RECEIVED

JUL 2 1 2000 3 DIVISION



Phase II Geoprobe Investigation

Evans Property Markesan, Wisconsin

November 22, 1995

A Northern Environmental

Hydrologists • Engineers • Geologists

324 East Main Street Waupun. WI 53963 Fax 1-414-324-3023 1-414-324-8600

November 22, 1995 (COM810037)

Ms. Joan Ballweg City of Markesan 77 John Street Markesan, Wisconsin 53946

RE: Phase II Geoprobe Investigation of the Evans Property, 77 John Street, Markesan,

Wisconsin

Dear Ms. Ballweg:

Per your request, Northern Environmental performed a Phase II Environmental Site Assessment (ESA) at the vacant lot labeled Out Lot 1 on the Greenlake County Certified Survey Map No. 2094, located in the City of Markesan, Wisconsin (Figure 1). The site will be referred to as the "Property" in the remainder of this letter report.

On October 20, 1995, a 7,000 gallon fuel oil tank was removed from the Property. Contaminated soil was identified during the UST removal. The City of Markesan is evaluating the purchase of the Property. Part of the evaluation is the completion of a Phase II environmental audit. The Phase II ESA consisted of installing eight Geoprobe borings near and around the former tank location (Figure 2). Northern Environmental supervised the Geoprobe work performed by Briohn Environmental on November 1, 1995.

The soil and ground-water samples collected from the Geoprobe borings were submitted for diesel range organics (DRO) and petroleum volatile organic compounds (PVOCs) analyses at U.S. Analytical Laboratory (WI Certification #445027660). Tables 1 and 2 summarize the results. Regulatory clean-up standards for DRO contamination in soil have been established in NR720 at 100 mg/kg. Based on the analytical results of soil samples collected during the geoprobe work, samples S5, S20, and S25 contain concentrations of DRO in excess of clean-up standards.

Regulatory clean-up standards have also been established for ground water in NR140. A Wisconsin Department of Natural Resources (WDNR) preventive action limit (PAL) and enforcement standards (ES) has been established for several volatile organic compounds (VOCs) of which PVOCs are a part. If the concentration of a compound exceeds its PAL, the WDNR is apt to require additional investigation. The results of samples from ground water at this site do not indicate any concentrations of PVOCs above their respective PAL. However, the ground water does indicate the presence of significant DRO concentrations (up to 34,000).

1

micrograms per liter $\mu g/l$). Although there is no standard for DRO in ground water, the presence of up to 34,000 $\mu g/l$ typically prompts the WDNR to require additional investigation and clean-up. To summarize the analytical results, they indicate DRO contamination in both the soil and ground water at the Property. Additional work will be required to clean-up the contaminant plumes which have been identified (Figure 3).

These plumes are only estimated and are used to determine the approximate volume of soils and ground water impacted with fuel oil constituents. Northern Environmental estimates that a total of 3,700 cubic yards of soil is impacted with fuel oil contamination, with approximately 1,000 cubic yards being located near the former tank area and trenched area. Also, there are approximately 750,000 gallons of impacted ground water on and downgradient of the Property.

Northern Environmental recommends that a remedial action plan be developed. We would recommend excavating approximately 1,000 cubic yards of highly impacted soil in the former tank area to be further treated possibly offsite by thin spreading at the city landfill. Also, three monitoring wells should be installed for future use as recovery wells to pump and treat impacted ground water at the Property.

We trust this information meets your needs. Please feel free to call with questions.

Sincerely,

Northern Environmental Technologies, Incorporated

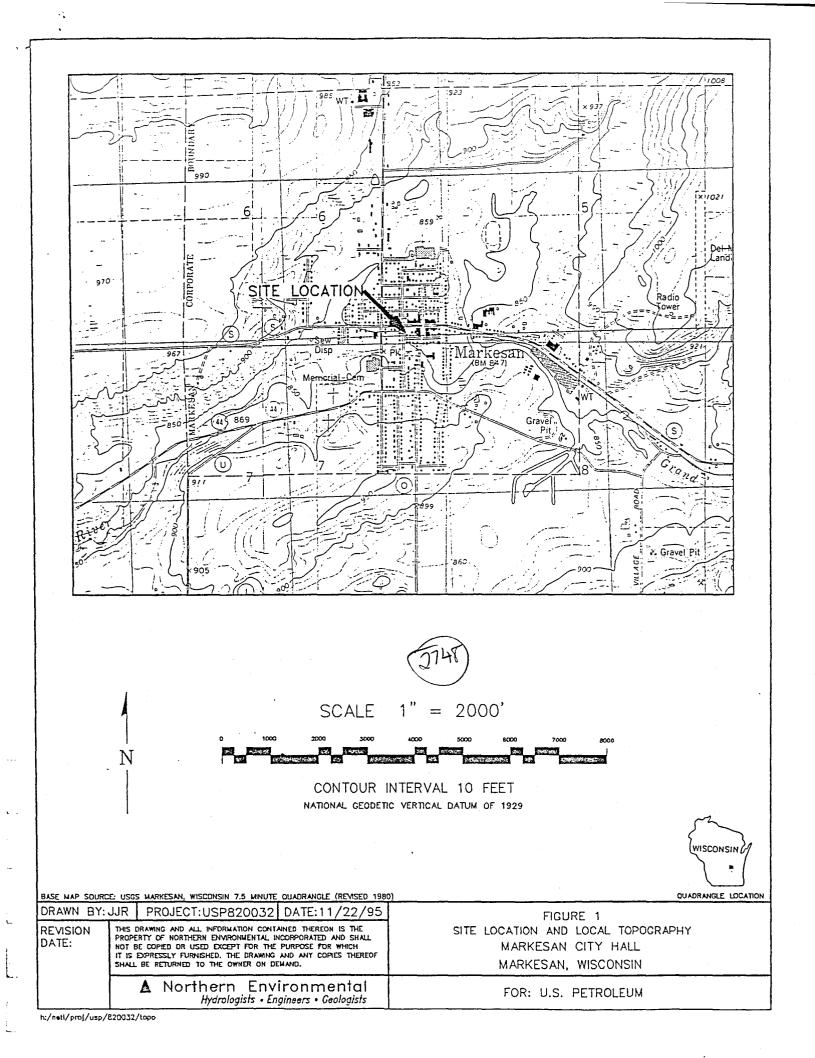
Stacy D. Centeraus
Stacy D. Cernohous E.I.T.
Environmental Engineer II

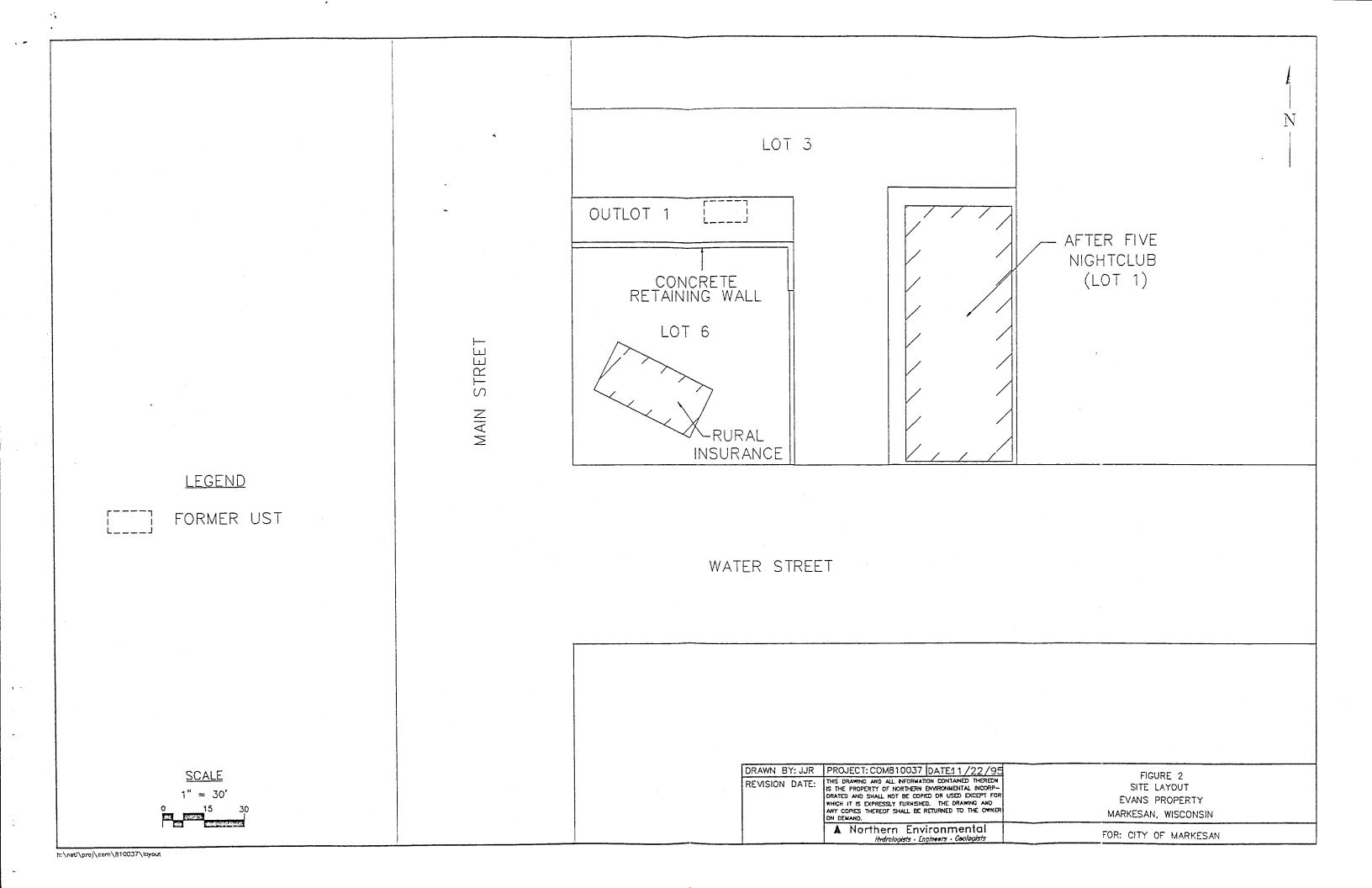
Marty L. Koopman

Senior Project Manager

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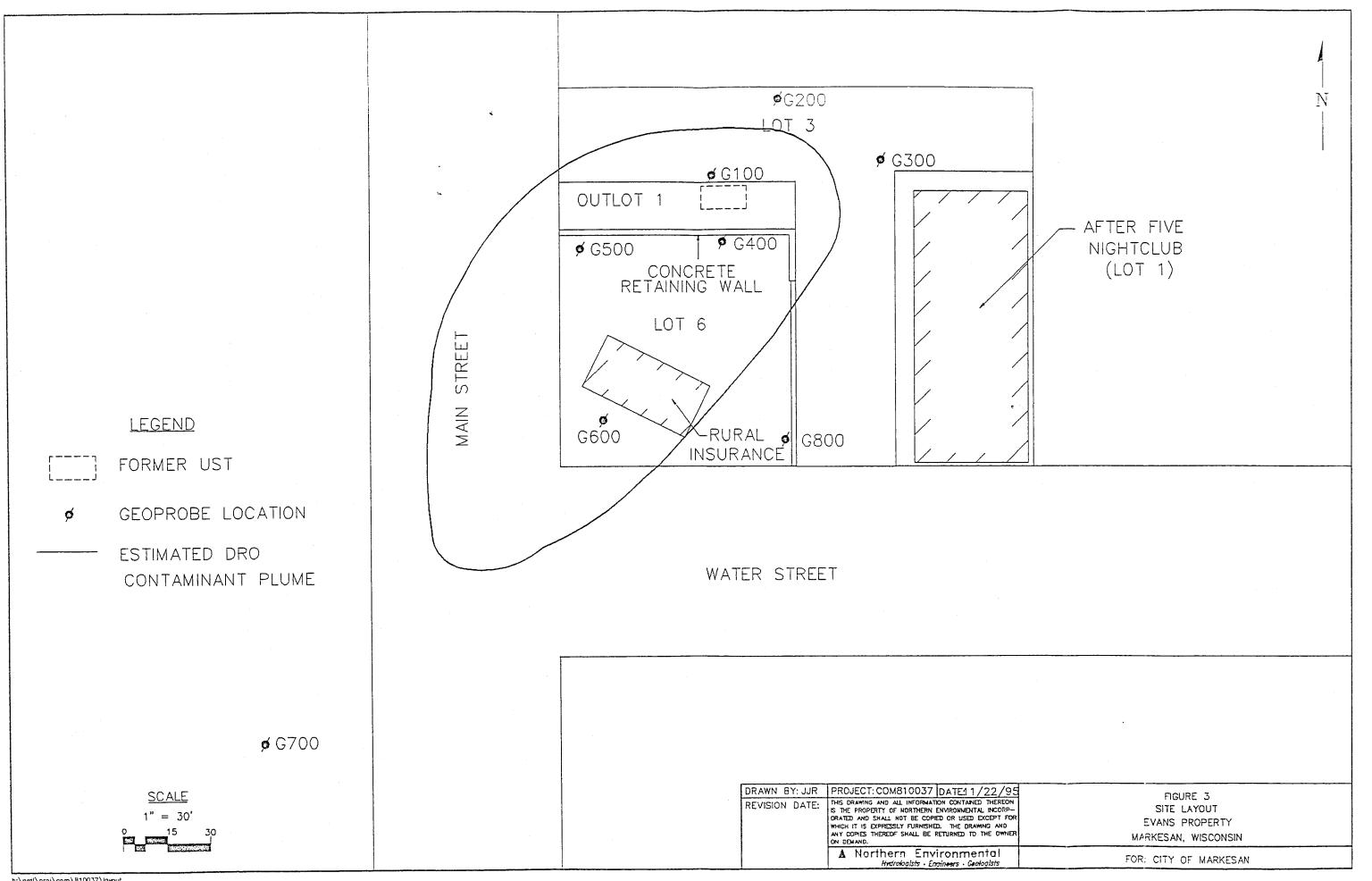


Table 1 Summary of Soil Field Screening and Lab Analysis, Markesan City Hall, Markesan, Wisconsin

Sample	Location	Depth	Date	Time	PID	Odor	Soil	Soil Type	Relative	Laboratory Ar	nalysis Results
Number		(fbg)	Collected	Screened	Response (iui)		Description	(USCS	Moisture	DRO	GRO
								Classification)	Content	(mg/kg)	(mg/kg)
S5	G100	10-12	11/01/95	9:00	72	Strong	Medium Sand	SP	Wet	3700	
\$10	G200	10-12	11/01/95	9:50	0	None	Silty Clay with Sand	CL	Wet	<10	
S15	G300	8-10	11/01/95	10:40	0	None	Medium Sand	SP	Moist	<10	
\$20	G400	6-8	11/01/95	12:00	477	Strong	Medium Sand	SP	Moist	4800	
\$25	G500	6-8	11/01/95	12:50	126	Strong	Medium Sand	SP	Moist	190	
S30	G700	2-4	11/01/95	14:10	4	Slight	Silty Clay	CL	Moist	<10	
\$36_	G800	6-8	11/01/95	15:20	1	None	Medium Sand	SP	Wet	≺10	

Note:

UST = underground storage tank

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Table 2 Laboratory Analytical Results of Ground-Water Sampling for October 1, 1995, Markesan City Hall, Markesan, Wisconsin

Parameter	Action Limit (PAL)	WDNR Enforcement Standard (ES)	W100	W300	W500	W700	W800
	(µg/l)	(µg/l)	the same and the s	***************************************	A Section 1	The second secon	
DRO	NE	NE	34000		20000	<100	280
GRO	NE	NE			4.44		***
Lead	1.5	15					
VOCs Detected							
Benzene	0.5	5	<0.26	<0.26	0.37	<0.26	<0.26
Ethylbenzene	140	700	4.0	<0.32	1.4	<0.32	<0.32
МТВЕ	12	60	<0.22	<0.22	<0.22	<0.22	<0.22
Toluene	68.6	343	<0.69	<0.69	<0.69	<0.69	<0.69
1,2,4-Trimethylbenzene	NE	NE	58	0.71	11	<0.57	<0.57
1,3,5-Trimethylbenzene	NE	NE	12	<0.57	<0.57	<0.57	<0.57
Xylenes	124	620	9.1	<0.90	1.6	<0.90	<0.90

Note:

GRO = Gasoline Range Organics

DRO = Diesel Range Organics
MTBE = Methyl-Tertiary-Butyl-Ether
VOCs = Volatile Organic Compounds

µg/l = micrograms per liter

NE = Not established by Wisconsin Department of Natural Resources (WDNR)

--- = Not analyzed



NOV 1.5 1995

Analytical Laboratory

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

Stacy Cernohous Northern Environmental 324 E. Main St.

Waupun, WI 53963

Report Date:

10-Nov-95

Project #:

COM810037

WI DNR Certified Lab #445027660

Project :

Markesan

Sample ID:

W1

Lab Code:

5011996A

Sample Type: Water Sample Date: 01-N

01-Nov-95

Test	Res	sult	MDL	PQL	Unit	pН	Date Ext/Digested	Date Analyzed:	Analyzed By:	QC Code
MODIFIED DRO						-builtis induses				
WDNR JULY 93		34000	330	1000	UG/L	6.4	07-Nov-95	08-Nov-95	C. Rotar	1
PVOC										
SW846 8020	ĺ					1.9		04-Nov-95	R. Everson	
Benzene	< 0.26		0.082	0.26	UG/L					1
Ethylbenzene		4.0	0.1	0.32	UG/L					1
MTBE	< 0.22		0.069	0.22	UG/L					- 1
Toluene	< 0.69		0.22	0.69	UG/L					1
1,2,4-Trimethylbenzene		58	0.18	0.57	UG/L					1
1,3,5-Trimethylbenzene] -	12	0.18	0.57	UG/L					1
Xylenes		⁻ 9.1	0.28	0.9	UG/L					1
Fluorobenzene Surrogate	=	101			% Rec.					ļ
	-]							1

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

PVOC analysis detected unidentified peaks.

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

WI DNR Certified Lab #445027660

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

Stacy Cernohous

Northern Environmental

324 E. Main St. Waupun, WI 53963 Project #: Project:

COM810037

Sample ID:

Markesan W300

Lab Code:

5011996E

Sample Type:

Water

Sample Date:

01-Nov-95

Report Date:

09-Nov-95

Test	Result	MDL	PQL	Unit	рH	Date	Date	Analyzed	QC
						Ext/Digested	Analyzed:	By:	Code
PVOC			İ						
SW846 8020					1.6		04-Nov-95	R. Everson	
Benzene	< 0.26	0.082	0.26	UG/L					1
Ethylbenzene	< 0.32	0.1	0.32	UG/L					1
MTBE	< 0.22	0.069	0.22	UG/L					1
Toluene	< 0.69	0.22	0.69	UG/L				1	1
1,2,4-Trimethylbenzene	0.71	0.18	0.57	UG/L	-				1
1,3,5-Trimethylbenzene	< 0.57	0.18	0.57	UG/L					1
Xylenes	< 0.90	0.28	0.9	UG/L					1
Fluorobenzene Surrogate	103			% Rec.					
		•	1						
	•	1							

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

PVOC analysis detected unidentified peaks.

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

10-Nov-95

Analytical Laboratory

WI DNR Certified Lab #445027660

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

Stacy Cernohous Northern Environmental 324 E. Main St.

324 E. Main St. Waupun, WI 53963

Report Date:

Project #:

COM810037

Project:

Markesan

Sample ID:

W500

Lab Code:

5011996B

Sample Type:

Water

Sample Date:

01-Nov-95

Test	Result	MDL	PQL	Unit	рH	Date Ext/Digested	Date Analyzed:	Analyzed By:	QC Code
MODIFIED DRO WDNR JULY 93	20000	330	1000	UG/L	5.5	07-Nov-95	08-Nov-95		1
PVOC SW846 8020					1.4			R. Everson	
Benzene	0.37	0.082	0.26	UG/L	1.4	·	04-1107-55	IX. EVEISOIT	
Ethylbenzene	1.4	1	l	UG/L					
MTBE	< 0.22	0.069	0.22	UG/L			*		
Toluene	< 0.69	0.22	0.69	UG/L			_		
1,2,4-Trimethylbenzene	11	0.18	0.57	UG/L	'				1
1,3,5-Trimethylbenzene	< 0.57	0.18	0.57	UG/L					
Xylenes	1.6	0.28	0.9	UG/L					
Fluorobenzene Surrogate	- 102			% Rec.					
=									

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

PVOC analysis detected unidentified peaks.

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

Authorized Signature

A Marine Total

10-Nov-95

Analytical Laboratory

WI DNR Certified Lab #445027660

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

Stacy Cernohous Northern Environmental

324 E. Main St. Waupun, WI 53963

Report Date:

Project #:

COM810037

Project:

Markesan

Sample ID:

W700

Lab Code:

5011996C

Sample Type:

Water

Sample Date:

01-Nov-95

Test	Result	MDL	PQL	Unit	рH	Date	Date	Analyzed	QC
						Ext/Digested	Analyzed:	Ву:	Code
MODIFIED DRO									
WDNR JULY 93	< 100	33	100	UG/L	5.5	07-Nov-95	08-Nov-95	C. Rotar	1
PVOC		1							
SW846 8020					1.3	·	04-Nov-95	R. Everson	
Benzene	< 0.26	0.082	0.26	UG/L					
Ethylbenzene	< 0.32	0.1	0.32	UG/L					
MTBE	< 0.22	0.069	0.22	UG/L					
Toluene	< 0.69	0.22	0.69	UG/L					
1,2,4-Trimethylbenzene	< 0.57	0.18	0.57	UG/L					
1,3,5-Trimethylbenzene	< 0.57	0.18	0.57	UG/L		. '			
Xylenes	< 0.90	0.28	0.9	UG/L					
Fluorobenzene Surrogate	102	i		% Rec.		·			

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

PVOC analysis detected unidentified peaks.

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

Stacy Cernohous

Northern Environmental

324 E. Main St. Waupun, WI 53963

Report Date:

10-Nov-95

COM810037

WI DNR Certified Lab #445027660

Project #: Project:

Markesan

Sample ID:

W800

Lab Code:

5011996D Water

Sample Type: Sample Date:

01-Nov-95

Test	Result	MDI	PQL	Unit	pН		Date	Date	Analyzed	QC
						Ext	Digested	Analyzed:	Ву:	Code
MODIFIED DRO										
WDNR JULY 93		280 5	1 160	UG/L	6.0		07-Nov-95	08-Nov-95	C. Rotar	1,2
PVOC										·
SW846 8020					1.4			04-Nov-95	R. Everson	
Benzene	< 0.26	0.08	2 0.26	UG/L						1 1
Ethylbenzene	< 0.32	0.	1 0.32	UG/L						1
MTBE	< 0.22	0.08	9 0.22	UG/L						1
Toluene	< 0.69	0.2	2 0.69	UG/L						1
1,2,4-Trimethylbenzene	< 0.57	0.1	8 0.57	UG/L						1
1,3,5-Trimethylbenzene	< 0.57	0.1	8 0.57	UG/L						1
Xylenes	< 0.90	0.2	8.0	UG/L						1
Fluorobenzene Surrogate		102		% Rec.						
•										

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

PVOC analysis detected unidentified peaks.

QC SUMMARY

CODE:

1 All laboratory QC requirements were met for this sample.

2

DRO chromatogram indicates atypical diesel contamination.

WI DNR Certified Lab #445027660

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

Stacy Cernohous

Northern Environmental

324 E. Main St. Waupun, WI 53963 Project #:

COM810037

Project:

Markesan

Sample ID:

Markesal S5

Lab Code:

5011996F

Sample Type: Soil

a:1

Report Date:

09-Nov-95

Sample Date:

01-Nov-95

Test	Result	MDL	PQL	Unit	Date Ext/Dig/Pres	Date Analyzed:	Analyzed By:	QC Code
TOTAL SOLIDS	89.6			%		03-Nov-95	B. Rettler	1
MODIFIED DRO WDNR JULY 93	3700	66	200	MG/KG	03-Nov-95	08-Nov-95	C. Rotar	1

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298 WI DNR Certified Lab #445027660

Stacy Cernohous

Northern Environmental

324 E. Main St. Waupun, WI 53963 Project #:

COM810037

Project:

Markesan

Sample ID:

S10

Lab Code:

5011996G

Sample Type:

Soil 01-Nov-95

Report Date:

09-Nov-95

ov-95 Sample Date:

Test	Result	MDL	PQL	Unit	Date Ext/Dig/Pres	Date Analyzed:	Analyzed By:	QC Code
TOTAL SOLIDS	90.9	-		%		03-Nov-95	B. Rettler	1
MODIFIED DRO WDNR JULY 93	< 10	3.3		MG/KG	03-Nov-95	06-Nov-95		1

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

Authorized Signature

=

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

WI DNR Certified Lab #445027660

Stacy Cernohous

Northern Environmental

324 E. Main St.

Waupun, WI 53963

Project #:

COM810037

Project:

Markesan

Sample ID:

S15

Lab Code:

5011996H

Sample Type: Soil Sample Date:

01-Nov-95

Report Date:

09-Nov-95

Test	Result	MDL	PQL	Unit	Date Ext/Dig/Pres	Date Analyzed:	Analyzed By:	QC Code
TOTAL SOLIDS	86.1			%		03-Nov-95	B. Rettler	1
MODIFIED DRO WDNR JULY 93	< 10	3.3	10	MG/KG	03-Nov-95	06-Nov-95	C. Rotar	1

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

WI DNR Certified Lab #445027660

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

Stacy Cernohous Northern Environmental 324 E. Main St.

Waupun, WI 53963

Report Date:

09-Nov-95

Project #:

COM810037

Project:

Markesan

Sample ID:

S20

Lab Code: Sample Date: 50119961

Sample Type: Soil

01-Nov-95

Test	Result	MDL	PQL	Unit	Date Ext/Dig/Pres	Date Analyzed:	Analyzed By:	QC Code
TOTAL SOLIDS	85.8			%		03-Nov-95	B. Rettler	1
MODIFIED DRO WDNR JULY 93	4800	66	200	MG/KG	03-Nov-95	07-Nov-95	C. Rotar	1

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

WI DNR Certified Lab #445027660

Stacy Cernohous

Northern Environmental

324 E. Main St. Waupun, WI 53963 Project #:

COM810037

Project:

Markesan

Sample ID:

Lab Code:

S25

Sample Type: Soil

5011996J

Report Date:

09-Nov-95

Sample Date:

01-Nov-95

Test	Result	MDL	PQL	Unit	Date Ext/Dig/Pres	Date Analyzed:	Analyzed By:	QC Code
TOTAL SOLIDS	83.6			%		03-Nov-95	B. Rettler	1
MODIFIED DRO WDNR JULY 93	_. 190	3.3	10	MG/KG	03-Nov-95	05-Nov-95	C. Rotar	1

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

Stacy Cernohous Northern Environmental 324 E. Main St. Waupun, WI 53963 Project #:
Project :

COM810037

WI DNR Certified Lab #445027660

Sample ID: S

Markesan

Lab Code:

S30 5011996K

Sample Type:

Soil

Report Date:

09-Nov-95

Sample Date:

01-Nov-95

Test	Result	MDL	PQL	Unit	Date Ext/Dig/Pres	Date Analyzed:	Analyzed By:	QC Code
TOTAL SOLIDS	69.0		-	%		03-Nov-95	B. Rettler	1
MODIFIED DRO WDNR JULY 93	< 10	3.3		MG/KG	03-Nov-95	06-Nov-95		1

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

425 S. Washington St. Combined Locks, WI 54113 Phone 414-735-8298

WI DNR Certified Lab #445027660

Stacy Cernohous

Northern Environmental

324 E. Main St. Waupun, WI 53963 Project #:

COM810037

Project:

Markesan

Sample ID:

S36

Lab Code:

5011996L

Sample Type: Soil

Sample Date:

01-Nov-95

Report Date:

09-Nov-95

Test	Result	MDL	PQL	Unit	Date Ext/Dig/Pres	Date Analyzed:	Analyzed By:	QC Code
TOTAL SOLIDS	90.8			%		03-Nov-95	B. Rettler	1
MODIFIED DRO WDNR JULY 93	< 10	3.3		MG/KG	03-Nov-95	06-Nov-95	·	1

MDL = Method Detection Limit

PQL = Practical Quantitation Limit

ND = Compound Not Detected

QC SUMMARY

CODE:

1

All laboratory QC requirements were met for this sample.

El Waupun

A Northern Environmental™

CHAIN OF CUSTODY RECORD

Page of

1214 W. Venlure Courl Mequon, WI 53092 1114 241-3133 FAY 414-241-8222 372 West County Road D New Brighton, MN 55112 612-635-9100 952 Circle Drive Green Bay, WI 54304 414-592-8400 FAX 414-592-8444

REQUEST FOR ANALYSIS

No

4394

	FAX 414-241-8222	FAX 612-635-0643	FAX 414-592-8444	
,	Check office originating request		810037	
Þr	oject No: oject Location: (city) Oject Manager:	Task No:	1) S ACULT Cal Seal	mple Integrity - To be completed by receiving lab al intact upon receipt
(I Sr (Sa (Sa (Re	eports to be Sent to:	Cerncheus Cyclinolicus Gollection No. of Containers, e Time Size and Type	Price Quole: TURNAROUND TIME REQUIRED Normal Pale Needed Description Water Soil Other	GRO (WI Modified Method) BETX (EPA Method 8020) PVOC (EPA Method 8021) PAH (EPA Method) Pb (EPA Method)
	TWA WIE 11-1 B W 500 C W 700 T W 300 F SS S S (0) H S 15 T S 20 T S 25	3 (40 ml) vials	MCI, Fie X	7.3
Sh	acked for Shipping by:	Comments:	harge project # por MANT Ko	1/5/95 / rickon
Cd	elinquished By: 171 CY company:	Date: 1/2/c/s Time: Date: 1/- 2-95	Company: Tim	1-7-95 me: Company: C
C	pripany:	Time: 7.00		Company: Time-

▲ Northern Environmental*

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CHAIN OF CUSTODY RECORD

Page 2 of 2

1214 W. Venture Court Mequon, W1 53092 414-241-3133 FAX 414-241-8222 372 West County Road D New Brighton, MN 55112 612-635-9100 FAX 612-635-0643 952 Circle Drive Green Bay, WI 54304 414-592-8400 FAX 414-592-8444

REQUEST FOR ANALYSIS

Nº . 4360

	Check office originating request 501996 COMS/2		
	Project No: Task No: Project Location: (city) Y CC KLSCO	Sample Integration Seal intact up with DNR 1/1/2 Method of Sh	ity - To be completed by receiving lab on receipt (Yes No pment)
	(city) Y Y CAP KESAM	flication #: 145 0 2 1(b) Contents Ten	perature °C Refrigerator No:
		act: MIKE KILLEY	ANALYSES REQUESTED
	(name): Styry Cerolous	Method) Method)	8021)
	Sampler (signature): 71C1 Combridge Sampling Date(s):		boti bo Do T
	Sampling Date(s): 11-1-Cy 5	Mormal Rush Normal Rush Normal Rush Needed Method 8020) BETX (EPA Method 8020)	PVOC (EPA Method 8020) VOC (EPA Method 8021) PAH (EPA Method) Pb (EPA Method)
	Reports to be Sent to:	Needed S Needed	00 (EPA (EPA (EPA (EPA (EPA (EPA (EPA (EPA
	Lab Sample No. Collection No. of Containers, ID. No. Date Time Size and Type	Description Preservative X X III	No de a PID
501			1 1 4 1 1 1 1
	916 K S30 (1-1 3(202)	Methanol, Ice X	
	Packg(I for Shipping by) // Comments:		
	Packed for Shipping by! Comments:	THE CLEDGE HE BEL WOUTH KOODNA	32 1/8/95 M. M.cha-
	Shipment Dalpy -/-95		
	Relinquished By: Date: Date: 17-25	Relinquished By: Date: 11-Z-	Relinquished By: Date: 11-02-75
	Company: Time:	Company: Time:	Company: Time
		Received By: Date:	
	11-7-85	Received By: Date: Date: 11-2-95	
	Company: Time:	Company: Time: 1300	Company: 050JL Time: 5:00