks of coke			
7-8	1.5	Coal fines with small chunks of coke, some packed tar			
8-9	3	Coal fines, 4-inch layer of packed tar, coke pieces			
9-10	1	Moist coal fines			
10-11	3		Coal fines, some small coke, small pieces of packed tar		
11-12	1		Coal fines, some small pieces of packed tar, some furnace brick		
12-13	ND		Coal fines with furnace brick		
13-14	ND		Gravelly granular coal fines, piece of furnace brick		
14-15	—		No recovery		
15-16	ND		Coal fines, large chunk of furnace brick		
16-17	ND		Coal fines, fine sand with deep blue color		
17-18	ND		Mostly coal fines, small chunks of lime		
18-19	ND		More granular coal fines		
19-20	ND		More granular coal fines		
20-21	ND			Coal fines, yellow furnace brick, red brick	
21-22	ND			Coal fines	
22-23	ND			Coal fines	
23-24	19			Coal fines w/some org. odor & possibly small granules tar, but not visible	
24-25	9			Coal fines w/some org. odor & possibly small granules tar, but not visible, some dark brown sand	
25-26	5			Sandy coal fines	
26-27	3.5			Coal fines with yellow furnace brick	
27-28	4			Coal fines	
28-29	1.5			Sandy coal fines with crushed slag	
29-30	11			Sand coal fines with crushed slag	
30-31	100				Coal fines, some brick
31-32	8				Coal fines with brick, fine material
32-33	4				Coal fines, trace furnace brick, small piece of packed tar
33-34	3				Fine sandy coal fines with approximately 10% crushed slag
34-35	7				Fine sandy coal fines with approximately 10% crushed slag
35-36	9				Mostly coal fines with some furnace brick
36-37	3				Mostly coal fines with some furnace brick
37-38	2				Mostly coal fines with some furnace brick
38-39	20				Mostly crushed brick then last 6 inches of bottom clay, moist tar observed on top of clay, some brown sand
39-40	—				No recovery - bottom

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-102

10-FOOT COMPOSITE SAMPLE RESULTS		LB-102 10COMP1	LB-102 10COMP2	LB-102 10COMP3	LB-102 10COMP4
TCLP - Volatiles (mg/L)					
Benzene	ND	ND	ND	ND	0.013L
Chlorobenzene	ND	ND	ND	ND	0.012L
1,1,2,2-tetrachloroethene	ND	ND	ND	ND	0.012L
Trichloroethene	ND	ND	ND	ND	0.0095L
TCLP - Semivolatiles (mg/L)					
	ND	ND	ND	ND	ND
TCLP - Metals (mg/L)					
Arsenic	ND	ND	ND	ND	ND
Barium	0.64B	0.73B	1.0B	0.80B	
Cadmium	ND	ND	ND	ND	0.008
Chromium	ND	ND	0.0023B	ND	
Copper	ND	ND	ND	ND	ND
Lead	ND	0.0023	ND	ND	ND
Mercury	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND
TCLP (PASS/FAIL)					
	ALL PASS	ALL PASS	ALL PASS	ALL PASS	ALL PASS
Arsenic (mg/kg)	7.9	9.5	6.5		3.7
Cyanide (mg/kg)	27	100	25		5
PAHs (mg/kg)	427.2	1123.7	117.1		3.1
PAH ₁ (mg/kg)	120.3	177	19.8		ND
Phenol (mg/kg)	ND	ND	ND		ND

5-FOOT SUMMARY OF BTX RESULTS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-102BTX1 (3-4 foot interval)	ND	ND	ND									
LB-102BTX1(0UP) (3-4 ft. interval)	ND	ND	ND									
LB-102BTX2 (6-7 foot interval)	ND	ND	ND									
LB-102BTX3 (14-15 foot interval)				18J	18J	76						
LB-102BTX4 (18-19 foot interval)				ND	ND	ND						
LB-102BTX5 (21-22 foot interval)							18J	ND	ND			
LB-102BTX6 (27-28 foot interval)							ND	ND	ND			
LB-102BTX7 (34-35 foot interval)										ND	ND	ND

[illegible]

0-1	HNu = ND (ppm)	Coal fines, trace brick		
1-2	ND	Coal fines, trace brick		
2-3	ND	Coal mixed with small pieces of coke, fines		
3-4	1	Coal fines with 1-inch layer of crushed brick		
4-5	1	Coal fines		
5-6	ND	Coal fines (fine and sandy)		
6-7	ND	Coal fines (fine and sandy)		
7-8	ND	Coal fines, more pieces of coal and coke (1/2-inch), small layer of crushed furnace brick		
8-9	ND	More granular coal fines, coarse		
9-10	---	No recovery		
10-11	ND	Coal fines, trace crushed brick, trace slag		
11-12	ND	Coal fines, trace crushed brick, trace slag		
12-13	ND	Coal fines, trace crushed brick, trace slag		
13-14	ND	Coal fines with some clay, trace packed tar		
14-15	5	Clay with packed tar, trace coal fines		
15-16	5	Moist clay, dense black, oily		
16-17	4	Moist clay, dense black, oily		
17-18	10	Oily sand and gravel mixed with coal fines, strong organic odor collected Sample LB-102-S17-OG for BTEX and PAHs		
18-19	6	Black clay with some coal fines		
19-20	4	Fine to coarse coal fines		
20-21	ND		Dark to light brown sand and gravel	
21-22	ND		Dark to light brown sand and gravel	
22-23	ND		Dark to light brown sand and gravel	
23-24	ND		Black sand	
24-25	ND		Black sand	
25-26	ND		Black sand, wet with some gravel	
26-27	ND		Black sand, wet with some gravel	
27-28	ND		Black sand, wet with some gravel	
28-29	---		No recovery	
29-30	---		No recovery	
30-31	ND			Black sand and gravel (wet)
31-32	ND			Black sand and gravel (wet)
32-33	ND			Black sand and gravel, 2-inch layer of brown sand (wet)
33-34	ND			Black sand and gravel (wet)
34-35	ND			Black sand and gravel (wet)

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-103										
		LB-103 10COMP1		LB-103 10COMP2		LB-103 10COMP3				
10-FOOT COMPOSITE SAMPLE RESULTS										
TCLP - Volatiles (mg/L)		NO		NO		NO		NO		
TCLP - Semivolatiles (mg/L)		NO		NO		NO		NO		
TCLP - Metals (mg/L)										
Arsenic		NO		NO		NO		NO		
Barium		0.67B		0.51B		0.59B		0.59B		
Cadmium		NO		0.0037B		NO		0.0028B		
Chromium		0.0018B						0.0018B		
Copper		0.019B						0.023B		
Mercury		NO		NO		NO		NO		
Selenium		NO		NO		NO		NO		
Silver		NO		NO		NO		NO		
TCLP (PASS/FAIL)		ALL PASS		ALL PASS		ALL PASS		ALL PASS		
Arsenic (mg/kg)		5.8		9.2		6.4		6.4		
Cyanide (mg/kg)		4		24		74		74		
PAHs (mg/kg)		594.3		1004.7		1250.4		1250.4		
PAH ₁ (mg/kg)		172		245		260		260		
Phenol (mg/kg)		ND		ND		ND		ND		
1-FOOT SUMMARY OF BTX RESULTS										
Sample Number		Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-103BTX1 (3-4 foot interval)		ND	ND	ND						
LB-103BTX2 (9-10 foot interval)		ND	ND	ND						
LB-103BTX3 (13-14 foot interval)					ND	NO	ND			
LB-103BTX4 (16-17 foot interval)					ND	NO	ND			
LB-103BTX5 (22-23 foot interval)								ND	ND	ND
LB-103BTX6 (27-28 foot interval)								ND	ND	ND
MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNu readings)										
0-1	HNu = ND (ppm)	Coal fines with small chunks of clay, trace								
1-2	ND	Fine coal and coke fines								
2-3	ND	Fine coal and coke fines								
3-4	ND	6-inch thick black clay layer, small chunks of coke and coal fines								
4-5	ND	Coal fines								
5-6	ND	Coal fines, small chunks of coal/coke								
6-7	ND	Coal fines, small chunks of coal/coke								
7-8	ND	Coal fines, small chunks of coal/coke								
8-9	ND	Coal fines, small chunks of coal/coke								
9-10	Not Working	Extremely fine, compacted coal/coke fines								
10-11	Not Working			Fine to coarse coal fines						
11-12	Not Working			Fine to coarse coal fines						
12-13	Not Working			Fine to coarse coal fines						
13-14	Not Working			6 inches of coal fines, 6 inches of clayey sand						
14-15	Not Working			No recovery						
15-16	Not Working			Fine to coarse coal fines						
16-17	Not Working			Coal fines with chunks of furnace brick and coke						
17-18	Not Working			Coal fines, chunks of coke						
18-19	Not Working			Coal fines						
19-20				No recovery						
20-21	ND							Moist fines with black clay		
21-22	ND							Hard large pieces of coke, granular coal fines		
22-23	0.5							Large pieces of coke, furnace brick, wood		
23-24	ND							Coal fines with chunks of coke, black clay		
24-25	ND							Coal fines with chunks of coke, black clay		
25-26	ND							Coke fines with crushed slag and furnace brick		
26-27	ND							Coal fines with large pieces of coke and coal		
27-28	ND							Yellowish-brown clay with some coke/coal fines, suspected bottom		
28-29	—							No recovery		
29-30	—							No recovery		

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1987) BORING LB-104				
	LB-104 10COMP1	LB-104 10COMP2	LB-104 10COMP3	LB-104 10COMP4

10-FOOT COMPOSITE SAMPLE RESULTS				
TCLP - Volatiles (mg/L) Benzene	ND	0.011J	ND	ND
TCLP - Semivolatiles (mg/L) Pyridine	ND	0.021J	ND	ND
TCLP - Metals (mg/L) Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	ND 0.78B 0.0021B 0.0022B ND ND ND ND	ND 0.52B ND ND ND ND ND ND	ND 0.73B ND 0.0055B ND ND ND ND	ND 1.4B 0.0032B ND 0.032B ND ND ND
TCLP (PASS/FAIL)	ALL PASS	ALL PASS	ALL PASS	ALL PASS
Arsenic (mg/kg)	7.3	13.4	3.9	9.6
Cyanide (mg/kg)	21	590	70	21
PAHs (mg/kg)	355.1	467	606.2	300.5
PAH ₄ (mg/kg)	114	79.7	207	78.2
Phenol (mg/kg)	ND	ND	2.7J	ND

5- FOOT SUMMARY OF BTX RESULTS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-104BTX1 (2-3 foot interval)	ND	ND	ND									
LB-104BTX2 (6-7 foot interval)	ND	ND	ND									
LB-104BTX3 (12-13 foot interval)				5.3J	1.7J	3.3J						
LB-104BTX4 (17-18 foot interval)				38	12J	33						
LB-104BTX5 (20-21 foot interval)							ND	ND	ND			
LB-104BTX6 (26-27 foot interval)							ND	ND	ND			
LB-104BTX7 (31-32 foot interval)										ND	ND	ND

MATERIAL DESCRIPTION	COMMENTS
(1) FOOT INTERVALS, INCLUDING HNU READINGS)	

1-1	HNu = ND (ppm)	Surficial brown sandy fill mixed with coal fines		
1-2	ND	Surficial brown sandy fill mixed with coal fines, more fines/less sand than above		
2-3	ND	Fine coal, large piece of furnace brick, some crushed brick		
3-4	ND	Powdery coal fines, compacted during drilling		
4-5	—	No recovery		
5-6	ND	Coal fines, some large pieces of coke		
6-7	Not Working	Coal fines, isolated piece of packed tar, coke		
7-8	Not Working	Fine coal, some coke pieces		
8-9	Not Working	Fine coal, some coke pieces		
9-10	Not Working	Fine coal, some coke pieces		
10-11	Not Working			
11-12	Not Working	Metal-steel section of equipment or pipe, wood, rubber, with coal fines (difficulty encountered during drilling through metal)		
12-13	Not Working	Wood splinters, chips, & pieces (possibly from RR ties), some coal fines		
13-14	—	Clayey sand intermixed with coal fines, some organic odor		
14-15	—	No recovery		
15-16	Not Working	No recovery		
16-17	Not Working	Light brown clayey sand mixed with fines		
17-18	Not Working	Light brown clayey sand mixed with fines		
18-19	Not Working	Large piece brick in clayey sand turning to clay, hard, dense, organic odor		
19-20	Not Working	Clay, greenish gray, some fines		
20-21	Not Working	Sand, some clay mixed with fines		
21-22	Not Working			
22-23	Not Working	Fine coal/coke material		
23-24	—	Coal fines, 2-inch layer of pulverized coal		
24-25	—	Fine coal/coke material		
25-26	Not Working	No recovery		
26-27	Not Working	No recovery		
27-28	Not Working	Fine coal/coke, cinders, rock		
28-29	—	Fine coal/coke, cinders, rock		
29-30	—	Fine coal/coke, cinders, rock		
30-31	Not Working	No recovery		
31-32	Not Working	No recovery		
32-33	Not Working	Moist to wet coal/coke fines, pieces of coke		
33-34	Not Working	Moist to wet coal/coke fines, pieces of coke, bottom - olive brown clay		
34-35	Not Working	Bottom - olive brown clay		
		Bottom - olive brown clay		
		Bottom - olive brown clay		
		Bottom - olive brown clay		

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-105

10-FOOT COMPOSITE SAMPLE RESULTS		LB-105 10COMP1	LB-105 10COMP2	LB-105 10COMP3	LB-105 10COMP4	LB-105 10COMP4(DUP)
TCLP - Volatiles (mg/L)		ND	ND	ND	0.053	0.021J
Benzene						
TCLP - Semivolatiles (mg/L)		ND	ND	ND	ND	0.026J
Hexachloroethane					0.091	0.092
Cresols						
TCLP - Metals (mg/L)		ND	ND	ND	ND	ND
Arsenic		0.91B	0.76B	0.96B	1.3B	1.2B
Barium		0.0023B	0.0025B	0.0023B	ND	0.0023B
Cadmium		0.0029B	0.0036B	0.0029B	0.0057B	0.0057B
Chromium		0.035B	0.38B	0.048B	0.018B	0.025B
Lead		0.000062B	0.000085B	0.000070B	0.000076B	0.000063B
Mercury		ND	ND	ND	ND	ND
Selenium		ND	ND	ND	ND	ND
Silver		ND	ND	ND	ND	ND
TCLP (PASS/FAIL)		ALL PASS	ALL PASS	ALL PASS	ALL PASS	ALL PASS
Arsenic (mg/kg)		6.1	8.4	3.4	8.3	7.9
Cyanide (mg/kg)		44	50	18	28	31
PAHs (mg/kg)		371.5	230.9	105.7	1860	2585
PAH ₁ (mg/kg)		108.7	74.3	33.4	255	350
Phenol (mg/kg)		ND	ND	ND	ND	ND

5-FOOT SUMMARY OF BTX RESULTS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-105BTX1 (2-3 foot interval)	ND	ND	ND												
LB-105BTX2 (7-8 foot interval)	ND	ND	ND												
LB-105BTX3 (10-11 foot interval)				ND	ND	ND									
LB-105BTX4 (17-18 foot interval)				ND	ND	ND									
LB-105BTX5 (21-22 foot interval)							ND	ND	ND						
LB-105BTX6 (25-26 foot interval)							ND	ND	ND						
LB-105BTX7 (33-34 foot interval)										110	41	170			
LB-105BTX7(DUP) (33-34 ft. interval)										94	39	170			
LB-105BTX8 (36-37 foot interval)										ND	ND	ND			

MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNU readings)

0-1	HNu = ND (ppm)	3-inch black sand, wet from recent rain; 9 inches of clayey brown sand, trace coal fines			
1-2	ND	Chunks of coke with some sand and granular coal fines			
2-3	ND	Granular coal fines with some small pieces of coal & coke			
3-4	ND	Granular coal fines with some small pieces of coal & coke			
4-5	—	No recovery			
5-6	ND	Coal and coke fines, some large pieces of coke			
6-7	ND	2-inch layer of crushed and solid furnace brick, coal fines with 2 large pieces of coke			
7-8	0.5	More granular coal fines, crushed, trace slag			
8-9	ND	More granular coal fines, crushed, trace slag, trace lime & ash			
9-10	—	No recovery			
10-11	ND		Coal fines (fine) with chunks of coke		
11-12	ND		Coal fines (fine), pieces of wood, moist clayey sand intermixed		
12-13	ND		Coal fines with trace lime, trace slag		
13-14	ND		Coal fines with trace lime, trace slag		
14-15	—		No recovery		
15-16	ND		Moist black sand, some small pieces of coke		
16-17	ND		Moist black sand, some small pieces of coke		
17-18	ND		Coal fines with coke and trace slag		
18-19	ND		Coal fines with trace lime and slag		
19-20	—		No recovery		
20-21	ND		Granular coal fines with trace brick, slag		
21-22	ND		Granular coal fines with trace brick, slag		
22-23	ND		Coal fines, slightly moist, large piece of furnace brick, red brick		
23-24	ND		Clayey moist fines, compact		
24-25	—		No recovery		
25-26	ND		Black soupy clayey wet coal fines, free water		
26-27	ND		Black soupy clayey wet coal fines, free water, cinders, more gravelly coal fines		
27-28	ND		Black soupy clayey wet coal fines, free water		
28-29	—		No recovery		
29-30	—		No recovery		
30-31	ND			Wet coal coke fines, gravelly, granular	
31-32	ND			Wet coal coke fines, gravelly, granular	
32-33	ND			Clay mixed with some fines	
33-34	20			Black stained clay with small amount packed tar	
34-35	—			No recovery	
35-36	ND			Olive brown clay, dense compact bottom (wet)	
36-37	ND			Olive brown clay, dense compact bottom (wet)	
37-38	ND			Olive brown clay, dense compact bottom (wet)	
38-39	—			No recovery	
39-40	—			No recovery	

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-106									
	LB-106 10COMP1			LB-106 10COMP2			LB-106 10COMP3		
10-FOOT COMPOSITE SAMPLE RESULTS									
TCLP - Volatiles (mg/L)	ND			ND			ND		
TCLP - Semivolatiles (mg/L) Cresols	ND			ND			0.075		
TCLP - Metals (mg/L) Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	ND 0.89B 0.0025B 0.0053B ND 0.000066B ND ND			ND 0.71B 0.0020B 0.0053B 0.073B 0.000090B ND ND			ND 1.3B ND ND ND 0.000064B ND ND		
TCLP (PASS/FAIL)	ALL PASS			ALL PASS			ALL PASS		
Arsenic (mg/kg)	9.3			6.5			9.9		
Cyanide (mg/kg)	15			81			180		
PAHs (mg/kg)	1183.4			146.6			2400.9		
PAH ₂ (mg/kg)	405			45			326.9		
Phenol (mg/kg)	ND			ND			ND		
5-FOOT SUMMARY OF BTX RESULTS									
Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-106BTX1 (3-4 foot interval)	ND	ND	ND						
LB-106BTX2 (8-9 foot interval)	ND	ND	ND						
LB-106BTX3 (11-12 foot interval)				ND	ND	ND			
LB-106BTX4 (18-19 foot interval)				ND	ND	ND			
LB-106BTX5 (21-22 foot interval)							ND	ND	ND
LB-106BTX6 (25-26 foot interval)							40	15J	22J
MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNu readings)									
0-1	HNu = ND (ppm)	Dark brown clayey sand							
1-2	ND	6 inches dark brown clayey sand; coal/coke fines, numerous pieces coke							
2-3	ND	Coal/coke fines, numerous pieces of coke							
3-4	ND	Finer coal fines, less coke							
4-5	---	No recovery							
5-6	ND	Fine coal material							
6-7	ND	Fine coal material							
7-8	ND	More granular coal fines, pieces of coke, chunk of furnace brick							
8-9	ND	Fine coal material							
9-10	---	No recovery							
10-11	ND				Coal fines, granular, small pieces of coke				
11-12	ND				Coal fines mixed with crushed furnace brick, trace clay				
12-13	ND				Coal fines mixed with crushed furnace brick, trace clay				
13-14	ND				Coal fines, crushed brick, large pieces of furnace brick				
14-15	---				No recovery				
15-16	ND				Fine moist coal material				
16-17	ND				Compacted fine coal material, mixed with traces of brown clayey sand				
17-18	ND				Fine-grained coal, shiny, trace small cinders				
18-19	ND				Fine-grained coal, shiny, trace small cinders				
19-20	ND				Fine-grained coal, shiny, trace small cinders				
20-21	ND							Moist coal fines, granular, large piece of coke	
21-22	ND							Wet granular coal fines, draining water	
22-23	---							No recovery	
23-24	---							No recovery	
24-25	---							No recovery	
25-26	15							Stained black clay with traces of tar packed inside, organic odor (wet)	
26-27	14							Less stained than above, less moist	
27-28	ND							Olive-brown clay, bottom, no staining inside	
28-29	ND							Olive-brown clay, bottom, no staining inside	
29-30	ND							Olive-brown clay, bottom, no staining inside	

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-107

LB-107 10COMP1		LB-107 10COMP2		LB-107 10COMP3		LB-107 10COMP4	
10-FOOT COMPOSITE SAMPLE RESULTS							
TCLP - Volatiles (mg/L) Benzene	ND	ND	0.011J	0.015J			
TCLP - Semivolatiles (mg/L) Cresols	ND	ND	0.019J	0.36			
TCLP - Metals (mg/L) Arsenic	ND	ND	ND	ND			
Barium	0.86B	1.1B	1.2B	1.2B			
Cadmium	0.0021B	ND	ND	ND			
Chromium	0.0023B	0.0046B	0.0051B	0.0053B			
Lead	0.032B	ND	ND	ND			
Mercury	0.000069B	0.000062B	0.000075B	0.000071B			
Selenium	ND	ND	ND	ND			
Silver	ND	ND	ND	ND			
TCLP (PASS/FAIL)	ALL PASS	ALL PASS	ALL PASS	ALL PASS			
Arsenic (mg/kg)	7.9	8.1	10.8	8.1			
Cyanide (mg/kg)	79	ND	4	19			
PAHs (mg/kg)	1020.8	248.5	602	1444.9			
PAH ₁ (mg/kg)	342.7	64.1	88	212.9			
Phenol (mg/kg)	ND	ND	ND	ND			

5-FOOT SUMMARY OF BTX RESULTS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-107BTX1 (2-3 foot interval)	ND	ND	ND									
LB-107BTX2 (7-8 foot interval)	ND	ND	ND									
LB-107BTX3 (12-13 foot interval)				18	6.7J	11J						
LB-107BTX4 (16-17 foot interval)				ND	ND	ND						
LB-107BTX5 (21-22 foot interval)							5.7J	1.6J	ND			
LB-107BTX6 (28-29 foot interval)							ND	ND	ND			
LB-107BTX7 (30-31 foot interval)										3.4J	1.9J	5.6J
LB-107BTX7(DUP) (30-31 ft. interval)										4.3J	1.5J	2.6J

MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNu readings)

Interval	HNu = ND (ppm)	Remarks	Remarks
1-2	ND	Fine to medium black sand, some fines, trace crushed brick	
2-3	ND	Coal and coke pieces, some brown sand	
3-4	ND	H ₂ S odor, crushed slag, gravelly material, large pieces of coke	
4-5	ND	Fine coal and coke fines, compacted during sampling, powdery	
5-6	ND	No recovery	
6-7	ND	Problems encountered during drilling, sample revealed wood from railroad ties, coal fines, chunks of coke, chunks of railroad ties	
7-8	ND	Problems encountered during drilling, sample revealed wood from railroad ties, coal fines, chunks of coke, chunks of railroad ties	
8-9	2	Problems encountered during drilling, sample revealed wood from railroad ties, coal fines, chunks of coke, chunks of railroad ties (6-inch thick piece of railroad tie)	
9-10	ND	No recovery	
10-11	ND	Granular coal and coke fines and breeze, small pieces of coke	
11-12	ND	Granular coal and coke fines and breeze, small pieces of coke	
12-13	ND	Granular coal and coke fines and breeze, small pieces of coke	
13-14	ND	Granular coal and coke fines and breeze, small pieces of coke, trace yellow furnace brick	
14-15	ND	No recovery	
15-16	ND	Coal/coke fines, pieces of coke	
16-17	ND	6 inches coal/coke fines, pieces of coke, dark brown sand & gravel, moist	
17-18	ND	More clayey sand, trace clay (moist), traces of slag	
18-19	ND	Slag mixed with coal fines and gravel	
19-20	ND	No recovery	
20-21	ND	No recovery	Poor recovery, fully saturated coal/coke fines, and gravel, standing water
21-22	1	No recovery	Poor recovery, fully saturated coal/coke fines, and gravel, standing water
22-23	--	No recovery	No recovery
23-24	--	No recovery	No recovery
24-25	--	No recovery	No recovery
25-26	1	Soft brown clay (wet), stained, organic odor	Soft brown clay (wet), stained, organic odor
26-27	1	Soft brown clay (wet), stained, organic odor	Soft brown clay (wet), stained, organic odor
27-28	1	Soft brown clay (wet), stained, organic odor	Soft brown clay (wet), stained, organic odor
28-29	1.5	Soft brown clay (wet), stained, organic odor	Soft brown clay (wet), stained, organic odor
29-30	--	No recovery	No recovery
30-31	2.5	Soft moist stained clay, slight organic odor	Soft moist stained clay, slight organic odor
31-32	ND	More dense, less moist bottom olive brown clay, bottom clay	More dense, less moist bottom olive brown clay, bottom clay
32-33	ND	More dense, less moist bottom olive brown clay, bottom clay	More dense, less moist bottom olive brown clay, bottom clay
33-34	ND	More dense, less moist bottom olive brown clay, bottom clay	More dense, less moist bottom olive brown clay, bottom clay
34-35	--	No recovery	No recovery

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-108									
LB-108 10COMP1				LB-108 10COMP2			LB-108 10COMP3		
10-FOOT COMPOSITE SAMPLE RESULTS									
TCLP - Volatiles (mg/L) Benzene	ND			ND			0.010J		
TCLP - Semivolatiles (mg/L) Cresols	0.062			ND			0.49		
TCLP - Metals (mg/L) Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	ND 0.88B 0.0026B 0.019B ND 0.00068B ND ND			ND 1.2B ND 0.012B 0.099B 0.00068B ND ND			ND 1.4B ND 0.0053B 0.029B 0.00070B ND ND		
TCLP (PASS/FAIL)	ALL PASS			ALL PASS			ALL PASS		
Arsenic (mg/kg)	7.8			14.7			8.3		
Cyanide (mg/kg)	10			330			140		
PAHs (mg/kg)	10,720			469.8			1620.7		
PAH ₂ (mg/kg)	1140			143.9			270.7		
Phenol (mg/kg)	ND			ND			3.6J		
1-FOOT SUMMARY OF BTX RESULTS									
Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-108BTX1 (2-3 foot interval)	ND	ND	ND						
LB-108BTX2 (5-6 foot interval)	1.4J	1.3J	4.2J						
LB-108BTX3 (11-12 foot interval)				2.4J	ND	ND			
LB-108BTX4 (16-17 foot interval)				ND	ND	ND			
LB-108BTX5 (23-24 foot interval)							ND	ND	ND
LB-108BTX6 (25-26 foot interval)							13	6.6J	7.4J
MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNU reading)									
0-1	HNU = 1.5 (ppm)	Coal fines mixed with pieces of coke							
1-2	1	Clayey sand, brown, mixed with gravel and fines							
2-3	7	Coal fines, pieces of coke and approximately 2-inch piece of packed tar							
3-4	ND	Coal/coke fines, breeze, trace brick, piece of plastic, crushed brick							
4-5	—	No recovery							
5-6	1	Black sand, trace fines, rock							
6-7	ND	Granular coal fines, trace brick							
7-8	ND	Finer coal material							
8-9	—	No recovery							
9-10	—	No recovery							
10-11	ND	Granular coal fines with large chunks of yellow brick							
11-12	ND	Red and gray clayey sand mixed with small cinders and rock, organic odor, but no HNU reading							
12-13	ND	Coal fines mixed with black and gray sand							
13-14	—	No recovery							
14-15	—	No recovery							
15-16	ND	Brown and gray sand and gravel, some cinders, some coal fines							
16-17	ND	Granular coal fines, coarse, chunks of coke, compact							
17-18	ND	Coal fines, small coarse pieces of shiny coal, trace brown clay							
18-19	—	No recovery							
19-20	—	No recovery							
20-21	ND				Moist coal fines mixed with trace sand and gravel				
21-22	ND				Wet coal fines, gravelly, trace wood, brick cinders				
22-23	ND				Wet coal fines, gravelly, trace wood, brick cinders, trace clay				
23-24	15				5 inches of wet coal fines with trace clay, coke, 5 inches of tar packed in clay				
24-25	—				No recovery				
25-26	Not Recorded				Wet coarse gravel and coal fines, black				
26-27	Not Recorded				Large pieces of packed tar inside top of bottom clay, clay is stained and packed inside with tar (wet)				
27-28	Not Recorded				Bottom clay, hard, dense, olive brown				
28-29	—				No recovery				
29-30	—				No recovery				

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-109									
	LB-109 10COMP1			LB-109 10COMP2			LB-109 10COMP3		
10-FOOT COMPOSITE SAMPLE RESULTS									
TCLP - Volatiles (mg/L) Benzene	ND			ND			0.12		
TCLP - Semivolatiles (mg/L) Cresols	ND			ND			0.10		
TCLP - Metals (mg/L) Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	ND 0.75B 0.0039B 0.0049B 0.046B 0.000070B ND ND			ND 0.55B ND 0.0028B 0.045B 0.000073B ND ND			ND 1.0B ND 0.0052B ND 0.000075B ND ND		
TCLP (PASS/FAIL)	ALL PASS			ALL PASS			ALL PASS		
Arsenic (mg/kg)	8.1			20.1			7.0		
Cyanide (mg/kg)	41			14			7		
PAHs (mg/kg)	1037.8			372.6			3652		
PAH ₄ (mg/kg)	220.4			97.5			470		
Phenol (mg/kg)	ND			ND			ND		
5-FOOT SUMMARY OF BTX RESULTS									
Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-109BTX1 (1-2 foot interval)	ND	ND	ND						
LB-109BTX2 (8-9 foot interval)	2.7J	ND	ND						
LB-109BTX3 (11-12 foot interval)				ND	ND	ND			
LB-109BTX4 (18-19 foot interval)				ND	ND	ND			
LB-109BTX5 (22-23 foot interval)							1.9J	ND	ND
LB-109BTX6 (26-27 foot interval)							8.5J	2.6J	7.0J
MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNu readings)									
0-1	HNu = ND (ppm)	Sand, brown with gravel							
1-2	3.5	Coal/coke fines with 2 large pieces of packed tar							
2-3	ND	Fine coal materials							
3-4	ND	Compacted fine coal fines with some furnace brick							
4-5	—	No recovery							
5-6	ND	6 inches of coal fines, 6 inches of dark brown sand							
6-7	ND	Fine coal/coke materials							
7-8	ND	Fine coal/coke materials, some shiny pieces of coal, small piece brick							
8-9	0.5	Small piece of packed tar and few chunks of red brick in primarily coal fines and coke, trace crushed yellow furnace brick							
9-10	—	No recovery							
10-11	ND				Coal fines, some sand, red brick, trace of white brick				
11-12	ND				Primarily coal fines mixed with approximately 10% slag				
12-13	ND				Primarily coal fines mixed with approximately 10% slag				
13-14	ND				Primarily coal fines mixed with approximately 10% slag				
14-15	—				No recovery				
15-16	ND				Primarily coal fines with 2 chunks of compacted brown sand				
16-17	ND				Large chunks of coke mixed with granular fines				
17-18	ND				Fine powdery coal materials, slightly moist				
18-19	ND				Fine powdery coal materials, slightly moist				
19-20	—				No recovery				
20-21	ND							Gravelly coal fines with approximately 10% slag, wet	
21-22	ND							Wet coal fines with some coke, cinders	
22-23	ND							Wet coal fines with some coke, cinders	
23-24	20							Packed tar with trace clay, extremely dense	
24-25	11							Packed tar with trace clay, extremely dense	
25-26	ND							Wet coal and coke fines with chunks of gravelly coal/coke	
26-27	ND							Wet to moist stained bottom clay, hard dense bottom olive brown clay	
27-28	ND							Hard dense bottom olive brown clay	
28-29	ND							Hard dense bottom olive brown clay	
29-30	ND							Hard dense bottom olive brown clay	

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-110

	LB-110 10COMP1	LB-110 10COMP2	LB-110 10COMP3
10-FOOT COMPOSITE SAMPLE RESULTS			
TCLP - Volatiles (mg/L)	ND	ND	ND
TCLP - Semivolatiles (mg/L) Cresols	ND	ND	0.025J
TCLP - Metals (mg/l)			
Arsenic	ND	ND	ND
Barium	0.59B	0.61B	1.3B
Cadmium	ND	ND	0.0041B
Chromium	0.0070B	0.0022B	0.0045B
Lead	ND	ND	0.040B
Mercury	0.000076B	0.000065B	0.000055B
Selenium	ND	ND	ND
Silver	ND	ND	ND
TCLP (PASS/FAIL)	ALL PASS	ALL PASS	ALL PASS
Arsenic (mg/kg)	5.8	3.9	9.2
Cyanide (mg/kg)	61	22	67
PAHs (mg/kg)	476.9	570.2	925.1
PAH ₄ (mg/kg)	115	164.3	150.1
Phenol (mg/kg)	ND	ND	ND

5-FOOT SUMMARY OF BTX RESULTS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-110BTX1 (1-2 foot interval)	ND	ND	ND						
LB-110BTX2 (6-7 foot interval)	ND	ND	ND						
LB-110BTX3 (13-14 foot interval)				ND	ND	ND			
LB-110BTX4 (17-18 foot interval)				ND	ND	ND			
LB-110BTX5 (20-21 foot interval)							ND	ND	ND
LB-110BTX6 (27-28 foot interval)							17	8.9J	18

MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNu readings)

0-1	HNu = ND (ppm)	6 inches of brown sandy fill, 6 inches of sandy coal fines	
1-2	ND	Sandy coal fines	
2-3	ND	Granular mix of sandy coal fines and slag	
3-4	ND	6 inches granular mix of sandy coal fines and slag, 6 inches coal fines mixed with chunks of coke	
4-5	ND	Coal fines mixed with chunks of coke	
5-6	ND	9 inches of black sand mixed with coal fines; 3 inches of brown sandy fill	
6-7	ND	Coal and coke fines mixed with gravelly slag	
7-8	ND	6 inches coal and coke fines mixed with gravelly slag; 6 inches coke fines and large pieces of coke	
8-9	ND	6 inches coke fines and large pieces of coke, 6 inches no recovery	
9-10	—	No recovery	
10-11	ND		Coarse coal fines, trace slag
11-12	ND		Coal fines with pieces of coke, trace brown sand
12-13	ND		Powdery coal fines with some clinders, coal fines, highly compacted
13-14	ND		Powdery coal fines with some clinders, coal fines, highly compacted
14-15	—		No recovery
15-16	ND		Coal fines mixed with slag, clinders, and chunks of coke
16-17	ND		Coal fines mixed with slag, clinders, and chunks of coke
17-18	ND		Mostly coal fines with pieces of coke, rock, slightly moist
18-19	13		6 inches wet coal fines and large pieces of coke, 6-inch column of packed tar; tar is malleable and shiny
19-20	15		6-inch column of packed tar; tar is malleable and shiny
20-21	ND		
21-22	11		Coarse coal fines, slightly moist
22-23	15		6 inches coarse coal fines, slightly moist; 6 inches packed tar, hard, dense
23-24	40		6-inch layer of yellow furnace brick; 6 inches packed tar, hard, dense
24-25	5		6 inches packed tar, softer, more malleable; 6 inches sandy coal fines mixed with gravel and slag
25-26	4		9 inches of packed tar, wet, hard and dense; 3 inches of olive brown bottom clay
26-27	ND		3 inches of coal fines mixed with 3-inch layer of packed tar; 6 inches black sand and gravel (wet)
27-28	ND		Black sand and gravel (wet)
28-29	ND		Soft moist to wet clay, olive brown
29-30	—		6 inches soft moist to wet clay, olive brown; 6 inches hard olive brown bottom clay
			No recovery

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-111

10-FOOT COMPOSITE SAMPLE RESULTS	LB-111 10COMP1	LB-111 10COMP1(DUP)	LB-111 10COMP2	LB-111 10COMP3	LB-111 10COMP4
TCLP - Volatiles (mg/L)	ND	0.010J	ND	0.012J	0.20
Benzene	ND	0.010J	ND	0.012J	0.20
TCLP - Semivolatiles (mg/L)	ND	ND	ND	0.12	0.12
Cresols	ND	ND	ND	0.12	0.12
TCLP - Metals (mg/L)	ND	ND	ND	ND	ND
Arsenic	0.0002B	0.0002B	0.0002B	0.0002B	0.0002B
Barium	0.0018B	0.0018B	0.0018B	0.0018B	0.0018B
Cadmium	0.000076B	0.000076B	0.000076B	0.000076B	0.000076B
Chromium	0.000076B	0.000076B	0.000076B	0.000076B	0.000076B
Copper	ND	ND	ND	ND	ND
Mercury	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND
TCLP (PASS/FAIL)	ALL PASS	ALL PASS	ALL PASS	ALL PASS	ALL PASS
Arsenic (mg/kg)	30.6	25.1	12.7	7.7	12.0
Cyanide (mg/kg)	3	ND	19	36	28
PAHs (mg/kg)	1755.3	1621	2323	3077	1100
PAH (mg/kg)	298.3	243	400	500	184
Phenol (mg/kg)	ND	ND	ND	ND	ND

5-FOOT SUMMARY OF BTX RESULTS

[illegible]

MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, INCLUDING HNU TAPPING)	
1.00	1.00
2.00	2.00
3.00	3.00
4.00	4.00
5.00	5.00
6.00	6.00
7.00	7.00
8.00	8.00
9.00	9.00
10.00	10.00
11.00	11.00
12.00	12.00
13.00	13.00
14.00	14.00
15.00	15.00
16.00	16.00
17.00	17.00
18.00	18.00
19.00	19.00
20.00	20.00
21.00	21.00
22.00	22.00
23.00	23.00
24.00	24.00
25.00	25.00
26.00	26.00
27.00	27.00
28.00	28.00
29.00	29.00
30.00	30.00
31.00	31.00
32.00	32.00
33.00	33.00
34.00	34.00
35.00	35.00
36.00	36.00
37.00	37.00
38.00	38.00
39.00	39.00
40.00	40.00
41.00	41.00
42.00	42.00
43.00	43.00
44.00	44.00
45.00	45.00
46.00	46.00
47.00	47.00
48.00	48.00
49.00	49.00
50.00	50.00
51.00	51.00
52.00	52.00
53.00	53.00
54.00	54.00
55.00	55.00
56.00	56.00
57.00	57.00
58.00	58.00
59.00	59.00
60.00	60.00
61.00	61.00
62.00	62.00
63.00	63.00
64.00	64.00
65.00	65.00
66.00	66.00
67.00	67.00
68.00	68.00
69.00	69.00
70.00	70.00
71.00	71.00
72.00	72.00
73.00	73.00
74.00	74.00
75.00	75.00
76.00	76.00
77.00	77.00
78.00	78.00
79.00	79.00
80.00	80.00
81.00	81.00
82.00	82.00
83.00	83.00
84.00	84.00
85.00	85.00
86.00	86.00
87.00	87.00
88.00	88.00
89.00	89.00
90.00	90.00
91.00	91.00
92.00	92.00
93.00	93.00
94.00	94.00
95.00	95.00
96.00	96.00
97.00	97.00
98.00	98.00
99.00	99.00
100.00	100.00

1-2	HNu = ND (ppm)	3.5	Brown sandy fill with some brick and rock	See description for LB-111 10COMP1	
2-3		11	Hard packed tar, dense		
3-4		15	Hard packed tar with approximately 3 inches of coal fines		
4-5		20	Packed tar, malleable, softer than above		
5-6		4.5	Mostly softer, malleable packed tar, with some fines		
6-7		ND	Granular, coarse coal fines mixed with trace of coke pieces		
7-8		15	5 inches granular, coarse coal fines mixed with trace of coke pieces, 5 inches softer packed tar, malleable		
8-9		17	Softer packed tar, malleable		
9-10		ND	Mostly coal fines, trace packed tar		
10-11		11			
11-12		ND			
12-13		15			
13-14		ND			
14-15		—			
15-16		15			
16-17		ND			
17-18		ND			
18-19		ND			
19-20		—			
20-21		5			
21-22		ND			
22-23		ND			
23-24		ND			
24-25		ND			
25-26		4			
26-27		5			
27-28		ND			
28-29		ND			
29-30		—			
30-31		2			
31-32		2.5			
32-33		11			
33-34		15			
34-35		2			
35-36		1.5			
36-37		3.5			
37-38		—			
38-39		Not Recorded			
39-40		—			

Softer packed tar, malleable
3" brown sand, big piece yellow brick, 9" coal fines w/slag
5 inches of packed tar mixed with sandy coal fines
Dark brown sand mixed with large pieces of wood
No recovery
6" softer malleable packed tar, 6" sand, coal fines mixed w/traces crushed white brick, trace wood, trace brown sand
Sand, coal fines mixed with traces of crushed white brick, trace wood, trace brown sand
Sand coal fines mixed with traces of crushed white brick, trace brown sand, large piece of rubber, wood
Approximately 10% crushed brick mixed with coal fines
No recovery

chunks softer malleable packed tar mixed w/mostly sandy
Moist coal fines mixed with crushed brick
Fine coal fines with large piece of coke, trace brick, ~ 10% slag
Fine coal fines with large piece of coke, trace brick, ~ 10% slag
Fine coal fines with large piece of coke, trace brick, ~ 10% slag
Fine coal fines with scattered granular pieces of shiny tar, large yellow brick, rock, coke pieces, moist
Fine coal fines with scattered granular pieces of shiny tar, large yellow brick, rock, coke pieces, moist
Slag and gravel mixed with moist coal fines
Slag and gravel mixed with moist coal fines
No recovery

Coarse granular coal fines with ~ 10% slag, scattered small pieces of tar
Coarse granular coal fines with ~ 10% slag, scattered small pieces of tar
Approximately 3 inches of fines mixed with crushed yellow brick, approximately 3 inches of tar packed in clay
9 inches tar packed in clay, 2 inches clayey sand, brown
No recovery
Moist to wet coal fines, wood, debris, very few scattered pieces of tar
Moist to wet coal fines, wood, debris, very few scattered pieces of tar, crushed white brick, large piece of turn-a-bro
Moist to wet coal fines, wood, debris, very few scattered pieces of tar, pieces of coke
Bottom olive brown clay, dense, hard
No recovery

ALCOON NO. 3 FIELD CHARACTERIZATION PROGRAM (JUNE 1993) BORING LB-116

16-FOOT COMPOSITE SAMPLE RESULTS

Very Silty

COPI Metals (mg/L)

VCLP: Semivolatile (mg/L)

Cresols

M(P) Metals (mg/L)

Arsenic

Barium

Cadmium

Chromium

Lead

Mercury

Selenium

Silver

TOLUENE (mg/L)

Xylenes (mg/L)

Benzene (mg/L)

THS (mg/L)

THS (mg/L)

Phenol (mg/L)

NO

0.037J

NO

NO

NO

1.3B

NO

0.0041B

0.019B

NO

NO

NO

ALL PASS

8.5

42

474B

600

NO

NO

0.012J

NO

NO

NO

1.1B

0.0028B

NO

0.064B

0.000054B

NO

NO

ALL PASS

8.9

8

522

92

NO

NO

NO

NO

NO

NO

0.78B

NO

NO

0.036B

NO

NO

ALL PASS

8.6

80

540B

128

NO

NO

NO

NO

NO

NO

1.6B

NO

NO

0.071B

NO

NO

ALL PASS

5.8

40

898 B

155 B

NO

PROXY ANALYSIS OF BTEX RESULTS

Sample Number

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

B-116B1X3 (35-37 foot interval)

B-116B1X3 (37-38 foot interval)

B-116B1X3 (42-43 foot interval)

B-116B1X3 (46-47 foot interval)

B-116B1X3 (52-53 foot interval)

B-116B1X3 (55-56 foot interval)

B-116B1X3 (62-63 foot interval)

B-116B1X3 (67-69 foot interval)

B-116B1X3 (74-75 foot interval)

B-116B1X3 (77-79 foot interval)

3.7J

5.8J

19

NO

NO

NO

4.0J

3.9J

12

NO

NO

NO

87

24

110

NO

NO

NO

15

18

38

PROXY ANALYSIS OF BTEX RESULTS

Sample Number

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

Benzene (µg/g)

Toluene (µg/g)

Xylenes (µg/g)

B-116B1X3 (35-37 foot interval)

B-116B1X3 (37-38 foot interval)

B-116B1X3 (42-43 foot interval)

B-116B1X3 (46-47 foot interval)

B-116B1X3 (52-53 foot interval)

B-116B1X3 (55-56 foot interval)

B-116B1X3 (62-63 foot interval)

B-116B1X3 (67-69 foot interval)

B-116B1X3 (74-75 foot interval)

B-116B1X3 (77-79 foot interval)

3.7J

5.8J

19

NO

NO

NO

4.0J

3.9J

12

NO

NO

NO

87

24

110

NO

NO

NO

15

18

38

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-117								
	LB-117 10COMP1		LB-117 10COMP2		LB-117 10COMP3		LB-117 10COMP4	
10-FOOT COMPOSITE SAMPLE RESULTS								
TCLP - Volatiles (mg/L)	ND		ND		0.047 0.081J		0.012J ND	
Benzene								
2-Butanone								
TCLP - Semivolatiles (mg/L)	ND		0.020J		0.027.J		0.0056J	
Cresols								
TCLP - Metals (mg/L)	NO 0.63R		ND 0.32B		ND 1.0B		ND 1.3B	
Arsenic								
Barium					0.0031B		ND	
Cadmium			0.0018B		0.0067B		ND	
Chromium					0.023B		0.00095OR	
Pb					ND		ND	
Manganese					ND		ND	
Mercury					ND		ND	
Selenium					ND		ND	
Silver					ND		ND	
TCLP (PASS/FAIL)	ALL PASS		ALL PASS		ALL PASS		ALL PASS	
Arsenic (mg/kg)	5.7		5.6		6.5		13.6	
Cyanide (mg/kg)	7		3		5		200	
PAHs (mg/kg)	2476		763		2406		734	
PAH ₁ (mg/kg)	458		126		360		133	
Phenol (mg/kg)	ND		ND		ND		ND	
5-FOOT SUMMARY OF BTX RESULTS								
Sample Number	Benzene ($\mu\text{g}/\text{kg}$)	Toluene ($\mu\text{g}/\text{kg}$)	Xylenes ($\mu\text{g}/\text{kg}$)	Benzene ($\mu\text{g}/\text{kg}$)	Toluene ($\mu\text{g}/\text{kg}$)	Xylenes ($\mu\text{g}/\text{kg}$)	Benzene ($\mu\text{g}/\text{kg}$)	Toluene ($\mu\text{g}/\text{kg}$)
LB-117BTX1 (1-2 foot interval)	ND	ND	ND					
LB-117BTX2 (6-7 foot interval)	ND	ND	5.5J					
LB-117BTX3 (11-12 foot interval)				1.7J	ND	7.5J		
LB-117BTX4 (16-17 foot interval)				52	46	120		
LB-117BTX5 (20-21 foot interval)							38	61
LB-117BTX6 (27-28 foot interval)							20	4.2.J
LB-117BTX7 (32-33 foot interval)								29
							39	20
								42
MATERIAL DESCRIPTION COMMENTS (1-FOOT INTERVALS, including HNu readings)								
0-1	HNu = ND (ppm)	Fine coal fines, small chunks of coke						
1-2	ND	Fine coal fines, small chunks of coke, piece of rubber hose						
2-3	ND	Pieces of coal/coke, coal fines, yellow furnace brick						
3-4	ND	Pieces of coal/coke, coal fines, yellow furnace brick, compacted fine coal fines						
4-5	--	No recovery						
5-6	ND	Coal fines and 2 large pieces of brick						
6-7	2.5	Coal fines, sand and hard packed tar						
7-8	4	Coal fines mixed with soft, loosely packed tar						
8-9	14	Coal fines mixed with soft, loosely packed tar						
9-10	--	No recovery						
10-11	ND	Coal fines, coke, crushed brick, wood						
11-12	1.5	Coal fines, coke, naphthalene odor						
12-13	ND	Large pieces of coke, coal fines						
13-14	ND	Finer coal fines, coke, trace crushed brick, diesel odor						
14-15	--	No recovery						
15-16	ND	Moist coal fines, 1 large piece of coke, 1 large piece of wood						
16-17	5	Moist coal fines with loose scattered pieces tar (very small, difficult to see)						
17-18	--	No recovery						
18-19	--	No recovery						
19-20	--	No recovery						
20-21	5							
21-22	ND							
22-23	3							
23-24	-							
24-25	--							
25-26	ND							
26-27	ND							
27-28	1.5							
28-29	35							
29-30	25							
30-31	ND							
31-32	33							

10-FOOT COMPOSITE SAMPLE RESULTS				LB-117 10COMP2			LB-117 10COMP3			LB-117 10COMP4		
TCLP - Volatiles (mg/L)				ND			0.047			0.012J		
Benzene				ND			0.081J			ND		
2-Butanone				ND			0.027J			0.0056J		
TCLP - Semivolatiles (mg/L)				0.020J			0.0031B			0.0067B		
Cresols				0.0018B			0.023B			0.000950R		
TCLP - Metals (mg/L)				ND			ND			ND		
Arsenic				0.63R			1.0B			1.3B		
Barium				ND			0.0031B			ND		
Cadmium				ND			0.0067B			ND		
Chromium				ND			0.023B			ND		
Lead				ND			ND			ND		
Mercury				ND			ND			ND		
Selenium				ND			ND			ND		
Silver				ND			ND			ND		
TCLP (PASS/FAIL)				ALL PASS			ALL PASS			ALL PASS		
Arsenic (mg/kg)				5.7			6.5			13.6		
Cyanide (mg/kg)				7			5			200		
PAHs (mg/kg)				2476			2406			734		
PAH ₄ (mg/kg)				458			360			133		
Phenol (mg/kg)				ND			ND			ND		
5-FOOT SUMMARY OF BTX RESULTS												
Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-117BTX1 (1-2 foot interval)	ND	ND	ND									
LB-117BTX2 (6-7 foot interval)	ND	ND	5.5J									
LB-117BTX3 (11-12 foot interval)				1.7J	ND	7.5J						
LB-117BTX4 (16-17 foot interval)				52	46	120						
LB-117BTX5 (20-21 foot interval)							38	61	290			
LB-117BTX6 (27-28 foot interval)							20	4.2J	29			
LB-117BTX7 (32-33 foot interval)										39	20	42
MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNU readings)												
0-1	HNU = ND (ppm)	Fine coal fines, small chunks of coke										
1-2	ND	Fine coal fines, small chunks of coke, piece of rubber hose										
2-3	ND	Pieces of coal/coke, coal fines, yellow furnace brick										
3-4	ND	Pieces of coal/coke, coal fines, yellow furnace brick, compacted fine coal fines										
4-5	—	No recovery										
5-6	ND	Coal fines and 2 large pieces of brick										
6-7	2.5	Coal fines, sand and hard packed tar										
7-8	4	Coal fines mixed with soft, loosely packed tar										
8-9	14	Coal fines mixed with soft, loosely packed tar										
9-10	—	No recovery										
10-11	ND	Coal fines, coke, crushed brick, wood										
11-12	1.5	Coal fines, coke, naphthalene odor										
12-13	ND	Large pieces of coke, coal fines										
13-14	ND	Finer coal fines, coke, trace crushed brick, diesel odor										
14-15	—	No recovery										
15-16	ND	Moist coal fines, 1 large piece of coke, 1 large piece of wood										
16-17	5	Moist coal fines with loose scattered pieces tar (very small, difficult to see)										
17-18	—	No recovery										
18-19	—	No recovery										
19-20	—	No recovery										
20-21	5	Coal/coke fines, pieces of coke, twigs, wood, debris										
21-22	ND	Wet fines, coke pieces										
22-23	3	Wet fines, coke pieces, traces of tar, organic odor										
23-24	—	No recovery										
24-25	—	No recovery										
25-26	ND	Wet coal and coke fines, gravelly										
26-27	ND	Wet coal and coke fines, gravelly										
27-28	1.5	Wet fines mixed with some clay										
28-29	35	Dense packed tar (wet)										
29-30	25	Looser packed tar, malleable, some coal fines (wet)										
30-31	ND	Wet coal/coke fines, pieces of coke										
31-32	33	3" wet coal/coke fines, pieces of coke, 9" dense hard packed tar										
32-33	20	6" clay and fine coal fines mixture, 6" dense hard packed tar										
33-34	ND	6" dense hard packed tar, large 2-inch thick piece of wood, bottom clay, hard, olive brown										
34-35	ND	Bottom clay, hard, olive brown										

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-118

	LB-118 10COMP1	LB-118 10COMP1(DUP)	LB-118 10COMP2	LB-118 10COMP3	LB-118 10COMP3(DUP)
10-FOOT COMPOSITE SAMPLE RESULTS					
TCLP - Volatiles (mg/L) Benzene	ND	ND	0.047	0.14	0.11
TCLP - Semivolatiles (mg/L) Cresols	ND	ND	0.15	0.31	0.31
TCLP - Metals (mg/L) Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	ND 0.56B ND 0.037B ND ND ND ND	ND 0.67B ND 0.0039B ND ND ND ND	ND 0.91B ND 0.034B ND ND ND ND	ND 1.4B ND 0.038B 0.030B ND ND ND	ND 1.5B ND 0.0034B 0.027B ND ND ND
TCLP (PASS/FAIL)	ALL PASS	ALL PASS	ALL PASS	ALL PASS	ALL PASS
Arsenic (mg/kg)	5.9	8.7	7.7	7.5	6.9
Cyanide (mg/kg)	7	6	3	36	42
PAHs (mg/kg)	1854.3	2232.9	12,870	15,370	8945
PAH ₄ (mg/kg)	338.3	398.9	1340	2000	960
Phenol (mg/kg)	ND	ND	ND	ND	ND

5-FOOT SUMMARY OF BTX RESULTS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-118BTX1 (1-2 foot interval)	ND	ND	ND												
LB-118BTX1(DUP) (1-2 foot interval)	ND	ND	ND												
LB-118BTX2 (6-7 foot interval)	ND	ND	ND												
LB-118BTX2(DUP) (6-7 foot interval)	ND	ND	4.4J												
LB-118BTX3 (15-16 foot interval)							180	260	1700						
LB-118BTX4 (21-22 foot interval)										330	400	1200			
LB-118BTX5 (28-29 foot interval)										49	32	58			

MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNu readings)

Interval	HNu = ND (ppm)	Description/Comments	Interval	HNu = ND (ppm)	Description/Comments	Interval	HNu = ND (ppm)	Description/Comments
1-1	—	Coal fines, large 2-inch thick piece of coke, trace slag	10-11	14	Mostly coke with fines, ~10% soft tar intermixed (no BTX sample collected between 10-15 foot interval because of mixed tar; same is applicable for the composites)	19-20	—	No recovery
1-2	ND	Coal fines mixed with ~10% slag, piece of yellow brick	11-12	—	No recovery	20-21	2	Sandy coal fines, pieces of coke, wet
2-3	ND	Coal fines mixed with ~10% slag, piece of yellow brick, trace of crushed brick	12-13	—	No recovery	21-22	14	Coarser coal fines mixed uniformly with tar, pieces of railroad tie, plastic (wet)
3-4	—	No recovery	13-14	—	No recovery	22-23	14	Coal fines, sandy, gravelly, large piece of railroad tie (wet)
4-5	—	No recovery	14-15	—	No recovery	23-24	8	6" extremely hard, dense packed tar, trace clay (wet) 4" no recovery
5-6	ND	Wet pieces of coke, some coarse fines, piece yellow plastic	15-16	7	Mostly gravel with coal fines, chunks of railroad tie, 10% soft tar in the 15.5-16.0 foot interval	24-25	—	No recovery
6-7	7	5 inches sandy coal fines, 6 inches soft, oozy tar	16-17	9	5 inches coal fines with some intermixed soft tar, 6 inches dense packed tar	25-26	—	No recovery
7-8	33	Mostly soft tar, 2-inch piece of denser, more compact packed tar, pieces of coke	17-18	12	Packed tar, dense compact, trace of crushed brick	26-27	—	No recovery
8-9	14	Coke with soft tar, 2 large pieces of furnace brick	18-19	20	Pieces of chipped railroad ties, strong creosote odor	27-28	4	Wet coal fines, traces of tar, trace clay
9-10	14.5	Mostly coal fines, pieces of coke, approximately 10% to 15% soft tar	19-20	—	No recovery	28-29	4	Wet coal fines, coke, tar packed in soft clay 6" olive brown bottom clay
						29-30	ND	6" olive brown bottom clay, 6" no recovery

See description for LB-118 10COMP3

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-119									
			LB-119 10COMP1		LB-119 10COMP2		LB-119 10COMP3		
10-FOOT COMPOSITE SAMPLE RESULTS									
TCLP - Volatiles (mg/L)		Benzene		0.0090J	0.0080J		ND		
TCLP - Semivolatiles (mg/L)		Cresols		ND	ND		ND		
TCLP - Metals (mg/L)		Arsenic		ND	ND		ND		
		Barium		0.77B	0.66B		1.6B		
		Cadmium		ND	ND		ND		
		Chromium		0.0044B	0.0043B		0.0048B		
		Lead		0.028B	0.019B		0.039B		
		Mercury		ND	ND		ND		
		Selenium		ND	ND		ND		
		Silver		ND	ND		ND		
TCLP (PASS/FAIL)		ALL PASS		ALL PASS		ALL PASS			
Arsenic (mg/kg)		5.2		6.3		6.8			
Cyanide (mg/kg)		4		ND		110			
PAHs (mg/kg)		816.1		608.8		814.1			
PAH ₂ (mg/kg)		165.3		140.3		136.2			
Phenol (mg/kg)		ND		ND		ND			
1-FOOT SUMMARY OF BTX RESULTS									
Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-119BTX1 (0-1 foot interval)	ND	1.7J	9.1J						
LB-119BTX2 (7-9 foot interval)	3.9J	1.9J	26						
LB-119BTX3 (18-19 foot interval)				2.6J	1.8J	16			
LB-119BTX4 (21-22 foot interval)							900	31J	300
LB-119BTX5 (25-26 foot interval)							7.3J	2.9J	6.9J
MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNu readings)									
0-1	HNu = 2 (ppm)	6 inches of coal fines with roots from plants, 6 inches of loosely packed tar and soft tar							
1-2	18	6 inches of loosely packed tar and soft tar, 6" packed dense tar							
2-3	ND	6" mostly sandy coal fines, trace clay, coke, broom brush and wood from stick							
3-4	—	No recovery							
4-5	—	No recovery							
5-7	ND	Gravelly fines, railroad tie wood pieces, rock							
7-9	22	6" gravelly fines, railroad tie wood pieces, rock, 6 inches packed tar, coke							
9-11	ND	Sandy fines, coke, slag							
11-13	—	No recovery							
13-15	—	No recovery							
15-16	ND		Sandy coal fines, trace slag 9" coarse gravelly coal fines with approximately 30% slag, 3" packed tar, hard, dense, compact						
16-17	ND	Note: Because of poor recovery (i.e., only 36 inches between 5 and 15 foot interval), the 0-15 foot interval was used for the collection of LB-119 10COMP1.							
17-18	12								
18-19	ND								
19-20	ND								
20-21	ND		Packed tar, hard, dense, compact Gravelly, coarse coal fines, 50% slag, rock Large piece of yellow brick (6" recovery)						
21-22	22								
22-23	ND								
23-24	15		Note: The 15-20 foot interval was used for collection of LB-119 10COMP2						
24-25	12								
25-26	Not Recorded								
26-27	Not Recorded		Sandy coal fines 6 inches sandy coal fines, 6 inches packed dense tar Coarser coal fines, gravelly, wet 3 inches coarser coal fines, gravelly, wet, 9 inches packed tar intermixed with clay, hard compact tar Packed tar intermixed with clay, hard compact tar (wet) Wet, bottom clay, stained gray with coal fines on the outside Bottom olive brown clay Bottom olive brown clay Bottom olive brown clay						
27-28	Not Recorded								
28-29	Not Recorded								
29-30	Not Recorded								

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-120									
	LB-120 10COMP1			LB-120 10COMP2			LB-120 10COMP3		
10-FOOT COMPOSITE SAMPLE RESULTS									
TCLP - Volatiles (mg/L)	ND			0.41			ND		
Benzene									
TCLP - Semivolatiles (mg/L)	ND			0.45			ND		
Cresols									
TCLP - Metals (mg/L)	ND			ND			ND		
Arsenic	0.69B			0.77B			1.1B		
Barium	ND			ND			ND		
Cadmium	0.0057B			0.0063B			0.0028B		
Chromium	ND			0.029B			ND		
Lead	ND			ND			ND		
Mercury	ND			ND			ND		
Selenium	ND			ND			ND		
Silver	ND			ND			ND		
TCLP (PASS/FAIL)	ALL PASS			ALL PASS			ALL PASS		
Arsenic (mg/kg)	8.1			9.7			7.8		
Cyanide (mg/kg)	5			24			11		
PAHs (mg/kg)	1729.7			1725.6			457.8		
PAH ₁ (mg/kg)	457			348.6			98.6		
Phenol (mg/kg)	ND			ND			ND		
5-FOOT SUMMARY OF BTX RESULTS									
Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-120BTX1 (2-3 foot interval)	ND	ND	ND						
LB-120BTX2 (11-12 foot interval)				8.1J	10J	30			
LB-120BTX3 (15-16 foot interval)				16	14	80			
LB-120BTX4 (22-23 foot interval)							ND	ND	ND
MATERIAL DESCRIPTION/COMMENTS (1-FOOT INTERVALS, including HNu readings)									
0-1	HNu = ND (ppm)	Coal fines mixed with approximately 10% slag, gravelly, sandy, small piece of tar							
1-2	ND	Coal fines mixed with slag, trace clay							
2-3	13	Packed tar with some fines							
3-4	10	6 inches packed tar with some fines							
4-5	—	No recovery							
5-6	43	6" soft tar with some chunks of railroad tie; 6" soft, oozing tar							
6-7	32	6 inches soft, oozing tar; 6 inches packed tar, more dense than above							
7-8	—	No recovery							
8-9	—	No recovery							
9-10	—	No recovery							
10-11	40				Soft to loosely packed tar				
11-12	15				Gravely coarse coal fines, with slight sheen of oil, piece of coke, slag				
12-13	ND				Coarse coal fines, coke, slag				
13-14	6				6 inches coarse coal fines, coke, slag; 6 inches of packed tar				
14-15	ND				Finer coal fines, slag				
15-16	5				Coarse gravelly fines, coal fines (wet)				
16-17	22				4 inches coarse gravelly fines, coal fines (wet); 8 inches packed tar				
17-18	ND				6 inches mostly finer, sandy coal fines (wet); 6 inches no recovery				
18-19	—				No recovery				
19-20	—				No recovery				
20-21	ND							Sandy, wet coal fines	
21-22	ND							Sandy, wet coal fines	
22-23	7.5							6 inches sandy, wet coal fines; 6 inches of packed tar	
23-24	ND							Olive brown clay	
24-25	ND							Olive brown clay	

LAGOON NO. 5 FIELD CHARACTERIZATION PROGRAM (JUNE 1997) BORING LB-121

LB-121 10COMP1		LB-121 10COMP2		LB-121 10COMP3	
10-FOOT COMPOSITE SAMPLE RESULTS					
TCLP - Volatiles (mg/L) Benzene	ND	0.019J	0.051		
TCLP - Semivolatiles (mg/L) Cresols	ND	0.0072J	0.20		
TCLP - Metals (mg/L) Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	ND 0.67B ND 0.0030R ND ND ND ND	ND 0.85B 0.0028B 0.0037B 0.044B ND ND ND	ND 1.1B ND 0.0022R ND ND ND ND		
TCLP (PASS/FAIL)	ALL PASS	ALL PASS	ALL PASS		
Arsenic (mg/kg)	6.5	6.4	9.2		
Cyanide (mg/kg)	ND	19	44		
PAHs (mg/kg)	187.9	3186	1314		
PAH ₄ (mg/kg)	46.5	442	169		
Phenol (mg/kg)	ND	ND	ND		

FFOOT SUMMARY OF BYX RESULTS

Sample Number	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Xylenes (µg/kg)
LB-121BTX1 (2-3 foot interval)	1.9J	2.2J	7.2J						
LB-121BTX2 (6-7 foot interval)	ND	ND	ND						
LB-121BTX3 (13-14 foot interval)				33	ND	26			
LB-121BTX4 (16-17 foot interval)				27	51	220			
LB-121BTX5 (22-23 foot interval)							100	36	190
LB-121BTX6 (25-26 foot interval)							4.3J	2.6J	2.8J

[illegible]

Interval	HNu = ND (ppm)	Interval	Interval	Interval
0-1	ND	Gravelly to sandy coal fines, large pieces of coke		
1-2	ND	Gravelly to sandy coal fines, large pieces of coke		
2-3	45	4-inch piece of packed tar; 8 inches of fine coal fines, wood, brick, plastic, trace brown sand		
3-4	ND	Fine coal fines, trace yellow brick		
4-5	ND	6 inches fine coal fines, trace yellow brick; 6 inches no recovery		
5-6	ND	Coarse, sandy, gravelly coal fines, pieces of coke		
6-7	9	Coal fines, pieces of yellow brick; 1- to 2-inch thick piece of packed tar, yellow plastic		
7-8	35	6 inches soft, oozy tar, shiny; 6 inches no recovery		
8-9	—	No recovery		
9-10	—	No recovery		
10-11	32		Soft, oozy tar	
11-12	ND		6 inches soft, oozy tar; 6 inches coal fines mixed with traces of soft tar	
12-13	ND		Sandy coal fines, pieces of coke, isolated small pieces trace packed tar	
13-14	10		6 inches sandy coal fines, pieces of coke, isolated small pieces trace packed tar; 6 inches hard, dense packed tar	
14-15	12		6 inches hard, dense packed tar; 6 inches soft tar	
15-16	9		Soft, oozy tar	
16-17	19		6 inches soft tar turning to packed, dense tar; 6 inches fine sandy coal fines	
17-18	ND		Fine sandy coal fines	
18-19	—		No recovery	
19-20	—		No recovery	
20-21	ND			Sandy coal fines, pieces of coke
21-22	ND			Sandy coal fines, pieces of coke, small lump of packed tar (wet)
22-23	5			Moist, sticky clay intermixed with hard brown clay inside and coal fines outside, some loosely packed tar
23-24	9			Dense packed tar on top of and some packed tar inside bottom clay
24-25	11			Mostly olive brown clay, trace tar
25-26	ND			6 inches sandy coal fines and slag; 6 inches bottom olive brown clay
26-27	ND			Bottom olive brown clay
27-28	ND			Bottom olive brown clay
28-29	—			No recovery
29-30	—			No recovery