Apatite and Zircon fission track analyses of the following 9 selected well in the NPRA, Alaska:

Husky Oil NPR Operations Inc. (U.S. Navy) South Meade Test Well No.1 (core, 3010'-9321; cuttings, 9890'-9940');

U.S. Navy South Barrow Test Well No. 1 (core, 1200'-2856');

U.S. Navy South Barrow Test Well No. 3 (core, 200'-2869');

Husky Oil NPR Operations Inc. (U.S. Navy) East Teshekpuk No. 1 (cuttings, 10610'-10664');

Husky Oil NPR Operations Inc. (U.S. Navy) W.T. Foran No. 1 (core, 7539'-8264'; cuttings, 8810'-8864');

Husky Oil NPR Operations Inc. (U.S.G.S.) East Simpson Test Well No. 1 (core, 5129.6'-7738');

U.S. Navy Topagoruk Test Well No. 1 (core, 2087'-10393.5');

U.S. Navy East Topagoruk Test Well No. 1 (core, 2016'-3589'); and

U.S. Navy Gubik Test Well No. 2 (core, 1398')

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APATITE AND ZIRCON FISSION TRACK ANALYSES OF 9 SELECTED WELLS IN THE NPRA, ALASKA

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ABSTRACT

This report presents apatite fission track length and age data on 18 sedimentary rocks, a granite, and a tuff from 9 wells in the NPRA, Alaska. Detrital zircon fission track age data are presented for 13 of these rocks. Detrital apatite fission track ages of the sedimentary rocks range from 2 to 108 Ma. Confined track lengths in 15 of these rocks average between 7.1 and 14.1 um. Detrital zircon fission track ages of the sedimentary rocks are in the range 162-485 Ma. Apatite and zircon fission track ages for the tuff are 90 and 100 Ma, respectively.

I. INTRODUCTION

The age of rocks and the temperature conditions to which they have been subjected are fundamental and insightful parameters in the geological sciences. Fission track analysis is a proven tool for providing constraints on these parameters. This report presents the results of apatite and zircon fission track analyses of selected sedimentary rocks from 9 wells in NPRA. These data are relevant to the thermal and uplift history and tectonic evolution of the North Slope.

II. ROCK DESCRIPTIONS

The rocks studied are mainly sandstones and siltstones which range in age from Pre-Mississippian to Cretaceous. Whole core samples (weighing 500-1000 gm) were used for all analyses, except in the case of the E. Teshekpuk #1 well, for which bottom ditch cuttings were used.

III. ANALYTICAL METHODS

Conventional heavy liquid and magnetic separation techniques were used to concentrate apatite and zircon in this study. Single grain apatite fission track ages were determined on 20 or more grains from each sample (where possible) using the external detector method following conventional analytical techniques (eg., Naeser, 1979; Gleadow, 1981) by S. Kelley in the laboratories of Southern Methodist University. Apatite confined fission track length distributions were determined using oil objectives and otherwise conventional methodologies (eg., Laslett et al., 1982, 1984; Green et al., 1985; 1986). Apatite was mounted in epoxy on a glass slide. Mounts were polished to expose interior grain surfaces, etched for 35 sec in a 7% nitric acid solution and irradiated in a 10^{15}-10^{16} neuron/cm^2 flux for several hours at the Georgia Tech Reactor. Zircon grains were mounted in FEP teflon tape, polished and etched in NaOH-KOH for 1.5-4 hr. Muscovite detectors were etched in 48% HF for 11 min. Fish Canyon zircon, Durango apatite and NBS glass standards were used to monitor neutron fluence and

gradient and as checks for analytical precision and accuracy. Fission track ages and statistical uncertainties were calculated using the formulations of Hurford et al. (1984), Galbraith (1981, 1984), Galbraith and Laslett (1985), and Clarke and Carter (1987).

IV. ANALYTICAL RESULTS

Sample details, track count data, apatite fission track ages and track length distributions, zircon fission track ages, and grain age and track length histograms are provided in the appendix. Those individuals requiring more information are welcome to contact the authors.

V. REFERENCES

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TABLE 1. Subsurface Cores Used in the Present Study

Well Name	*Depth (ft)*	*Apatite Quality Age*	*Length*	
S Meade #1	3010 -3020.5'	A	-	
	4956 -4959'	A	l	
	5992'5"-5995'8"	A	l	
	8505'2"-8512'	-	-	
	8820 -8826'	A	-	
	9317'8"-9321'2"	-	-	
	9890'-9940 cuttings	A	-	→ Cuttings
S Barrow TW #1	1200 to 1210'	A	l	
	1906 to 1916'	A	L	
	2847 to 2856'	-	-	
S Barrow TW #3	200 to 229'	A	l	
	1750 to 1758'	-	-	
	2430 to 2450'	A	l	
	2703 to 2706'	-	-	
	2849 to 2869'	-	-	
E Teshekpuk #1	10610' to 10664 cuttings	A	-	→ Cuttings
WT Foran #1	7539 to 7545'	a	l	
	8260 to 8264'	A	l	
	8810' to 8864 cuttings	a	-	→ Cuttings
E Simpson #1	5129.6'-5130'	A	L	
	6848 -6854'	-	-	
	7476.5-7484'	-	-	
	7732.5-7738'	-	-	
Topagoruk #1	2087-2094.5'	a	-	
	3240-3249'	A	l	
	5954-5964'	-	-	
	6490-6500'	A	l	
	9436'	a	l	
	10392-10393'6"	A	l	
E Topagoruk #1	2016-2050'	-	-	
	2485' ~~2458~~ to 2505'	-	-	
	3569-3589'	-	-	
Gubik ~~#1~~ No. 2 JR	1398	A	L	

Age Quality: A - >15-20 grains, a - 4-14 grains.
Length Quality: L - >35 length measurements, l - 1-29 length measurements.
Those samples which lack apatite or contain undateable or unmeasurable grains are shown with a dash.

Actual sample footage range added by John W. REEDER on 25 October 1991 JR

TABLE 1 - SUMMARY OF APATITE FISSION-TRACK DATA FOR NPRA WELLS

SOUTH MEADE NO. 1

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
3010	TOROK FM.	97-113	42	45.6±18	20	NO TL DATA	
4956	TOROK FM.	113	66	39.0±16	20	12.8±0.6	3
5992	TOROK FM.	113-119	81	28.2± 8	20	11.8±1.6	11
8505	-	-	-	-		INSUFFICIENT APATITE	
8820	SHUBIK FM.	208-225	127	14.5±12	20	NO TL DATA	
9317	-	-	-	-		NO APATITE - PYRITE	
9940	SADLEROCHIT GR.	240-245	140	1.6± 2	17	NO TL DATA	

SOUTH BARROW TEST WELL NO. 1

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
1200	TOROK FM.	97-119	40	67.3±26	20	12.8±2.6	4
1906	TOROK FM.	97-119	40	48.6±10	20	13.5±1.4	66
2847	-	-	-	NO APATITE			

SOUTH BARROW TEST WELL NO. 3

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
200	TOROK FM.	97-119	40	104.0±28	20	13.7±1.8	9
1750	-	-	-	-		NO APATITE - PYRITE	
2430	KINGAK SHALE	188-208	40	108.0±32	20	12.8±0.3	2
2703	-	-	-	-		INSUFFICIENT APATITE	
2849	-	-	-	-		NO APATITE - PYRITE	

EAST TESHEKPUK NO. 1

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
10664	GRANITE	332	140	2.0±2.2	20	NO TL DATA	

W.T. FORAN NO. 1

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
7539	SHUBIK FM.	119-131	80	38.2±24	11	11.4±1.4	7
8260	LISBURNE GR.	300	90	46.5±16	20	10.4±2.4	12
8864	BASEMENT	360	95	8.7±6	4	NO TL DATA	

EAST SIMPSON NO. 1

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
5129	TOROK FM.	113-119	55	46.2±14	20	12.2±1.6	35
6848	-	-	-	-		NO APATITE	
7476	-	-	-	-		NO APATITE	
7732	-	-	-	-		NO APATITE	

GUBIK NO. 2

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
1398	NANUSHUK TUFF	95	40	89.7±22	20	14.1±1.3	45

TOPAGORUK NO. 1

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
2887	NANUSHUK FM.	95	21	86.5±30	13		
3240	TOROK FM.	97-113	31	76.7±30	20	11.2±1.1	7
5954	-	-	-	-		INSUFFICIENT APATITE	
6490	TOROK FM.	113-119	54	27.2± 9	20	12.4±1.4	9
9436	SADLEROCHIT GR.	240-250	82	7.5±8	13	5.8	1
10392	DEV. BASEMENT	360	87	2.8±2.6	20	7.1±2.0	2

EAST TOPAGORUK NO. 1

DEPTH (FEET)	STRATIGRAPHIC UNIT	STRATIGRAPHIC AGE (MA)	PRESENT TEMP. (°C)	FT AGE (MA)	[N]	MEAN FT LENGTH (um)	[N]
2016	-	-	-	-		NO APATITE	
2458	-	-	-	-		NO APATITE	
3569	-	-	-	-		NO APATITE	

TABLE 2. - APATITE FISSION-TRACK AGES FOR NPRA WELLS

SAMPLE NUMBER	GRAINS COUNTED	FOSSIL TRACKS TRACKS/CM^2 (X 10^6)	FOSSIL TRACKS # TRACKS COUNTED	INDUCED TRACKS TRACKS/CM^2 (X 10^6)	INDUCED TRACKS # TRACKS COUNTED	NEUTRON FLUX (X 10^{15} NEUTRONS/CM)	AGE (STANDARD ERROR) (MA)	95 % C.I. (MA)	CHI² PROB. (%)	URANIUM CONTEN (PPM)	CORR COEFF
SM 3010	20	0.58	31	0.62	166	0.82	45.6 (9.2)	68 30	>99	2	.943
SM 4956	20	0.52	28	0.67	180	0.84	39.0 (8.1)	59 26	>99	2	.937
SM 5992	20	0.78	70	1.41	637	0.86	28.2 (3.8)	37 22	95	5	.892
SM 8820	20	0.10	6	0.37	111	0.90	14.5 (6.1)	34 6	>99	1	.700
SM 9940	17	0.02	2	0.82	353	0.92	1.6 (1.1)	6 0	70	3	.035
SBTW1 1200	20	0.67	35	0.57	147	0.95	67.3 (13.0)	99 46	>99	2	.834
SBTW1 1906	20	1.18	125	1.40	744	0.97	48.6 (5.2)	60 39	>99	5	.961
SBTW3 200	20	1.04	77	0.73	271	1.24	104.5 (14.3)	137 80	>99	2	.958
SBTW3 2430	12	1.70	60	1.17	206	1.25	108.0 (16.5)	146 79	>99	3	.959
ETESH 10664	20	0.03	3	1.26	542	1.20	2.0 (1.2)	6 0.6	>99	3	.719
WTF 7539	11	1.50	13	0.58	75	0.74	38.2 (11.6)	70 21	>99	2	.67
WTF 8260	20	1.04	48	1.02	234	0.76	46.5 (7.7)	65 33	>99	4	.730
WTF 8864	4	0.04	12	2.01	322	0.78	8.7 (2.6)	16 5	<1	8	.872
ES 5129	20	0.79	57	1.02	368	1.00	46.2 (6.9)	62 34	>99	3	.958
TOP 2087	13	1.10	43	1.01	198	1.35	86.5 (15.0)	122 61	>99	2	.995
TOP 3240	20	0.66	33	0.70	174	1.36	76.7 (14.9)	113 52	>99	2	.935
TOP 6490	20	0.33	41	1.00	620	1.38	27.2 (4.6)	38 19	>99	2	.961
TOP 9436	13	0.07	3	0.76	167	1.39	7.5 (4.4)	24 2	75	2	.172
TOP 10392	20	0.05	4	1.41	605	1.40	2.8 (1.4)	8 1	>99	3	.701
GUBIK 1398	20	1.30	90	0.88	310	1.04	89.7 (11.5)	116 69	>99	3	.893

SPONTANEOUS DECAY CONSTANT = 7.03e17 /YR

TABLE 2. - ZIRCON FISSION-TRACK AGES FOR NPRA WELLS

SAMPLE NUMBER	GRAINS COUNTED	FOSSIL TRACKS TRACKS/CM^2 (X 10^6)	FOSSIL TRACKS # TRACKS COUNTED	INDUCED TRACKS TRACKS/CM^2 (X 10^6)	INDUCED TRACKS # TRACKS COUNTED	NEUTRON FLUX (X 10^{16} NEUTRONS/CM^2)	AVG. AGE (STANDARD ERROR) (MA)	CHI-SQUARED PROBABILITY (%)	URANIUM CONTENT (PPM)	CORR. COEFF.
ES7476 IVISHAK	9	9.20	574	7.76	242	6.9	484.8 (43.7)	<1	36	.791
SBTW1 1906 TOROK	18	5.24	1399	9.24	1235	7.0	261.6 (26.5)	<1	42	.547
SBTW3 200 NANUSHUK	9	4.48	470	10.59	550	6.9	184.9 (17.0)	<1	49	.833
SBTW3 2430 BARROW SS.	12	6.31	722	5.91	338	6.9	476.0 (51.4)	<1	27	.828
SBTW3 2703 SHUBLIK	14	7.24	1217	6.46	543	6.9	441.9 (51.8)	<1	30	.800
TOP 2087 TOROK	20	5.67	926	14.07	1154	6.4	161.8 (12.2)	<1	70	.848
TOP 6490 TOROK	20	8.32	1651	8.32	1446	6.4	254.3 (34.5)	<1	73	.816
WTF 7539 SHUBLIK	9	11.70	655	12.25	343	7.0	381.2 (42.0)	<1	56	.833
WTF 8264 LISBURNE	6	7.48	317	8.35	177	7.0	391.8 (28.0)	<1	38	.981
SM4956 TOROK	20	5.51	922	10.0	836	7.0	279.9 (34.8)	<1	46	.601
SM5992 TOROK	20	6.12	1674	13.29	1818	7.0	197.2 (18.3)	<1	61	.647
SM8820 SAG RIVER SS.	8	7.36	312	11.32	240	7.0	302.3 (31.3)	<1	52	.926
GUBIK 1398 NANUSHUK	5	8.40	1042	34.30	2130	7.0	100.0 (6.0)	<1	157	.976

SPONTANEOUS DECAY CONSTANT = 7.03E17 /YR

TABLE 3 - UNCORRECTED FISSION-TRACK LENGTH MEASUREMENTS FOR NATIONAL PETROLEUM RESERVE SAMPLES

TRACK LENGTH (MICRONS)

SAMPLE NAME	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5	TOTAL # OF TRACKS MEASURED
SM 4956	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
SM 5992	0	0	0	0	0	0	1	0	2	2	4	1	1	0	0	0	0	0	11
SBTW1 1200	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	0	4
SBTW1 1906	0	0	0	0	0	0	0	1	4	4	13	17	17	9	1	0	0	0	66
SBTW3 200	0	0	0	0	0	0	0	0	1	0	3	0	3	1	1	0	0	0	9
SBTW3 2430	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
WTF 7539	0	0	0	0	0	0	0	2	0	3	1	1	0	0	0	0	0	0	7
WTF 8260	0	0	1	0	0	0	0	3	2	3	2	1	0	0	0	0	0	0	12
ES 5129	0	0	0	0	0	0	1	3	3	8	7	8	5	0	0	0	0	0	35
TOP 2087	0	0	0	0	0	0	0	0	0	0	0	3	2	1	0	0	0	0	6
TOP 3240	0	0	0	0	0	0	0	2	1	2	1	1	0	0	0	0	0	0	7
TOP 6490	0	0	0	0	0	0	0	0	1	4	1	2	1	0	0	0	0	0	9
TOP 9436	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOP 10392	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
GUBIK 1398	0	0	0	0	0	0	0	1	0	1	4	12	15	8	4	0	0	0	45

SM = SOUTH MEADE NO. 1
SBTW1 = SOUTH BARROW TEST WELL NO. 1
SBTW3 = SOUTH BARROW TEST WELL NO. 3
WTF = W.T. FORAN NO. 1
ES = EAST SIMPSON NO. 1
GYR = GYR NO. 1
TOP = TOPOGORUK NO. 1
GUBIK = GUBIK NO. 2

TABLE 3 – TRACK LENGTH DATA SUMMARY
cont

SAMPLE	ETCH TIME (SEC)	OF TRACKS MEASURED	MEASURED MEAN (MICRONS)	CORRECTED MEAN (MICRONS)	STANDARD DEVIATION (MICRONS)	95% CONFIDENCE INTERVAL (MICRONS)
SM 4956	25	3	12.8	12.8	0.6	0.7
SM 5992	25	11	11.8	11.6	1.6	0.9
SBTW1 120	25	4	12.8	12.4	2.6	2.6
SBTW1 190	25	66	13.5	13.3	1.4	0.3
SBTW3 200	25	9	13.7	13.5	1.8	1.2
SBTW3 243	25	2	12.8	12.8	0.3	0.5
WTF 7539	25	7	11.4	11.2	1.4	1.0
WTF 8260	25	12	10.4	9.8	2.4	1.3
ES 5129	25	35	12.2	12.0	1.6	0.6
TOP 2087	25	6	14.1	14.0	0.7	0.6
TOP 3240	25	7	11.2	11.0	1.5	1.1
TOP 6490	25	9	12.4	12.2	1.4	0.9
TOP 9436	25	1	5.8	–	–	–
TOP 10392	25	2	7.1	6.8	2.5	2.5
GUBIK 139	25	45	14.1	14.0	1.3	0.4

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	ES 5129	LATITUDE:	70° 55' 04" N
LAB NUMBER:	SMU	LONGITUDE:	54° 37' 05" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 30 FT.
NEUTRON FLUX:	1.000E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Torok Fm. SANDSTONE
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	8.0E-05	1	1.250E+04	9	2.250E+05	0.11	0.7	33.2	35.0
2	4.0E-05	1	2.500E+04	10	5.000E+05	0.10	1.6	29.8	31.3
3	4.0E-05	3	7.500E+04	14	7.000E+05	0.21	2.2	63.8	40.7
4	2.0E-05	4	2.000E+05	27	2.700E+06	0.15	8.6	44.2	23.8
5	2.0E-05	2	1.000E+05	9	9.000E+05	0.22	2.9	66.1	25.9
6	2.0E-05	1	5.000E+04	9	9.000E+05	0.11	2.9	33.2	35.0
7	4.0E-05	2	5.000E+04	9	4.500E+05	0.22	1.4	66.1	51.8
8	2.0E-05	12	6.000E+05	108	1.080E+07	0.11	34.6	33.2	10.2
9	4.0E-05	4	1.000E+05	23	1.150E+06	0.17	3.7	51.8	28.2
10	2.0E-05	1	5.000E+04	6	6.000E+05	0.17	1.9	49.7	53.7
11	2.0E-05	4	2.000E+05	17	1.700E+06	0.24	5.4	70.0	39.0
12	2.0E-05	3	1.500E+05	12	1.200E+06	0.25	3.8	74.4	48.1
13	2.0E-05	2	1.000E+05	14	1.400E+06	0.14	4.5	42.6	32.3
14	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.3	74.4	83.2
15	4.0E-05	2	5.000E+04	12	6.000E+05	0.17	1.9	49.7	38.0
16	8.0E-05	5	6.250E+04	27	6.750E+05	0.19	2.2	55.2	27.0
17	4.0E-05	1	2.500E+04	10	5.000E+05	0.10	1.6	29.8	31.3
18	8.0E-05	2	2.500E+04	14	3.500E+05	0.14	1.1	42.6	32.3
19	4.0E-05	3	7.500E+04	22	1.100E+06	0.14	3.5	40.7	25.1
20	2.0E-05	3	1.500E+05	12	1.200E+06	0.25	3.8	74.4	48.1
	7.2E-04	57	7.917E+04	368	1.022E+06	0.15	3.3		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	GUBIK 2 - 1398	LATITUDE:	71° 09' 46" N
LAB NUMBER:	SMU	LONGITUDE:	56° 34' 44" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=44 FT.
NEUTRON FLUX:	1.040E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	NANUSHUK GP. TUFF
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.0E-05	6	1.500E+05	16	8.000E+05	0.38	2.5	115.6	55.6
2	2.0E-05	3	1.500E+05	10	1.000E+06	0.30	3.1	92.7	61.2
3	8.0E-05	2	2.500E+04	7	1.750E+05	0.29	0.5	88.3	70.9
4	2.0E-05	2	1.000E+05	7	7.000E+05	0.29	2.2	88.3	70.9
5	2.0E-05	3	1.500E+05	18	1.800E+06	0.17	5.5	51.6	514.4
6	8.0E-05	6	7.500E+04	31	7.750E+05	0.19	2.4	59.9	26.9
7	8.0E-05	7	8.750E+04	37	9.250E+05	0.19	2.8	58.6	24.3
8	2.0E-05	2	1.000E+05	6	6.000E+05	0.33	1.8	102.9	514.4
9	2.0E-05	4	2.000E+05	9	9.000E+05	0.44	2.8	136.8	241.9
10	4.0E-05	7	1.750E+05	19	9.500E+05	0.37	2.9	113.6	50.5
11	4.0E-05	4	1.000E+05	14	7.000E+05	0.29	2.2	88.3	50.2
12	2.0E-05	3	1.500E+05	8	8.000E+05	0.38	2.5	115.6	78.5
13	2.0E-05	3	1.500E+05	8	8.000E+05	0.38	2.5	115.6	78.5
14	2.0E-05	3	1.500E+05	13	1.300E+06	0.23	4.0	71.4	45.9
15	2.0E-05	4	2.000E+05	14	1.400E+06	0.29	4.3	88.3	50.2
16	2.0E-05	18	9.000E+05	51	5.100E+06	0.35	15.7	108.9	30.3
17	2.0E-05	3	1.500E+05	14	1.400E+06	0.21	4.3	66.3	42.3
18	4.0E-05	4	1.000E+05	12	6.000E+05	0.33	1.8	102.9	59.6
19	4.0E-05	4	1.000E+05	9	4.500E+05	0.44	1.4	136.8	82.5
20	4.0E-05	2	5.000E+04	7	3.500E+05	0.29	1.1	88.3	70.9
	7.0E-04	90	1.286E+05	310	8.857E+05	0.29	2.7		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	GUBIK 2 - 1398	LATITUDE:	71° 09' 46" N
LAB NUMBER:	SMU	LONGITUDE:	56° 34' 44" W
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):	KB=44 FT.
NEUTRON FLUX:	7.000E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	NANUSHUK GP. TUFF
NUMBER OF GRAINS:	5	MINERAL:	ZIRCON

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	1.6E-05	132	8.250E+06	301	3.763E+07	0.44	172.0	91.2	10.5
2	4.0E-05	437	1.093E+07	771	3.855E+07	0.57	176.2	117.6	9.0
3	4.0E-05	268	6.700E+06	608	3.040E+07	0.44	139.0	91.7	8.0
4	2.0E-05	140	7.000E+06	330	3.300E+07	0.42	150.9	88.2	9.8
5	8.0E-06	65	8.125E+06	120	3.000E+07	0.54	137.1	112.4	18.1
6	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
7	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
8	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
9	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
10	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
11	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
12	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
13	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	1.2E-04	1042	8.403E+06	2130	3.435E+07	0.49	157.1		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	SM 3010	LATITUDE:	70°36'54" N
LAB NUMBER:	SMU	LONGITUDE:	156°53'24" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=60 FT.
NEUTRON FLUX:	8.200E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	TOROK FM.
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.0E-05	9	2.250E+05	50	2.500E+06	0.18	9.8	44.0	16.1
2	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	1.2	81.3	93.9
3	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	340.7
4	4.0E-05	1	2.500E+04	3	1.500E+05	0.33	0.6	81.3	93.9
5	2.0E-05	3	1.500E+05	10	1.000E+06	0.30	3.9	73.2	48.3
6	2.0E-05	4	2.000E+05	32	3.200E+06	0.13	12.5	30.6	16.3
7	1.6E-05	2	1.250E+05	8	1.000E+06	0.25	3.9	61.0	48.3
8	4.0E-05	2	5.000E+04	16	8.000E+05	0.13	3.1	30.6	23.0
9	2.0E-05	3	1.500E+05	10	1.000E+06	0.30	3.9	73.2	48.3
10	1.6E-05	0	0.000E+00	2	2.500E+05	0.00	1.0	0.0	148.9
11	4.0E-05	2	5.000E+04	5	2.500E+05	0.40	1.0	97.4	81.6
12	4.0E-05	1	2.500E+04	6	3.000E+05	0.17	1.2	40.8	44.1
13	4.0E-05	2	5.000E+04	6	3.000E+05	0.33	1.2	81.3	66.5
14	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	2.0	48.9	53.6
15	4.0E-05	0	0.000E+00	1	5.000E+04	0.00	0.2	0.0	340.7
16	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	340.7
17	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	340.7
18	2.0E-05	0	0.000E+00	2	2.000E+05	0.00	0.8	0.0	148.9
19	2.0E-05	0	0.000E+00	2	2.000E+05	0.00	0.8	0.0	148.9
20	2.0E-05	0	0.000E+00	2	2.000E+05	0.00	0.8	0.0	148.9
	5.3E-04	31	5.827E+04	166	6.241E+05	0.19	2.4		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	SM 4956	LATITUDE:	70°36'54" N
LAB NUMBER:	SMU	LONGITUDE:	156°53'24" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=60 FT.
NEUTRON FLUX:	8.400E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	TOROK FM.
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	2.0E-05	1	5.000E+04	6	6.000E+05	0.17	2.3	41.7	45.1
2	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	1.9	50.1	54.9
3	4.0E-05	2	5.000E+04	13	6.500E+05	0.15	2.5	38.5	29.3
4	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.5	62.5	70.0
5	4.0E-05	4	1.000E+05	24	1.200E+06	0.17	4.6	41.7	22.6
6	2.0E-05	1	5.000E+04	7	7.000E+05	0.14	2.7	35.8	38.3
7	4.0E-05	2	5.000E+04	15	7.500E+05	0.13	2.9	33.4	25.2
8	2.0E-05	2	1.000E+05	13	1.300E+06	0.15	5.0	38.5	29.3
9	4.0E-05	2	5.000E+04	10	5.000E+05	0.20	1.9	50.1	38.9
10	2.0E-05	1	5.000E+04	7	7.000E+05	0.14	2.7	35.8	38.3
11	2.0E-05	1	5.000E+04	7	7.000E+05	0.14	2.7	35.8	38.3
12	4.0E-05	0	0.000E+00	6	3.000E+05	0.00	1.1	0.0	45.1
13	2.0E-05	3	1.500E+05	23	2.300E+06	0.13	8.8	32.7	20.1
14	2.0E-05	1	5.000E+04	6	6.000E+05	0.17	2.3	41.7	45.1
15	2.0E-05	2	1.000E+05	12	1.200E+06	0.17	4.6	41.7	31.9
16	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.5	62.5	70.0
17	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.5	62.5	70.0
18	2.0E-05	2	1.000E+05	11	1.100E+06	0.18	4.2	45.5	35.1
19	4.0E-05	0	0.000E+00	2	1.000E+05	0.00	0.4	0.0	152.5
20	4.0E-05	0	0.000E+00	1	5.000E+04	0.00	0.2	0.0	348.8
	5.4E-04	28	5.185E+04	180	6.667E+05	0.16	2.5		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	SM 5992	LATITUDE:	70°36'54" N
LAB NUMBER:	SMU	LONGITUDE:	156°53'24" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=60 FT.
NEUTRON FLUX:	8.600E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	TOROK FM.
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.0E-05	4	1.000E+05	17	8.500E+05	0.24	3.2	60.3	33.6
2	4.0E-05	2	5.000E+04	30	1.500E+06	0.07	5.6	17.1	12.5
3	2.0E-05	2	1.000E+05	14	1.400E+06	0.14	5.2	36.6	27.8
4	4.0E-05	2	5.000E+04	9	4.500E+05	0.22	1.7	56.9	44.6
5	6.0E-05	1	1.667E+04	18	6.000E+05	0.06	2.2	14.3	14.7
6	4.0E-05	2	5.000E+04	12	6.000E+05	0.17	2.2	42.7	32.7
7	4.0E-05	5	1.250E+05	42	2.100E+06	0.12	7.8	30.6	14.5
8	2.0E-05	1	5.000E+04	10	1.000E+06	0.10	3.7	25.7	27.0
9	2.0E-05	4	2.000E+05	38	3.800E+06	0.11	14.1	27.0	14.3
10	4.0E-05	9	2.250E+05	68	3.400E+06	0.13	12.7	34.0	12.2
11	8.0E-05	2	2.500E+04	32	8.000E+05	0.06	3.0	16.1	11.7
12	4.0E-05	7	1.750E+05	96	4.800E+06	0.07	17.9	18.7	45.1
13	4.0E-05	4	1.000E+05	22	1.100E+06	0.18	4.1	46.6	25.4
14	8.0E-05	10	1.250E+05	128	3.200E+06	0.08	11.9	20.1	6.7
15	8.0E-05	1	1.250E+04	10	2.500E+05	0.10	0.9	25.7	27.0
16	2.0E-05	4	2.000E+05	25	2.500E+06	0.16	9.3	41.0	22.2
17	4.0E-05	2	5.000E+04	19	9.500E+05	0.11	3.5	27.0	20.1
18	8.0E-05	2	2.500E+04	17	4.250E+05	0.12	1.6	30.2	22.6
19	4.0E-05	3	7.500E+04	15	7.500E+05	0.20	2.8	51.3	152.5
20	4.0E-05	3	7.500E+04	15	7.500E+05	0.20	2.8	51.3	348.8
	9.0E-04	70	7.778E+04	637	1.416E+06	0.11	5.3		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	SM 8820	LATITUDE:	70°36'54" N
LAB NUMBER:	SMU	LONGITUDE:	156°53'24" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=60 FT.
NEUTRON FLUX:	9.000E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	SHUBIK FM.
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.0E-05	0	0.000E+00	1	5.000E+04	0.00	0.2	0.0	373.2
2	2.0E-05	0	0.000E+00	2	2.000E+05	0.00	0.7	0.0	163.3
3	2.0E-05	1	5.000E+04	14	1.400E+06	0.07	5.0	19.2	19.9
4	4.0E-05	0	0.000E+00	2	1.000E+05	0.00	0.4	0.0	163.3
5	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	373.2
6	4.0E-05	0	0.000E+00	2	1.000E+05	0.00	0.4	0.0	163.3
7	2.0E-05	3	1.500E+05	14	1.400E+06	0.21	5.0	57.4	36.6
8	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	373.2
9	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	373.2
10	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	373.2
11	2.0E-05	0	0.000E+00	2	2.000E+05	0.00	0.7	0.0	163.3
12	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	373.2
13	8.0E-05	0	0.000E+00	1	2.500E+04	0.00	0.1	0.0	373.2
14	4.0E-05	0	0.000E+00	1	5.000E+04	0.00	0.2	0.0	373.2
15	4.0E-05	0	0.000E+00	1	5.000E+04	0.00	0.2	0.0	373.2
16	2.0E-05	0	0.000E+00	2	2.000E+05	0.00	0.7	0.0	163.3
17	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.4	0.0	373.2
18	2.0E-05	2	1.000E+05	60	6.000E+06	0.03	21.3	9.0	6.5
19	4.0E-05	0	0.000E+00	1	5.000E+04	0.00	0.2	0.0	373.2
20	4.0E-05	0	0.000E+00	2	1.000E+05	0.00	0.4	0.0	163.3
	6.0E-04	6	1.000E+04	111	3.700E+05	0.05	1.3		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	SBTW1 1200	LATITUDE:	71°19'12" N
LAB NUMBER:	SMU	LONGITUDE:	156°42'16" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=18 FT.
NEUTRON FLUX:	9.500E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	TOROK FM. SS.
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	1.0	94.0	108.7
2	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	1.0	94.0	108.7
3	8.0E-05	4	5.000E+04	13	3.250E+05	0.31	1.1	86.9	49.8
4	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	1.0	94.0	108.7
5	2.0E-05	2	1.000E+05	8	8.000E+05	0.25	2.7	70.7	56.0
6	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.3	0.0	389.5
7	4.0E-05	1	2.500E+04	5	2.500E+05	0.20	0.8	56.6	62.1
8	4.0E-05	2	5.000E+04	15	7.500E+05	0.13	2.5	37.8	28.5
9	4.0E-05	4	1.000E+05	10	5.000E+05	0.40	1.7	112.7	66.9
10	2.0E-05	3	1.500E+05	15	1.500E+06	0.20	5.1	56.6	35.9
11	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	1.0	94.0	108.7
12	2.0E-05	3	1.500E+05	20	2.000E+06	0.15	6.7	42.5	26.4
13	1.2E-05	5	4.167E+05	18	3.000E+06	0.28	10.1	78.5	39.8
14	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	1.0	94.0	108.7
15	1.2E-05	1	8.333E+04	5	8.333E+05	0.20	2.8	56.6	62.1
16	2.0E-05	2	1.000E+05	5	5.000E+05	0.40	1.7	112.7	94.4
17	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	1.7	56.6	62.1
18	1.2E-05	1	8.333E+04	6	1.000E+06	0.17	3.4	47.2	51.0
19	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	1.0	94.0	108.7
20	4.0E-05	0	0.000E+00	3	1.500E+05	0.00	0.5	0.0	107.5
	5.2E-04	35	6.783E+04	147	5.698E+05	0.24	1.9		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	SBTW1 1906	LATITUDE:	71°19'12" N
LAB NUMBER:	SMU	LONGITUDE:	156°42'16" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=18 FT.
NEUTRON FLUX:	9.700E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	TOROK FM. SS.
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.0E-05	2	5.000E+04	6	3.000E+05	0.33	1.0	96.0	78.5
2	4.0E-05	4	1.000E+05	13	6.500E+05	0.31	2.1	88.7	50.9
3	2.0E-05	5	2.500E+05	27	2.700E+06	0.19	8.9	53.5	26.2
4	8.0E-05	12	1.500E+05	73	1.825E+06	0.16	6.0	47.5	15.0
5	8.0E-05	2	2.500E+04	8	2.000E+05	0.25	0.7	72.1	57.1
6	4.0E-05	3	7.500E+04	16	8.000E+05	0.19	2.6	54.2	34.2
7	4.0E-05	22	5.500E+05	120	6.000E+06	0.18	19.8	53.0	12.5
8	4.0E-05	2	5.000E+04	16	8.000E+05	0.13	2.6	36.2	27.2
9	8.0E-05	5	6.250E+04	33	8.250E+05	0.15	2.7	43.8	21.1
10	4.0E-05	2	5.000E+04	9	4.500E+05	0.22	1.5	64.2	50.3
11	4.0E-05	6	1.500E+05	38	1.900E+06	0.16	6.3	45.7	20.2
12	4.0E-05	4	1.000E+05	16	8.000E+05	0.25	2.6	72.1	40.5
13	8.0E-05	11	1.375E+05	90	2.250E+06	0.12	7.4	35.4	11.4
14	8.0E-05	4	5.000E+04	12	3.000E+05	0.33	1.0	96.0	55.6
15	4.0E-05	2	5.000E+04	12	6.000E+05	0.17	2.0	48.2	36.9
16	8.0E-05	10	1.250E+05	80	2.000E+06	0.13	6.6	36.2	12.3
17	4.0E-05	5	1.250E+05	32	1.600E+06	0.16	5.3	45.2	21.8
18	8.0E-05	4	5.000E+04	19	4.750E+05	0.21	1.6	60.8	33.6
19	4.0E-05	6	1.500E+05	43	2.150E+06	0.14	7.1	40.4	17.7
20	4.0E-05	14	3.500E+05	81	4.050E+06	0.17	13.4	50.0	14.7
	1.1E-03	125	1.179E+05	744	1.404E+06	0.17	4.6		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	SBTW3 200	LATITUDE:	71° 09' 46" N
LAB NUMBER:	SMU	LONGITUDE:	56° 34' 44" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=44 FT.
NEUTRON FLUX:	1.240E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Torok FM. Sandstone
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.0E-05	1	2.500E+04	3	1.500E+05	0.33	0.4	122.5	141.5
2	2.0E-05	2	1.000E+05	5	5.000E+05	0.40	1.3	146.7	122.9
3	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.0	92.1	103.0
4	8.0E-05	5	6.250E+04	13	3.250E+05	0.38	0.8	141.1	74.6
5	4.0E-05	2	5.000E+04	5	2.500E+05	0.40	0.6	146.7	122.9
6	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	0.8	122.5	141.5
7	2.0E-05	2	1.000E+05	6	6.000E+05	0.33	1.5	122.5	100.2
8	4.0E-05	1	2.500E+04	3	1.500E+05	0.33	0.4	122.5	141.5
9	2.0E-05	6	3.000E+05	22	2.200E+06	0.27	5.7	100.4	241.9
10	4.0E-05	3	7.500E+04	10	5.000E+05	0.30	1.3	110.3	72.8
11	4.0E-05	10	2.500E+05	31	1.550E+06	0.32	4.0	118.6	43.5
12	6.0E-05	4	6.667E+04	8	2.667E+05	0.50	0.7	182.9	112.3
13	4.0E-05	2	5.000E+04	5	2.500E+05	0.40	0.6	146.7	122.9
14	2.0E-05	3	1.500E+05	17	1.700E+06	0.18	4.4	65.1	40.9
15	2.0E-05	9	4.500E+05	40	4.000E+06	0.23	10.3	82.9	30.8
16	2.0E-05	3	1.500E+05	8	8.000E+05	0.38	2.1	137.6	93.4
17	8.0E-05	10	1.250E+05	43	1.075E+06	0.23	2.8	85.7	30.4
18	2.0E-05	2	1.000E+05	6	6.000E+05	0.33	1.5	122.5	100.2
19	8.0E-05	4	5.000E+04	15	3.750E+05	0.27	1.0	98.2	55.4
20	2.0E-05	6	3.000E+05	24	2.400E+06	0.25	6.2	92.1	42.3
	7.4E-04	77	1.041E+05	271	7.324E+05	0.28	1.9		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	SBTW3 2430	LATITUDE:	71° 09' 46" N
LAB NUMBER:	SMU	LONGITUDE:	56° 34' 44" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=44 FT.
NEUTRON FLUX:	1.250E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	KINGAK SHALE
NUMBER OF GRAINS:	12	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	2.0E-05	3	1.500E+05	12	1.200E+06	0.25	3.1	92.8	60.1
2	2.0E-05	8	4.000E+05	21	2.100E+06	0.38	5.4	140.9	58.9
3	4.0E-05	4	1.000E+05	11	5.500E+05	0.36	1.4	134.6	78.8
4	4.0E-05	6	1.500E+05	24	1.200E+06	0.25	3.1	92.8	42.6
5	4.0E-05	0	0.000E+00	1	5.000E+04	0.00	0.1	0.0	514.4
6	3.2E-05	15	4.688E+05	58	3.625E+06	0.26	9.3	96.0	28.2
7	4.0E-05	7	1.750E+05	18	9.000E+05	0.39	2.3	143.8	64.4
8	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.3	0.0	514.4
9	2.0E-05	2	1.000E+05	7	7.000E+05	0.29	1.8	106.0	241.9
10	4.0E-05	8	2.000E+05	35	1.750E+06	0.23	4.5	84.9	33.5
11	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.0	92.8	103.9
12	2.0E-05	6	3.000E+05	14	1.400E+06	0.43	3.6	158.3	77.6
13	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	3.5E-04	60	1.705E+05	206	1.170E+06	0.29	3.0		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	TOP 10392	LATITUDE:	70° 37' 30" N
LAB NUMBER:	SMU	LONGITUDE:	55° 53' 36" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 42 ft.
NEUTRON FLUX:	1.400E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Basement (Devonian)
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	8.0E-05	0	0.000E+00	10	2.500E+05	0.00	0.6	0.0	43.8
2	4.0E-05	0	0.000E+00	4	2.000E+05	0.00	0.5	0.0	116.2
3	4.0E-05	0	0.000E+00	77	3.850E+06	0.00	8.8	0.0	5.5
4	2.0E-05	0	0.000E+00	2	2.000E+05	0.00	0.5	0.0	252.6
5	8.0E-05	0	0.000E+00	9	2.250E+05	0.00	0.5	0.0	48.9
6	2.0E-05	1	5.000E+04	71	7.100E+06	0.01	16.2	5.9	5.9
7	4.0E-05	0	0.000E+00	24	1.200E+06	0.00	2.7	0.0	17.8
8	4.0E-05	0	0.000E+00	8	4.000E+05	0.00	0.9	0.0	55.4
9	4.0E-05	1	2.500E+04	60	3.000E+06	0.02	6.9	7.0	7.0
10	2.0E-05	0	0.000E+00	6	6.000E+05	0.00	1.4	0.0	75.1
11	4.0E-05	1	2.500E+04	89	4.450E+06	0.01	10.2	4.7	4.7
12	8.0E-05	0	0.000E+00	6	1.500E+05	0.00	0.3	0.0	75.1
13	4.0E-05	0	0.000E+00	6	3.000E+05	0.00	0.7	0.0	75.2
14	2.0E-05	0	0.000E+00	35	3.500E+06	0.00	8.0	0.0	12.1
15	4.0E-05	0	0.000E+00	32	1.600E+06	0.00	3.7	0.0	13.3
16	4.0E-05	0	0.000E+00	45	2.250E+06	0.00	5.1	0.0	9.5
17	4.0E-05	0	0.000E+00	37	1.850E+06	0.00	4.2	0.0	11.5
18	2.0E-05	1	5.000E+04	48	4.800E+06	0.02	11.0	8.7	8.8
19	4.0E-05	0	0.000E+00	18	9.000E+05	0.00	2.1	0.0	23.9
20	8.0E-05	0	0.000E+00	18	4.500E+05	0.00	1.0	0.0	23.9
	8.6E-04	4	4.651E+03	605	1.407E+06	0.01	3.2		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	TOP 2087	LATITUDE:	70° 37' 30" N
LAB NUMBER:	SMU	LONGITUDE:	55° 53' 36" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 42 ft.
NEUTRON FLUX:	1.340E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Torok FM. Sandstone
NUMBER OF GRAINS:	13	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	2.0E-05	5	2.500E+05	27	2.700E+06	0.19	6.4	73.8	36.1
2	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	0.7	132.3	152.8
3	2.0E-05	21	1.050E+06	114	1.140E+07	0.18	27.2	73.4	17.8
4	8.0E-05	3	3.750E+04	9	2.250E+05	0.33	0.5	132.3	88.4
5	8.0E-05	1	1.250E+04	3	7.500E+04	0.33	0.2	132.3	152.8
6	2.0E-05	3	1.500E+05	7	7.000E+05	0.43	1.7	169.6	117.3
7	4.0E-05	2	5.000E+04	6	3.000E+05	0.33	0.7	132.3	108.2
8	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	0.7	132.3	152.8
9	2.0E-05	0	0.000E+00	2	2.000E+05	0.00	0.5	0.0	241.9
10	2.0E-05	2	1.000E+05	8	8.000E+05	0.25	1.9	99.4	78.8
11	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.0	99.4	111.3
12	2.0E-05	2	1.000E+05	9	9.000E+05	0.22	2.1	88.5	69.3
13	1.2E-05	1	8.333E+04	3	5.000E+05	0.33	1.2	132.3	152.8
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	3.9E-04	43	1.097E+05	198	1.010E+06	0.22	2.4		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	TOP 3240	LATITUDE:	70° 37' 30" N
LAB NUMBER:	SMU	LONGITUDE:	55° 53' 36" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 42 ft.
NEUTRON FLUX:	1.360E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Torok FM. Sandstone
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	2.0E-05	5	2.500E+05	25	2.500E+06	0.20	5.9	80.9	39.8
2	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	0.9	100.9	112.9
3	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	1.2	80.9	88.7
4	2.0E-05	0	0.000E+00	3	3.000E+05	0.00	0.7	0.0	155.1
5	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.2	0.0	558.3
6	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	0.7	134.2	155.1
7	2.0E-05	0	0.000E+00	3	3.000E+05	0.00	0.7	0.0	155.1
8	2.0E-05	5	2.500E+05	22	2.200E+06	0.23	5.2	91.8	45.7
9	2.0E-05	2	1.000E+05	14	1.400E+06	0.14	3.3	57.9	43.8
10	2.0E-05	0	0.000E+00	1	1.000E+05	0.00	0.2	0.0	558.3
11	4.0E-05	2	5.000E+04	7	3.500E+05	0.29	0.8	115.2	92.5
12	2.0E-05	5	2.500E+05	27	2.700E+06	0.19	6.4	74.9	36.6
13	2.0E-05	3	1.500E+05	9	9.000E+05	0.33	2.1	134.2	89.7
14	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	1.2	80.9	88.7
15	2.0E-05	2	1.000E+05	11	1.100E+06	0.18	2.6	73.6	56.6
16	2.0E-05	1	5.000E+04	3	3.000E+05	0.33	0.7	134.2	155.1
17	2.0E-05	1	5.000E+04	6	6.000E+05	0.17	1.4	67.5	72.9
18	8.0E-05	0	0.000E+00	2	5.000E+04	0.00	0.1	0.0	245.5
19	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	1.2	80.9	88.7
20	4.0E-05	2	5.000E+04	18	9.000E+05	0.11	2.1	45.0	33.6
	5.0E-04	33	6.600E+04	174	6.960E+05	0.19	1.6		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	TOP 6490	LATITUDE:	70° 37' 30" N
LAB NUMBER:	SMU	LONGITUDE:	55° 53' 36" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 42 ft.
NEUTRON FLUX:	1.380E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Torok FM. Sandstone
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	8.0E-05	1	1.250E+04	21	5.250E+05	0.05	1.2	19.6	20.1
2	4.0E-05	1	2.500E+04	9	4.500E+05	0.11	1.0	45.7	48.2
3	8.0E-05	2	2.500E+04	23	5.750E+05	0.09	1.3	35.8	26.4
4	4.0E-05	0	0.000E+00	7	3.500E+05	0.00	0.8	0.0	62.8
5	8.0E-05	0	0.000E+00	5	1.250E+05	0.00	0.3	0.0	90.0
6	4.0E-05	6	1.500E+05	117	5.850E+06	0.05	13.6	21.1	8.9
7	8.0E-05	5	6.250E+04	72	1.800E+06	0.07	4.2	28.6	13.3
8	8.0E-05	0	0.000E+00	11	2.750E+05	0.00	0.6	0.0	39.1
9	8.0E-05	0	0.000E+00	6	1.500E+05	0.00	0.3	0.0	74.0
10	8.0E-05	0	0.000E+00	3	7.500E+04	0.00	0.2	0.0	157.4
11	8.0E-05	1	1.250E+04	7	1.750E+05	0.14	0.4	58.7	62.8
12	4.0E-05	2	5.000E+04	22	1.100E+06	0.09	2.6	37.4	27.7
13	8.0E-05	1	1.250E+04	9	2.250E+05	0.11	0.5	45.7	48.2
14	4.0E-05	0	0.000E+00	5	2.500E+05	0.00	0.6	0.0	90.0
15	8.0E-05	6	7.500E+04	100	2.500E+06	0.06	5.8	24.7	10.5
16	4.0E-05	2	5.000E+04	14	7.000E+05	0.14	1.6	58.7	44.5
17	4.0E-05	4	1.000E+05	52	2.600E+06	0.08	6.0	31.7	16.5
18	8.0E-05	6	7.500E+04	97	2.425E+06	0.06	5.6	25.5	10.8
19	4.0E-05	2	5.000E+04	17	8.500E+05	0.12	2.0	48.4	36.2
20	4.0E-05	2	5.000E+04	23	1.150E+06	0.09	2.7	35.8	26.4
	1.2E-03	41	3.306E+04	620	1.000E+06	0.07	2.3		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	TOP 9436	LATITUDE:	70° 37' 30" N
LAB NUMBER:	SMU	LONGITUDE:	55° 53' 36" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 42 ft.
NEUTRON FLUX:	1.390E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Sadlerochit Fm. Sandstone
NUMBER OF GRAINS:	13	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	2.0E-05	0	0.000E+00	17	1.700E+06	0.00	3.9	0.0	25.1
2	2.0E-05	0	0.000E+00	8	8.000E+05	0.00	1.8	0.0	55.0
3	2.0E-05	0	0.000E+00	5	5.000E+05	0.00	1.2	0.0	90.6
4	2.0E-05	1	5.000E+04	19	1.900E+06	0.05	4.4	21.8	22.4
5	4.0E-05	0	0.000E+00	9	4.500E+05	0.00	1.0	0.0	48.6
6	4.0E-05	0	0.000E+00	11	5.500E+05	0.00	1.3	0.0	39.4
7	4.0E-05	0	0.000E+00	7	3.500E+05	0.00	0.8	0.0	63.3
8	4.0E-05	0	0.000E+00	10	5.000E+05	0.00	1.2	0.0	43.5
9	4.0E-05	0	0.000E+00	4	2.000E+05	0.00	0.5	0.0	115.4
10	4.0E-05	1	2.500E+04	8	4.000E+05	0.13	0.9	51.8	55.0
11	4.0E-05	0	0.000E+00	10	5.000E+05	0.00	1.2	0.0	43.5
12	4.0E-05	1	2.500E+04	20	1.000E+06	0.05	2.3	20.8	21.3
13	4.0E-05	0	0.000E+00	39	1.950E+06	0.00	4.5	0.0	10.8
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	4.4E-04	3	6.818E+03	167	7.591E+05	0.02	1.7		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	WTF 7539	LATITUDE:	70°49'56" N
LAB NUMBER:	SMU	LONGITUDE:	152°18'11" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 39 FT.
NEUTRON FLUX:	7.400E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	SANDSTONE
NUMBER OF GRAINS:	11	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.0E-05	2	5.000E+04	9	4.500E+05	0.22	1.9	49.0	38.4
2	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.7	55.1	61.7
3	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	2.2	44.1	48.4
4	2.0E-05	1	5.000E+04	9	9.000E+05	0.11	3.9	24.6	25.9
5	4.0E-05	0	0.000E+00	9	4.500E+05	0.00	1.9	0.0	25.9
6	2.0E-05	1	5.000E+04	7	7.000E+05	0.14	3.0	31.5	33.8
7	2.0E-05	2	1.000E+05	9	9.000E+05	0.22	3.9	49.0	38.4
8	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	2.2	44.1	48.4
9	2.0E-05	1	5.000E+04	6	6.000E+05	0.17	2.6	36.8	39.8
10	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.7	55.1	61.7
11	2.0E-05	2	1.000E+05	8	8.000E+05	0.25	3.5	55.1	43.6
12	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
13	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	2.6E-04	13	5.000E+04	75	5.769E+05	0.17	2.5		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	WTF 8260	LATITUDE:	70°49'56" N
LAB NUMBER:	SMU	LONGITUDE:	152°18'11" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB=39 FT.
NEUTRON FLUX:	7.600E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	LISBURNE GR. SS.
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	2.0E-05	2	1.000E+05	13	1.300E+06	0.15	5.5	34.9	26.5
2	2.0E-05	5	2.500E+05	13	1.300E+06	0.38	5.5	86.9	45.9
3	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	1.7	56.6	63.3
4	4.0E-05	3	7.500E+04	27	1.350E+06	0.11	5.7	25.2	15.4
5	2.0E-05	2	1.000E+05	6	6.000E+05	0.33	2.5	75.3	25.9
6	2.0E-05	1	5.000E+04	7	7.000E+05	0.14	2.9	32.4	34.7
7	2.0E-05	3	1.500E+05	12	1.200E+06	0.25	5.1	56.6	36.6
8	2.0E-05	1	5.000E+04	5	5.000E+05	0.20	2.1	45.3	49.7
9	2.0E-05	1	5.000E+04	6	6.000E+05	0.17	2.5	37.8	40.8
10	2.0E-05	2	1.000E+05	7	7.000E+05	0.29	2.9	64.6	51.9
11	4.0E-05	1	2.500E+04	5	2.500E+05	0.20	1.1	45.3	49.7
12	2.0E-05	3	1.500E+05	13	1.300E+06	0.23	5.5	52.3	33.6
13	2.0E-05	5	2.500E+05	35	3.500E+06	0.14	14.7	32.4	15.6
14	4.0E-05	1	2.500E+04	4	2.000E+05	0.25	0.8	56.6	63.3
15	2.0E-05	1	5.000E+04	6	6.000E+05	0.17	2.5	37.8	40.8
16	2.0E-05	4	2.000E+05	32	3.200E+06	0.13	13.5	28.4	15.1
17	2.0E-05	3	1.500E+05	8	8.000E+05	0.38	3.4	84.7	57.5
18	2.0E-05	4	2.000E+05	10	1.000E+06	0.40	4.2	90.3	53.6
19	2.0E-05	3	1.500E+05	15	1.500E+06	0.20	6.3	45.3	28.7
20	2.0E-05	2	1.000E+05	6	6.000E+05	0.33	2.5	75.3	61.6
	4.6E-04	48	1.043E+05	234	1.017E+06	0.21	4.3		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/19/90
SAMPLE NUMBER:	WTF 8864	LATITUDE:	70°49'56" N
LAB NUMBER:	SMU	LONGITUDE:	152°18'11" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 39 FT.
NEUTRON FLUX:	7.800E+15	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	PRE-MISS. BASEMENT
NUMBER OF GRAINS:	4	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	8.0E-05	4	5.000E+04	63	1.575E+06	0.06	6.5	14.8	7.7
2	8.0E-05	4	5.000E+04	33	8.250E+05	0.12	3.4	28.2	15.0
3	8.0E-05	3	3.750E+04	21	5.250E+05	0.14	2.2	33.2	20.6
4	8.0E-05	1	1.250E+04	205	5.125E+06	0.00	21.0	1.1	1.1
5	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
6	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
7	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
8	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
9	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
10	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
11	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
12	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
13	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	3.2E-04	12	3.750E+04	322	2.012E+06	0.04	8.3		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	9/27/90
SAMPLE NUMBER:	ETESH 10669	LATITUDE:	70° 34' 12" N
LAB NUMBER:	SMU	LONGITUDE:	52° 36' 07" W
REACTOR RUN NUMBER:	RR-7-11-90A	ELEVATION (M):	KB = 28 FT.
NEUTRON FLUX:	1.200E+16	MICROSCOPE:	OLYMPUS
# SPON TRACKS (FLUX)	500	MAGNIFICATION:	1250 X
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Basement Granite
NUMBER OF GRAINS:	20	MINERAL:	APATITE

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.0E-05	0	0.000E+00	11	5.500E+05	0.00	1.5	0.0	34.0
2	4.0E-05	0	0.000E+00	5	2.500E+05	0.00	0.7	0.0	78.3
3	4.0E-05	0	0.000E+00	18	9.000E+05	0.00	2.4	0.0	20.5
4	2.0E-05	1	5.000E+04	36	3.600E+06	0.03	9.6	10.0	10.1
5	2.0E-05	0	0.000E+00	7	7.000E+05	0.00	1.9	0.0	54.7
6	2.0E-05	0	0.000E+00	5	5.000E+05	0.00	1.3	0.0	78.3
7	4.0E-05	0	0.000E+00	4	2.000E+05	0.00	0.5	0.0	99.7
8	4.0E-05	0	0.000E+00	11	5.500E+05	0.00	1.5	0.0	34.0
9	4.0E-05	0	0.000E+00	102	5.100E+06	0.00	13.6	0.0	3.5
10	4.0E-05	2	5.000E+04	134	6.700E+06	0.01	17.9	5.4	3.8
11	8.0E-05	0	0.000E+00	34	8.500E+05	0.00	2.3	0.0	10.7
12	4.0E-05	0	0.000E+00	23	1.150E+06	0.00	3.1	0.0	15.9
13	4.0E-05	0	0.000E+00	17	8.500E+05	0.00	2.3	0.0	21.7
14	4.0E-05	0	0.000E+00	14	7.000E+05	0.00	1.9	0.0	26.5
15	4.0E-05	0	0.000E+00	15	7.500E+05	0.00	2.0	0.0	24.7
16	4.0E-05	0	0.000E+00	19	9.500E+05	0.00	2.5	0.0	19.4
17	4.0E-05	0	0.000E+00	8	4.000E+05	0.00	1.1	0.0	47.5
18	8.0E-05	0	0.000E+00	45	1.125E+06	0.00	3.0	0.0	8.1
19	8.0E-05	0	0.000E+00	21	5.250E+05	0.00	1.4	0.0	17.5
20	4.0E-05	0	0.000E+00	13	6.500E+05	0.00	1.7	0.0	28.5
	8.6E-04	3	3.488E+03	542	1.260E+06	0.01	3.4		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	226.9	Ma	
SAMPLE NUMBER:	SM4956	LATITUDE:	°' N	UPPER CI:	254.6	Ma	
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	202.2	Ma	
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	12.65	Ma	
NEUTRON FLUX:	7.000E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.601		
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	111.887		19
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	TOROK FM.	AVG. AGE:	279.9	Ma	
NUMBER OF GRAINS:	20	MINERAL:	ZIRCON	STD. ERR:	34.8		

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	2.0E-05	104	5.200E+06	62	6.200E+06	1.68	28.3	342.0	56.1
2	3.2E-06	18	5.625E+06	7	4.375E+06	2.57	20.0	517.2	231.0
3	7.2E-06	42	5.833E+06	13	3.611E+06	3.23	16.5	643.4	205.4
4	4.8E-06	24	5.000E+06	25	1.042E+07	0.96	47.6	198.0	57.0
5	2.0E-05	74	3.700E+06	63	6.300E+06	1.17	28.8	241.4	42.2
6	3.2E-06	8	2.500E+06	12	7.500E+06	0.67	34.3	138.1	63.2
7	7.2E-06	50	6.944E+06	36	1.000E+07	1.39	45.7	284.5	62.9
8	1.2E-05	54	4.500E+06	108	1.800E+07	0.50	82.3	103.9	17.7
9	4.8E-06	20	4.167E+06	29	1.208E+07	0.69	55.2	142.8	41.8
10	4.8E-06	13	2.708E+06	13	5.417E+06	1.00	24.8	206.1	81.1
11	9.6E-06	71	7.396E+06	36	7.500E+06	1.97	34.3	400.3	83.0
12	8.0E-06	45	5.625E+06	36	9.000E+06	1.25	41.1	256.6	58.0
13	8.0E-06	68	8.500E+06	64	1.600E+07	1.06	73.1	218.7	38.8
14	1.2E-05	71	5.917E+06	128	2.133E+07	0.55	97.5	115.1	17.5
15	3.2E-06	15	4.688E+06	16	1.000E+07	0.94	45.7	193.4	69.8
16	6.4E-06	55	8.594E+06	25	7.813E+06	2.20	35.7	445.0	108.4
17	1.2E-05	43	3.583E+06	62	1.033E+07	0.69	47.2	143.6	28.9
18	6.4E-06	39	6.094E+06	46	1.438E+07	0.85	65.7	175.1	38.6
19	9.6E-06	68	7.083E+06	35	7.292E+06	1.94	33.3	394.5	83.2
20	4.8E-06	40	8.333E+06	20	8.333E+06	2.00	38.1	405.8	112.0
	1.7E-04	922	5.514E+06	836	1.000E+07	1.10	45.7		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	190.0 Ma
SAMPLE NUMBER:	SM5992	LATITUDE:	°' N	UPPER CI:	208.9 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	172.8 Ma
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	8.75 Ma
NEUTRON FLUX:	7.000E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.647
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	116.851 19
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	TOROK FM.	AVG. AGE:	197.2 Ma
NUMBER OF GRAINS:	20	MINERAL:	ZIRCON	STD. ERR:	18.3

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	9.6E-06	73	7.604E+06	125	2.604E+07	0.58	119.0	121.2	18.3
2	1.6E-05	141	8.813E+06	172	2.150E+07	0.82	98.3	169.4	20.1
3	1.2E-05	39	3.250E+06	56	9.333E+06	0.70	42.7	144.2	30.5
4	2.0E-05	36	1.800E+06	55	5.500E+06	0.65	25.1	135.6	29.4
5	1.2E-05	135	1.125E+07	207	3.450E+07	0.65	157.7	135.1	15.6
6	8.0E-06	111	1.388E+07	84	2.100E+07	1.32	96.0	270.9	40.3
7	1.2E-05	115	9.583E+06	141	2.350E+07	0.82	107.4	168.6	21.9
8	1.6E-05	50	3.125E+06	75	9.375E+06	0.67	42.9	138.1	25.7
9	2.0E-05	79	3.950E+06	118	1.180E+07	0.67	53.9	138.7	20.7
10	1.6E-05	73	4.563E+06	45	5.625E+06	1.62	25.7	331.1	63.8
11	1.6E-05	100	6.250E+06	85	1.063E+07	1.18	48.6	241.8	36.6
12	9.6E-06	52	5.417E+06	57	1.187E+07	0.91	54.3	188.3	36.7
13	1.3E-05	160	1.250E+07	90	1.406E+07	1.78	64.3	361.9	49.3
14	1.2E-05	50	4.167E+06	71	1.183E+07	0.70	54.1	145.8	27.4
15	2.0E-05	40	2.000E+06	44	4.400E+06	0.91	20.1	187.6	41.5
16	9.6E-06	66	6.875E+06	106	2.208E+07	0.62	101.0	129.1	20.7
17	2.0E-05	150	7.500E+06	90	9.000E+06	1.67	41.1	339.9	46.8
18	7.2E-06	19	2.639E+06	34	9.444E+06	0.56	43.2	116.0	33.5
19	9.6E-06	80	8.333E+06	86	1.792E+07	0.93	81.9	191.9	30.5
20	1.2E-05	105	8.750E+06	77	1.283E+07	1.36	58.7	279.4	43.0
	2.7E-04	1674	6.191E+06	1818	1.345E+07	0.92	61.5		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	266.6 Ma
SAMPLE NUMBER:	SM8820	LATITUDE:	°' N	UPPER CI:	319.4 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	222.4 Ma
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	23.20 Ma
NEUTRON FLUX:	7.000E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.926
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	9.469 7
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	SAG RIVER SS.	AVG. AGE:	302.3 Ma
NUMBER OF GRAINS:	8	MINERAL:	ZIRCON	STD. ERR:	31.3

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.8E-06	40	8.333E+06	47	1.958E+07	0.85	89.5	175.8	38.3
2	4.8E-06	32	6.667E+06	22	9.167E+06	1.45	41.9	297.6	83.1
3	4.8E-06	38	7.917E+06	25	1.042E+07	1.52	47.6	310.7	80.7
4	4.8E-06	27	5.625E+06	15	6.250E+06	1.80	28.6	366.3	118.6
5	4.8E-06	33	6.875E+06	24	1.000E+07	1.38	45.7	281.7	76.2
6	4.8E-06	43	8.958E+06	29	1.208E+07	1.48	55.2	303.3	73.6
7	6.4E-06	72	1.125E+07	66	2.063E+07	1.09	94.3	224.5	39.0
8	7.2E-06	27	3.750E+06	12	3.333E+06	2.25	15.2	454.8	158.5
9	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
10	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
11	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
12	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
13	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	4.2E-05	312	7.358E+06	240	1.132E+07	1.30	51.8		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	233.0 Ma
SAMPLE NUMBER:	SBTW1 1906	LATITUDE:	°' N	UPPER CI:	257.9 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	210.4 Ma
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	11.46 Ma
NEUTRON FLUX:	7.000E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.547
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	160.134 17
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	TOROK FM.	AVG. AGE:	261.6 Ma
NUMBER OF GRAINS:	18	MINERAL:	ZIRCON	STD. ERR:	26.5

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	8.0E-06	54	6.750E+06	70	1.750E+07	0.77	80.0	159.6	29.4
2	2.0E-05	135	6.750E+06	73	7.300E+06	1.85	33.4	376.1	56.1
3	2.0E-05	181	9.050E+06	86	8.600E+06	2.10	39.3	426.3	57.7
4	1.2E-05	98	8.167E+06	40	6.667E+06	2.45	30.5	493.7	94.1
5	1.6E-05	100	6.250E+06	72	9.000E+06	1.39	41.1	284.5	45.0
6	9.6E-06	48	5.000E+06	31	6.458E+06	1.55	29.5	316.4	73.7
7	7.2E-06	42	5.833E+06	38	1.056E+07	1.11	48.3	227.4	51.5
8	4.0E-05	124	3.100E+06	244	1.220E+07	0.51	55.8	105.6	12.2
9	8.0E-06	42	5.250E+06	79	1.975E+07	0.53	90.3	110.4	21.4
10	9.6E-06	100	1.042E+07	113	2.354E+07	0.88	107.6	182.7	25.8
11	2.0E-05	152	7.600E+06	80	8.000E+06	1.90	36.6	386.1	54.9
12	8.0E-06	75	9.375E+06	70	1.750E+07	1.07	80.0	220.6	37.4
13	2.0E-05	81	4.050E+06	70	7.000E+06	1.16	32.0	237.9	39.7
14	2.0E-05	46	2.300E+06	71	7.100E+06	0.65	32.5	134.3	25.8
15	1.2E-05	61	5.083E+06	51	8.500E+06	1.20	38.9	245.7	47.4
16	1.2E-05	28	2.333E+06	20	3.333E+06	1.40	15.2	286.7	84.5
17	2.0E-05	23	1.150E+06	20	2.000E+06	1.15	9.1	236.4	72.7
18	4.8E-06	9	1.875E+06	7	2.917E+06	1.29	13.3	263.8	133.2
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	2.7E-04	1399	5.236E+06	1235	9.244E+06	1.13	42.3		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	172.5 Ma
SAMPLE NUMBER:	SBTW3 200	LATITUDE:	°' N	UPPER CI:	198.5 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	149.8 Ma
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	11.84 Ma
NEUTRON FLUX:	6.900E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.833
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	25.770 8
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	TOROK FM.	AVG. AGE:	184.9 Ma
NUMBER OF GRAINS:	9	MINERAL:	ZIRCON	STD. ERR:	17.0

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	1.2E-05	47	3.917E+06	35	5.833E+06	1.34	27.1	271.4	61.3
2	9.6E-06	22	2.292E+06	22	4.583E+06	1.00	21.3	203.2	61.7
3	1.2E-05	115	9.583E+06	132	2.200E+07	0.87	102.0	177.4	23.4
4	1.6E-05	105	6.563E+06	90	1.125E+07	1.17	52.2	236.4	34.9
5	9.6E-06	26	2.708E+06	33	6.875E+06	0.79	31.9	160.6	42.5
6	1.2E-05	45	3.750E+06	52	8.667E+06	0.87	40.2	176.2	36.4
7	4.8E-06	31	6.458E+06	35	1.458E+07	0.89	67.6	180.3	44.9
8	1.6E-05	64	4.000E+06	137	1.713E+07	0.47	79.4	95.7	14.9
9	1.3E-05	15	1.172E+06	19	2.969E+06	0.79	13.8	160.9	55.9
10	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
11	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
12	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
13	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	1.0E-04	470	4.485E+06	555	1.059E+07	0.85	49.1		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	426.5 Ma
SAMPLE NUMBER:	SBTW3 2430	LATITUDE:	°' N	UPPER CI:	492.2 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	369.3 Ma
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	28.79 Ma
NEUTRON FLUX:	6.900E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.828
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	31.166 11
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	BARROW SS.	AVG. AGE:	476.0 Ma
NUMBER OF GRAINS:	12	MINERAL:	ZIRCON	STD. ERR:	51.4

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	1.2E-05	93	7.750E+06	44	7.333E+06	2.11	34.0	422.2	78.6
2	8.0E-06	130	1.625E+07	51	1.275E+07	2.55	59.1	505.8	85.3
3	8.0E-06	55	6.875E+06	20	5.000E+06	2.75	23.2	544.0	143.3
4	7.2E-06	29	4.028E+06	7	1.944E+06	4.14	9.0	803.0	339.3
5	1.2E-05	71	5.917E+06	67	1.117E+07	1.06	51.8	215.1	37.4
6	7.2E-06	47	6.528E+06	16	4.444E+06	2.94	20.6	579.5	168.9
7	2.0E-05	150	7.500E+06	59	5.900E+06	2.54	27.4	504.5	79.4
8	7.2E-06	32	4.444E+06	11	3.056E+06	2.91	14.2	574.2	201.6
9	7.2E-06	35	4.861E+06	12	3.333E+06	2.92	15.5	575.6	193.5
10	7.2E-06	32	4.444E+06	15	4.167E+06	2.13	19.3	426.0	134.1
11	6.4E-06	25	3.906E+06	18	5.625E+06	1.39	26.1	280.5	87.2
12	1.2E-05	23	1.917E+06	18	3.000E+06	1.28	13.9	258.5	81.8
13	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	1.1E-04	722	6.311E+06	338	5.909E+06	2.14	27.4		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	446.8 Ma
SAMPLE NUMBER:	SBTW3 2703	LATITUDE:	°' N	UPPER CI:	503.4 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	396.3 Ma
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	25.04 Ma
NEUTRON FLUX:	6.900E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.800
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	52.554 13
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	SHUBLIK FM.	AVG. AGE:	441.9 Ma
NUMBER OF GRAINS:	14	MINERAL:	ZIRCON	STD. ERR:	51.8

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	1.6E-05	40	2.500E+06	35	4.375E+06	1.14	20.3	231.7	54.2
2	1.2E-05	75	6.250E+06	46	7.667E+06	1.63	35.6	328.1	62.5
3	2.0E-05	257	1.285E+07	75	7.500E+06	3.43	34.8	671.2	91.0
4	9.6E-06	45	4.688E+06	35	7.292E+06	1.29	33.8	260.1	59.3
5	7.2E-06	55	7.639E+06	25	6.944E+06	2.20	32.2	438.8	106.9
6	1.2E-05	54	4.500E+06	37	6.167E+06	1.46	28.6	294.4	63.6
7	1.6E-05	150	9.375E+06	53	6.625E+06	2.83	30.7	559.2	91.4
8	2.0E-05	142	7.100E+06	77	7.700E+06	1.84	35.7	369.9	53.8
9	9.6E-06	50	5.208E+06	25	5.208E+06	2.00	24.2	400.2	99.0
10	8.0E-06	124	1.550E+07	27	6.750E+06	4.59	31.3	884.5	190.2
11	7.2E-06	22	3.056E+06	11	3.056E+06	2.00	14.2	400.2	148.4
12	4.8E-06	65	1.354E+07	22	9.167E+06	2.95	42.5	582.7	145.1
13	1.3E-05	80	6.250E+06	40	6.250E+06	2.00	29.0	400.2	78.7
14	1.3E-05	58	4.531E+06	35	5.469E+06	1.66	25.4	333.3	72.2
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	1.7E-04	1217	7.244E+06	543	6.464E+06	2.24	30.0		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	152.3	Ma	
SAMPLE NUMBER:	TOP2087	LATITUDE:	°' N	UPPER CI:	170.1	Ma	
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	136.4	Ma	
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	8.20	Ma	
NEUTRON FLUX:	6.400E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.848		
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	61.785		19
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	NANUSHUK GR.	AVG. AGE:	161.8	Ma	
NUMBER OF GRAINS:	20	MINERAL:	ZIRCON	STD. ERR:	12.2		

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	6.4E-06	45	7.031E+06	50	1.563E+07	0.90	78.1	170.1	35.4
2	7.2E-06	60	8.333E+06	57	1.583E+07	1.05	79.2	198.5	37.3
3	1.2E-05	86	7.167E+06	95	1.583E+07	0.91	79.2	171.0	26.1
4	6.4E-06	29	4.531E+06	24	7.500E+06	1.21	37.5	227.3	63.2
5	7.2E-06	31	4.306E+06	25	6.944E+06	1.24	34.7	233.1	63.2
6	4.8E-06	17	3.542E+06	22	9.167E+06	0.77	45.8	146.3	47.5
7	1.2E-05	31	2.583E+06	66	1.100E+07	0.47	55.0	89.3	19.7
8	7.2E-06	44	6.111E+06	100	2.778E+07	0.44	138.9	83.7	15.4
9	4.8E-06	30	6.250E+06	60	2.500E+07	0.50	125.0	95.0	21.5
10	3.2E-06	31	9.688E+06	30	1.875E+07	1.03	93.8	194.9	50.3
11	7.2E-06	53	7.361E+06	65	1.806E+07	0.82	90.3	154.3	29.0
12	1.3E-05	150	1.172E+07	113	1.766E+07	1.33	88.3	249.3	32.2
13	2.0E-05	133	6.650E+06	165	1.650E+07	0.81	82.5	152.5	18.5
14	3.2E-06	20	6.250E+06	22	1.375E+07	0.91	68.8	171.7	53.4
15	3.2E-06	16	5.000E+06	20	1.250E+07	0.80	62.5	151.4	51.0
16	1.2E-05	65	5.417E+06	116	1.933E+07	0.56	96.7	106.4	16.9
17	3.2E-06	23	7.188E+06	17	1.063E+07	1.35	53.1	254.0	81.7
18	6.4E-06	14	2.188E+06	21	6.563E+06	0.67	32.8	126.4	43.8
19	4.8E-06	21	4.375E+06	24	1.000E+07	0.88	50.0	165.4	49.7
20	2.0E-05	30	1.500E+06	62	6.200E+06	0.48	31.0	92.0	20.7
	1.6E-04	929	5.665E+06	1154	1.407E+07	0.81	70.4		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	215.0 Ma
SAMPLE NUMBER:	TOP6490	LATITUDE:	°' N	UPPER CI:	237.0 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	195.0 Ma
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	10.16 Ma
NEUTRON FLUX:	6.400E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.816
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	119.536 1
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	TOROK FM.	AVG. AGE:	254.3 Ma
NUMBER OF GRAINS:	20	MINERAL:	ZIRCON	STD. ERR:	34.5

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV (MA)
1	2.0E-05	173	8.650E+06	207	2.070E+07	0.84	103.5	158.1	17.[illegible]
2	1.3E-05	77	6.016E+06	54	8.438E+06	1.43	42.2	267.4	48.[illegible]
3	7.2E-06	31	4.306E+06	28	7.778E+06	1.11	38.9	208.6	54.[illegible]
4	1.2E-05	43	3.583E+06	72	1.200E+07	0.60	60.0	113.3	22.[illegible]
5	7.2E-06	66	9.167E+06	68	1.889E+07	0.97	94.4	183.2	32.[illegible]
6	1.2E-05	74	6.167E+06	71	1.183E+07	1.04	59.2	196.5	33.[illegible]
7	4.8E-06	30	6.250E+06	20	8.333E+06	1.50	41.7	281.0	81.[illegible]
8	9.6E-06	113	1.177E+07	172	3.583E+07	0.66	179.2	124.6	15.[illegible]
9	1.2E-05	52	4.333E+06	73	1.217E+07	0.71	60.8	135.0	24.[illegible]
10	9.6E-06	104	1.083E+07	75	1.563E+07	1.39	78.1	260.2	40.[illegible]
11	7.2E-06	135	1.875E+07	71	1.972E+07	1.90	98.6	354.1	53.[illegible]
12	4.8E-06	46	9.583E+06	30	1.250E+07	1.53	62.5	287.1	68.[illegible]
13	2.0E-05	190	9.500E+06	181	1.810E+07	1.05	90.5	197.9	21.[illegible]
14	6.4E-06	88	1.375E+07	20	6.250E+06	4.40	31.3	791.8	198.[illegible]
15	2.0E-05	185	9.250E+06	117	1.170E+07	1.58	58.5	295.8	36.[illegible]
16	6.4E-06	44	6.875E+06	26	8.125E+06	1.69	40.6	316.1	78.[illegible]
17	7.2E-06	53	7.361E+06	54	1.500E+07	0.98	75.0	185.2	36.[illegible]
18	7.2E-06	20	2.778E+06	22	6.111E+06	0.91	30.6	171.7	53.[illegible]
19	4.8E-06	30	6.250E+06	25	1.042E+07	1.20	52.1	225.8	61.[illegible]
20	7.2E-06	97	1.347E+07	60	1.667E+07	1.62	83.3	302.3	50.[illegible]
	2.0E-04	1651	8.322E+06	1446	1.458E+07	1.14	72.9		

FISSION TRACK AGE DATA

PROJECT NAME:	BARROW ARCH	DATE:	1/10/91	FT AGE:	388.0 Ma
SAMPLE NUMBER:	WTF7539	LATITUDE:	°' N	UPPER CI:	448.5 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	335.4 Ma
REACTOR RUN NUMBER:	RR-7-11-90Z	ELEVATION (M):		STD ERR:	26.64 Ma
NEUTRON FLUX:	7.000E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.833
# SPON TRACKS (FLUX)	1000	MAGNIFICATION:	1250 X	CHI²:	24.043 8
# IND. TRACKS (FLUX)	6000	ROCK TYPE:	SUBLIK FM.	AVG. AGE:	381.2 Ma
NUMBER OF GRAINS:	9	MINERAL:	ZIRCON	STD. ERR:	42.0

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1	4.8E-06	92	1.917E+07	56	2.333E+07	1.64	106.7	335.2	57.9
2	4.8E-06	43	8.958E+06	21	8.750E+06	2.05	40.0	415.1	111.4
3	1.2E-05	150	1.250E+07	51	8.500E+06	2.94	38.9	588.2	97.4
4	3.2E-06	22	6.875E+06	15	9.375E+06	1.47	42.9	300.0	101.0
5	3.2E-06	60	1.875E+07	27	1.688E+07	2.22	77.1	449.3	105.3
6	7.2E-06	62	8.611E+06	27	7.500E+06	2.30	34.3	463.8	108.1
7	4.8E-06	48	1.000E+07	50	2.083E+07	0.96	95.2	198.0	40.6
8	1.3E-05	150	1.172E+07	74	1.156E+07	2.03	52.9	411.1	60.1
9	3.2E-06	28	8.750E+06	22	1.375E+07	1.27	62.9	261.2	74.9
10	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
11	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
12	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
13	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
14	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
15	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
16	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
17	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
18	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
19	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
20	0.0E+00	0	ERR	0	ERR	0.00	ERR	0.0	ERR
	5.6E-05	655	1.170E+07	343	1.225E+07	1.91	56.0		

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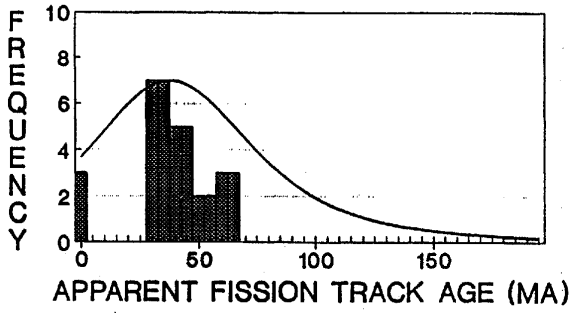

GUBIK NO. 2
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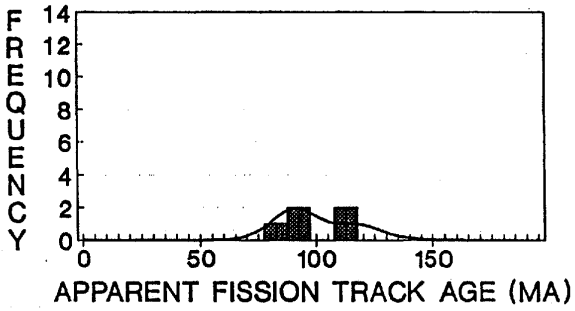

ZIRCON

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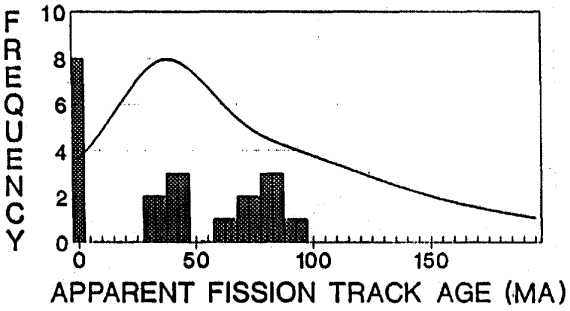

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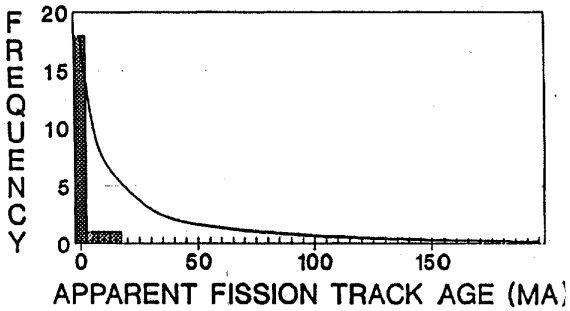

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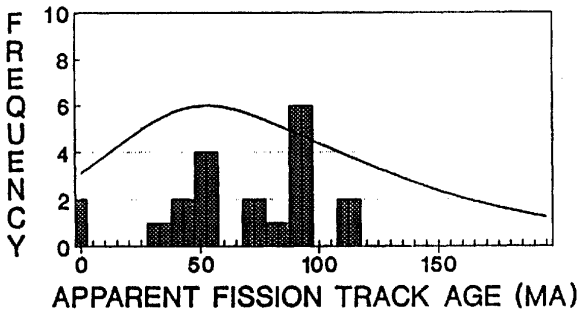

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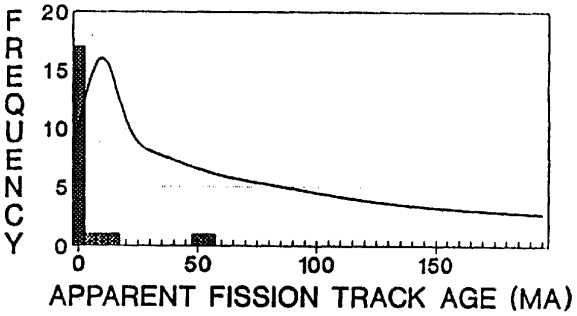

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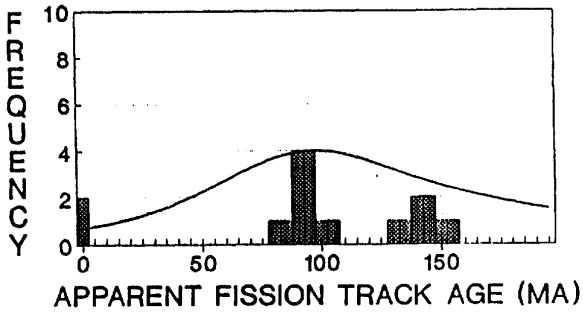

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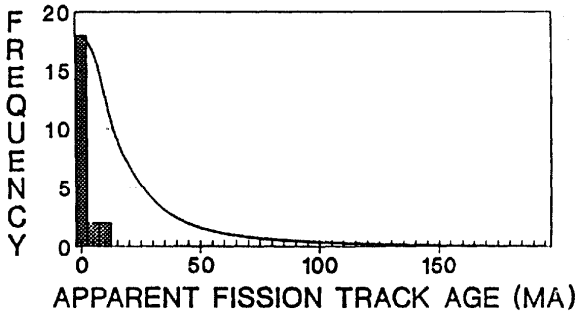

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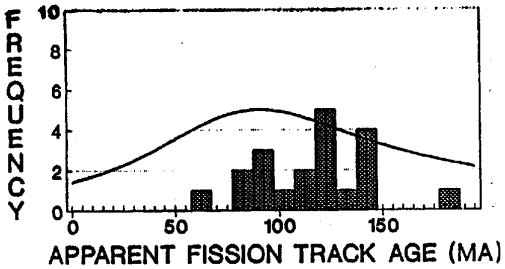

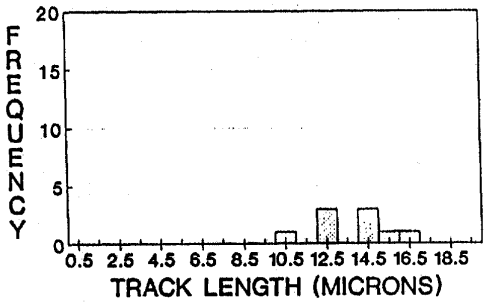

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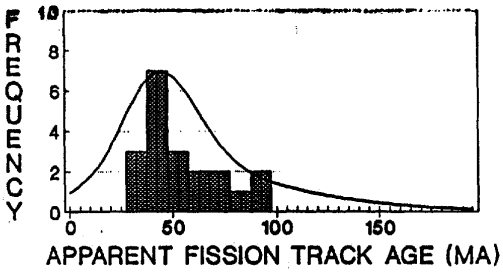

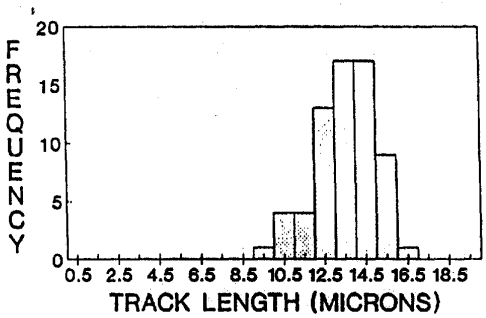

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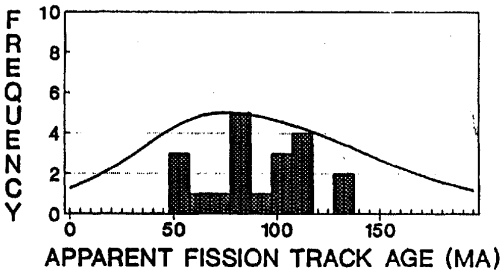

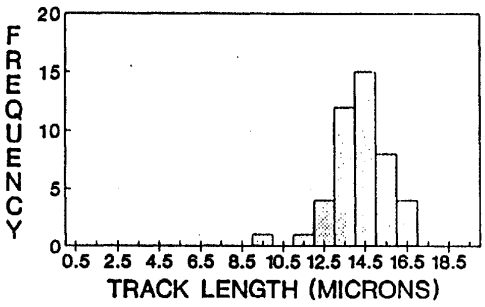

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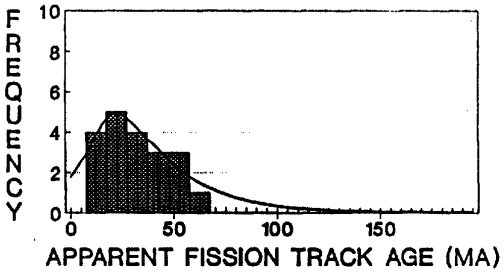

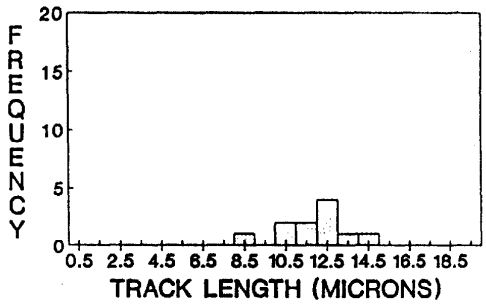

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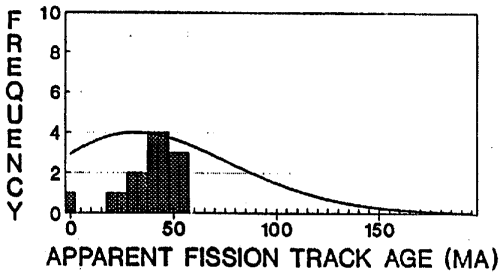

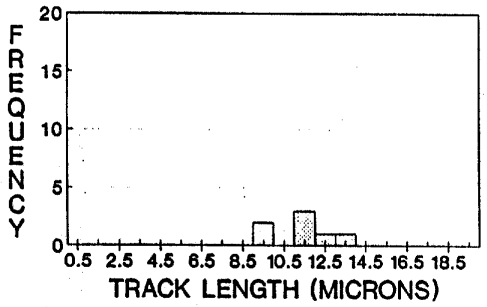

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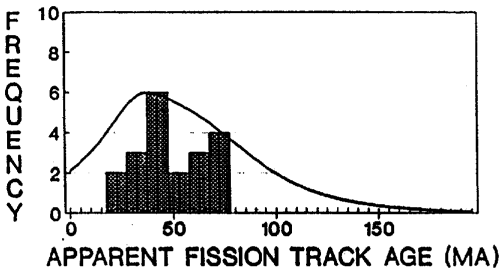

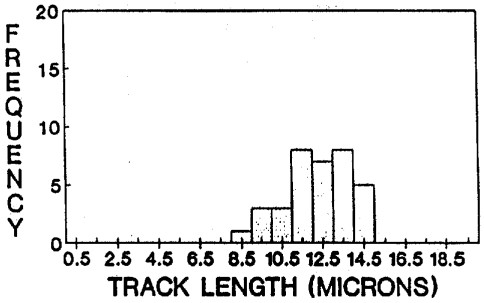

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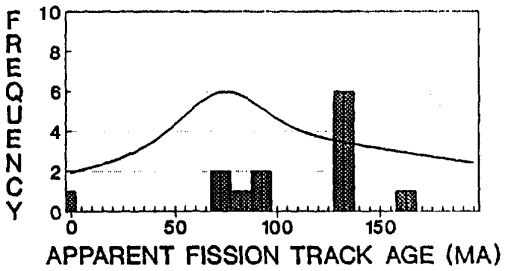

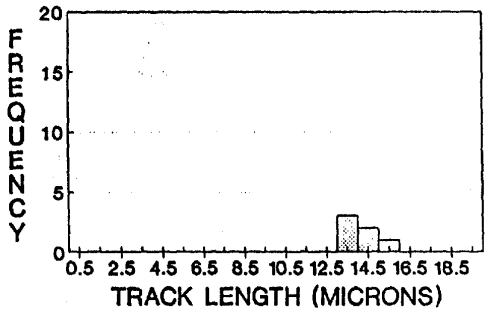

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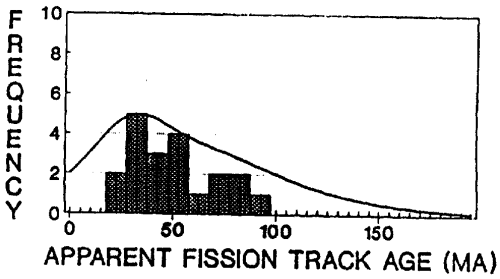

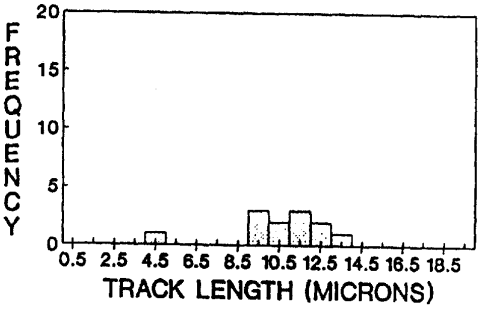

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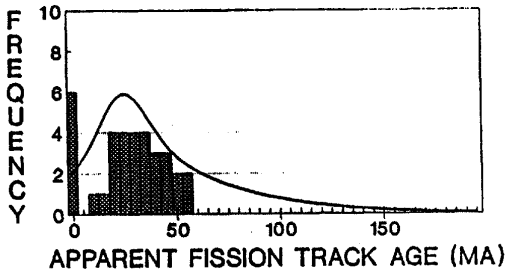

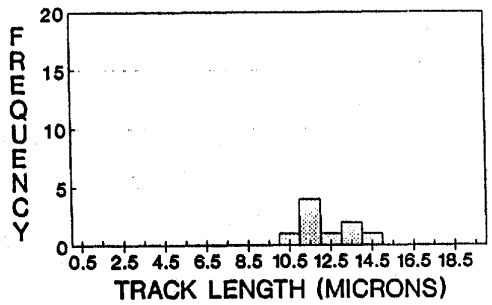

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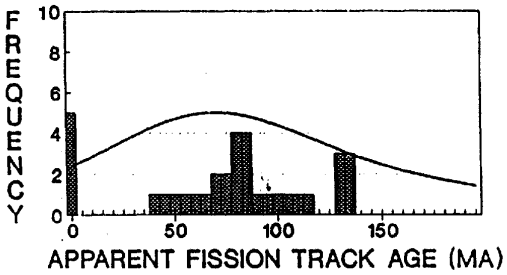

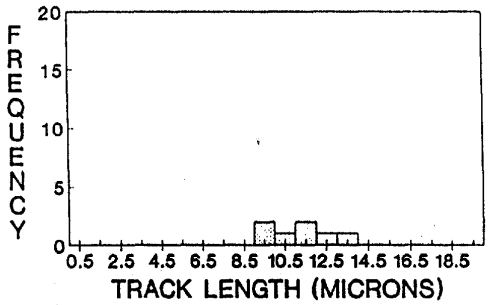

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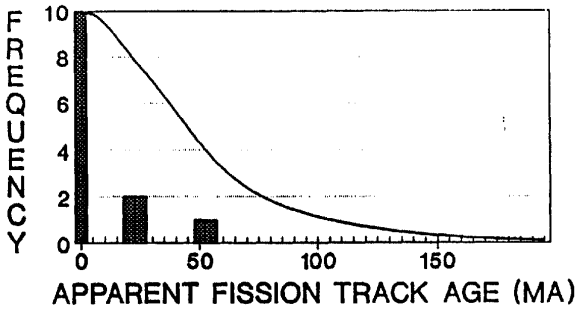

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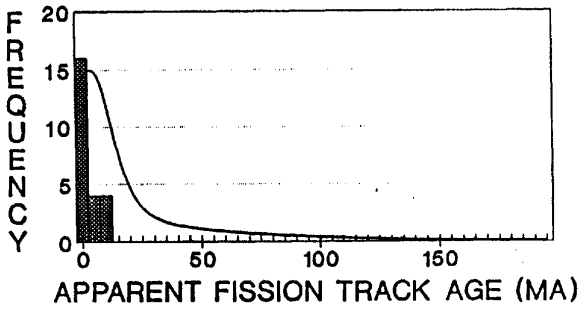

TOP 2087
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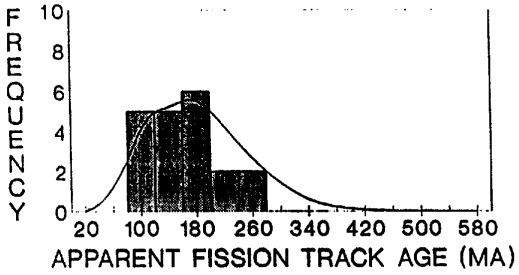

SBTW3 2430
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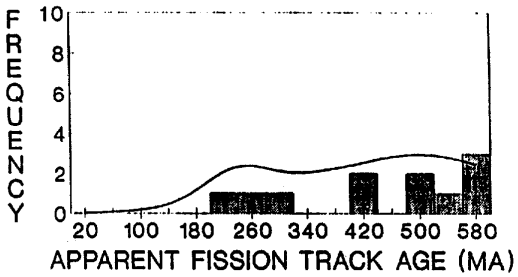

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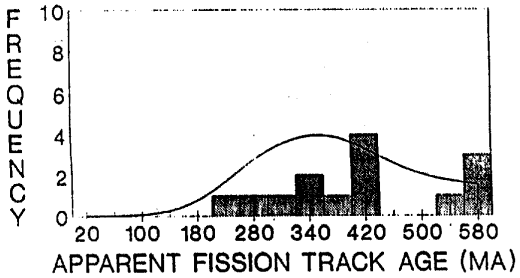

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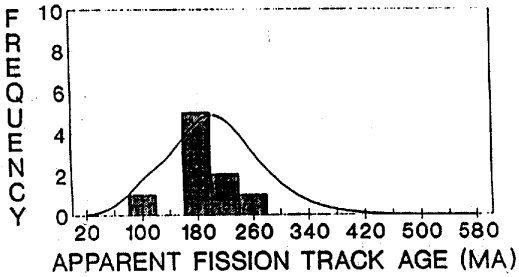

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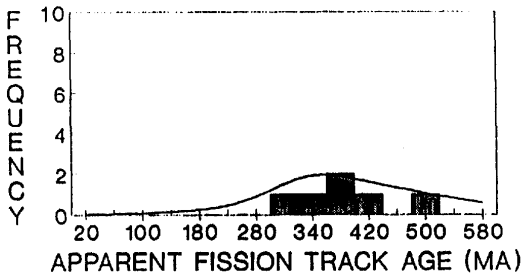

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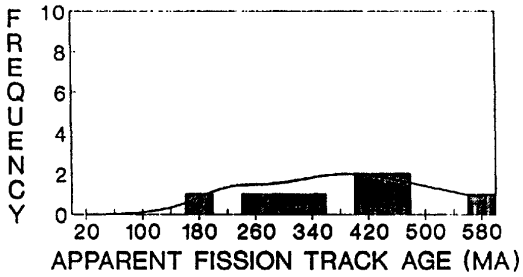

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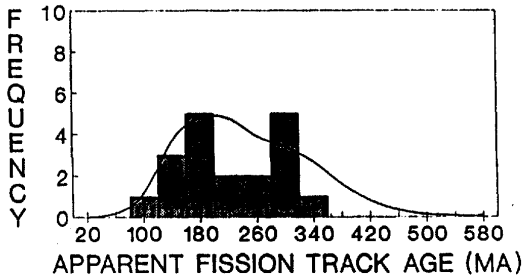

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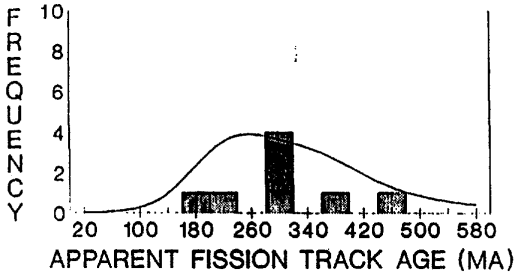

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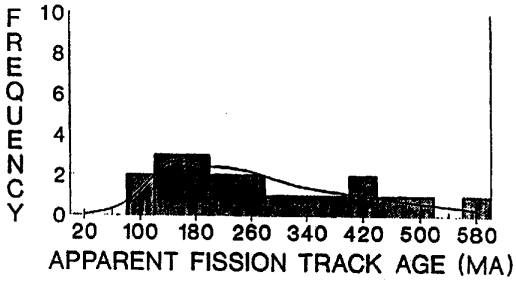

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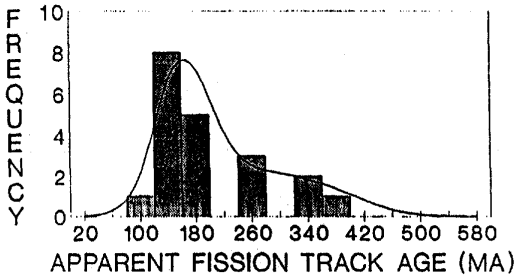
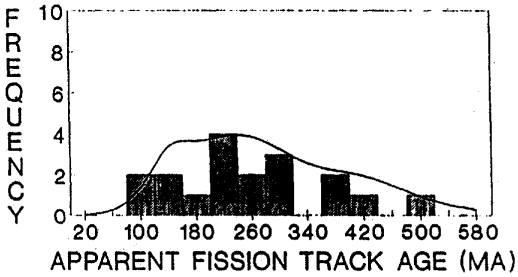
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