BARKER LEMAR

ENGINEERING CONSULTANTS

Limited Environmental Sampling Services

Guthrie Avenue Business Park
Ruan Property – 1700 DeWolf
Des Moines, Iowa
Project No. CTYDM 067
May 2005

1801 Industrial Circle, West Des Moines, Iowa 50265
(515) 256-8814 Fax (515) 256-0152

BARKER LEMAR
ENGINEERING CONSULTANTS

May 12, 2005

Mr. David McGuffin, P.E.
City of Des Moines Engineering Department
City Hall
Des Moines, Iowa 50309

RE: **Limited Environmental Sampling Services**
Guthrie Avenue Business Park
Ruan Property – 1700 DeWolf
Des Moines, Iowa
Project No: CTYDM 067

Dear Mr. McGuffin:

1801 INDUSTRIAL CIRCLE
VEST DES MOINES, IOWA
515.256.8814
15.256.0152 (F)
www.barkerlemar.com

DES MOINES
UAD CITIES
ST. LOUIS

BARKER LEMAR ENGINEERING CONSULTANTS (BARKER LEMAR) has completed a Limited Environmental Site Assessment (ESA) for the above-referenced site. The objective of the services was to characterize current and potential risks posed by a soil stockpile located on the site. The soil pile is located on property owned by the City of Des Moines and is on the parcel located at the northeast corner of Dixon and Jefferson Streets and at the northwest corner of DeWolf and Jefferson Streets. The site area is shown on Figure 1.

1.0 FIELD ACTIVITIES

BARKER LEMAR personnel were on-site April 22, 2005, to collect soil samples from a soil stockpile located on the site. The pile was sampled by hand augering at three locations. These included one near each end and one near the center. Sample 1 was located near the west side of the pile, sample 2 near the center and sample 3 near the east end. At each location a sample was collected from a depth of 2 feet, 4 feet and 6 feet and composited into one sample. Soil samples were transported on ice via overnight courier under chain-of-custody procedures to Keystone Laboratories in Newton, Iowa, for analysis. Samples were analyzed for petroleum compounds by Iowa Methods OA-1 and OA-2 and for lead by USEPA Method 6010B.

2.0 ANALYTICAL RESULTS

2.1 SOIL SAMPLE RESULTS

Analytical laboratory results and chain-of-custody forms for soil samples are included in Attachment A, and sampling results are shown in Table 1 through 3. The following further describes soil analytical results.

2.1.1 *PETROLEUM COMPOUNDS* – IOWA METHOD OA-1

The results of the petroleum analysis are summarized in Table 1. The results indicated the analytes were below detectable concentrations in the three samples.

2.1.2 *TOTAL EXTRACTABLE HYDROCARBONS* – IOWA METHOD OA-2

The results of the total extractable hydrocarbon analysis are summarized in Table 2. The results indicated detectable concentrations of total extractable hydrocarbon (TEH) as waste oil were detected in each of the soil borings. There is not an established action level for waste oil in soil. Concentrations of TEH as waste oil were detected in the range from 14 mg/Kg to 191 mg/Kg in the samples. TEH as gasoline and diesel fuel were not detected in the samples.

2.1.3 *TOTAL LEAD* – USEPA METHOD 6010B

The results of the total lead analysis are summarized in Table 3. Lead was detected in the three samples but was below the action level of 400 mg/Kg. Concentrations of lead were detected in the range from 24.3 mg/Kg to 41.3 mg/Kg.

3.0 SUMMARY

The results of the soil sampling indicate that TEH as waste oil and lead are present above detectable levels in the soil pile based on the samples analyzed, but are below levels requiring action. The concentration of TEH as waste oil above 100 mg/kg may require the soil be disposed of as a special waste at a landfill or land farm. Landfills are required to treat petroleum contaminated soils (PCS) to levels below 100 mg/kg.

4.0 General Comments

The analysis and opinions expressed in this report are based upon data obtained from the soil borings installed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations in chemical concentrations that may occur between sampling locations or across the site. Actual subsurface conditions may vary and may not become evident without further exploration.

BARKER LEMAR has prepared this report for the exclusive use of our client for the specific application to the project discussed, and the report has been prepared in accordance with generally-accepted environmental engineering practices. No warranties, either express or implied, are intended or made. In the event any changes in the nature or location of suspected sources of chemical impact or other subsurface conditions, as outlined in this report, are observed, the conclusions contained herein cannot be considered valid unless changes are reviewed and the opinions of this report are modified or verified in writing by **BARKER LEMAR.**

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the information contained in this report, please contact us at (515) 256-8814.

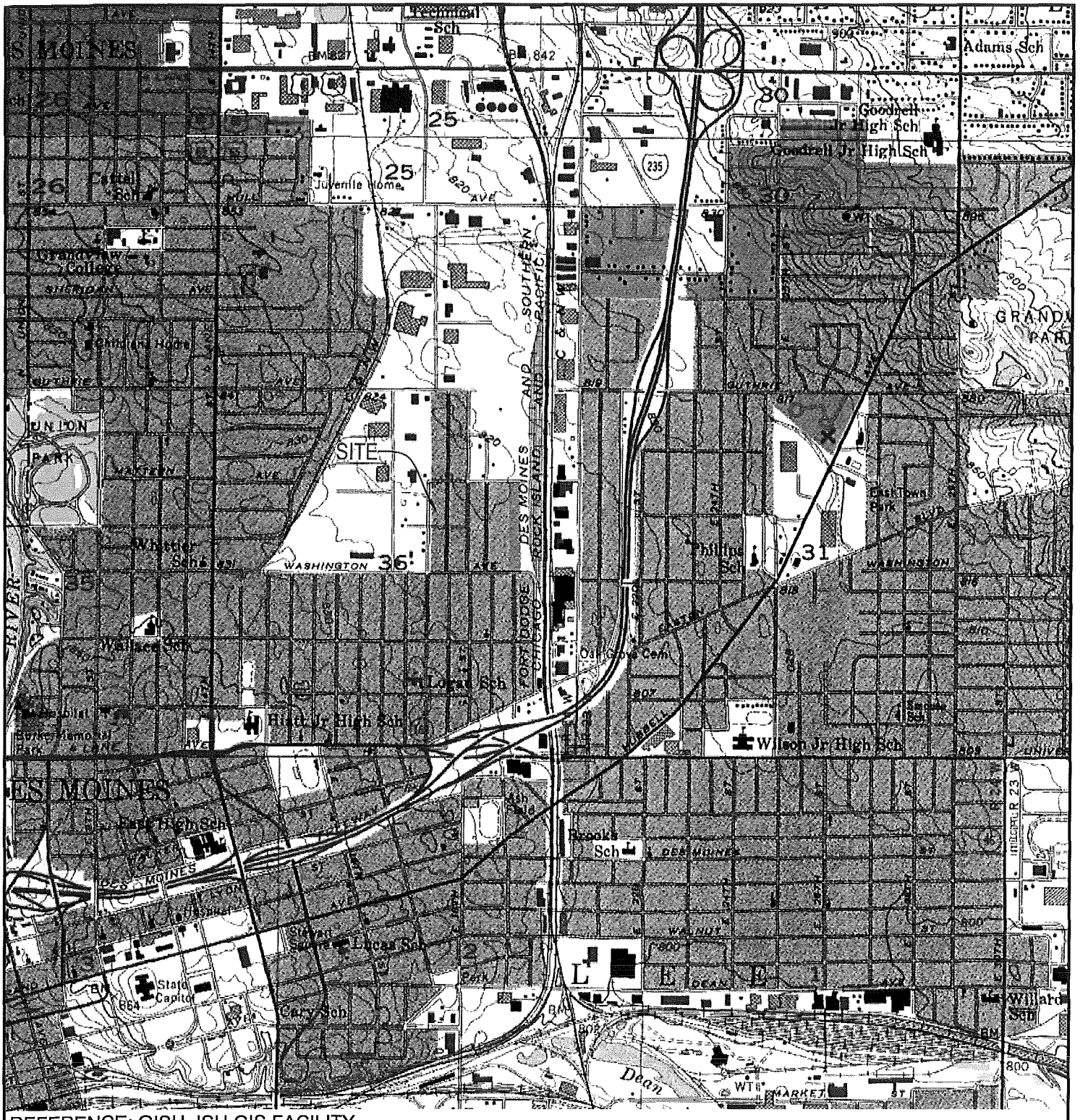
Sincerely,

BARKER LEMAR ENGINEERING CONSULTANTS

Christy L. Jaworski
Senior Project Manager

Timothy C. Buelow, P.E.
Principal Engineer

FIGURES



REFERENCE: GISU, ISU GIS FACILITY
QUADRANGLE: DES MOINES NE., IA

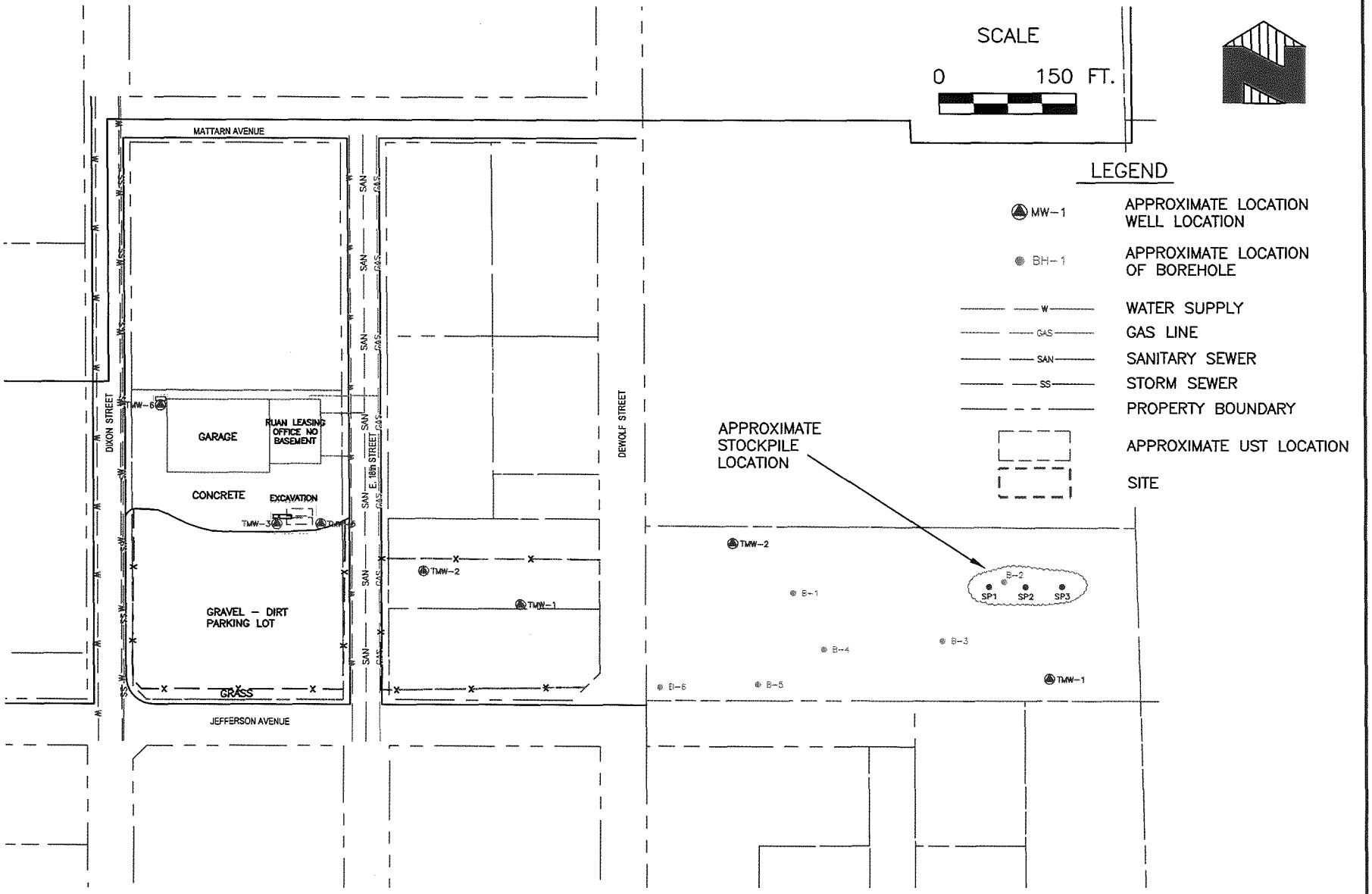
SCALE

0 1000 FT.

TOPOGRAPHIC SITE MAP
GUTHRIE AVENUE BUSINESS LIMITED ENVIRONMENTAL SAMPLING
RUAN PROPERTIES, DES MOINES, IA
PROJECT NO. CTYDM 067
DRAWING DATE: APRIL, 2005

BARKER LEMAR
ENGINEERING CONSULTANTS
1801 Industrial Circle - West Des Moines, Iowa - 50265
Phone: 515.256.8814 - Fax: 515.256.0152 - www.barkerlemar.com

FIGURE
1



SITE MAP
GUTHRIE AVENUE BUSINESS PARK PHASE II
RUAN PROPERTIES, DES MOINES, IA
PROJECT NO. CTYDM 067
DRAWING DATE: JANUARY 2008

BARKER LEMAR
ENGINEERING CONSULTANTS
1801 Industrial Circle - West Des Moines, Iowa - 50265
Phone: 515.256.8814 - Fax: 515.256.0152 - www.barkerlemar.com

FIGURE
3

TABLES

TABLE 1
SUMMARY OF SOIL SAMPLING - SOIL PILE
VOLATILE PETROLEUM HYDROCARBONS
CITY OF DES MOINES, RUAN PROPERTY
DES MOINES, IOWA
BARKER LEMAR PROJECT NO. CTYDM 067

Analyte	Units	Action Level	Sample 1	Sample 2	Sample 3
Benzene	mg/Kg	0.54	<0.025	<0.025	<0.026
Toluene	mg/Kg	42	<0.025	<0.025	<0.026
Ethylbenzene	mg/Kg	15	<0.025	<0.025	<0.026
Xylenes, total	mg/Kg	NE	<0.050	<0.051	<0.051

Notes:

Samples collected on April 22, 2005
<- Indicates less than laboratory reporting limit
mg/Kg - Indicates milligram per kilogram
Action Level - RBCA Tier 1 Lookup Table
NE- Indicates Not Established
Bold values indicate concentrations in excess of the action level

Reference: RBCA Tier 1 Lookup Table

TABLE 2
SUMMARY OF SOIL SAMPLING - SOIL PILE
EXTRACTABLE PETROLEUM HYDROCARBONS
CITY OF DES MOINES, RUAN PROPERTY
DES MOINES, IOWA
BARKER LEMAR PROJECT NO. CTYDM 067

Analyte	Units	Action Level	Sample 1	Sample 2	Sample 3
TEH as gasoline	mg/Kg	NE	<5	<5	<5
TEH as #2 diesel fuel	mg/Kg	3,800	<5	<5	<5
TEH as waste oil	mg/Kg	NE	20	14	191
Total Extractable Hydrocarbons	mg/Kg	NE	20	14	191

Notes:

Samples collected on April 22, 2005
<- Indicates less than laboratory reporting limit
mg/Kg - Indicates milligram per kilogram
Action Level - Iowa Department of Natural Resources
RBCA Tier 1 Look-Up Table
NE- Indicates Not Established
Bold values indicate concentrations in excess of the action level

Reference:

Iowa RBCA Tier 1 Look-Up Table

TABLE 3
SUMMARY OF SOIL SAMPLING - SOIL PILE
TOTAL LEAD
CITY OF DES MOINES, RUAN PROPERTY
DES MOINES, IOWA
BARKER LEMAR PROJECT NO. CTYDM 067

Analyte	Units	Action Level	Sample 1	Sample 2	Sample 3
Lead	mg/Kg	400	37.1	24.3	41.3

Notes:

Samples collected on April 22, 2005
<- Indicates less than laboratory reporting limit
mg/kg - Indicates milligrams per kilogram.
ActionLevel - Statewide Standards for Soil.
Soil Standards are based on incidental ingestion of soil and dust only.
Bold values indicate concentrations in excess of the action level.
Reference: Standards for Soil, Iowa Land Recycling Program
Current as of October 4, 1999

ATTACHMENT A

Keystone
LABORATORIES, INC.

ACCREDITED IN ACCORDANCE WITH nelac

MEMBER ACIL

Accreditations:
Iowa DNR: 095
New Jersey DEP: IA001
Kansas DHE: E-10287

ANALYTICAL REPORT

May 09, 2005

Work Order: 15D1142

Report To	Work Order Information
Christy Jaworski Barker-Lemar Associates 1801 Industrial Circle West Des Moines, IA 50265	Date Received: 04/25/2005 1:15PM Collector: Kevin Hensley Phone: 515-256-8814 PO Number:

Project : UST-Iowa
Project Number: City DM

Analyte	Result	MRL	Batch	Method	Analyst	Analyzed	Qualifier
15D1142-01 Sample Point 1 - west side of pile				Matrix:Soil	Collected: 04/22/05 10:30		
Determination of Volatile Petroleum Hydrocarbons							
Methyl-t-butyl Ether (MTBE)	<0.050 mg/kg	0.050	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
Benzene	<0.025 mg/kg	0.025	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
Toluene	<0.025 mg/kg	0.025	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
Ethylbenzene	<0.025 mg/kg	0.025	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
Xylenes, total	<0.050 mg/kg	0.050	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
Ethyl-tert-Butyl Ether (ETBE)	<0.050 mg/kg	0.050	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
Di-iso-Propyl Ether (DIPE)	<0.050 mg/kg	0.050	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
tert-Amyl Methyl Ether (TAME)	<0.050 mg/kg	0.050	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
tert-Butyl Alcohol (TBA)	<1.24 mg/kg	1.24	1E50308	OA-1 (GC/MS)	KRM	05/02/05 20:26	
Surrogate: 4-Bromofluorobenzene	*109 %*			*64-143*	KRM	05/02/05 20:26	
Determination of Extractable Petroleum Hydrocarbons							
TEH, as gasoline	<5 mg/kg	5	1E50238	Iowa OA-2	SMG	05/06/05 3:09	
TEH, as #2 diesel fuel	<5 mg/kg	5	1E50238	Iowa OA-2	SMG	05/06/05 3:09	
TEH, as waste oil	**20 mg/kg**	**5**	1E50238	Iowa OA-2	SMG	05/06/05 3:09	
Total Extractable Hydrocarbons	**20 mg/kg**	**5**	1E50238	Iowa OA-2	SMG	05/06/05 3:09	
Surrogate: Pentacosane	*77.6 %*			*60-140*	SMG	05/06/05 3:09	
Determination of Physical/Conventional Chemistry Parameters							
% Solids	**85.2 %**	**0.1**	1D52634	% calculation	SNT	04/26/05 15:18	
Determination of Total Metals							
Lead, total	**37.1 mg/kg dry**	**3.2**	1E50204	EPA 6010B	RVV	05/03/05 13:48	
15D1142-02 Sample Point 2 - Center of pile				Matrix:Soil	Collected: 04/22/05 10:55		
Determination of Volatile Petroleum Hydrocarbons							
Methyl-t-butyl Ether (MTBE)	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	
Benzene	<0.025 mg/kg	0.025	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	
Toluene	<0.025 mg/kg	0.025	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	
Ethylbenzene	<0.025 mg/kg	0.025	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	
Xylenes, total	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	
Ethyl-tert-Butyl Ether (ETBE)	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	
Di-iso-Propyl Ether (DIPE)	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	
tert-Amyl Methyl Ether (TAME)	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Barker-Lemar Associates
1801 Industrial Circle
West Des Moines, IA 50265

May 09, 2005

Work Order: 15D1142

Analyte	Result	MRL	Batch	Method	Analyst	Analyzed	Qualifier
15D1142-02 Sample Point 2				Matrix:Soil	Collected: 04/22/05 10:55		
Determination of Volatile Petroleum Hydrocarbons							
tert-Butyl Alcohol (TBA)	<1.26 mg/kg	1.26	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:07	
Surrogate: 4-Bromofluorobenzene	*103 %*			*64-143*	KRM	05/02/05 21:07	
Determination of Extractable Petroleum Hydrocarbons							
TEH, as gasoline	<5 mg/kg	5	1E50238	Iowa OA-2	SMG	05/06/05 3:58	
TEH, as #2 diesel fuel	<5 mg/kg	5	1E50238	Iowa OA-2	SMG	05/06/05 3:58	
TEH, as waste oil	**14 mg/kg**	**5**	1E50238	Iowa OA-2	SMG	05/06/05 3:58	
Total Extractable Hydrocarbons	**14 mg/kg**	**5**	1E50238	Iowa OA-2	SMG	05/06/05 3:58	
Surrogate: Pentacosane	*96.1 %*			*60-140*	SMG	05/06/05 3:58	
Determination of Physical/Conventional Chemistry Parameters							
% Solids	**86.2 %**	**0.1**	1D52634	% calculation	SNT	04/26/05 15:18	
Determination of Total Metals							
Lead, total	**24.3 mg/kg dry**	**3.2**	1E50204	EPA 6010B	RVV	05/03/05 13:52	
15D1142-03 Sample Point 3 – East Side of pile				Matrix:Soil	Collected: 04/22/05 11:25		
Determination of Volatile Petroleum Hydrocarbons							
Methyl-t-butyl Ether (MTBE)	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
Benzene	<0.026 mg/kg	0.026	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
Toluene	<0.026 mg/kg	0.026	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
Ethylbenzene	<0.026 mg/kg	0.026	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
Xylenes, total	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
Ethyl-tert-Butyl Ether (ETBE)	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
Di-iso-Propyl Ether (DIPE)	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
tert-Amyl Methyl Ether (TAME)	<0.051 mg/kg	0.051	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
tert-Butyl Alcohol (TBA)	<1.28 mg/kg	1.28	1E50308	OA-1 (GC/MS)	KRM	05/02/05 21:47	
Surrogate: 4-Bromofluorobenzene	*109 %*			*64-143*	KRM	05/02/05 21:47	
Determination of Extractable Petroleum Hydrocarbons							
TEH, as gasoline	<5 mg/kg	5	1E50238	Iowa OA-2	SMG	05/06/05 4:47	
TEH, as #2 diesel fuel	<5 mg/kg	5	1E50238	Iowa OA-2	SMG	05/06/05 4:47	
TEH, as waste oil	**191 mg/kg**	**5**	1E50238	Iowa OA-2	SMG	05/06/05 4:47	
Total Extractable Hydrocarbons	**191 mg/kg**	**5**	1E50238	Iowa OA-2	SMG	05/06/05 4:47	
Surrogate: Pentacosane	*87.5 %*			*60-140*	SMG	05/06/05 4:47	
Determination of Physical/Conventional Chemistry Parameters							
% Solids	**85.5 %**	**0.1**	1D52634	% calculation	SNT	04/26/05 15:18	
Determination of Total Metals							
Lead, total	**41.3 mg/kg dry**	**3.3**	1E50204	EPA 6010B	RVV	05/03/05 13:56	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Barker-Lemar Associates
1801 Industrial Circle
West Des Moines, IA 50265

May 09, 2005

Work Order: 15D1142

Determination of Volatile Petroleum Hydrocarbons - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 15E0304 - 1E50308										
Calibration Check (15E0304-CCV1)				Prepared & Analyzed: 05/02/05						
Surrogate: 4-Bromofluorobenzene	*47.88*		*mg/kg*	*50.00*		*95.8*	*64-143*			
Methyl-t-butyl Ether (MTBE)	48.91		"	58.00		84.3	80-120			
Benzene	66.85		"	65.00		103	80-120			
Toluene	79.57		"	74.50		107	80-120			
Ethylbenzene	65.91		"	63.50		104	80-120			
Xylenes, total	120.7		"	122.0		98.9	80-120			
Ethyl-tert-Butyl Ether (ETBE)	47.55		"	56.50		84.2	80-120			
Di-iso-Propyl Ether (DIPE)	49.27		"	57.00		86.4	80-120			
tert-Amyl Methyl Ether (TAME)	57.30		"	59.00		97.1	80-120			
tert-Butyl Alcohol (TBA)	661.8		"	925.0		71.5	80-120			QS-06
Batch 1E50308 - EPA 5030B										
Blank (1E50308-BLK1)				Prepared & Analyzed: 05/02/05						
Surrogate: 4-Bromofluorobenzene	*48.62*		*mg/kg*	*50.00*		*97.2*	*64-143*			
Methyl-t-butyl Ether (MTBE)	ND	0.010	"							
Benzene	ND	0.005	"							
Toluene	ND	0.005	"							
Ethylbenzene	ND	0.005	"							
Xylenes, total	ND	0.010	"							
Ethyl-tert-Butyl Ether (ETBE)	ND	0.010	"							
Di-iso-Propyl Ether (DIPE)	ND	0.010	"							
tert-Amyl Methyl Ether (TAME)	ND	0.010	"							
tert-Butyl Alcohol (TBA)	ND	0.250	"							
LCS (1E50308-BS1)				Prepared & Analyzed: 05/02/05						
Surrogate: 4-Bromofluorobenzene	*47.76*		*mg/kg*	*50.00*		*95.5*	*64-143*			
Methyl-t-butyl Ether (MTBE)	0.1093	0.010	"	0.1515		72.1	63-142			
Benzene	0.0515	0.005	"	0.0560		92.0	65-140			
Toluene	0.0607	0.005	"	0.0515		118	62-136			
Ethylbenzene	0.0722	0.005	"	0.0570		127	68-137			
Xylenes, total	0.1172	0.010	"	0.1105		106	68-137			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Barker-Lemar Associates
1801 Industrial Circle
West Des Moines, IA 50265

Determination of Volatile Petroleum Hydrocarbons - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1E50308 - EPA 5030B										
Matrix Spike (1E50308-MS1)		**Source: 15D1142-01**		Prepared & Analyzed: 05/02/05						
Surrogate: 4-Bromofluorobenzene	*51.08*		*mg/kg*	*50.00*		*102*	*64-143*			
Methyl-t-butyl Ether (MTBE)	0.6119	0.052	"	0.7809	ND	78.4	58-135			
Benzene	0.2786	0.026	"	0.2887	ND	96.5	55-144			
Toluene	0.3364	0.026	"	0.2655	ND	127	57-137			
Ethylbenzene	0.3732	0.026	"	0.2938	ND	127	59-140			
Xylenes, total	0.6369	0.052	"	0.5696	ND	112	56-141			
Matrix Spike Dup (1E50308-MSD1)		**Source: 15D1142-01**		Prepared: 05/02/05 Analyzed: 05/03/05						
Surrogate: 4-Bromofluorobenzene	*48.37*		*mg/kg*	*50.00*		*96.7*	*64-143*			
Methyl-t-butyl Ether (MTBE)	0.5601	0.052	"	0.7809	ND	71.7	58-135	8.84	21	
Benzene	0.2596	0.026	"	0.2887	ND	89.9	55-144	7.06	23	
Toluene	0.2970	0.026	"	0.2655	ND	112	57-137	12.4	18	
Ethylbenzene	0.3710	0.026	"	0.2938	ND	126	59-140	0.591	27	
Xylenes, total	0.6066	0.052	"	0.5696	ND	106	56-141	4.87	18	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Barker-Lemar Associates
1801 Industrial Circle
West Des Moines, IA 50265

Determination of Extractable Petroleum Hydrocarbons - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 15E0606 - 1E50238										
Calibration Check (15E0606-CCV1)				Prepared: 05/03/05 Analyzed: 05/05/05						
Surrogate: Pentacosane	*48.6*		*mg/kg*	*52.6*		*92.4*	*60-140*			
TEH, as gasoline	1987		"	2010		98.9	85-115			
TEH, as #2 diesel fuel	1973		"	2010		98.2	85-115			
TEH, as waste oil	2019		"	2030		99.5	85-115			
Calibration Check (15E0606-CCV2)				Prepared: 05/03/05 Analyzed: 05/06/05						
Surrogate: Pentacosane	*51.3*		*mg/kg*	*52.6*		*97.5*	*60-140*			
TEH, as gasoline	2113		"	2010		105	85-115			
TEH, as #2 diesel fuel	2062		"	2010		103	85-115			
TEH, as waste oil	2238		"	2030		110	85-115			
Batch 1E50238 - 3545 OA-2 PFE										
Blank (1E50238-BLK1)				Prepared: 05/02/05 Analyzed: 05/05/05						
Surrogate: Pentacosane	*2.12*		*mg/kg*	*2.62*		*80.9*	*60-140*			
TEH, as gasoline	ND	5	"							
TEH, as #2 diesel fuel	ND	5	"							
TEH, as waste oil	ND	5	"							
Total Extractable Hydrocarbons	ND	5	"							
LCS (1E50238-BS1)				Prepared: 05/02/05 Analyzed: 05/05/05						
Surrogate: Pentacosane	*4.10*		*mg/kg*	*5.25*		*78.1*	*60-140*			
TEH, as #2 diesel fuel	397.4	5	"	502.0		79.2	61-110			
Matrix Spike (1E50238-MS1)	**Source: 15D1187-01**			Prepared: 05/02/05 Analyzed: 05/06/05						
Surrogate: Pentacosane	*5.00*		*mg/kg*	*5.24*		*95.4*	*60-140*			
TEH, as #2 diesel fuel	386.9	5	"	501.0	ND	77.2	51-110			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Barker-Lemar Associates
1801 Industrial Circle
West Des Moines, IA 50265

Determination of Extractable Petroleum Hydrocarbons - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1E50238 - 3545 OA-2 PFE											
Matrix Spike Dup (1E50238-MSD1)	**Source: 15D1187-01**				Prepared: 05/02/05 Analyzed: 05/06/05						
Surrogate: Pentacosane	*4.97*			*mg/kg*	*5.24*		*94.8*	*60-140*			
TEH, as #2 diesel fuel	378.6		5	"	501.5	ND	75.5	51-110	2.17	18	
Reference (1E50238-SRM1)					Prepared: 05/02/05 Analyzed: 05/06/05						
Surrogate: Pentacosane	*4.88*			*mg/kg*	*5.25*		*93.0*	*60-140*			
TEH, as #2 diesel fuel	454.7		5	"	502.0		90.6	70-130			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Barker-Lemar Associates
1801 Industrial Circle
West Des Moines, IA 50265

Work Order: 15D1142

Determination of Total Metals - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 15E0303 - 1E50309										
Calibration Blank (15E0303-CCB1)				Prepared & Analyzed: 05/03/05						
Lead, total	ND		mg/l	0.00						
Calibration Blank (15E0303-CCB2)				Prepared & Analyzed: 05/03/05						
Lead, total	0.00170		mg/l	0.00						
Calibration Blank (15E0303-CCB3)				Prepared & Analyzed: 05/03/05						
Lead, total	0.000800		mg/l	0.00						
Calibration Blank (15E0303-CCB4)				Prepared & Analyzed: 05/03/05						
Lead, total	0.00140		mg/l	0.00						
Calibration Blank (15E0303-CCB5)				Prepared & Analyzed: 05/03/05						
Lead, total	0.00230		mg/l	0.00						
Calibration Blank (15E0303-CCB6)				Prepared & Analyzed: 05/03/05						
Lead, total	0.00330		mg/l	0.00						
Calibration Check (15E0303-CCV1)				Prepared & Analyzed: 05/03/05						
Lead, total	1.04		mg/l	1.00		104	90-110			
Calibration Check (15E0303-CCV2)				Prepared & Analyzed: 05/03/05						
Lead, total	1.05		mg/l	1.00		105	90-110			
Calibration Check (15E0303-CCV3)				Prepared & Analyzed: 05/03/05						
Lead, total	1.06		mg/l	1.00		106	90-110			
Calibration Check (15E0303-CCV4)				Prepared & Analyzed: 05/03/05						
Lead, total	1.03		mg/l	1.00		103	90-110			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Barker-Lemar Associates
1801 Industrial Circle
West Des Moines, IA 50265

Determination of Total Metals - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 15E0303 - 1E50309										
Calibration Check (15E0303-CCV5)				Prepared & Analyzed: 05/03/05						
Lead, total	1.05		mg/l	1.00		105	90-110			
Calibration Check (15E0303-CCV6)				Prepared & Analyzed: 05/03/05						
Lead, total	1.04		mg/l	1.00		104	90-110			
High Cal Check (15E0303-HCV2)				Prepared & Analyzed: 05/03/05						
Lead, total	19.4		mg/l	20.0		97.0	90-110			
Secondary Cal Check (15E0303-SCV1)				Prepared & Analyzed: 05/03/05						
Lead, total	0.524		mg/l	0.500		105	90-110			
Batch 1E50204 - EPA 3050B Solid Dig										
Blank (1E50204-BLK1)				Prepared: 05/02/05 Analyzed: 05/03/05						
Lead, total	ND	0.05	mg/kg wet							
LCS (1E50204-BS1)				Prepared: 05/02/05 Analyzed: 05/03/05						
Lead, total	1.98	0.05	mg/kg wet	2.00		99.0	89-110			
Matrix Spike (1E50204-MS1)		**Source: 15D1142-03**		Prepared: 05/02/05 Analyzed: 05/03/05						
Lead, total	164	3.2	mg/kg dry	152	41.3	80.7	60-116			
Matrix Spike Dup (1E50204-MSD1)		**Source: 15D1142-03**		Prepared: 05/02/05 Analyzed: 05/03/05						
Lead, total	251	3.2	mg/kg dry	152	41.3	138	60-116	41.9	18	QM-07
Post Spike (1E50204-PS1)		**Source: 15D1142-03**		Prepared: 05/02/05 Analyzed: 05/03/05						
Lead, total	171	3.3	mg/kg dry	153	41.3	84.8	64-110			

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

Notes and Definitions

QM-07 The spike recovery and/or RPD was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

QS-06 The spike recovery for this QC sample was outside of established control limits

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Barker-Lemar Associates
1801 Industrial Circle
West Des Moines, IA 50265

May 09, 2005

Work Order: 15D1142

End of Report

Jeffrey King

Keystone Laboratories, Inc.
Jeffrey King, Ph.D.
Laboratory Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☐ 600 E. 17th St. S.
Newton, IA 50208
Phone: 641-792-8451
Fax: 641-792-7989

☐ 3012 Ansborough Ave.
Waterloo, IA 50701
Phone: 319-235-4440
Fax: 319-235-2480
www.keystonelabs.com

☐ 1304 Adams
Kansas City, KS 66103
Phone: 913-321-7856
Fax: 913-321-7937

PAGE 1 OF 1

PRINT OR TYPE INFORMATION BELOW
SAMPLER: Kevin Hensley
SITE NAME: Gy Dm
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Christy J.
COMPANY NAME: Barker Lemar
ADDRESS: 1801 Industrial Cir.
CITY/ST/ZIP: WDm IA 50265
PHONE: 515-256-8814
FAX:

BILL TO:
NAME:
COMPANY NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:
Keystone Quote No.: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: OA-1 BTEX/MTBE	OA-2 TEH	USEPA method 200 Lead					LAB USE ONLY: LABORATORY SAMPLE NUMBER
	4/24	10:30	Sample Point 1	2	Soil	C	X	X	X					01
	4/24	10:55	Sample Point 2	2	Soil	C	X	X	X					02
	4/24	11:25	Sample Point 3	2	Soil	C	X	X	X					03

LABORATORY WORK ORDER NO.: 15P1142
SAMPLE TEMPERATURE UPON RECEIPT: °C
SAMPLE CONDITION/COMMENTS:

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around: ☐ Standard ☐ Rush (Contact Lab Prior to Submission)
	4/25			
Relinquished by: (Signature)	Date / Time	Received for Lab by: (Signature)	Date / Time	Remarks:
		Bill	4/25/05 13:15 PM	Composite samples @ 2, 4, 6 ft bgs ≈ 1lb each

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

FORM: CCR 7-97