

**SUBSURFACE INVESTIGATION REPORT
BURIED DRUM DISCOVERY
FORMER GENERAL MOTORS
LEEDS ASSEMBLY PLANT
KANSAS CITY, MISSOURI**

JULY 1999

**96-620-3-005
GMLEEDS**

**Burns & McDonnell Waste Consultants, Inc.
Engineers-Geologists-Scientists
Kansas City, Missouri**

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1.0 INTRODUCTION

On May 18, 1999, several drums were unearthed at the former General Motors Leeds facility located at 6817 Stadium Drive in Kansas City, Missouri. The discovery was made during a sewer extension project conducted by Leeds Industrial (the facility's current owner). The sewer extension project has been suspended until environmental concerns associated with the drums have been addressed. All materials excavated during the project have been placed in containers or stockpiled on-site by Leeds Industrial personnel.

During excavation of the sewer trench, debris was uncovered that included wire, metal banding, bottles, and drums. Relatively homogeneous layers of red, blue, and purple material were observed in the drums uncovered. This observation is characteristic of paint waste generated during the finishing of automobiles. Metal pigments contained within older paint are commonly the primary environmental concern associated with the materials unearthed.

1.1 PROJECT LOCATION

The facility is located in a mixed industrial, commercial, and residential area (see Figure 1). The plant faces north along Stadium Drive. An employee parking lot was located on the north side of the street. Northwest of the site is an industrial area. Railroads border the plant on the east and west sides. Beyond the railroad to the east are parking lots, residences, and commercial properties. Further west of the western rail line are residences, commercial properties, and industrial facilities. To the southeast of the plant across the river is undeveloped open land with several residences and small businesses. The Blue River forms the southern property boundary.

The drums were discovered in southwest portion of the facility. An automobile auction company currently occupies the area where the drums were discovered. Leeds Industrial has barricaded the area where the drums were unearthed. In addition, the site is secured by a chain-link fence and patrolled by Leeds Industrial security. The location of the trench and existing infrastructure is presented on Figure 2.

1.2 PURPOSE OF INVESTIGATION

General Motors has chosen to voluntarily coordinate the investigation and recovery of buried drums at the site. Burns & McDonnell Waste Consultants, Inc. (Burns & McDonnell) was retained by General Motors to perform a subsurface investigation which consisted of the advancement of 13 soil borings. The purpose of the subsurface investigation was to define the horizontal limits of the buried drums and characterize the materials for disposal. Based on available information, the drums are suspected of containing paint waste generated during the assembly of automobiles. During investigation activities, the soil cuttings were closely inspected for debris, paint waste, and contaminated materials. Environmental samples were also collected for laboratory analysis. This report provides the results of the subsurface investigation activities that were conducted on May 25, 1999.

* * * * *

2.0 FIELD ACTIVITIES

On May 25, 1999, a total of 13 soil borings were advanced in the vicinity of the drums unearthed by Leeds Industrial. Soil borings were located to encircle the area where the drums were discovered.

2.1 UTILITY CLEARANCE

Utilities were cleared by Missouri One Call. In addition, historical facility drawings were used to identify site-specific subsurface utilities. Prior to the initiation of soil sampling activities, Burns & McDonnell marked each sample location. Figure 2 shows the location of the soil borings and known subsurface utilities.

2.2 SUBSURFACE INVESTIGATION

Standard drilling practices were employed to obtain environmental soil samples in the vicinity of the discovered drums. Layne Western of Kansas City, Kansas was subcontracted to provide and operate the equipment for the purpose of soil sample collection. A solid stem auger, mounted on the back of a drilling truck, was utilized for the investigation.

The soil cuttings from the auger were screened with a photoionization detector (PID) and a soil description logged. The soil cuttings were also monitored for recovery of debris. Samples were collected from 12-inch intervals at each drilling location. One sample at each location was selected for chemical analysis based on the highest PID reading. If all PID readings at a location were approximately equal, the sample was collected from the depth interval of the previous sample.

Soil samples selected for analysis were placed in a jar and stored on ice in a cooler. All sample containers were labeled with relevant sampling information (sample point, sample designator, depth, time, date, and requested analysis). Sample containers were then shipped to Southwest Laboratories of Broken Arrow, Oklahoma, and analyzed for volatile organic compounds (VOCs) using Toxicity Characteristic Leaching Procedures (TCLP) Method 1311/6010 and 7470 and the eight RCRA metals using TCLP Method 1311/8260.

Following sample collection, each boring was backfilled with bentonite and patched with asphalt to match the surrounding pavement and grade. Soil cuttings were placed in DOT 55-gallon drums and labeled. The soil will be transported to an off-site disposal facility.

2.3 INVESTIGATION RESULTS

Burns & McDonnell collected samples from 13 locations during the investigation. Soil data from each location is presented on the drilling logs in Appendix A. The results of the soil analytical testing are summarized in Table 1 and the complete set of laboratory data is presented in Appendix B. Groundwater was not encountered at the sample locations.

Each soil sample was analyzed for VOCs and RCRA metals. Benzene, the only VOC detected, was detected above the method detection limit but below the practical quantitation limit; therefore, the concentration was estimated. Benzene was only estimated in one of the 13 soil samples, and the concentration was below the regulatory level for toxicity. Arsenic, barium, cadmium, lead, and mercury were each detected in two or more samples, but these concentrations also fell below the regulatory levels for toxicity.

Fragments of various artificial fill materials were discovered in several of the borings. Brick fill was discovered in Borings B-2 and B-8. Metal bands and/or metal fines were found in Borings B-1, B-5, and B-10; additionally, wire was recovered from Borings B-5 and B-10. Boring B-9 contained pieces of foam rubber.

The trench has been completed to the west, and no evidence of buried drums was found at that end. However, the eastern 30 feet of the trench contained drums. Based on the results of this subsurface investigation, the estimated horizontal extent of buried drums is bounded by Borings B-5 and B-6 to the north; Boring B-4 to the east; and Borings B-1 and B-2 to the south, as shown in Figure 2. In addition to the buried drums, it is estimated that artificial fill containing debris extends to the north and east of the trench.

* * * * *

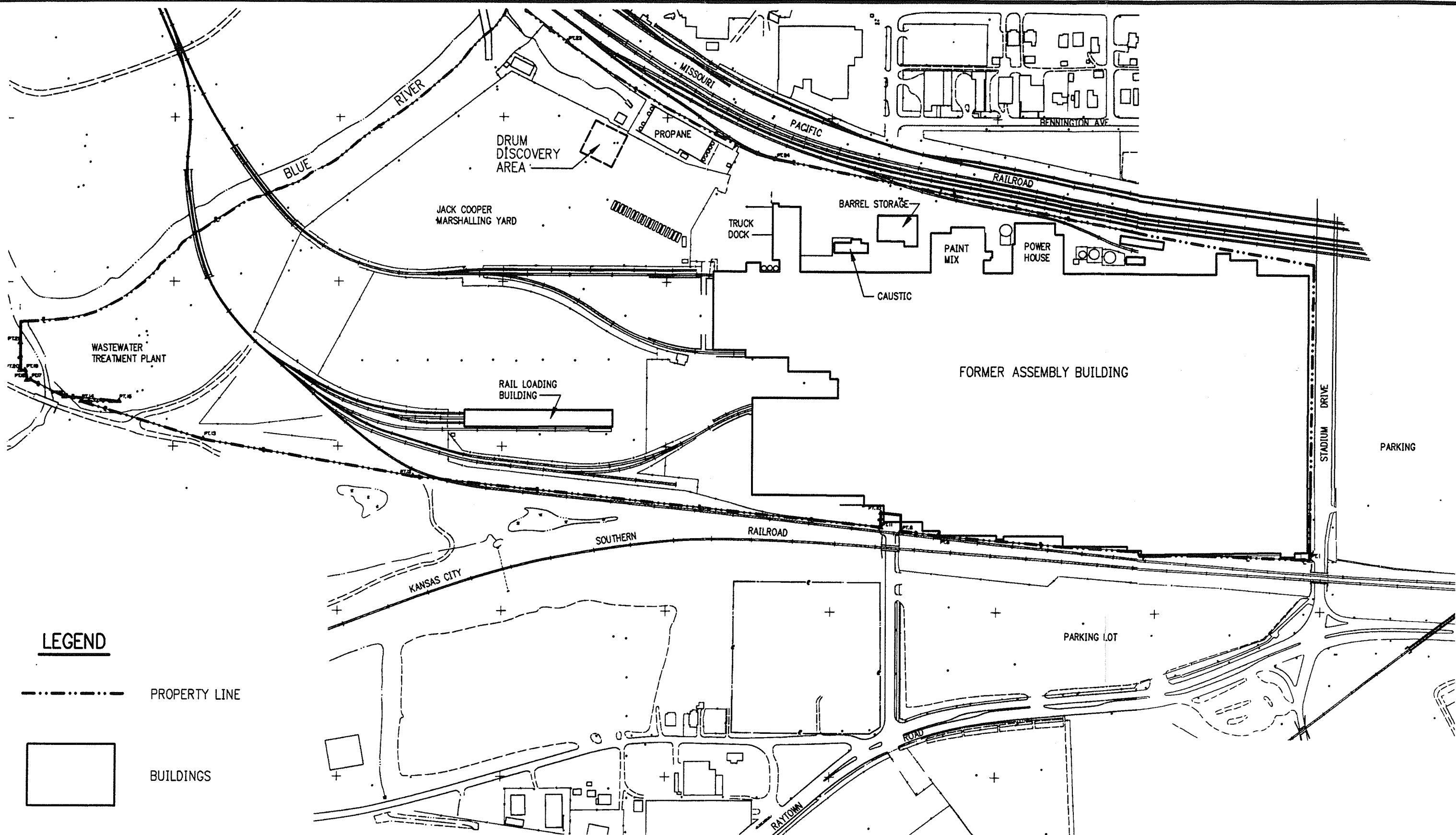
3.0 SUMMARY

The results of the Burns & McDonnell investigation indicate the following:

- Pavement encountered generally consisted of 4 inches of asphalt and 4 inches of granular subbase.
- Artificial fill material mixed with native materials was present beneath the pavement, to a depth approximately 8 to 12 feet below grade.
- Groundwater was not encountered during this investigation.
- The horizontal limits of the buried drums do not extend beyond a 45 foot square area encompassing the east end of the existing trench (see Figure 2).
- Debris including brick, metal bands, metal, and foam rubber was recovered from several of the borings.
- No soil samples collected during this investigation exceeded the TCLP toxicity levels defined in 40 CFR 261.24; therefore, the soil recovered is not classified as hazardous material.

* * * * *

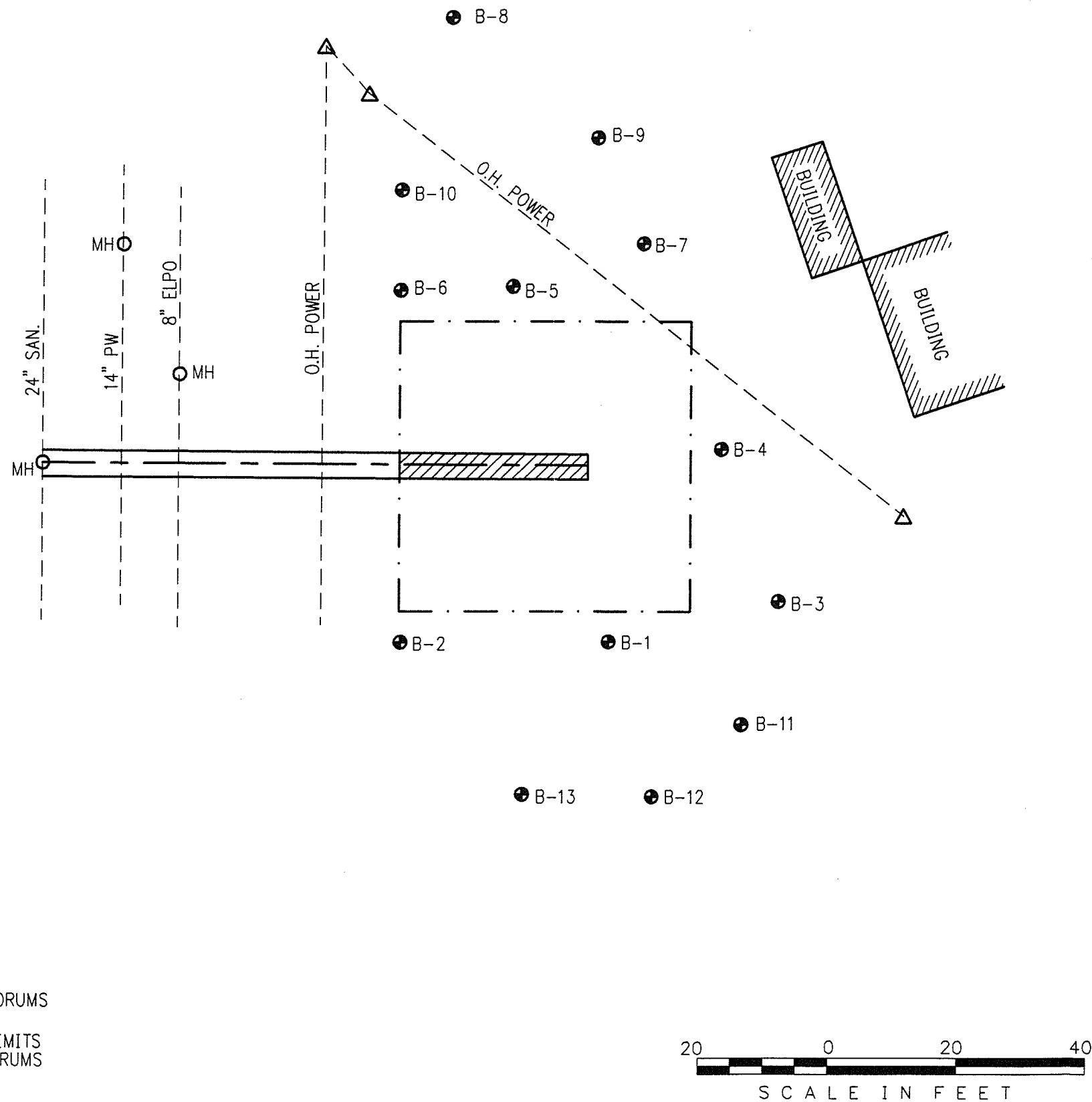
FIGURES



Burns & McDonnell Waste Consultants, Inc.	Figure 1
	SITE LOCATION MAP
	FORMER GM LEEDS PLANT
	KANSAS CITY, MISSOURI

LEGEND

- B-2 BORING
- MH MANHOLE
- △ POWER POLE
- ▨ TRENCH W/ DRUMS
- . - ESTIMATED LIMITS OF BURIED DRUMS



**Burns
&
McDonnell
Waste
Consultants,
Inc.**

Figure 2
DRUM DISCOVERY AREA
FORMER GM LEEDS PLANT
KANSAS CITY, MISSOURI

TABLES

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
DISCOVERY OF BURIED DRUMS
FORMER GENERAL MOTORS LEEDS FACILITY

		B1-SB1 05/25/99 10 to 11 fbg	B2-SB1 05/25/99 12 to 13 fbg	B3-SB1 05/25/99 12 to 13 fbg	B4-SB1 05/25/99 12 to 13 fbg	B5-SB1 05/25/99 6 to 7 fbg	B6-SB1 05/25/99 6 to 7 fbg	B7-SB1 05/25/99 7 to 8 fbg
TCLP Metals EPA Method 1311/6010 & 7470								
Mercury	mg/L	0.0021	0.0021	0.0022	0.002 U	0.002 U	0.002 U	0.002 U
Arsenic	mg/L	0.01 U	0.013	0.01 U	0.01 U	0.012	0.01 U	0.01 U
Barium	mg/L	2.4	1.5	2.3	1.9	2	1.8	2
Cadmium	mg/L	0.015	0.003 U	0.003 U	0.003 U	0.021	0.003 U	0.003 U
Chromium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Lead	mg/L	0.085	0.051	0.007	0.0032	0.76	0.024	0.0047
Silver	mg/L	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Selenium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.007 U	0.005 U
TCLP Volatiles EPA Method 1311/8260								
Benzene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.008 J	0.025 U	0.025 U
Carbon Tetrachloride	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Chlorobenzene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Chloroform	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
1,2-Dichloroethane	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
1,1-Dichloroethene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Tetrachloroethene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Trichloroethene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Vinyl Chloride	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
2-Butanone	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U

		B8-SB1 05/25/99 7 to 8 fbg	B9-SB1 05/25/99 7 to 8 fbg	B10-SB1 05/25/99 7 to 8 fbg	B11-SB1 05/25/99 7 to 8 fbg	B12-SB1 05/25/99 7 to 8 fbg	B13-SB1 05/25/99 7 to 8 fbg
TCLP Metals EPA Method 1311/6010 & 7470							
Mercury	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Arsenic	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium	mg/L	1.6	2	1.2	1.8	1.6	1.2
Cadmium	mg/L	0.0032	0.003 U	0.0033	0.003 U	0.003 U	0.003 U
Chromium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Lead	mg/L	0.012	0.003 U	0.0035	0.008	0.024	0.015
Silver	mg/L	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Selenium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
TCLP Volatiles EPA Method 1311/8260							
Benzene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Carbon Tetrachloride	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Chlorobenzene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Chloroform	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
1,2-Dichloroethane	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
1,1-Dichloroethene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Tetrachloroethene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Trichloroethene	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Vinyl Chloride	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
2-Butanone	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U

Analytical services provided by:
Southwest Laboratory
1700 W Albany
Broken Arrow, OK 74012

Notes:
U: Not Detected
J: Estimated
mg/L: milligrams per liter
fbg: feet below grade

No analytical results exceed the Toxicity Characteristic Levels of 40 CFR Part 261.24

TABLE 2
TOXICITY CHARACTERISTIC
DISCOVERY OF BURIED DRUMS
FORMER GENERAL MOTORS LEEDS FACILITY

		Regulatory Level	Hazardous Waste No.
TCLP Metals			
Mercury	mg/L	0.2	D009
Arsenic	mg/L	5	D004
Barium	mg/L	100	D005
Cadmium	mg/L	1	D006
Chromium	mg/L	5	D007
Lead	mg/L	5	D008
Silver	mg/L	5	D011
Selenium	mg/L	1	D010
TCLP Volatiles			
Benzene	mg/L	0.5	D018
Carbon Tetrachloride	mg/L	0.5	D019
Chlorobenzene	mg/L	100	D021
Chloroform	mg/L	6	D022
1,2-Dichloroethane	mg/L	0.5	D028
1,1-Dichloroethene	mg/L	0.7	D029
Tetrachloroethene	mg/L	0.7	D039
Trichloroethene	mg/L	0.5	D040
Vinyl Chloride	mg/L	0.2	D043
2-Butanone	mg/L	200	D035

Reference:
40 CFR Part 261.24

Notes:
mg/L: milligrams per liter

APPENDIX A
SOIL BORING LOGS

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B1	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OT & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
	Asphalt				0905					
1	Clay, olive gray, moist med plasticity, soft (Fill)	CL								
2										
3										
4										
5										
6	Clay with gravel, black damp, med plasticity soft (Fill)									
7										
8										
9										
10						SB1				
11										
12										
13										
14	Total Depth = 15 ft				0919				64.9	

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-2	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
	Asphalt				0930					
1	Fill, dry, black, sand									
2	gravel, brick									
3										
4										
5										
6	Clay, dark olive gray									
7	moist, soft, high plasticity	CL								
8										
9										
10										
11						SB1				
12										
13										
14	Total Depth = 15 ft				0945					

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-3	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
0	Asphalt				0950					
1	Gravel, Fill								0	
2	Clay, olive brown, soft & damp, med plasticity	CL							0	
3										
4										
5									0	
6										
7									0	0
8										
9									0	
10										
11									0	
12						SB1				
13									1.8	0
14	Total Depth 15 ft				1005					

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-4	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
	Asphalt				1010					
1	Gravel, Fill								0	
2	Clay, olive gray, soft	CL								
3	damp, med plasticity							0	0	
4										
5									0	
6										
7									0	
8	Clay, brownish green, soft	CL								
9	damp, med plasticity							0	0	
10										
11									0	
12						SBI				
13									0	0
14	Total Depth 15 ft				1030					

BZ=Breathing Zone BH=Bore Hole S=Sample

Burns & Consultants, Inc. Waste Consultants, Inc.

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-5	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To	Field Observer (s) James Greer Brian Foy		

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Asphalt				1035					
2	Gravel, Fill								0	
3	Clay olive gray, soft damp, med plasticity	CL							0	0
4										
5									0	
6						SBI				
7									0	0
8										
9									0	
10										
11									0	
12										
13									0	0
14	Total Depth 15 ft				1055					

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-6	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Asphalt				1105					
2	Gravel & Fill									
3	Clay, olive brown, soft damp med plasticity	CL								
4										
5									10	
6						SB1				
7									26	
8									60	
9										
10										
11										
12										
13										
14					1125				11	

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-7	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
0	Asphalt				1130					
1	Gravel & Fill						0	0		
2										
3	Clay, brown, soft, moist	CL							0	
4	med plasticity									
5									0	
6										
7						SBI	0	0		
8										
9									0	
10										
11									0	
12										
13							0	0		
14	TD=15 ft				1155					

BZ=Breathing Zone BH=Bore Hole S=Sample

Burns & McDonnell Waste Consultants Inc.

11/11/1992

Form WCI-OP-2-1

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-8	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Asphalt				1255					
1	Fill, sand, gravel, brick							0	0	
2										
3									0	
4										
5									0	
6	Clay, brown, soft, moist	CL								
7	med plasticity					SBI		0	0	
8										
9									0	
10										
11									0	
12										
13								0	0	
14	Total Depth = 15 ft				1310					

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-9	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Asphalt				1310					
1	Fill, Gravel						0	0		
2										
3								0		
4	Clay, olive gray, soft	CL								
5	med plasticity, damp							0		
6										
7						SBI	0	0		
8										
9	Clay, black, soft	CL						0		
10	med plasticity, damp									
11								0		
12										
13							0	0		
14	Total Depth = 15 ft				1320					

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-10	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Asphalt Fill				1330					
2										
3	Clay, brown, damp soft, med plasticity	CL								
4										
5										
6										
7										
8						SBI				
9										
10										
11										
12										
13										
14	Total Depth = 15 ft				1350					

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B11	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Design.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Asphalt Fill				1355			0	0	
2										
3	Clay, brown, damp								0	
4	soft, med plasticity	CL								
5									0	
6										
7	Clay, black, damp					SBI		0	0	
8	soft, med plasticity									
9									0	
10										
11									0	
12										
13								0	0	
14	Total Depth = 15 ft				1405					

BZ=Breathing Zone BH=Bore Hole S=Sample

Burns & Waste Consultants, Inc. McDonnell

Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-12	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Asphalt Fill				1410					
2	Clay, brown, damp soft, high plasticity	CL								
3										
4										
5										
6										
7										
8						SBI				
9										
10										
11										
12										
13										
14	Total Depth = 15 Ft				1425					

BZ=Breathing Zone BH=Bore Hole S=Sample

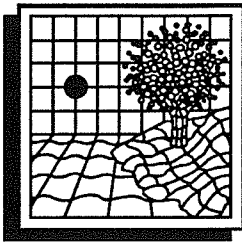
Drilling Log

Project Name GMLEEDS		Project Number 96-620-3-005		Boring Number B-13	
Ground Elevation		Location		Page 1 of	
Air Monitoring Equipment OVM 580B				Total Footage 15	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Solid Stem Auger					
Drilling Company Layne			Driller (s) OJ & Randy		
Drilling Rig			Type of Sampler Cuttings		
Date 5/25/99		To		Field Observer (s) James Greer Brian Foy	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/ Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Asphalt				1420					
1	Gravel & Fill						0	0		
2										
3	Clay, olive brown, damp	CL							0	
4	soft, med plasticity									
5									0	
6										
7							0	0		
8						SBI				
9									0	
10										
11									0	
12										
13							0	0		
14	Total Depth = 15 ft				1440					

BZ=Breathing Zone BH=Bore Hole S=Sample

APPENDIX B
ANALYTICAL DATA



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

June 10, 1999

Mr. Brian Foy
Burns and McDonnell Waste Consultants
9400 Ward Parkway
Kansas City, MO 64114

Project: GM LEEDS/96-620-3007
SWLO ID: 38721.01 – 38721.13

Dear Mr. Foy:

Enclosed please find the tabular report for the above referenced sample received in our laboratory on May 26, 1999. Please see the enclosed case narrative for details regarding analysis of these samples.

Please note: Preliminary results were faxed to you on June 8, 1999.

If in your review you should have any questions or require further information, please do not hesitate to call.

Sincerely,

Randy Staggs
Project Officer

RES/slc

Enclosures

Request for Chemical Analysis and Chain of Custody Record

Request for Chemical Analysis and Chain of Custody Record																	
Burns & McDonnell Waste Consultants, Inc. 9400 Ward Parkway Kansas City, Missouri 64114 Phone: (816) 333-8787 Fax: (816) 822-3463					Laboratory <u>Southwest</u> Address <u>1700 West Albany</u> City/State/Zip <u>Broken Arrow, OK 74010</u> Telephone <u>918 251-2599</u>					Document Control No.: Lab. Reference No. or Episode No.: Analysis Containers							
Attention: <u>Brian Foy</u> Project Number: <u>96-620-3-007</u> Project Name: <u>GMLEEDS</u>					Sample Type												
Site, Group, or SWMU Name:					Sample Event		Sample Depth (in feet)		Sample Collected		Matrix			Composite	Grab	Number of Containers	Remarks
											Liquid	Solid	Gas				
B1	SB1				10	11	5/25/99	0915								X	TCLP VOCs
B2	SB1				12	13		0945								X	TCLP VOCs
B3	SB1				12	13		1005								X	TCLP VOCs
B4	SB1				12	13		1025								X	TCLP VOCs
B5	SB1				6	7		1050								X	TCLP VOCs
B6	SB1				6	7		1115								X	TCLP VOCs
B7	SB1				7	8		1140								X	TCLP VOCs
B8	SB1				7	8		1305								X	TCLP VOCs
B9	SB1				7	8		1320								X	TCLP VOCs
B10	SB1				7	8		1340								X	TCLP VOCs
B11	SB1				7	8		1400								X	TCLP VOCs
B12	SB1				7	8		1420								X	TCLP VOCs
B13	SB1				7	8		1435								X	TCLP VOCs
Special Instructions: <u>TCLP method 1311</u>																	
for both VOC & RCRA Metals, 7-day Turn																	
Condition of Shipping Container: Good ☐ Fair ☐ Poor ☐ Ice Present in Container: Yes ☐ No ☐																	
Comments: <u>H/C</u>																	

Sampler (signature): <u>James Greer</u>		Date/Time	Received By:	Date/Time
Relinquished By: <u>James Greer</u>		<u>5/25/99 1100</u>	<u>James Greer</u>	<u>5/25/99 9:45</u>
Relinquished By: <u>James Greer</u>		<u>5/25/99 1100</u>	<u>James Greer</u>	<u>5/25/99 9:45</u>

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 REV 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): DON WILLIS

REC'D DATE 05/26/99

RECEIVED BY (SIGNATURE):

TIME REC'D 09:45

LOGGED IN BY (SIGNATURE):

LOG-IN DATE 1999-05-26 12:51

PROJECT: GMLEEDS/96-620-3007

EPIISODE: 38721

SAMPLE DELIVERY GROUP:38721

Remarks

1. CUSTODY SEAL(S): Present/Absent
Intact/ Broken

2. CUSTODY SEALS NOS.:
NA

3. CHAIN-OF CUSTODY. Present/Absent

Sealed In Plastic?	Yes/ No
--------------------	---------

Taped To Lid?	Yes/ No
---------------	---------

Properly Filled Out (Ink, Signed, ETC.)?	Yes/ No
---	---------

4. AIRBILL

AirBII/ Sticker
Present/Absent

5. AIRBILL NO:

448160110810

6. COOLER CONDITIONS

Enough Ice?	Yes/ No
--------------------	----------------

Type of Ice? . WET

Type of Packing? BUB

7. SAMPLE TAGS Present/Absent

8. SAMPLE CONDITION: Intact/ Broken*/

Bottles Sealed In Separate Plastic Bags?	Leaking Yes/No
---	-------------------

	<u>Yes</u>	No
Correct Containers Used For Tests Indicated?	Yes/ No	

Correct Preservative?	Yes/ No
-----------------------	---------

Sufficient Sample?	Yes/ No
Yes	
No	

Labels Complete (I.D., Date,
Time, Signature, Preservative)? Yes/ No

VOA Samples Without Bubbles? Yes/No~

9. Does Information on Custody

Records, Labels, Tags Agree? Yes/No*

10. RAD SCREEN WITH GIEGER COUNTER?

11. P.O. Called?

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide, H=Herbicide, D=Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

**SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A / Broken Arrow, OK 74012
918-251-2858**

SDG NARRATIVE

June 3, 1999

CLIENT: B&MC

SDG No.: 38721

VOLATILE FRACTION

Thirteen water samples were submitted for Volatile Organic Analysis. The samples were analyzed by GC/MS following Method SW846-8260B for the TCLP compounds.

Blanks: No problems.

Surrogates: Sample B1 SB1MSD contained surrogates outside QC recovery limits. They were within limits in the sample analysis. No reanalysis was done per protocol.

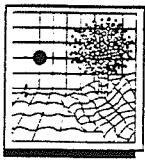
Laboratory Control Spikes: No problems.

Matrix Spikes: No matrix spikes were submitted with this SDG. The MS/MSDs on samples B1-SB1 and B5-SB1 were run as part of our laboratory QC. Samples B1-SB1MS and B1-SB1MSD each contained one compound outside QC recovery limits (analytical batch K990601A). 1,1-dichloroethene exceeded its RPD limit of 20 with a value of 25 for that sample. There were no problems with B5-SB1MS/MSD (analytical batch K990602A).

Internal Standards: No problems.


Janet Williamson
Volatile Data Review

June 3, 1999



SOUTHWEST LABORATORY OF OKLAHOMA, INC. / AATS, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

METHODOLOGY

SM = Standard Methods, 18th Edition, 1992
EPA = #EPA600 / 4-79-020, March 1985
SW = EPA Methodology, "#SW846", Final Update III,
June, 1997

GENERAL QUALIFIER FLAGS

B - Analyte is detected in blank as well as sample.
J - Estimated value: concentration is below limit of quantitation
T - Trace Amount
U - Not detected
> - Concentration greater than value reported
E - Compound exceeds calibration range
D - Sample dilution run or surrogates diluted out
Sample run at secondary dilution
I - Not quantifiable due to matrix interference
* - Surrogate outside of QC limits on both original and re-analysis
P - Pesticide / Aroclor Flag used when > 25% difference between two GC columns.
The lower of the two values is reported.

TPH 8015

1 - Analysis shows miscellaneous peaks, which cannot be identified as any specific pattern. Response factor for nearest eluting hydrocarbon standard was used to calculate concentration.
2 - Pattern is similar to, but not identical to standard.
3 - May be a weathered gasoline.

APPENDIX IX SEMIVOLATILES

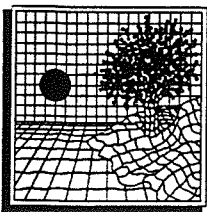
1 - Detected as Diphenylamine
2 - Coelute on GC Column

TCLP SEMIVOLATILES

1 - 1-Methyl Phenol
2 - Compounds Co-elute (3 & 4-Methylphenol)
3 - Combination of O, M, & P Cresols

DIOXINS

X - EMPC (Estimated Maximum Possible Concentration)
I* - EMPC - ether interference



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.01
QAQC# : K990601A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.01
SAMPLE #: B1 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

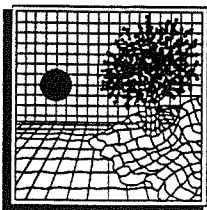
ANALYZED : 06/01/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
BENZENE	0.025	U	1,1-DICHLOROETHENE	0.025	U
CARBON TETRACHLORIDE	0.025	U	TETRACHLOROETHENE	0.025	U
CHLOROBENZENE	0.025	U	TRICHLOROETHENE	0.025	U
CHLOROFORM	0.025	U	VINYL CHLORIDE	0.025	U
1,2-DICHLOROETHANE	0.025	U	2-BUTANONE	0.025	U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 107 %	1,2-DICHLOROETHANE-D4	(80-120) 95 %
TOLUENE-D8	(88-110) 104 %	BROMOFLUOROBENZENE	(86-115) 103 %



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.01

REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007

LAB# : 38721.01

SAMPLE #: B1 SB1

LOCATION:

MATRIX : Soil

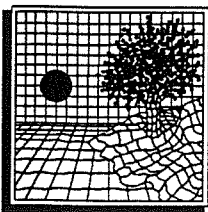
SAMPLED : 05/25/99

SUBMITTED: 05/26/99

%MOISTURE: 18.9

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.4	pH		05/27/99	
HG TOXICITY	0.0021	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	2.4	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.015	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.085	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.02
QAQC# : K990601A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.02
SAMPLE #: B2 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

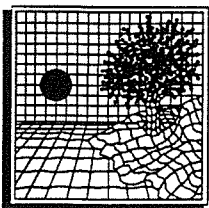
ANALYZED : 06/01/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
BENZENE	0.025	U	1,1-DICHLOROETHENE	0.025	U
CARBON TETRACHLORIDE	0.025	U	TETRACHLOROETHENE	0.025	U
CHLOROBENZENE	0.025	U	TRICHLOROETHENE	0.025	U
CHLOROFORM	0.025	U	VINYL CHLORIDE	0.025	U
1,2-DICHLOROETHANE	0.025	U	2-BUTANONE	0.025	U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 99 %	1,2-DICHLOROETHANE-D4	(80-120) 83 %
TOLUENE-D8	(88-110) 107 %	BROMOFLUOROBENZENE	(86-115) 100 %



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.02

REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007

SAMPLED : 05/25/99

LAB# : 38721.02

SUBMITTED: 05/26/99

SAMPLE #: B2 SB1

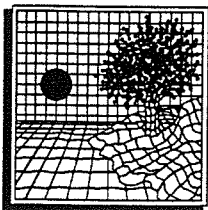
LOCATION:

MATRIX : Soil

%MOISTURE: 19.7

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	5.2	pH		05/27/99	
HG TOXICITY	0.0021	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.013	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	1.5	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.051	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.03
QAQC# : K990601A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.03
SAMPLE #: B3 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

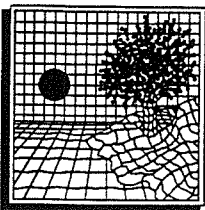
ANALYZED : 06/01/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
BENZENE	0.025	U	1,1-DICHLOROETHENE	0.025	U
CARBON TETRACHLORIDE	0.025	U	TETRACHLOROETHENE	0.025	U
CHLOROBENZENE	0.025	U	TRICHLOROETHENE	0.025	U
CHLOROFORM	0.025	U	VINYL CHLORIDE	0.025	U
1,2-DICHLOROETHANE	0.025	U	2-BUTANONE	0.025	U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 104 %	1,2-DICHLOROETHANE-D4	(80-120) 94 %
TOLUENE-D8	(88-110) 106 %	BROMOFLUOROBENZENE	(86-115) 103 %



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.03

REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007

LAB# : 38721.03

SAMPLE #: B3 SB1

LOCATION:

MATRIX : Soil

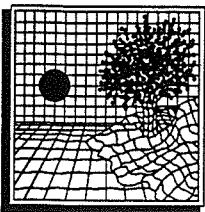
SAMPLED : 05/25/99

SUBMITTED: 05/26/99

%MOISTURE: 21.3

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.4	pH		05/27/99	
HG TOXICITY	0.0022	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	2.3	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.0070	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.04
QAQC# : K990601A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.04
SAMPLE #: B4 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

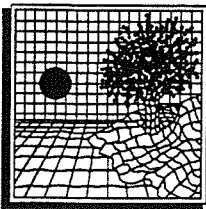
ANALYZED : 06/01/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**	PARAMETER	RESULTS**
BENZENE	0.025 U	1,1-DICHLOROETHENE	0.025 U
CARBON TETRACHLORIDE	0.025 U	TETRACHLOROETHENE	0.025 U
CHLOROBENZENE	0.025 U	TRICHLOROETHENE	0.025 U
CHLOROFORM	0.025 U	VINYL CHLORIDE	0.025 U
1,2-DICHLOROETHANE	0.025 U	2-BUTANONE	0.025 U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 103 %	1,2-DICHLOROETHANE-D4	(80-120) 93 %
TOLUENE-D8	(88-110) 103 %	BROMOFLUOROBENZENE	(86-115) 101 %



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.04

REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007

LAB# : 38721.04

SAMPLE #: B4 SB1

LOCATION:

MATRIX : Soil

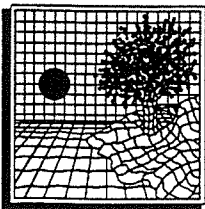
SAMPLED : 05/25/99

SUBMITTED: 05/26/99

%MOISTURE: 21.4

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.5	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	1.9	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.0032	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.05
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.05
SAMPLE #: B5 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

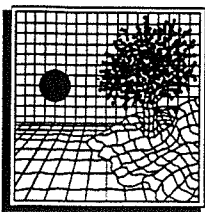
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**	PARAMETER	RESULTS**
BENZENE	0.0080 J	1,1-DICHLOROETHENE	0.025 U
CARBON TETRACHLORIDE	0.025 U	TETRACHLOROETHENE	0.025 U
CHLOROBENZENE	0.025 U	TRICHLOROETHENE	0.025 U
CHLOROFORM	0.025 U	VINYL CHLORIDE	0.025 U
1,2-DICHLOROETHANE	0.025 U	2-BUTANONE	0.025 U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 105 %	1,2-DICHLOROETHANE-D4	(80-120) 99 %
TOLUENE-D8	(88-110) 105 %	BROMOFLUOROBENZENE	(86-115) 102 %



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.05

REPORTED : 06/08/99

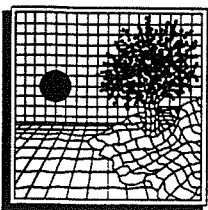
PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.05
SAMPLE #: B5 SB1
LOCATION:
MATRIX : Soil

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

%MOISTURE: 21.4

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.5	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.012	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	2.0	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.021	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.76	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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KANSAS CITY, MO 64114

REPORT : 38721.06
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.06
SAMPLE #: B6 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

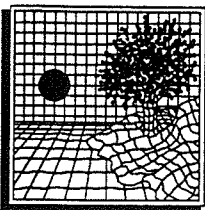
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
BENZENE	0.025	U	1,1-DICHLOROETHENE	0.025	U
CARBON TETRACHLORIDE	0.025	U	TETRACHLOROETHENE	0.025	U
CHLOROBENZENE	0.025	U	TRICHLOROETHENE	0.025	U
CHLOROFORM	0.025	U	VINYL CHLORIDE	0.025	U
1,2-DICHLOROETHANE	0.025	U	2-BUTANONE	0.025	U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 102 %	1,2-DICHLOROETHANE-D4	(80-120) 89 %
TOLUENE-D8	(88-110) 108 %	BROMOFLUOROBENZENE	(86-115) 104 %



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.06

REPORTED : 06/08/99

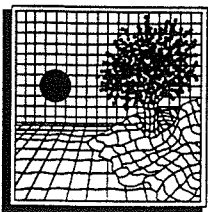
PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.06
SAMPLE #: B6 SB1
LOCATION:
MATRIX : Soil

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

%MOISTURE: 19.9

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	5.3	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	1.8	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.024	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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KANSAS CITY, MO 64114

REPORT : 38721.07
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.07
SAMPLE #: B7 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

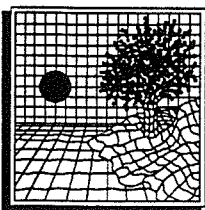
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
BENZENE	0.025	U	1,1-DICHLOROETHENE	0.025	U
CARBON TETRACHLORIDE	0.025	U	TETRACHLOROETHENE	0.025	U
CHLOROBENZENE	0.025	U	TRICHLOROETHENE	0.025	U
CHLOROFORM	0.025	U	VINYL CHLORIDE	0.025	U
1,2-DICHLOROETHANE	0.025	U	2-BUTANONE	0.025	U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118)	108	%	1,2-DICHLOROETHANE-D4	(80-120)	100	%
TOLUENE-D8	(88-110)	106	%	BROMOFLUOROBENZENE	(86-115)	104	%



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.07

REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007

LAB# : 38721.07

SAMPLE #: B7 SB1

LOCATION:

MATRIX : Soil

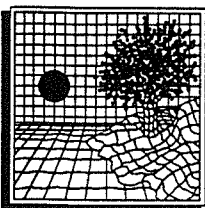
SAMPLED : 05/25/99

SUBMITTED: 05/26/99

%MOISTURE: 20.0

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.4	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	2.0	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.0047	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.08
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.08
SAMPLE #: B8 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

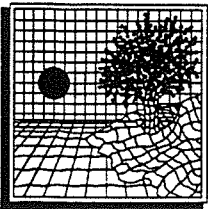
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**			PARAMETER	RESULTS**		
BENZENE	0.025	U		1,1-DICHLOROETHENE	0.025	U	
CARBON TETRACHLORIDE	0.025	U		TETRACHLOROETHENE	0.025	U	
CHLOROBENZENE	0.025	U		TRICHLOROETHENE	0.025	U	
CHLOROFORM	0.025	U		VINYL CHLORIDE	0.025	U	
1,2-DICHLOROETHANE	0.025	U		2-BUTANONE	0.025	U	

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118)	108	%	1,2-DICHLOROETHANE-D4	(80-120)	105	%
TOLUENE-D8	(88-110)	108	%	BROMOFLUOROBENZENE	(86-115)	105	%



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KANSAS CITY, MO 64114

REPORT : 38721.08

REPORTED : 06/08/99

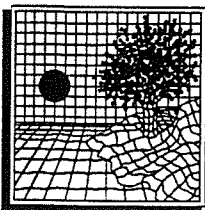
PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.08
SAMPLE #: B8 SB1
LOCATION:
MATRIX : Soil

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

%MOISTURE: 20.0

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.0	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	1.6	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0032	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.012	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.09
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.09
SAMPLE #: B9 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

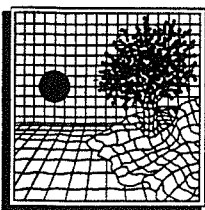
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
BENZENE	0.025	U	1,1-DICHLOROETHENE	0.025	U
CARBON TETRACHLORIDE	0.025	U	TETRACHLOROETHENE	0.025	U
CHLOROBENZENE	0.025	U	TRICHLOROETHENE	0.025	U
CHLOROFORM	0.025	U	VINYL CHLORIDE	0.025	U
1,2-DICHLOROETHANE	0.025	U	2-BUTANONE	0.025	U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 109 %	1,2-DICHLOROETHANE-D4	(80-120) 103 %
TOLUENE-D8	(88-110) 106 %	BROMOFLUOROBENZENE	(86-115) 105 %



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KANSAS CITY, MO 64114

REPORT : 38721.09

REPORTED : 06/08/99

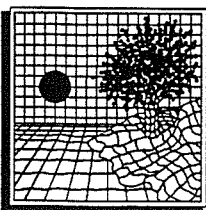
PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.09
SAMPLE #: B9 SB1
LOCATION:
MATRIX : Soil

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

%MOISTURE: 21.0

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.4	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	2.0	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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KANSAS CITY, MO 64114

REPORT : 38721.10
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.10
SAMPLE #: B10 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

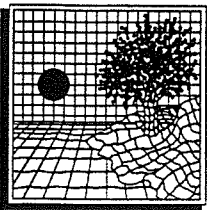
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
BENZENE	0.025	U	1,1-DICHLOROETHENE	0.025	U
CARBON TETRACHLORIDE	0.025	U	TETRACHLOROETHENE	0.025	U
CHLOROBENZENE	0.025	U	TRICHLOROETHENE	0.025	U
CHLOROFORM	0.025	U	VINYL CHLORIDE	0.025	U
1,2-DICHLOROETHANE	0.025	U	2-BUTANONE	0.025	U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118)	108	%	1,2-DICHLOROETHANE-D4	(80-120)	102	%
TOLUENE-D8	(88-110)	104	%	BROMOFLUOROBENZENE	(86-115)	103	%



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.10

REPORTED : 06/08/99

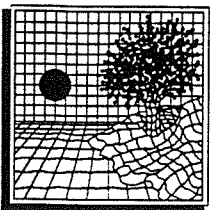
PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.10
SAMPLE #: B10 SB1
LOCATION:
MATRIX : Soil

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

%MOISTURE: 19.9

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.4	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	1.2	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0033	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.0035	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.11
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.11
SAMPLE #: B11 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

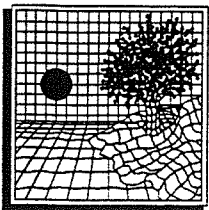
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
BENZENE	0.025	U	1,1-DICHLOROETHENE	0.025	U
CARBON TETRACHLORIDE	0.025	U	TETRACHLOROETHENE	0.025	U
CHLOROBENZENE	0.025	U	TRICHLOROETHENE	0.025	U
CHLOROFORM	0.025	U	VINYL CHLORIDE	0.025	U
1,2-DICHLOROETHANE	0.025	U	2-BUTANONE	0.025	U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 109 %	1,2-DICHLOROETHANE-D4	(80-120) 100 %
TOLUENE-D8	(88-110) 104 %	BROMOFLUOROBENZENE	(86-115) 101 %



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.11

REPORTED : 06/08/99

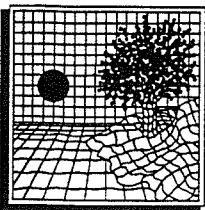
PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.11
SAMPLE #: B11 SB1
LOCATION:
MATRIX : Soil

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

%MOISTURE: 22.2

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.4	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	1.8	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.0080	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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KANSAS CITY, MO 64114

REPORT : 38721.12
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.12
SAMPLE #: B12 SBI
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

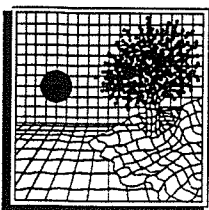
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**			PARAMETER	RESULTS**		
BENZENE	0.025	U		1,1-DICHLOROETHENE	0.025	U	
CARBON TETRACHLORIDE	0.025	U		TETRACHLOROETHENE	0.025	U	
CHLOROBENZENE	0.025	U		TRICHLOROETHENE	0.025	U	
CHLOROFORM	0.025	U		VINYL CHLORIDE	0.025	U	
1,2-DICHLOROETHANE	0.025	U		2-BUTANONE	0.025	U	

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118)	106	%	1,2-DICHLOROETHANE-D4	(80-120)	101	%
TOLUENE-D8	(88-110)	104	%	BROMOFLUOROBENZENE	(86-115)	103	%



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.12

REPORTED : 06/08/99

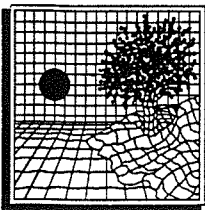
PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.12
SAMPLE #: B12 SB1
LOCATION:
MATRIX : Soil

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

%MOISTURE: 15.9

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.6	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	1.6	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.024	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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KANSAS CITY, MO 64114

REPORT : 38721.13
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.13
SAMPLE #: B13 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD :

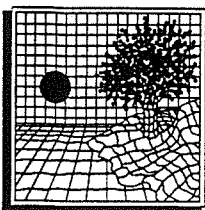
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**	PARAMETER	RESULTS**
BENZENE	0.025 U	1,1-DICHLOROETHENE	0.025 U
CARBON TETRACHLORIDE	0.025 U	TETRACHLOROETHENE	0.025 U
CHLOROBENZENE	0.025 U	TRICHLOROETHENE	0.025 U
CHLOROFORM	0.025 U	VINYL CHLORIDE	0.025 U
1,2-DICHLOROETHANE	0.025 U	2-BUTANONE	0.025 U

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 107 %	1,2-DICHLOROETHANE-D4	(80-120) 100 %
TOLUENE-D8	(88-110) 103 %	BROMOFLUOROBENZENE	(86-115) 101 %



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REPORT : 38721.13

REPORTED : 06/08/99

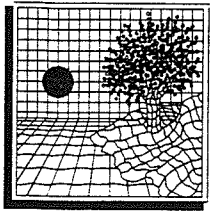
PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.13
SAMPLE #: B13 SB1
LOCATION:
MATRIX : Soil

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

%MOISTURE: 21.3

TCLP METALS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
TCLP EXTRACTION	6.4	pH		05/27/99	
HG TOXICITY	0.0020 U	mg/l	06/01/99	06/02/99	
ARSENIC TOXICITY	0.010 U	mg/l	05/27/99	06/05/99	
BARIUM TOXICITY	1.2	mg/l	05/27/99	06/05/99	
CADMIUM TOXICITY	0.0030 U	mg/l	05/27/99	06/05/99	
CHROMIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	
LEAD TOXICITY	0.015	mg/l	05/27/99	06/05/99	
SILVER TOXICITY	0.0070 U	mg/l	05/27/99	06/05/99	
SELENIUM TOXICITY	0.0050 U	mg/l	05/27/99	06/05/99	



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Quality Control Section

SWOK/AATS

TARGET COMPOUNDS

Client Name: Client SDG: k990601a.b
Client Sample ID: VBLK (1) Sample Date:
Sample Location: Sample Point:
Lab Sample ID: K990601 Date Received:
Sample Type: WATER Quant Type: ISTD
Analysis Type: VOA Level: LOW
Data Type: MS DATA
Misc Info: MS326**INST:K*SWLO*K990601*5ML

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
74-87-3-----	CHLOROMETHANE	5.00	U
75-01-4-----	VINYL CHLORIDE	5.00	U
74-83-9-----	BROMOMETHANE	5.00	U
75-00-3-----	CHLOROETHANE	5.00	U
75-35-4-----	1 1-DICHLOROETHENE	5.00	U
67-64-1-----	ACETONE	5.00	U
75-15-0-----	CARBON DISULFIDE	5.00	U
75-09-2-----	METHYLENE CHLORIDE	5.00	U
156-60-5-----	trans-1 2-DICHLOROETHENE	5.00	U
75-34-3-----	1 1-DICHLOROETHANE	5.00	U
108-05-4-----	VINYL ACETATE	5.00	U
156-59-2-----	cis-1 2-DICHLOROETHENE	5.00	U
78-93-3-----	2-BUTANONE	5.00	U
67-66-3-----	CHLOROFORM	5.00	U
71-55-6-----	1 1 1-TRICHLOROETHANE	5.00	U
56-23-5-----	CARBON TETRACHLORIDE	5.00	U
71-43-2-----	BENZENE	5.00	U
107-06-2-----	1 2-DICHLOROETHANE	5.00	U
79-01-6-----	TRICHLOROETHENE	5.00	U
78-87-5-----	1 2-DICHLOROPROPANE	5.00	U
75-27-4-----	BROMODICHLOROMETHANE	5.00	U
110-75-8-----	2-CHLOROETHYL VINYL ETHER	5.00	U
10061-01-5-----	cis-1,3-Dichloropropene	5.00	U
108-10-1-----	4-METHYL-2-PENTANONE	5.00	U
108-88-3-----	TOLUENE	5.00	U
10061-02-6-----	trans-1,3-Dichloropropene	5.00	U
79-00-5-----	1 1 2-TRICHLOROETHANE	5.00	U
127-18-4-----	TETRACHLOROETHENE	5.00	U
591-78-6-----	2-HEXANONE	5.00	U
124-48-1-----	DIBROMOCHLOROMETHANE	5.00	U
108-90-7-----	CHLOROBENZENE	5.00	U
100-41-4-----	ETHYL BENZENE	5.00	U
13-302-07-----	m,p-XYLENES	5.00	U
95-47-6-----	o-XYLENE	5.00	U
100-42-5-----	STYRENE	5.00	U
75-25-2-----	BROMOFORM	5.00	U
79-34-5-----	1 1 2 2-TETRACHLOROETHANE	5.00	U
1330-20-7-----	Xylene (Total)	5.00	U
540-59-0-----	1,2-Dichloroethene (total)	5.00	U
=====	=====	=====	=====

Data File: /chem/k.i/k990601a.b/k27928.d
Report Date: 01-Jun-1999 12:30

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SWOK/AATS

RECOVERY REPORT

Client Name: Client SDG: k990601a.b
Sample Matrix: LIQUID Fraction: VOA
Client ID: VBLK Level: LOW
Data Type: MS DATA SampleType: BLANK
SpikeList File: LCS ALL.spk Quant Type: ISTD
Method File: /chem/K.i/k990601a.b/5ml8260k.m
Misc Info: MS326**INST:K*SWLO*K990601*5ML

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 33 DIBROMOFLUOROMETHA	50.00	51.85	103.71	86-118
\$ 53 TOLUENE-d8	50.00	52.46	104.93	88-110
\$ 76 4-BROMOFLUOROBENZE	50.00	50.20	100.42	86-115
\$ 38 1,2-DICHLOROETHANE	50.00	45.25	90.51	80-120

* - Values outside of QC limits
Spike Recovery: 0 out of 4 outside limits
0 out of 4 not found

LCS\LCSD RECOVERY REPORT

Lab Name: SWOK\AATS

Matrix: WATER

Instrument: k

Analyst: rebecca

LCS Analysis Date: 01-JUN-99 12:22

LCS File id: k27929.d

LCSD Analysis Date: 01-JUN-99 12:49

LCSD File id: k27930.d

Units: Water ug/L Soil ug/Kg Air ppbv

COMPOUND	SPIKE ADDED	LCS CONCENTRATION	LCS % REC #	QC LIMITS REC
CHLOROMETHANE	50.00	34.13	68	47-150
VINYL CHLORIDE	50.00	45.56	91	53-138
BROMOMETHANE	50.00	55.77	112	46-143
CHLOROETHANE	50.00	42.94	86	59-142
1 1-DICHLOROETHENE	50.00	48.93	98	58-135
ACETONE	50.00	44.54	89	36-154
CARBON DISULFIDE	50.00	46.98	94	49-133
METHYLENE CHLORIDE	50.00	78.71	157*	59-134
trans-1 2-DICHLOROETHENE	50.00	48.86	98	59-134
1 1-DICHLOROETHANE	50.00	46.68	93	60-133
VINYL ACETATE	50.00	76.75	154*	56-135
cis-1 2-DICHLOROETHENE	50.00	52.49	105	61-134
2-BUTANONE	50.00	75.86	152	44-152
CHLOROFORM	50.00	47.13	94	61-133
1 1 1-TRICHLOROETHANE	50.00	46.83	94	59-130
CARBON TETRACHLORIDE	50.00	45.78	92	61-129
BENZENE	50.00	49.78	100	64-128
1 2-DICHLOROETHANE	50.00	50.48	101	61-136
TRICHLOROETHENE	50.00	49.63	99	64-128
1 2-DICHLOROPROPANE	50.00	45.91	92	66-135
BROMODICHLOROMETHANE	50.00	51.46	103	63-134
2-CHLOROETHYL VINYL ETHER	50.00	2.50	5*	40-149
cis-1,3-Dichloropropene	50.00	52.62	105	65-129
4-METHYL-2-PENTANONE	50.00	65.05	130	56-146
TOLUENE	50.00	52.80	106	59-134
trans-1,3-Dichloropropene	50.00	55.84	112	64-130
1 1 2-TRICHLOROETHANE	50.00	56.84	114	68-131
TETRACHLOROETHENE	50.00	46.41	93	62-133
2-HEXANONE	50.00	63.90	128	55-142
DIBROMOCHLOROMETHANE	50.00	54.92	110	41-145
CHLOROBENZENE	50.00	50.21	100	62-132
ETHYL BENZENE	50.00	43.11	86	60-131
m,p-XYLENES	100.00	76.80	77	72-126
o-XYLENE	50.00	44.61	89	62-132
STYRENE	50.00	51.98	104	61-136
BROMOFORM	50.00	60.99	122	61-135
1 1 2 2-TETRACHLOROETHANE	50.00	54.89	110	59-139

Column to be used to flag recovery with an asterisk

* Value outside of QC limits

LCS Recovery: 3 out of 35 outside limits

D TCHP

1

Data File: /chem/k.i/k990601a.b/k27929.d
Report Date: 01-Jun-1999 12:32

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SWOK/AATS

RECOVERY REPORT

Client Name: Client SDG: k990601a.b
Sample Matrix: LIQUID Fraction: VOA
Client ID: LCS Level: LOW
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: LCS ALL.spk Quant Type: ISTD
Method File: /chem/k.i/k990601a.b/5ml8260k.m
Misc Info: MS326**INST:K*SWLO*LCS*5ML

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 33 DIBROMOFLUOROMETHA	50.00	52.49	104.98	86-118
\$ 53 TOLUENE-d8	50.00	52.05	104.11	88-110
\$ 76 4-BROMOFLUOROBENZE	50.00	50.74	101.49	86-115
\$ 38 1,2-DICHLOROETHANE	50.00	49.50	99.00	80-120

* - Values outside of QC limits
Spike Recovery: 0 out of 4 outside limits
0 out of 4 not found

LCS\LCSD RECOVERY REPORT

Lab Name: SWOK\AATS

Matrix: WATER

Instrument: k

Analyst: rebecca

LCS Analysis Date: 01-JUN-99 12:22

LCS File id: k27929.d

LCSD Analysis Date: 01-JUN-99 12:49

LCSD File id: k27930.d

Units: Water ug/L Soil ug/Kg Air ppbv

COMPOUND	SPIKE ADDED	LCSD CONC.	LCSD % REC #	% RPD	QC LIMITS REC
CHLOROMETHANE	50.00	36.19	72	6	47-150
VINYL CHLORIDE	50.00	48.79	98	7	53-138
BROMOMETHANE	50.00	33.28	66	52	46-143
CHLOROETHANE	50.00	63.52	127	38	59-142
1 1-DICHLOROETHENE	50.00	50.81	102	4	58-135
ACETONE	50.00	43.54	87	2	36-154
CARBON DISULFIDE	50.00	47.83	96	2	49-133
METHYLENE CHLORIDE	50.00	80.23	160*	2	59-134
trans-1 2-DICHLOROETHENE	50.00	50.10	100	2	59-134
1 1-DICHLOROETHANE	50.00	47.10	94	1	60-133
VINYL ACETATE	50.00	78.86	158*	3	56-135
cis-1 2-DICHLOROETHENE	50.00	54.31	109	4	61-134
2-BUTANONE	50.00	74.19	148	3	44-152
CHLOROFORM	50.00	48.68	97	3	61-133
1 1 1-TRICHLOROETHANE	50.00	48.17	96	2	59-130
CARBON TETRACHLORIDE	50.00	46.48	93	1	61-129
BENZENE	50.00	50.97	102	2	64-128
1 2-DICHLOROETHANE	50.00	50.09	100	1	61-136
TRICHLOROETHENE	50.00	50.15	100	1	64-128
1 2-DICHLOROPROPANE	50.00	46.30	93	1	66-135
BROMODICHLOROMETHANE	50.00	51.79	104	1	63-134
2-CHLOROETHYL VINYL ETHER	50.00	3.27	6*	18	40-149
cis-1,3-Dichloropropene	50.00	53.31	107	2	65-129
4-METHYL-2-PENTANONE	50.00	67.57	135	4	56-146
TOLUENE	50.00	53.73	107	1	59-134
trans-1,3-Dichloropropene	50.00	58.05	116	4	64-130
1 1 2-TRICHLOROETHANE	50.00	59.86	120	5	68-131
TETRACHLOROETHENE	50.00	46.30	93	0	62-133
2-HEXANONE	50.00	68.96	138	8	55-142
DIBROMOCHLOROMETHANE	50.00	54.09	108	2	41-145
CHLOROBENZENE	50.00	52.43	105	5	62-132
ETHYL BENZENE	50.00	44.32	89	3	60-131
m,p-XYLENES	100.00	77.31	77	0	72-126
o-XYLENE	50.00	45.27	90	1	62-132
STYRENE	50.00	54.09	108	4	61-136
BROMOFORM	50.00	63.15	126	3	61-135
1 1 2 2-TETRACHLOROETHANE	50.00	57.22	114	4	59-139

Column to be used to flag recovery with an asterisk

* Value outside of QC limits

LCSD Recovery: 3 out of 33 outside limits

0 TCHP

Data File: /chem/k.i/k990601a.b/k27930.d
Report Date: 01-Jun-1999 13:36

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SWOK/AATS
RECOVERY REPORT

Client Name: Client SDG: k990601a.b
Sample Matrix: LIQUID Fraction: VOA
Client ID: LCSD Level: LOW
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: LCS ALL.spk Quant Type: ISTD
Method File: /chem/K.i/k990601a.b/5ml8260k.m
Misc Info: MS326**INST:K*SWLO*LCSD*5ML

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 33 DIBROMOFLUOROMETHA	50.00	52.41	104.82	86-118
\$ 53 TOLUENE-d8	50.00	53.31	106.63	88-110
\$ 76 4-BROMOFLUOROBENZE	50.00	52.40	104.81	86-115
\$ 38 1,2-DICHLOROETHANE	50.00	50.12	100.24	80-120

* - Values outside of QC limits
Spike Recovery: 0 out of 4 outside limits
0 out of 4 not found

SWOK/AATS

TARGET COMPOUNDS

Client Name:
Client Sample ID: VBLK
Sample Location:
Lab Sample ID: K990602A
Sample Type: WATER
Analysis Type: VOA
Data Type: MS DATA
Misc Info: MS326**INST:K*SWLO*K990602A*5ML

Client SDG: k990602a.b
Sample Date:
Sample Point:
Date Received:
Quant Type: ISTD
Level: LOW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
75-71-8-----	DICHLORODIFLUOROMETHANE	5.00	U
74-87-3-----	CHLOROMETHANE	5.00	U
75-01-4-----	VINYL CHLORIDE	5.00	U
74-83-9-----	BROMOMETHANE	5.00	U
75-00-3-----	CHLOROETHANE	5.00	U
75-69-4-----	TRICHLOROFLUOROMETHANE	5.00	U
75-35-4-----	1 1-DICHLOROETHENE	5.00	U
75-15-0-----	CARBON DISULFIDE	5.00	U
75-09-2-----	METHYLENE CHLORIDE	5.00	U
156-60-5-----	trans-1 2-DICHLOROETHENE	5.00	U
75-34-3-----	1 1-DICHLOROETHANE	5.00	U
594-20-7-----	2 2-DICHLOROPROPANE	5.00	U
156-59-2-----	cis-1 2-DICHLOROETHENE	5.00	U
74-97-5-----	BROMOCHLOROMETHANE	5.00	U
67-66-3-----	CHLOROFORM	5.00	U
71-55-6-----	1 1 1-TRICHLOROETHANE	5.00	U
56-23-5-----	CARBON TETRACHLORIDE	5.00	U
563-58-6-----	1 1-DICHLOROPROPENE	5.00	U
71-43-2-----	BENZENE	5.00	U
107-06-2-----	1 2-DICHLOROETHANE	5.00	U
79-01-6-----	TRICHLOROETHENE	5.00	U
78-87-5-----	1 2-DICHLOROPROPANE	5.00	U
74-95-3-----	DIBROMOMETHANE	5.00	U
75-27-4-----	BROMODICHLOROMETHANE	5.00	U
10061-01-5-----	cis-1,3-Dichloropropene	5.00	U
108-88-3-----	TOLUENE	5.00	U
10061-02-6-----	trans-1,3-Dichloropropene	5.00	U
79-00-5-----	1 1 2-TRICHLOROETHANE	5.00	U
127-18-4-----	TETRACHLOROETHENE	5.00	U
142-28-9-----	1 3-DICHLOROPROPANE	5.00	U
124-48-1-----	DIBROMOCHLOROMETHANE	5.00	U
106-93-4-----	1 2-DIBROMOETHANE	5.00	U
108-90-7-----	CHLOROBENZENE	5.00	U
630-20-6-----	1 1 1 2-TETRACHLOROETHANE	5.00	U
100-41-4-----	ETHYL BENZENE	5.00	U
13-302-07-----	m,p-XYLENES	5.00	U
95-47-6-----	o-XYLENE	5.00	U
100-42-5-----	STYRENE	5.00	U
75-25-2-----	BROMOFORM	5.00	U

Data File: /chem/k.i/k990602a.b/k27940.d
Report Date: 03-Jun-1999 12:14

SWOK/AATS

TARGET COMPOUNDS

Client Name:	Client SDG: k990602a.b
Client Sample ID: VBLK	Sample Date:
Sample Location:	Sample Point:
Lab Sample ID: K990602A	Date Received:
Sample Type: WATER	Quant Type: ISTD
Analysis Type: VOA	Level: LOW
Data Type: MS DATA	
Misc Info: MS326**INST:K*SWLO*K990602A*5ML	

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
98-82-8-----	ISOPROPYLBENZENE	5.00	U
108-86-1-----	BROMOBENZENE	5.00	U
96-18-4-----	1 2 3-TRICHLOROPROPANE	5.00	U
79-34-5-----	1 1 2 2-TETRACHLOROETHANE	5.00	U
103-65-1-----	n-PROPYLBENZENE	5.00	U
95-49-8-----	2-CHLOROTOLUENE	5.00	U
106-43-4-----	4-CHLOROTOLUENE	5.00	U
108-67-8-----	1 3 5-TRIMETHYLBENZENE	5.00	U
98-06-6-----	tert-BUTYLBENZENE	5.00	U
95-63-6-----	1 2 4-TRIMETHYLBENZENE	5.00	U
135-98-8-----	sec-BUTYLBENZENE	5.00	U
541-73-1-----	1 3-DICHLOROBENZENE	5.00	U
106-46-7-----	1 4-DICHLOROBENZENE	5.00	U
99-87-6-----	p-ISOPROPYLTOLUENE	5.00	U
95-50-1-----	1 2-DICHLOROBENZENE	5.00	U
104-51-8-----	n-BUTYLBENZENE	5.00	U
96-12-8-----	1 2-DIBROMO-3-CHLOROPROPANE	5.00	U
120-82-1-----	1 2 4-TRICHLOROBENZENE	5.00	U
91-20-3-----	NAPHTHALENE	5.00	U
87-68-3-----	HEXACHLOROBUTADIENE	5.00	U
87-61-6-----	1 2 3-TRICHLOROBENZENE	5.00	U
67-64-1-----	ACETONE	5.00	U
78-93-3-----	2-BUTANONE	5.00	U
108-10-1-----	4-METHYL-2-PENTANONE	5.00	U
591-78-6-----	2-HEXANONE	5.00	U
1634-04-4-----	Methyl-tert-Butyl Ether	5.00	U
108-05-4-----	VINYL ACETATE	5.00	U
110-75-8-----	2-CHLOROETHYL VINYL ETHER	5.00	U
76-13-1-----	1,1,2-TRICHLOROTRIFLUOROETHA	5.00	U
540-59-0-----	1,2-Dichloroethene (total)	5.00	U
1330-20-7-----	Xylene (Total)	5.00	U
=====	=====	=====	=====
1868-53-7-----	DIBROMOFLUOROMETHANE	51.61	
2037-26-5-----	TOLUENE-d8	49.10	
460-00-4-----	4-BROMOFLUOROBENZENE	47.17	
17060-07-0-----	1,2-DICHLOROETHANE-d4	45.72	

Data File: /chem/k.i/k990602a.b/k27940.d
Report Date: 02-Jun-1999 16:11

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SWOK/AATS

RECOVERY REPORT

Client Name: Client SDG: k990602a.b
Sample Matrix: LIQUID Fraction: VOA
Client ID: VBLK Level: LOW
Data Type: MS DATA SampleType: BLANK
SpikeList File: LCS ALL.spk Quant Type: ISTD
Method File: /chem/K.i/k990602a.b/5ml8260k.m
Misc Info: MS326**INST:K*SWLO*K990602A*5ML

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 33 DIBROMOFLUOROMETHA	50.00	51.61	103.23	86-118
\$ 53 TOLUENE-d8	50.00	49.10	98.20	88-110
\$ 76 4-BROMOFLUOROBENZE	50.00	47.17	94.35	86-115
\$ 38 1,2-DICHLOROETHANE	50.00	45.72	91.45	80-120

* - Values outside of QC limits
Spike Recovery: 0 out of 4 outside limits
0 out of 4 not found

LCS\LCSD RECOVERY REPORT

Lab Name: SWOK\AATS

Matrix: WATER

Instrument: k

Analyst: rebecca

LCS Analysis Date: 02-JUN-99 16:58

LCS File id: k27942.d

LCSD Analysis Date: 02-JUN-99 17:26

LCSD File id: k27943.d

Units: Water ug/L Soil ug/Kg Air ppbv

COMPOUND	SPIKE ADDED	LCS CONCENTRATION	LCS % REC #	QC LIMITS REC
VINYL CHLORIDE	50.00	41.97	84	53-138
1 1-DICHLOROETHENE	50.00	55.60	111	58-135
2-BUTANONE	50.00	59.12	118	44-152
CHLOROFORM	50.00	52.61	105	61-133
CARBON TETRACHLORIDE	50.00	50.14	100	61-129
BENZENE	50.00	53.44	107	64-128
1 2-DICHLOROETHANE	50.00	54.09	108	61-136
TRICHLOROETHENE	50.00	53.33	107	64-128
TETRACHLOROETHENE	50.00	49.49	99	62-133
CHLOROBENZENE	50.00	55.94	112	62-132

Column to be used to flag recovery with an asterisk

* Value outside of QC limits

LCS Recovery: 0 out of 10 outside limits

Data File: /chem/k.i/k990602a.b/k27942.d
Report Date: 03-Jun-1999 07:55

2

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SWOK/AATS

RECOVERY REPORT

Client Name: Client SDG: k990602a.b
Sample Matrix: LIQUID Fraction: VOA
Client ID: LCS Level: LOW
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: LCS ALL.spk Quant Type: ISTD
Method File: /chem/K.i/k990602a.b/5ml8260k.m
Misc Info: MS326**INST:K*SWLO*LCS*5ML

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 33 DIBROMOFLUOROMETHA	50.00	53.05	106.11	86-118
\$ 38 1,2-DICHLOROETHANE	50.00	50.60	101.20	80-120
\$ 53 TOLUENE-d8	50.00	53.10	106.21	88-110
\$ 76 4-BROMOFLUOROBENZE	50.00	52.36	104.73	86-115

* - Values outside of QC limits
Spike Recovery: 0 out of 4 outside limits
0 out of 4 not found

LCS\LCSD RECOVERY REPORT

②

Lab Name: SWOK\AATS

Matrix: WATER

Instrument: k

Analyst: rebecca

LCS Analysis Date: 02-JUN-99 16:58

LCS File id: k27942.d

LCSD Analysis Date: 02-JUN-99 17:26

LCSD File id: k27943.d

Units: Water ug/L Soil ug/Kg Air ppbv

COMPOUND	SPIKE ADDED	LCSD CONC.	LCSD % REC #	% RPD	QC LIMITS REC
=====	=====	=====	=====	=====	=====
VINYL CHLORIDE	50.00	39.52	79	6	53-138
1 1-DICHLOROETHENE	50.00	53.57	107	4	58-135
2-BUTANONE	50.00	57.17	114	3	44-152
CHLOROFORM	50.00	52.43	105	0	61-133
CARBON TETRACHLORIDE	50.00	46.94	94	6	61-129
BENZENE	50.00	50.50	101	6	64-128
1 2-DICHLOROETHANE	50.00	53.11	106	2	61-136
TRICHLOROETHENE	50.00	49.86	100	7	64-128
TETRACHLOROETHENE	50.00	47.06	94	5	62-133
CHLOROBENZENE	50.00	52.82	106	6	62-132

Column to be used to flag recovery with an asterisk

* Value outside of QC limits

LCSD Recovery: 0 out of 10 outside limits

②

Data File: /chem/k.i/k990602a.b/k27943.d
Report Date: 03-Jun-1999 07:55

Page -1

SWOK/AATS

RECOVERY REPORT

Client Name: Client SDG: k990602a.b
Sample Matrix: LIQUID Fraction: VOA
Client ID: LCSD Level: LOW
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: LCS ALL.spk Quant Type: ISTD
Method File: /chem/k.i/k990602a.b/5ml8260k.m
Misc Info: MS326**INST:K*SWLO*LCSD*5ML

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 33 DIBROMOFLUOROMETHA	50.00	53.11	106.22	86-118
\$ 38 1,2-DICHLOROETHANE	50.00	51.11	102.23	80-120
\$ 53 TOLUENE-d8	50.00	52.24	104.48	88-110
\$ 76 4-BROMOFLUOROBENZE	50.00	52.05	104.10	86-115

* - Values outside of QC limits
Spike Recovery: 0 out of 4 outside limits
0 out of 4 not found

SWOK/AATS

TARGET COMPOUNDS

Client Name: Client SDG: k990602a.b
Client Sample ID: TCLP PREP BLANK Sample Date:
Sample Location: Sample Point:
Lab Sample ID: TB990601A1 Date Received:
Sample Type: WATER Quant Type: ISTD
Analysis Type: VOA Level: LOW
Data Type: MS DATA
Misc Info: MS340*TB990601A1*INST:K*SWLO*TB990601A1*5ML

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/KG)	ug/L	
75-01-4-----	VINYL CHLORIDE	5.00	U	
75-35-4-----	1 1-DICHLOROETHENE	5.00	U	
78-93-3-----	2-BUTANONE	5.00	U	
67-66-3-----	CHLOROFORM	5.00	U	
56-23-5-----	CARBON TETRACHLORIDE	5.00	U	
71-43-2-----	BENZENE	5.00	U	
107-06-2-----	1 2-DICHLOROETHANE	5.00	U	
79-01-6-----	TRICHLOROETHENE	5.00	U	
127-18-4-----	TETRACHLOROETHENE	5.00	U	
108-90-7-----	CHLOROBENZENE	5.00	U	
=====		=====	=====	
1868-53-7-----	DIBROMOFLUOROMETHANE	53.90		
17060-07-0-----	1,2-DICHLOROETHANE-d4	48.92		
2037-26-5-----	TOLUENE-d8	52.56		
460-00-4-----	4-BROMOFLUOROBENZENE	52.55		

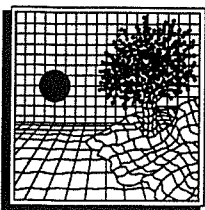
SWOK/AATS

RECOVERY REPORT

Client Name: Client SDG: k990602a.b
Sample Matrix: LIQUID Fraction: VOA
Client ID: TCLP PREP BLANK Level: LOW
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: LCS ALL.spk Quant Type: ISTD
Method File: /chem/k.i/k990602a.b/5ml8260k.m
Misc Info: MS340*TB990601A1*INST:K*SWLO*TB990601A1*5ML

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 33 DIBROMOFLUOROMETHA	50.00	53.90	107.81	86-118
\$ 38 1,2-DICHLOROETHANE	50.00	48.92	97.85	80-120
\$ 53 TOLUENE-d8	50.00	52.56	105.13	88-110
\$ 76 4-BROMOFLUOROBENZE	50.00	52.55	105.12	86-115

* - Values outside of QC limits
Spike Recovery: 0 out of 4 outside limits
0 out of 4 not found



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.01
QAQC# : K990601A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.01 MS1
SAMPLE #: B1 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99
PREPARED : 05/27/99
ANALYZED : 06/01/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

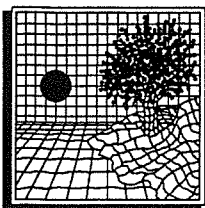
MATRIX : Soil
METHOD : SW-846/8260B

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**	PARAMETER	RESULTS**
BENZENE	0.26	1,1-DICHLOROETHENE	0.26
CARBON TETRACHLORIDE	0.24	TETRACHLOROETHENE	0.25
CHLOROBENZENE	0.28	TRICHLOROETHENE	0.26
CHLOROFORM	0.26	VINYL CHLORIDE	0.25
1,2-DICHLOROETHANE	0.27	2-BUTANONE	0.40

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 102 %	1,2-DICHLOROETHANE-D4	(80-120) 99 %
TOLUENE-D8	(88-110) 105 %	BROMOFLUOROBENZENE	(86-115) 103 %



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.01
QAQC# : K990601A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.01 SD1
SAMPLE #: B1 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99
PREPARED : 05/27/99
ANALYZED : 06/01/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

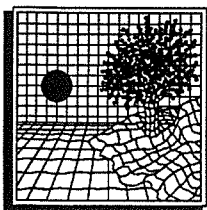
MATRIX : Soil
METHOD :

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**	PARAMETER	RESULTS**
BENZENE	0.28	1,1-DICHLOROETHENE	0.33
CARBON TETRACHLORIDE	0.27	TETRACHLOROETHENE	0.24
CHLOROBENZENE	0.26	TRICHLOROETHENE	0.27
CHLOROFORM	0.30	VINYL CHLORIDE	0.32
1,2-DICHLOROETHANE	0.28	2-BUTANONE	0.42

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 123 % *	1,2-DICHLOROETHANE-D4	(80-120) 106 %
TOLUENE-D8	(88-110) 103 %	BROMOFLUOROBENZENE	(86-115) 102 %



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007

MATRIX : W

LAB ID	CLIENT ID	QC BATCH	ANALYZED
38721.05	B5 SB1	K990602A	06/02/99 22:56
38721.05 MS1	B5 SB1	K990602A	06/02/99 17:53
38721.05 SD1	B5 SB1	K990602A	06/02/99 18:21

TCLP VOLATILES

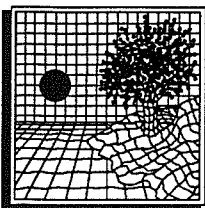
MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Parameter	(mg/L)	SPIKED AMOUNT	SAMP CONC.	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD---	MAX RPD	LIMITS %Rec.
BENZENE		0.25	0.0080	0.29	114	0.30	117	3	20	64-128
CARBON TETRACHLORIDE		0.25	ND	0.25	101	0.26	106	4	20	61-129
CHLOROBENZENE		0.25	ND	0.30	118	0.31	123	4	20	62-132
CHLOROFORM		0.25	ND	0.29	116	0.29	115	< 1	20	61-133
1,2-DICHLOROETHANE		0.25	ND	0.30	120	0.31	124	3	20	61-136
1,1-DICHLOROETHENE		0.25	ND	0.29	114	0.29	114	< 1	20	58-135
TETRACHLOROETHENE		0.25	ND	0.25	101	0.26	104	3	20	62-133
TRICHLOROETHENE		0.25	ND	0.28	111	0.28	114	2	20	64-130
VINYL CHLORIDE		0.25	ND	0.19	76	0.16	64	17	24	53-138
2-BUTANONE		0.25	ND	0.31	125	0.32	130	4	24	44-152

QA/QC SURROGATE RECOVERIES

Parameter	SAMPLE %Rec	SPIKE %Rec	DUP %Rec	Limits
DIBROMOFLUOROMETHANE	105	109	104	86-118
1,2-DICHLOROETHANE-D4	99	109	105	80-120
TOLUENE-D8	105	108	105	88-110
BROMOFLUOROBENZENE	102	108	103	86-115

* = VALUES OUTSIDE OF QC LIMITS



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BURNS & MCDONNELL WASTE CONSULTANTS
9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.05
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.05 MS1
SAMPLE #: B5 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

MATRIX : Soil
METHOD : SW-846/8260B

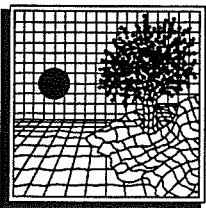
ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**	PARAMETER	RESULTS**
BENZENE	0.29	1,1-DICHLOROETHENE	0.29
CARBON TETRACHLORIDE	0.25	TETRACHLOROETHENE	0.25
CHLOROBENZENE	0.30	TRICHLOROETHENE	0.28
CHLOROFORM	0.29	VINYL CHLORIDE	0.19
1,2-DICHLOROETHANE	0.30	2-BUTANONE	0.31

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 109 %	1,2-DICHLOROETHANE-D4	(80-120) 109 %
TOLUENE-D8	(88-110) 108 %	BROMOFLUOROBENZENE	(86-115) 108 %



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9400 WARD PARKWAY
KANSAS CITY, MO 64114

REPORT : 38721.05
QAQC# : K990602A
INSTR SEQ: 263327-BAV
REPORTED : 06/08/99

PROJECT : GM LEEDS/96-620-3007
LAB# : 38721.05 SD1
SAMPLE #: B5 SB1
LOCATION:

SAMPLED : 05/25/99
SUBMITTED: 05/26/99

ANALYZED : 06/02/99
DILUTION : 5.00
%MOISTURE: 0.0
LEVEL : L

MATRIX : Soil
METHOD :

TCLP VOLATILES RESULTS REPORT IN mg/L

PARAMETER	RESULTS**	PARAMETER	RESULTS**
BENZENE	0.30	1,1-DICHLOROETHENE	0.29
CARBON TETRACHLORIDE	0.26	TETRACHLOROETHENE	0.26
CHLOROBENZENE	0.31	TRICHLOROETHENE	0.28
CHLOROFORM	0.29	VINYL CHLORIDE	0.16
1,2-DICHLOROETHANE	0.31	2-BUTANONE	0.32

QA/QC SURROGATE RECOVERIES

DIBROMOFLUOROMETHANE	(86-118) 104 %	1,2-DICHLOROETHANE-D4	(80-120) 105 %
TOLUENE-D8	(88-110) 105 %	BROMOFLUOROBENZENE	(86-115) 103 %

IN113/07-11-97

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

TCLP METALS
INORGANICS QUALITY CONTROL DATA SHEET
LCS/LCSD

MATRIX **TCLP**
 EPISODE 38721
 CLIENT B&MC

 BATCHID-ICP 99060411
 BATCHID-CV 990601T1

 UNITS mg/l
 SAMPLE # METHOD BLANK
 SPIKE # LCS
 DUP # LCSD

PARAMETER	TEST CODE	METHOD BLANK		REGULATORY LIMIT	KNOWN CONC.	LCS			%REC.			LCS DUPLICATE			RPD			DATE ANALYZED	Analyst Initials	INSTR.
		PBW-DI AMT.FOUND	PBW-T AMT.FOUND			AMT. FOUND	% REC	AMT. FOUND	% REC.	LIMITS	FLAG	AMT. FOUND	% REC.	FLAG	RPD	LIMITS	FLAG			
Arsenic	MT054	<0.16	<0.16	0.16	2.0	1.96	98	80	120			2.22	111		12.6	20		05-Jun-99	TGG	TJA ET1
Barium	MT064	<0.01	<0.01	0.01	0.3	0.24	96	80	120			0.27	107		11.0	20		05-Jun-99	TGG	TJA ET1
Cadmium	MT124	<0.005	<0.005	0.005	0.05	0.05	96	80	120			0.05	108		11.8	20		05-Jun-99	TGG	TJA ET1
Chromium	MT164	<0.01	<0.01	0.01	0.2	0.20	100	80	120			0.22	111		10.4	20		05-Jun-99	TGG	TJA ET1
Lead	MT244	<0.10	<0.10	0.10	0.5	0.49	99	80	120			0.55	109		10.2	20		05-Jun-99	TGG	TJA ET1
Mercury	MT314	<0.002	<0.002	0.002	0.010	0.01	86	80	120			0.01	90		4.5	20		02-Jun-99	SR	PS200B
Selenium	MT384	<0.25	<0.25	0.25	2.0	1.98	99	80	120			2.30	115		15.0	20		05-Jun-99	TGG	TJA ET1
Silver	MT404	<0.01	<0.01	0.01	0.05	0.05	102	80	120			0.06	116		12.8	20		05-Jun-99	TGG	TJA ET1

NARRATIVE:

* = OUTSIDE QC LIMITS

 38721
 /TLC SW
 09-Jun-99
 REV 4.2
 JBL