

THERMO NUtech

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Kerr McGee Corp. Data Package
Work Order # 97-10-277E

Data Review by:

[Signature]

Date: 12/29/97

QC Review by:

Kathy Burnham

Date: 12/29/97

9903080205 981106
PDR ADDCK 07003073
B PDR

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Safety & Environ.

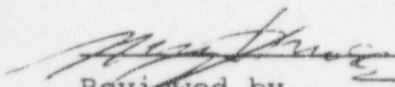
T H E R M O N U T E C H
K E R R M C G E E

SDG/Ver 9710277E
Contact Mary Kamoss

Client Kerr McGee
Contract Shipping #971022208
Case no _____

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S					
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Reviewed by

Lab id NUTECH ABQ
Protocol -
Version 1
Form DVD-TOC
Version 3.08
Report date 12/29/97

THERMO NUTECH

KERR MCGEE

9710277-05

CU3-41-007

DATA SHEET

SDG/Version 9710277EClient/Case no Kerr McGeeContact Mary KamossContract Shipping #971022208Lab sample id 9710277-05Client sample id CU3-41-007 *Dr. Branden B. B. B.*

Dept sample id _____

Location/Matrix _____

WATERReceived 10/24/97Collected/Volume/Basis 10/20/97 14:30 4172 ML

% moisture _____

Custody/SAS no/Level _____

ANALYTE	CAS NO	RESULT pCi/l	2σ ERR (TOTAL)	MDA pCi/l	RDL pCi/l	QUALI- FIERS	TEST
Gross Alpha		40	23	16			GA
Gross Beta		34	15	21			GB
Radium 228		45	7.6	3.9	3.0		RA28
Radium 226		-0.10	0.17	0.29	0.50	U	R226
Uranium 233/234		16	1.8	0.14	0.10		U
Uranium 235		0.45	0.15	0.028			U
Uranium 238		8.6	1.0	0.028	0.10		U
Thorium 228		0.55	0.19	0.24			TH
Thorium 230		0.081	0.058	0.069	0.10	J	TH
Thorium 232		0.15	0.071	0.054	0.10		TH

TEST	PLANCHET SUFFIX	YIELD	ANALYZED	BY	METHOD	REFERENCE
GA		100	11/17/97	KP	EPA-600	900.0
GB		100	11/17/97	KP	EPA-600	900.0
RA28		67	12/08/97	KP	EPA,	1980b
R226		64	12/18/97	KP	EPA 1980,	903.1
U		61	12/03/97	NJ	DOE 1990,	HASL-300 U-02
TH		80	12/04/97	NJ	LANL 1986,	ER200

DATA SHEETS

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SUMMARY DATA SECTION

Page 1

Lab id NUTECH ABQProtocol -Version 1Form DVD-DSVersion 3.08Report date 12/29/97

THERMO NUTEC

KERR MCGEE

9711033-02

METHOD BLANK

Method Blank

SDG/Version 9710277E

Client/Case no Kerr McGee

Contact Mary Kamoss

Contract Shipping #971021208

Lab sample id 9711033-02

Client sample id Method Blank

Dept sample id

Material/Matrix WATER

% moisture

SAS no

ANALYTE	CAS NO	RESULT pCi/l	2 σ ERR (TOTAL)	MDA pCi/l	RDL pCi/l	QUALI- FIERS	TEST
Gross Alpha		-0.15	1.3	2.6		U	GA
Gross Beta		0.037	1.4	2.5		U	GB
Radium 228		-1.2	0.51	3.95	3.0	U	RA28
Radium 226		0.080	0.066	0.11	0.50	U	R226
Uranium 233/234		0.047	0.030	0.029	0.10	J	U
Uranium 235		-0.008	0.016	0.043		U	U
Uranium 238		0.012	0.014	0.011	0.10	J	U
Thorium 228		0.030	0.011	0.11		UX	TH
Thorium 230		0.007	0.026	0.049	0.10	U	TH
Thorium 232		0.007	0.015	0.027	0.10	U	TH

TEST	PLANCHET	SUFFIX	%YIELD	ANALYZED	BY	METHOD	REFERENCE
GA	100	11/17/97	KP	EPA-600	900.0		
GB	100	11/17/97	KP	EPA-600	900.0		
RA28	87	12/09/97	KP	EPA,	1980b		
R226	89	12/19/97	KP	EPA	1980, 903.1		
U	89	12/04/97	NJ	DOE	1990, HASL-300	U-02	
TH	67	12/05/97	NJ	LANL	1986, ER200		

METHOD BLANKS

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SUMMARY DATA SECTION

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Lab id NUTEC ABQ

Protocol -

Version 1

Form DVD-DS

Version 3.08

Report date 12/29/97

THERMO NUTECH

KERR MCGEE

9711033-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG/Version 9710277E

Client/Case no Kerr McGee

Contact Mary Ramos

Contract Shipping #971022208

Lab sample id 9711033-03

Client sample id Lab Control Sample

Dept sample id

Material/Matrix WATER

% moisture

SAS no

ANALYTE	RESULT pCi/l	2σ ERR (TOTAL)	MDA pCi/l	RDL pCi/l	QUALI- FIERS	TEST	ADDED pCi/l	2σ ERR pCi/l	RMC %	3σ LATE PROTOCOL (TOTAL) LIMITS
Gross Alpha	100	24	2.0			GA	75.2	2.3	133	52-148
Gross Beta	110	18	2.8			GB	99.3	4.5	111	72-128
Radium 228	15	3.1	0.84	3.0	X	RA28	19.0	0.82	79	75-125
Radium 226	14	2.1	0.079	0.50		R226	11.9	1.1	118	70-130
Uranium 233/234	9.4	0.98	0.052	0.10		U	9.71	0.87	97	80-120
Uranium 235	0.41	0.094	0.040			U				
Uranium 238	9.9	1.0	0.012	0.10	B	U	9.71	0.87	102	80-120
Thorium 228	0.031	0.062	0.11		U	TE				
Thorium 230	4.9	0.54	0.031	0.10		TE	5.18	0.22	95	83-117
Thorium 232	-0.026	0.021	0.052	0.10	U	TE				

SUF-YIELD					
TEST	PLANCHET	FIX	% ANALYZED	BY	METHOD REFERENCE
GA		100	11/17/97	KP	EPA-600 900.0
GB		100	11/17/97	KP	EPA-600 900.0
RA28		38	12/09/97	KP	EPA, 1980b
R226		84	12/19/97	KP	EPA 1980, 903.1
U		84	12/04/97	NJ	DOE 1990, HASL-3, U-02
TE		87	12/05/97	NJ	LANL 1986, ER200

LAB CONTROL SAMPLES

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SUMMARY DATA SECTION

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Lab id NUTECH ABQ

Protocol -

Version 1

Form D-D-LCS

Version 3.08

Report date 12/29/97

THERMO NUTECH

KERR MCGEE

9711033-01

CU3-41-008

DUPLICATE

SDG/Version <u>9710277E</u>		Client/Case no <u>Kerr McGee</u>	
Contact <u>Mary Kamore</u>		Contract <u>Shipping #971022208</u>	
DUPLICATE		ORIGINAL	
Lab sample id <u>9711033-01</u>	Lab sample id <u>9710277-06</u>	Client sample id <u>CU3-41-008</u>	
Dept sample id _____	Dept sample id _____	Location/Matrix <u>WATER</u>	
Client samp id _____	Received <u>10/24/97</u>	Collected/Volume/Basis <u>10/20/97 15:00 4261 ML</u>	
% moisture _____	% moisture _____	Custody/SAS no/Level _____	

ANALYTE	DUPLICATE pCi/l	2σ ERR (TOTAL)	MDA pCi/l	RDL pCi/l	QUALI- FIERS	TEST	ORIGINAL pCi/l	2σ ERR (TOTAL)	MDA pCi/l	QUALI- FIERS	RPD %	1σ TOT	DER σ
Radium 226	0.93	0.18	0.13	0.50		R226	1.3	0.22	0.095		33	38	2.6

TEST	DUPLICATE PLANCHET	SUP- YIELD FIX	% ANALYZED BY	ORIGINAL PLANCHET	SUP-YIELD FIX	% ANALYZED BY	METHOD REFERENCE
R226			87 12/19/97 KP		83	12/19/97 KP	EPA 1980, 903.1

DUPLICATES

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Lab id	<u>NUTECH ABQ</u>
Protocol	<u>-</u>
Version	<u>1</u>
Form	<u>DVD-DUP</u>
Version	<u>3.0B</u>
Report date	<u>12/29/97</u>

THERMO NUTECH

KERR MCGEE

9711033-01

CU3-41-009

DUPLICATE

SDG/Version <u>9710277E</u>		Client/Case no <u>Kerr McGee</u>	
Contact <u>Mary Kamoss</u>		Contract <u>Shipping #971022208</u>	
DUPLICATE		ORIGINAL	
Lab sample id <u>9711033-01</u>	Lab sample id <u>9710277-07</u>	Client sample id <u>CU3-41-009</u>	
Dept sample id _____	Dept sample id _____	Location/Matrix _____ <u>WATER</u>	
Client samp id _____	Received <u>10/24/97</u>	Collected/Volume/Basis <u>10/20/97 15:30 4236 ML</u>	
% moisture _____	% moisture _____	Custody/SAS no/Level _____	

ANALYTE	DUPLICATE pCi/l	2σ ERR (TOTAL)	MDA pCi/l	RDL pCi/l	QUALI- FIERS	TEST	ORIGINAL pCi/l	2σ ERR (TOTAL)	MDA pCi/l	QUALI- FIERS	RPD %	3σ DER TOT	DER σ
Radium 228	150	23	<u>7.9</u>	3.0		RA28	170	26	<u>6.5</u>		13	32	1.2

TEST	DUPLICATE FLANCHET	SUF- YIELD FIX	% ANALYSED BY	ORIGINAL FLANCHET	SUF-YIELD FIX	% ANALYZED BY	METHOD REFERENCE
RA28		60	12/08/97 KP		59	12/09/97 KP	EPA, 1980b

DUPLICATES

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THERMO NUTECH

KERR MCGEE

9711033-01

CU3-41-011

DUPLICATE

SDG/Version <u>9710277E</u>	Client/Case no <u>Kerr McGee</u>	
Contact <u>Mary Kaross</u>	Contract <u>Shipping #971022208</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>9711033-01</u>	Lab sample id <u>9710277-09</u>	Client sample id <u>CU3-41-011</u>
Dept sample id _____	Dept sample id _____	Location/Matrix _____ <u>WATER</u>
Client samp id _____	Received <u>10/24/97</u>	Collected/Volume/Basis <u>10/20/97 16:00 4163 ML</u>
% moisture _____	% moisture _____	Custody/SAS no/Level _____

ANALYTE	DUPLICATE pCi/l	2σ ERR (TOTAL)	MDA pCi/l	RDL pCi/l	QUALI- FIERS	TEST	ORIGINAL pCi/l	2σ ERR (TOTAL)	MDA pCi/l	QUALI- FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	53	23	22			GA	33	15	14		47	96	1.5
Gross Beta	32	12	17			GB	25	10	14		25	83	0.9

TEST	DUPLICATE PLANCHET	SUF- YIELD FIX	% ANALYZED BY	ORIGINAL PLANCHET	SUF-YIELD FIX	% ANALYZED BY	METHOD REFERENCE
GA		100	11/17/97 KP		100	11/17/97 KP	EPA-600 900.0
GB		100	11/17/97 KP		100	11/17/97 KP	EPA-600 900.0

DUPLICATES

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Lab id NUTECH ABOProtocol -Version 1Form DVD-DUPVersion 3.08Report date 12/29/97