

THERMO NUtech

Albuquerque Laboratory

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

Data Review by:

Mary Hines

Date: 12/29/97

QC Review by:

Kathy Burnham

Date: 12/29/97

9903080190 981106
PDR ADDCK 07003073
B PDR

RECEIVED

JAN 05 1998

Safety & Environ

COPY

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

SDG/Ver 9710277C
Contact Mary Kamoss

Client Kerr McGee
Contract Shipping #971022206
Case no

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

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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 NUTCH

KERR MCGEE

9710277-03

CU3-41-005

DATA SHEET

SDG/Version 9710277C

Client/Case no Kerr McGee

Contact Mary Kamoss

Contract Shipping #971022206

Lab sample id 9710277-03

Client sample id CU3-41-005 *And Groundwater samples*

Dept sample id

Location/Matrix WATER

Received 10/24/97

Collected/Volume/Basis 10/21/97 10:30 4236 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		11	14	23		U	GA
Gross Beta		7.9	14	24		U	GB
Radium 228		5.7	6.5	11	3.0	UX	RA28
Radium 226		0.41	0.21	0.31	0.50	J	R226
Uranium 233/234		8.8	1.1	0.26	0.10		U
Uranium 235		0.087	0.092	0.14		U	U
Uranium 238		4.1	0.63	0.14	0.10		U
Thorium 228		0.15	0.059	0.13		X	TH
Thorium 230		0.078	0.087	0.13	0.10	U	TH
Thorium 232		0.10	0.068	0.030	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		60	12/08/97	KP	EPA,	1980b
R226		88	12/18/97	KP	EPA	1980, 903.1
U		77	12/03/97	NJ	DOE	1990, HASL-300 U-02
TH		84	12/04/97	NJ	LANL	1986, ER200

DATA SHEETS

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SUMMARY DATA SECTION

Page 1

Lab id NUTECH ABQ

Protocol -

Version 1

Form DVD-DS

Version 3.08

Report date 12/29/97

THERMO NUTECH

KERR MCGEE

9711033-02

METHOD BLANK

Method Blank

SDG/Version 9710277CClient/Case no Kerr McGeeContact Mary KamossContract Shipping #971022206Lab sample id 9711033-02Client 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	0.95	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 NUTECH ABQProtocol -Version 1Form DVD-DSVersion 3.08Report date 12/29/97

THERMO NUTECH

KERR MCGEE

9711033-03

LAB CONTROL SAMPLE

Lab Control Sample

SDG/Version 9710277C

Contact Mary Kamoss

Client/Case no Kerr McGee

Contract Shipping #971022206

Lab sample id 9711033-03

Dept sample id

% moisture

Client sample id Lab Control Sample

Material/Matrix WATER

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	REC %	3σ LMTS PROTOCOL (TOTAL) LIMITS
Gross Alpha	100	24	2.0			GA	75.2	2.3	123	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	TH				
Thorium 230	4.9	0.54	0.031	0.10		TH	5.18	0.22	95	83-117
Thorium 232	-0.026	0.021	0.052	0.10	U	TH				

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-300 U-02
TH		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 DVD-LCS

Version 3.08

Report date 12/29/97

THERMO NUTECH

KERR W'GEE

9711033-01

CU3-41-003

DUPLICATE

SDG/Version 9710277C

Contact Mary Samosa

DUPLICATE

Lab sample id 9711033-01

Dept sample id

Client samp id

% moisture

ORIGINAL

Lab sample id 9710277-01

Dept sample id

Received 10/24/97

% moisture

Client/Case no Kerr McGee

Contract Shipping #971022206

Client sample id CU3-41-003

Location/Matrix WATER

Collected/Volume/Basis 10/20/97 3:00 4145 ML

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
Uranium 233/234	4.8	0.54	0.064	0.10		U	5.9	0.63	0.041	B	21	23	2.6
Uranium 235	0.077	0.040	0.033			U	0.13	0.046	0.010		51	89	1.7
Uranium 238	2.6	0.33	0.055	0.10		U	3.9	0.44	0.041		40	26	4.7
Thorium 228	0.68	0.13	0.088			TH	0.64	0.11	0.061		6	37	0.5
Thorium 230	0.33	0.072	0.032	0.10		TH	0.30	0.065	0.026		10	46	0.6
Thorium 232	0.55	0.098	0.022	0.10		TH	0.54	0.094	0.020		2	37	0.1

TEST	DUPLICATE PLANCHET	SUF- YIELD PIX	% ANALYZED BY	ORIGINAL PLANCHET	SUF-YIELD PIX	% ANALYZED BY	METHOD REFERENCE
U		79	12/04/97 NJ		98	12/03/97 NJ	DOE 1990, HASL-300 U-02
TH		89	12/05/97 NJ		89	12/04/97 NJ	LANL 1986, ER200

DUPLICATES

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SUMMARY DATA SECTION

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Lab id NUTECH ABQ

Protocol -

Version 1

Form DVD-DUP

Version 3.08

Report date 12/29/97

THERMO NUTECH

KERR MCGEE

9711033-01

CU3-41-008

DUPLICATE

SDG/Version <u>9710277C</u>	Client/Case no <u>Kerr McGee</u>	
Contact <u>Mary Remoss</u>	Contract <u>Shipping #971022206</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	RFD %	3σ 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	SUF- YIELD FIX	% ANALYZED BY	ORIGINAL PLANCHET	SUF-YIELD FIX	% ANALYZED BY	METHOD REFERENCE
R226			87 12/19/97 KP			83 12/19/97 KP	EPA 1990, 903.1

DUPLICATES

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THERMO NUTEC

KERR MCGEE

9711033-01

CU3-41-009

DUPLICATE

SDC/Version <u>9710277C</u>		Client/Case no <u>Kerr McGee</u>	
Contact <u>Mary Kamoss</u>		Contract <u>Shipping #971022206</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 DI TOT	σ
Radium 228	150	23	<u>7.9</u>	3.0		RA28	170	26	<u>6.5</u>		13	32	1.2

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

DUPLICATES

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SUMMARY DATA SECTION

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 Version 3.08
 Report date 12/29/97