1R - 0334

REPORTS

1/2005 Sampling





DUKE ENERGY FIELD SERVICES 370 17th Street Suite 2500 Denver, CO 80202

303 595 3331

January 24 2005

Mr. Jack Ford, C.P.G. New Mexico Oil Conservation Division 1220 S. St. Francis Dr. Santa Fe, NM 87505

RE: NMG MW5 Sampling and Proposal for Additional Activities at the NMG-148C Release Site (Case #1R334) Lea County New Mexico Unit N, Section 16, Township 19 South, Range 37 East

- 14 - 1

Dear Mr. Ford:

Duke Energy Field Services, LP (DEFS) is pleased to submit for your review, one copy of the NMG MW5 sampling results and a proposal for additional site activities at the NMG-148C release site which is located in Lea County, New Mexico.

The need for additional activities is based on the analytical results of the recent groundwater sampling results of the newly installed NMG MW5. Upon your approval, DEFS will move forward with the additional activities.

If you have any questions regarding this report, please call me at 303-605-1718.

Sincerely

Duke Energy Field Services, LP

Stephen Weathers, PG Sr. Environmental Specialist

Enclosure

cc: Larry Johnson, OCD Hobbs District Office Lynn Ward, DEFS Midland Office Environmental Files

R334

AEC AMERICAN ENVIRONMENTAL CONSULTING, LLC

January 21, 2005

Mr. Stephen Weathers Duke Energy Field Services, LP 370 17th Street, Suite 2500 Denver, CO 80202

Re: Results of NMG-MW5 Sampling and Proposal for Additional Activities at the NMG-148C Release Site (CASE #1R334) in Lea County New Mexico Unit N, Section 16, Township 19 South Range 37 East

Dear Mr. Weathers:

This letter summarizes the sampling results and for recently-installed NMG-MW-5 and proposes additional investigative activities at the NMG-148C study area that is located on New Mexico State land. The purpose of the additional activities is to delineate the hydrocarbon plume that was detected in December 2004. The description of the field program follows a section containing background information.

BACKGROUND INFORMATION

Previous monitoring of wells NMG-MW2 through NMG MW4, shown on Figure 1, had established that no hydrocarbon plume was present south of the release point. Duke Energy Field Services, LP (DEFS) had previously committed to installing a final well southeast of the release area in the perceived down-gradient direction for groundwater. This commitment was reiterated by the New Mexico Oil Conservation Division (OCD) in a letter to DEFS dated October 28, 2004. DEFS commission installation of the new well following the refilling of the excavation and the receipt of samples that verified that the treated soils were below the mandated standards.

Well NMG-MW5 was installed on December 16, 2004 to a total depth of 35 feet at the location shown on Figure 1. The well was screened from 20 to 35 feet below ground surface (bgs) and completed as a permanent monitoring well. The well was developed and sampled on December 17, 2004. The sample was submitted to Environmental Labs of Texas (ELT) using standard chain of custody procedures for analysis for benzene, toluene, ethylbenzene and xylenes (BTEX). The sample results were received on December 22, 2004. These attached results, included in Table 1, indicated that the benzene concentration exceeded the human health standard for the New Mexico Water Quality Control Commission (NNWQCC). Toluene, ethylbenzene and xylenes were present at concentrations that were below their respective NMWQCC standards.

6885 South Marshall St., Suite 3, Littleton, CO 80128 phone 303-948-7733 fax 303-948-7739

Mr. Stephen Weathers January 21, 2005 Page 2

NMG-MW5 was resampled on December 29, 2004 to verify the initial BTEX concentrations and to analyze for polynuclear aromatic hydrocarbons (PAHs) as required in the October 28, 2004 OCD letter. Copies of laboratory reports for both the December 17, 2004 and December 29, 2004 sampling events are attached.

The BTEX results, from the December 29, 2004 episode, also summarized in Table 1, verified the initial data. Naphthalene was the only PAH detected; however, its concentration of 0.00029 mg/l was three orders of magnitude below NWQCC standard of 0.03 (Table 1).

DEFS reviewed the data and directed American Environmental Consulting, LLC (AEC) to prepare this workplan for the further investigation of the groundwater conditions. This workplan includes three activities: 1) installation and sampling of additional monitoring wells; 2) Completion of first quarter 2005 monitoring on the existing wells; and 3) surveying locations of the new wells. Each activity is described below.

INSTALLATION OF MONITORING WELLS

Four additional monitoring wells will be installed at locations that are cross-gradient and down-gradient from well NMG-MW5. The locations for these four wells are shown on Figure 1. The locations were selected based upon the following rationale:

- NMG-MW6 will be located east of NMG-MW5 in the surface drainage to bound the eastern edge of the hydrocarbon plume. Note that the western edge is already bounded by well NMG-MW2.
- NMG-MW7 will be located in the same drainage just south of the access road to assess plume attenuation and/or dispersion.
- NMG-MW8 will be located just south of the access road approximated midway between the release point (excavation) and the property boundary to assess attenuation/biodegradation along the centerline of the plume.
- NMG-MW9 will be located in the drainage at the property boundary. This location was selected for two reasons. First, it aligns with NMG-MW5 and the release point so it should be near the centerline of the plume. Second, this location is considered to have a high probability of encountering affected groundwater because it typically migrates toward the surface drainages and then flows beneath them.

The monitoring wells will be installed using air-rotary or auger drilling techniques. Each well will be installed to approximately 15 feet below groundwater rather than the usual 10 feet to ensure a sufficient long-term saturated thickness. Recent rains have raised the water table elevation by 4 to 8 feet in this area, and it is unknown how long it will take for the water-table elevations to recede to their historic levels.

The cuttings from each well will be inspected during drilling and logged for lithology, moisture content and the presence of indicators of hydrocarbon impacts. Samples will be screened with a photoionization detector (PID) at regular intervals and at any interval that appears to have hydrocarbon impacts.

A 20-foot section of screen will be installed to ensure that the open area of the well intercepts the water table. Artificially-graded sand will be placed to the approximately 1-to-2 feet above the top of the screen. Hydrated bentonite chips will then be placed from the top of the sand to approximately 2 feet bgs. Finally, an above-ground surface protector with an cement apron around it will be installed.

Each well will be allowed to sit a minimum of 12 hours before development. The wells will then be developed by pumping them with a 12-volt submersible pump until a minimum of ten casing volumes of water have been removed. The wells will then be purged for an additional three casing volumes. The field parameters of temperature, conductivity and dissolved oxygen will be measured after each of the three casing volumes to verify stabilization. The wells will then be analyzed for the parameter set included in Table 2. The rationale for this suite is discussed below in the section on quarterly monitoring.

QUARTERLY GROUNDWATER MONITORING

The first quarter 2005 groundwater monitoring episode will be completed in conjunction with the well installation program above. The four existing wells plus the four new wells will be purged and sampled using the protocol that was used in the past. The actual samples from all wells will be collected using a disposable bailer. Care will be taken to ensure that the samples are not aerated before they are measured or containerized. A field duplicate and a matrix spike duplicate (for BTEX) will also be collected.

The samples will be analyzed for the field and laboratory parameters listed in Table 2. The results of the analyses will be used to delineate the distribution of the hydrocarbon constituents and evaluate natural bioremediation to assess if monitored natural attenuation is a viable remediation alternative at this site.

ADDITIONAL SURVEYING ACTIVITIES

The locations and elevations of NMG-MW5 and the four new wells will be established by a licensed surveyor. The latitudes and longitudes of the three existing wells, the approximate location of the original release, the approximate excavation boundaries and the southern property boundary will also be measured. Mr. Stephen Weathers January 21, 2005 Page 4

The surveyor will provide a stamped plat map that will show the above features. The map provides validation of all points that will be used in project AutoCad and/or GIS graphics.

DELIVERABLE AND SCHEDULE

The deliverable for these activities will include the following components:

- A description of the field activities completed;
- Presentation of the data generated (including all historic data);
- Discussion of the quality assurance data;
- Interpretations and Conclusions on the distribution of hydrocarbons and the effectiveness of natural bioremediation; and
- Either a proposal for future activities or a conceptual corrective action program if the hydrocarbon plume has been adequately delineated.

Attachments with the lithologic boring logs (including NMG-MW5), the field purging data, the chains of custody and the laboratory reports will be included.

The project duration is estimated as follows.

- Day 1: Authorization to proceed issued by OCD
- Weeks 1 to 3: Contractor scheduling.
- Weeks 4 and 5: Completion of field activities.
- Weeks 5 through 8: Completion and validation of laboratory samples.
- Weeks 7 through 12: Preparation of report and submittal to OCD.

The above dates are estimates that are based upon previous experience. Additional time may be necessary based upon contractor constraints, weather delays, unanticipated field conditions, etc.

Thank you for allowing AEC to complete this workplan. Do not hesitate to contact me if you have any questions or comments on it.

Respectfully Submitted, AMERICAN ENVIRONMENTAL CONSULTING, LLC

Mechael H. Stewart

Michael H. Stewart, P.E., C.P.G. Principal Engineer



Sarrade 12

. چې د د مو

Logardi alistia

مرجور بالمعالية معالي أحدر

 $= \frac{1}{2} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1$

1. J. J.

- Sayama

and the second s

A STATISTICS

.

Table 1 – Summary of Organic Data from The NMG-148C Study Area Wells

Well	Sampling Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
NMWQCC Standards		0.01	0.75	0.75	0.62	0.03
NMG MW-5	12/17/04	2.82	0.00594	0.00331J	0.0583	NS
NMG MW-5	12/29/04	3.72	0.00123 J	0.00441 J	0.0508	0.00029

Ser Service

444

بالقدام كالأرهب

Ne state

a the second second

St. Sing

+ +

194 - 194 - 194 -

A. S. Sam

i dina

WR ST.

Notes: NMWQCC New Mexico Water Quality Control Commission Human Health Standards

J: Detected but below the Reporting Limit; therefore, result is an estimated concentration.

Reporting Limit (mg/l)

* Other constituents that were analyzed for but not detected include:

٠	Acenaphthylene	< 0.000116
•	Acenaphthene	< 0.000116
•	Fluorene	< 0.000116
٠	Phenanthrene	< 0.000116
٠	Anthracene	< 0.000116
٠	Fluoranthene	< 0.000116
•	Pyrene	< 0.000116
٠	Benzo (a) anthracene	< 0.00000302
٠	Chrysene	< 0.000116
٠	Indeno (1,2,3-cd) pyrene	< 0.0000302
•	Benzo (b) fluoranthene	< 0.0000302
٠	Benzo (k) fluoranthene	< 0.000116
•	Benzo (a) pyrene	< 0.000000465
•	Dibenzo (a,h) anthracene	< 0.000000465

~

Constituent

Table 2 - Proposed Analytical Suite for the First Quarter 2005 NMG-148C Monitoring Episode

Hydrocarbon Plume Indicator Paramenters

- Benzene
- Toluene
- Ethylbenzene
- Xylenes

1. A. 5

4 - 2 d 4 - 4

S. 96.8.

- Total Petroleum Hydrocarbons as Gasoline
- Total Petroleum Hydrocarbons as Diesel

Biodegradation Indicator Parameters

- Dissolved Oxygen: By meter in field
- Redox Potential: By meter in field
- Ferrous (II) Iron: HACH method #8146 in field or equivalent laboratory method
- Sulfate: HACH method #8051 in field or equivalent laboratory method
- Samples will also be submitted for laboratory analysis of nitrate and methane.

FIGURES

.

a state

1.41

-

والمناحد والمركز المراجع

8

2

4.

5 . B. . .

2 - 2 - 1 - 1



- 2. Wells NMG-MW2 through NMG-MW-5 are existing wells.
- 3. Wells NMG-MW6 through NMG-MW-9 are proposed, and the locations may be moved based upon site constraints.
- 4. Dark gray areas are surface drainage features.

Figure 1 – Existing and Proposed Monitoring Wells NMG-148C DRA REV DAT



LABORATORY ANALYTICAL RESULTS

(

.

N 17 2

1. 2 S. 2"

3 . 18 Ye

1

1

A

2. 2. 2.

.



Analytical Report

Prepared for: Michael Stewart REMEDIACON P.O. Box 302 Evergreen, CO 80437

Project: DEFS-NMG-148C (4 in. Line) Project Number: None Given Location: Lea County, New Mexico

Lab Order Number: 4L20006

Report Date: 12/22/04

REMEDIACONProject:DEFS-NMG-148C (4 in. Line)P.O. Box 302Project Number:None GivenEvergreen CO, 80437Project Manager:Michael Stewart

1 Buc 84.0

195 o - 74

194 TO - 2

. . .

1.1.1

n Jak n

1

-

Fax: 720-528-8132

Reported: 12/22/04 13:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-5 (0412171500)	4L20006-01	Water	12/17/04 15:00	12/20/04 11:00

REMEDIACON	Project: DEFS-NMG-148C (4 in. Line)	Fax: 720-528-8132
P.O. Box 302	Project Number: None Given	Reported:
Evergreen CO, 80437	Project Manager: Michael Stewart	12/22/04 13:14

Organics by GC

Environmental Lab of Texas

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (0412171500) (4L20006-01)	Water								
Benzene	2.82	0.00500	mg/L	5	EL42211	12/21/04	12/21/04	EPA 8021B	
Toluene	0.00594	0.00500	"		"	tr	0	"	
Ethylbenzene	J [0.00331]	0.00500	11		"		"	"	J
Xylene (p/m)	0.0512	0.00500			"	"	"	"	
Xylene (0)	0.00714	0.00500		**	17	"	**	11	
Surrogate: a,a,a-Trifluorotoluene		112 %	80-12	20	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		81.0 %	80-12	20	"	"	<i>u</i> .	"	

Environmental Lab of Texas

5 S. S. S.

5. A.

S. 6.8 4 ...

Stranger .

A Bride

N. Same

Ber Ber

-

مت المراه

Section and

6.15

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

REMEDIACON P.O. Box 302		Pr Project Nu	oject: Di mber: No	EFS-NMG-14 one Given	48C (4 in. I	Line)
Evergreen CO, 80437		Project Mai	nager: M	ichael Stewar	t	
	O	rganics by Environm	GC - (iental l	Quality Co Lab of Te	ontrol xas	
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC
Batch EL42211 - EPA 5030C (GC)						
Blank (EL42211-BLK1)				Prepared &	Analyzed:	12/21/04
Benzene	ND	0.00100	mg/L			
Toluene	ND	0.00100	'n			
Ethylbenzene	ND	0.00100	17			
Xylene (p/m)	ND	0.00100	0			
Xylene (o)	ND	0.00100	"			
Surrogate: a,a,a-Trifluorotoluene	20.1		ug/l	20.0	·	100
Surrogate: 4-Bromofluorobenzene	17.7		n	20.0		88.5

LCS (EL42211-BS1)			Prepared & Ana	lyzed: 12/21/04		
Benzene	102	ug/l	100	102	80-120	
Toluene	103		100	103	80-120	
Ethylbenzene	101	"	100	101	80-120	
Xylene (p/m)	204	и.	200	102	80-120	
Xylene (o)	106	17	100	106	80-120	
Surrogate: a,a,a-Trifluorotoluene	19.6	"	20.0	98.0	80-120	
Surrovate: 4-Bromofluorobenzene	21.3	"	20.0	106	80-120	

LCS Dup (EL42211-BSD1)			Prepared & Ana	lyzed: 12/21/04				
Benzene	101	ug/l	100	101	80-120	0.985	20	
Toluene	100	n	100	100	80-120	2.96	20	
Ethylbenzene	99.3	**	100	99.3	80-120	1.70	20	
Xylene (p/m)	202	IT	200	101	80-120	0.985	20	
Xylene (o)	99.1	"	100	99.1	80-120	6.73	20	
Surrogate: a,a,a-Trifluorotoluene	19.9	<i>n</i>	20.0	99.5	80-120			
Surrogate: 4-Bromofluorobenzene	19.6	"	20.0	98.0	80-120			

Calibration Check (EL42211-CCV1)			Prepared & Ana	lyzed: 12/21/04		
Benzene	114	ug/l	100	114	80-120	
Toluene	102	"	100	102	80-120	
Ethylbenzene	99.2	"	100	99.2	80-120	
Xylene (p/m)	199	"	200	99.5	80-120	
Xylene (o)	98.1	11	100	98.1	80-120	
Surrogate: a,a,a-Trifluorotoluene	18.3	"	20.0	91.5	80-120	
Surrogate: 4-Bromofluorobenzene	16.4	"	20.0	82.0	80-120	

J. 36. 4

West of

2 Server

Same.

the second

1 10 C

2 - 2 - 2 - 2

and the states

age of the second

Same Se

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

Fax: 720-528-8132 Reported: 12/22/04 13:14

RPD

Limit

Notes

%REC

Limits

80-120

80-120

RPD

Part of the

Sec. Par

Sand A

122.8

5 N.

Carlo Ser

Project: DEFS-NMG-148C (4 in. Line) Project Number: None Given Project Manager: Michael Stewart

Reported: 12/22/04 13:14

Organics by GC - Quality Control

Environ	mental	Lab	of T	lexas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch EL42211 - EPA 5030C (GC)

Matrix Spike (EL42211-MS1)	Source: 41	Source: 4L21001-01			Prepared & Analyzed: 12/21/04		
Benzene	104	ug/l	100	0.866	103	80-120	
Toluene	107	**	100	ND	107	80-120	
Ethylbenzene	105		100	ND	105	80-120	
Xylene (p/m)	211	"	200	ND	106	80-120	
Xylene (o)	107	11	100	ND	107	80-120	
Surrogate: a,a,a-Trifluorotoluene	21.9	"	20.0		110	80-120	
Surrogate: 4-Bromofluorobenzene	22.0	"	20.0		110	80-120	

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

REMED	NACON	Project: D	DEFS-NMG-148C (4 in. Line)	Fax: 720-528-81
P.O. Box Evergree	x 302 en CO, 80437	Project Number: N Project Manager: N	Ione Given Aichael Stewart	Reported: 12/22/04 13:14
		Notes and Defin	nitions	
ſ	Detected but below the Reporting Limit;	therefore, result is an estimated c	oncentration (CLP J-Flag).	
DET	Analyte DETECTED			
٧D	Analyte NOT DETECTED at or above the rep	orting limit		
NR	Not Reported	ň		
iry	Sample results reported on a dry weight basis			
RPD	Relative Percent Difference			·
LCS	Laboratory Control Spike			
MS	Matrix Spike			
Dup	Duplicate			
	0			

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director James L. Hawkins, Chemist/Geologist Sandra Sanchez, Lab Tech.

Date:

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

6.4

Report Approved By:

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

12/22/2004

	I		1						TAT bisbiet	2		Ī	T	Т		Ι				
		ł				Rennet	uudollinn q. ²⁰⁰		eluberto2-eng) TAT MSUR		_									
L 1	1																	 N		
UEST	Ë		9													+				
SEQ!	4		No.				• • • • • • • • • • • • • • • • • • •							-+-		+				
SIS F	2		Ň						(M.A.O.N				-+	\uparrow						
ALX.	4		lev			15			RCI									 eros Selpt	(1)	
AN (2		Z.			26 5		-6	BTEX 80218/503070FBTEX 828	2								 s lint a Rei nent	\overline{U}_{N}	
AND	Ξ		L L			Anal			Semivoratiles								$\left - \right $	 iner Upou	Ċ.	
ORD C	n		ŏ					-	Metals: As Ag Ba Cd Cr Pb Hg t				-+					 Sont Luce	$\mathbf{x}^{\mathbf{y}}$	
L SEC	Ц		e				ii ii	1	SAR / ESP / CEC				-+	-+		+-	+	 pie (pera	N.	
DYF	ue:	4 4	ö	#			212	F	Anions (Cl, SO4, CO3, HCO3)							1		 Sam Tem Lab		
101	Nan	oject	Ц С	ð					Cations (Ca, Mg, Va, K)									 2	0	
ກິວ	ject	ā	roje					90	101 2001 M2108 1.814 H9T			_						nerg	Time	
LOF	žď		а,						Other (specify):							\downarrow	1	 Ш 9		
HAIN								latrix	10S								 	 ň D n L		
õ	1	ł	I	1	1	i		Š	ephyle					-+			$\left - \right $	 ers,	Date	Date
								Η	Mater Unater (Specify)	*			-+	-+		+	+-	 ath		
		}				1			anov				+			+	<u>+</u>	 We		
								tive	*QS ^z H					-		1		 hen		See.
		f			132			erve	HOBN									 step		
					00 00			Pres	HCI	N					_			 \$		
		1	Į		25				⁵ ONH				_			<u> </u>		 800		
					ର୍			L)(%)	A						-	-	 Š		
					Ę				No. of Containers	5								 t and		
					Fax No				belqme2 emiT	1.500								il lab report)202		R
,									belqms2 ets0	Irto4								 , sent origina enver, CO 80	ceived by:	powed by ELOT
Ø				37	\					12				_				 Stewart, 2500, De		କ୍ଷି
Fexa 563-180				do 804:														Michael et, Suite	T T	11 11
Phone: 432 Fax: 432	1. Slewar	con, Inc.	302	n, Colora	4370				LD CODE	17 1500								ab report to 3 17th Stree	12/20/04	Date
	Viicnael	Remedia	o, O. Bo)	Evergree	303) 672	and here			, H	5 (0412								x copy of li irvices, 30	, N	
	anager:	y Name	ddress:	ate/Zip:]	one No:		~			HW-								Send fa Field Sε	Ş	
EDVITONT 600 West 1-20 Easi tessa, Texas 7976	Project Ma	Company	Company Ac	City/Sta	Teløphc Sampler Sig				مانده مداند ۲۷۶ کرک Battabuse ontry	lo-								ecial Instructions:	inquisited by:	inquished by:

the second

1. A.

10 - 2 M

1

421 V 2

1.4.4.1

10.00

Environmental Lab of Texas Variance / Corrective Action Report – Sample Log-In

Client: <u>Bemediacon</u>

Date/Time: 12-20-04 @ 1100

Order #: 4L 20006

Initials: JMA

Sample Receipt Checklist

Temperature of container/cooler?	(Tes)	No	OS C
Shipping container/cooler in good condition?	Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	Not present
Custody Seals intact on sample bottles?	Yes	No	Not present >
Chain of custody present?	(Yes)	No	
Sample Instructions complete on Chain of Custody?	Cres	No	
Chain of Custody signed when relinquished and received?	(Yes)	No	
Chain of custody agrees with sample label(s)	YES	No	
Container labels legible and intact?	Yes	No	
Sample Matrix and properties same as on chain of custody?	(Yes)	No	
Samples in proper container/bottle?	(res)	No	
Samples properly preserved?	(Ves)	No	
Sample bottles intact?	(Yes)	No	
Preservations documented on Chain of Custody?	(Yes)	No	
Containers documented on Chain of Custody?	(Yes)	No	
Sufficient sample amount for indicated test?	(Yes)	No	
All samples received within sufficient hold time?	Yes	No	
VOC samples have zero headspace?	(Yes)	No	Not Applicable

Other observations:

Variance Documentation:

Contact Person: Regarding:	Date/Time:	Contacted by:	aya da ƙasar ya ya a ƙasar a
Benerge y den werden werden in en andere en andere Bilden der er verster er verster er verster in den Bilden sy		**************************************	
Corrective Action Taken:			****

#194792			
	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	тыны, маларар и шаларийн төлөм улариддаан байлай байн байлагаан алаан алаан байлаг байлаг байлаг байлаг байлаг	(* 4,100 * 107) & (d. d.)
		999 manya 2001 Waawaa Marina waya waxaa kata ahaa ahaa ahaa ahaa ahaa ahaa ah	

and the second of the second of the second secon



Analytical Report

Prepared for: Michael Stewart REMEDIACON P.O. Box 302 Evergreen, CO 80437

Project: Duke Energy Field Services Project Number: None Given Location: NMG 148C (4 inch Line)

Lab Order Number: 4L29005

Report Date: 01/05/05

REMEDIACON	Project: I	Duke Energy Field Services	Fax: 720-528-8132
P.O. Box 302	Project Number: N	None Given	Reported:
Evergreen CO, 80437	Project Manager: N	Michael Stewart	01/05/05 17:17

ANALYTICAL REPORT FOR SAMPLES

5

1. 1. A.

1 . S

17.2.2

61 4 138

.

* 34 - - • *

÷.

5. 0 11 0 . .

1. 1. L. C.

1. C. C. C.

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-5 (0412291055)	4L29005-01	Water	12/29/04 10:55	12/29/04 14:25
Trip Blank	4L29005-02	Water	12/29/04 10:55	12/29/04 14:25

REMEDIACON P.O. Box 302 Evergreen CO, 80437		P Project Nu Project Ma	roject: Du mber: No nager: Mi	ke Energy I ne Given chael Stewa	Field Service	25		Fax: 720-5 Repor 01/05/05	28-8132 ted: 17:17
		Or	ganics b	oy GC ob of To					
Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (0412291055) (4L29005-01) W	ater								
Benzene	3.72	0.00500	mg/L	5	EL43006	12/29/04	12/30/04	EPA 8021B	
Toluene	J [0.00123]	0.00500	"	"	"	"	"		
Ethylbenzene	J [0.00441]	0.00500	"	"	"	н	н	**	
Xylene (p/m)	0.0482	0.00500	17	"	n	н	11	п	
Xylene (0)	J [0.00258]	0.00500	"	"	u	"	н	"	
Surrogate: a,a,a-Trifluorotoluene		165 %	80-	120	"	"	"	"	S-0
Surrogate: 4-Bromofluorobenzene		110 %	80-	120	"	"	"	"	
Trip Blank (4L29005-02) Water									
Benzene	ND	0.00100	mg/L	1	EL43006	12/29/04	12/30/04	EPA 8021B	
Toluene	ND	0.00100	11	"	4	n	"	n	
Ethylbenzene	ND	0.00100	"	"	**	"	11	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	n	u	"	
Surrogate: a,a,a-Trifluorotoluene		97.6 %	80-	120	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	80-	120	"	"	"	"	

Surrogate: 4-Bromofluorobenzene

f F

. . . .

1. A. .

and the

8-24 47.78

A. T. W.

of the

200

1000

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

14.

4,52, . 26

100

L. Purg

•

di t

A. 242 .

100 C

1. A 44

6. A. ..

X10.

1.00

""""""

1. State 2

Project: Duke Energy Field Services Project Number: None Given Project Manager: Michael Stewart

PAH compounds by Semivolatile GCMS

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (0412291055) (4L29005-01) Water									
Naphthalene	0.290	0.116	ug/l	0.93	EA50507	12/30/04	01/03/05	8270C	
Acenaphthylene	ND	0.116	"	11		"	"	"	
Acenaphthene	ND	0.116		"	"	11	11	"	
Fluorene	ND	0.116	17	"	11	"	19	"	
Phenanthrene	ND	0.116	"	"	"		11	11	
Anthracene	ND	0.116	u	11	"	11		"	
Fluoranthene	ND	0.116	"	"		"	18	"	
Pyrene	ND	0.116	11	"	11	"	"	D	
Benzo (a) anthracene	ND	0.0302	"	17	•	"	"	11	
Chrysene	ND	0.116	"	**	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0302	"	"		"	"	C+	
Benzo (b) fluoranthene	ND	0.0302	"	"	"		"	U	
Benzo (k) fluoranthene	ND	0.116	"	"	"	н	"	39	
Benzo (a) pyrene	ND	0.00465		**	"	"	"	11	
Dibenzo (a,h) anthracene	ND	0.00465	"	"			11	**	
Benzo (g,h,i) perylene	ND	0.116	II.	"	**	"		It	
Surrogate: Nitrobenzene-d5		85.6%	35-	114	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		81.0 %	43-	116	"	"	"	"	
Surrogate: p-Terphenyl-d14		75.4 %	33-	[4]	"	"	"	"	

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

REMEDIACON		Pr	oject: Di	ike Energy Fi	eld Service	s			Fax: 720	528-8132
P.O. Box 302		Project Nu	mber: No	one Given					Repo	rted:
Evergreen CO, 80437		Project Mar	nager: Mi	ichael Stewart	t				01/05/0	5 17:17
	0	rganics by	GC - C	Juality Co	ontrol					
		Environm	iental I	Lab of Tey	as					
A		Reporting	T Inite	Spike	Source	0/DEC	%REC		RPD	Nata
	Result			Level	Result	%KEC	Limits	RPD	Limit	Notes
Batch EL43006 - EPA 5030C (GC)				D	. A	12/20/04				
	ND	0.00100	ma/I	Prepared &	Analyzed	12/29/04				
Toluono	ND	0.00100	111g/12							
Fitudence	ND	0.00100							•	
Zulyne (n/m)	ND	0.00100	"							
	ND	0.00100	"							
	100			100		100	80.120			
surrogate: a,a,a-1 rytuorototuene Surrogate: 4-Bromofluorobenzene	91.9		ug/i "	100		100 91.9	80-120 80-120			
				Deserved 9		12/20/04				
LCS (EL43006-BS1)	0(0			Prepared &	Analyzed	12/29/04				
Benzene	80.8		ug/I	100		80.8	80-120			
Fituene	85.1		"	100		85.1	80-120			
zulene (n/m)	191		11	200		95.5	80-120			
	92.9			100		92.9	80-120			
	117			100		117	80 120			
surrogate: a,a,a-i rijiuoroloituene Surrogate: d. Bromofluorobenzene	117 05 1		"	100		05.1	80-120			
	J J.1			100		10/00/04	30-120			
Calibration Check (EL43006-CCV1)	80.5			Prepared &	Analyzed	80.5	80.120			
foluene	89.5 89.6		ug/1	100		89.5	80-120			
Ethylhenzene	91.8		**	100		91 R	80-120			
Xvlene (p/m)	201		,,	200		100	80-120			
Xylene (o)	99.5		"	100		99.5	80-120			
Surrogate: a,a,a-Trifluorotoluene	115		<i>u</i>	100		115	80-120			
Surrogate: 4-Bromofluorobenzene	95.0		"	100		95.0	80-120			
Matrix Snike (EL43006-MS1)	Sou	urce: 41,22001-	05	Prenared &	Analyzed	12/29/04				
Benzene	90.0		ug/l	100	ND	90.0	80-120			
Toluene	91.6			100	ND	91.6	80-120			
Ethylbenzene	91,4		"	100	ND	91.4	80-120			
Xylene (p/m)	201		**	200	ND	100	80-120			
Xylene (o)	95.8		"	100	ND	95.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	118		11	100		118	80-120			
Surrogate: 4-Bromofluorobenzene	102		"	100		102	80-120			

Environmental Lab of Texas

- C

G & 7 10

والمعيرية

1. 2. 2. P.

No. No.

1. 2. A.

Contra time

- You conte

27. 200

Star inter

2. 9. 4. 4 C. 3

12-42-5

10.00 Ba

いた

2. A. W.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

REMEDIACON	Project: Duke Energy Field Services	Fax: 720-528-8132
P.O. Box 302	Project Number: None Given	Reported:
Evergreen CO, 80437	Project Manager: Michael Stewart	01/05/05 17:17

Organics by GC - Quality Control

Environmental Lab of Texas

ſ												
				Reporting		Spike	Source		%REC		RPD	
	Analyte		Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch EL43006 - EPA 5030C (GC)

-

مانتا بس^{ال} ما^{رد}.

S. S. S.

1.1

* - 4 + -

11 P. 1

2.4.5

4+17

يعته فرحم

100

2. 2.

1.12.6

Matrix Spike Dup (EL43006-MSD1)	Source: 41	L22001-05	Prepared &	k Analyzed:	12/29/04			
Benzerte	93.0	ug/t	100	ND	93.0	80-120	3.28	20
Toluene	94.6	"	100	ND	94.6	80-120	3.22	20
Ethylbenzene	92.4	"	100	ND	92.4	80-120	1.09	20
Xylene (p/m)	201	"	200	ND	100	80-120	0.00	20
Xylene (0)	95.6	"	100	ND	95.6	80-120	0.209	20
Surrogate: a,a,a-Trifluorotoluene	118	"	100		118	80-120		
Surrogate: 4-Bromofluorobenzene	102	"	100		102	80-120		

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

1. A.

Press and

2 E. 192

5.000

and the generation

9 B -

1. Car

1974 W

Project: Duke Energy Field Services Project Number: None Given Project Manager: Michael Stewart

Reported: 01/05/05 17:17

PAH compounds by Semivolatile GCMS - Quality Control

Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch EA50507 - EPA 3510C

Blank (EA50507-BLK1)				Prepared: 12/30/04	Analyzed: 01	1/05/05	
Naphthalene	ND	0.125	ug/l	1 Income Statistics			
Acenaphthylene	ND	0.125					
Acenaphthene	ND	0.125					
Fluorene	ND	0.125					
Phenanthrene	ND	0.125	"				
Anthracene	ND	0.125					
Fluoranthene	ND	0.125	e .				
Pyrene	ND	0.125	11				
Benzo (a) anthracene	ND	0.0325	"				
Chrysene	ND	0.125	"				
Indeno (1,2,3-cd) pyrene	ND	0.0325					
Benzo (b) fluoranthene	ND	0.0325	"				
Benzo (k) fluoranthene	ND	0.125	"				
Benzo (a) pyrene	ND	0.00500	"				
Dibenzo (a,h) anthracene	ND	0.00500	"				
Benzo (g,h,i) perylene	ND	0.125	"				
Surrogate: Nitrobenzene-d5	59.9		"	80.0	74.9	35-114	
Surrogate: 2-Fluorobiphenyl	50.8		"	80.0	63.5	43-116	
Surrogate: p-Terphenyl-d14	45.0		"	80.0	56.2	33-141	
LCS (EA50507-BS1)				Prepared: 12/30/04	Analyzed: 0	1/03/05	
Naphthalene	54.5		ug/l	100	54.5	21-133	
Acenaphthylene	53.9		"	100	53.9	33-145	
Acenaphthene	55.0		11	100	55.0	47-145	
Fluorene	58.4		"	100	58.4	59-121	QS-1
Phenanthrene	62.4		"	100	62.4	54-120	
Anthracene	60.9			100	60.9	27-133	
Fluoranthene	69.2		"	100	69.2	26-137	
Pyrene	54.9		"	100	54.9	52-115	
Benzo (a) anthracene	61.8		"	100	61.8	33-143	
Chrysene	65.1		"	100	65.1	17-168	
Indeno (1,2,3-cd) pyrene	64.0		**	100	64.0	5-171	
Benzo (b) fluoranthene	52.2		"	100	52.2	24-159	
Benzo (k) fluoranthene	57.7		"	100	57.7	11-162	
Benzo (a) pyrene	58.1		"	100	58.1	17-163	
Dibenzo (a,h) anthracene	55.6		"	100	55.6	5-227	
Benzo (g,h,i) perylene	49.6		"	100	49.6	5-219	

Surrogate: Nitrobenzene-d5 Surrogate: 2-Fluorobiphenyl Surrogate: p-Terphenyl-d14

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

70.0

60.8

65.8

35-114

43-116

33-141

56.0

48.6

52.6

80.0

80.0

80.0

REMEDIACON							
P.O. Box 302							
Evergreen CO, 80437							

1

Sec. an a

تروف الم

6 - Co - C

1. A. .

The of the of

and the

dia any

14 . . . A.

Project:Duke Energy Field ServicesProject Number:None GivenProject Manager:Michael Stewart

Reported: 01/05/05 17:17

PAH compounds by Semivolatile GCMS - Quality Control

Environmental Lab of Texas

T						-				
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch EA50507 - EPA 3510C

LCS Dup (EA50507-BSD1)		Prepared: 12/30/04 Analyzed: 01/03/05								
Naphthalene	54.6	ug/l	100	54.6	21-133	0.183	30.1			
Acenaphthylene	54.6	11	100	54.6	33-145	1.29	40.2			
Acenaphthene	54.3		100	54.3	47-145	1.28	27.6			
Fluorene	58.3	"	100	58.3	59-121	0.171	20.7	QS-1		
Phenanthrene	63.7	"	100	63.7	54-120	2.06	20.6			
Anthracene	61.3	. "	100	61.3	27-133	0.655	32			
Fluoranthene	69.5	11	100	69.5	26-137	0.433	32.8			
Pyrene	55.3		100	55.3	52-115	0.726	25.2			
Benzo (a) anthracene	61.4	"	100	61.4	33-143	0.649	27.6			
Chrysene	65.5		100	65.5	17-168	0.613	48.3			
Indeno (1,2,3-cd) pyrene	61.3	"	100	61.3	5-171	4.31	44.6			
Benzo (b) fluoranthene	51.2	17	100	51.2	24-159	1.93	38.8			
Benzo (k) fluoranthene	59.8	11	100	59.8	11-162	3.57	32.3			
Benzo (a) pyrene	58.3	"	100	58.3	17-163	0.344	39			
Dibenzo (a,h) anthracene	54.9	**	100	54.9	5-227	1.27	70			
Benzo (g,h,i) perylene	48.2	"	100	48.2	5-219	2.86	58.9			
Surrogate: Nitrobenzene-d5	55.1	"	80.0	68.9	35-114					
Surrogate: 2-Fluorobiphenyl	48.7	"	80.0	60.9	43-116					
Surrogate: p-Terphenyl-d14	53.0	"	80.0	66.2	33-141					
Calibration Check (EA50507-CCV1)			Prepared: 12/30	/04 Analyzed: 0	1/03/05					
Acenaphthene	51.4	ug/l	50.0	103	70-130					
Fluoranthene	46.6	**	50.0	93.2	70-130					
Benzo (a) pyrene	54.9	п	50.0	110	70-130					

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

REMED	IACON	Project:	Duke Energy Field Services	Fax: 720-528-81		
P.O. Box 302		Project Number:	Reported:			
Evergree	en CO, 80437	[/] Project Manager:	Michael Stewart	01/05/05 17:1		
		Notes and De	finitions			
S-04	The surrogate recovery for this sample	e is outside of established control	limits due to a sample matrix effect.			
QS-1	The spike recovery value is outside La					
J	Detected but below the Reporting Lin	nit; therefore, result is an estimate	d concentration (CLP J-Flag).			
DET	Analyte DETECTED					
ND	Analyte NOT DETECTED at or above the	reporting limit				
NR	Not Reported					
dry	Sample results reported on a dry weight ba	asis				
RPD	Relative Percent Difference					
LCS	Laboratory Control Spike					
MS	Matrix Spike					
Dup	Duplicate					

Report Approved By:

1

1. 6 . a

10.4.4

2003

At I four

20.00

San San

State State

1. 1.

Subdal.

Raland K Junt

1/5/2005

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director James L. Hawkins, Chemist/Geologist Sandra Sanchez, Lab Tech.

Date:

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.



Environmental Lab of Texas Variance / Corrective Action Report - Sample Log-In

Client: <u>Remediacon</u>

Date/Time: 12-29-04 @1425

Order #: 4229005

Initials: Jmn

Sample Receipt Checklist

vampie neverpi vnevnist							
(Yes)	No	-1,S : C					
Yes	No						
Yes	No	Not present					
Yes	No	Not present					
Ves	No						
(Hes)	No						
(Tes)	No						
(res)	No						
Ves	No						
Yess	No						
Yes	No						
Yes	No						
res	No						
(Yes)	No						
(Yes)	No						
(Yes)	No						
Yes	No						
Yes	No	Not Applicable					
	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	Yes No Yes No					

Other observations:

Variance Documentation:

Contact Person: -____ Date/Time: _____ Contacted by: _____ Regarding:

÷

Corrective Action Taken: