

Appendix 3: Laboratory Analyses for TL Dating of Newly Reported Dune Sites in the Central West Coast of North America

Specimen No.	W3488	W3388	W3491	W3389	W3123	W3492	W3592	W3493	W3124	W3390
UTM										
Northing	5033240	5015418	4981325	4979090	4955040	4951540	4944420	4934630	4929640	4929650
Locality/ Dune Sheet	Capes Highway	PACI1541/S andLake	Devil Lake/LINC	Lincoln Canyon Dr.	N.Quarry/ NEWP	Top Road 100/NEWP	East Newport/3.0 m	Thiel Creek/NEW P	Beaver Creek/ NEWP	NEWP/ ONA
Reference	NETA4/324 0N/1.5m		LINC/1325 N/1.2m	LINC9093	NEWP 039N	NEWP/154 0N/4.3m	NEWP 4944416N	THC1A/2.5 0-2.85m	NEWP 637N	
Plateau Region (oC)	275-375	300-375	275-500	300-475	275-500	275-500	325-500	275-500	275-400	275-475
Analysis Temp. (oC)	325	350	375	375	375	375	375	375	375	375
Palaeodose (Grays)	17.7+/-1.4	177+/-12	>174+/-11	152+/-9	136+/-14	>260+/-18	117+/-10	9.3+/-0.8	c.273+/-18	142+/-9
K Content (% by AES)	1.90+/-0.05	1.45+/-0.05	1.85+/-0.05	1.50+/-0.05	3.05+/-0.05	2.65+/-0.05	1.55+/-0.05	1.45+/-0.05	1.35+/-0.05	2.00+/-0.05
Rb Content (ppm assumed)	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25
Moisture Content (% by weight)	0.3+/-3	5.3+/-3	1.9+/-3	7.3+/-3	15.0+/-3	27.9+/-3	4.35+/-3	4.1+/-3	8.4+/-3	20.3+/-3
Specific Activity (Bq/kg U+Th)	22.6+/-0.7	24.7+/-0.8	40.3+/-1.2	28.7+/-0.9	37.3+/-1.2	71.5+/-2.0	29.3+/-0.9	32.3+/-1.0	62.7+/-1.8	27.6+/-0.9
Cosmic Contributio nmGy/yr	185+/-25	131+/-25	185+/-25	21+/-5	134+/-25	128+/-25	138+/-25	143+/-25	143+/-25	65+/-25
Annual Radiation Dose (μGy/yr)	2715+/-60	2091+/-57	3117+/-61	2068+/-51	3577+/-53	3366+/-50	2312+/-58	2280+/-59	2644+/-59	2265+/-49

TL Age (ka) 6.5+/-0.5 84.8+/-6.1 >55.7+/-3.7 73.3+/-4.5 37.9+/-3.9 >77.4+/-5.4 50.5+/-4.7 4.1+/-0.4 c.103+/-7 62.6+/-4.1
The specific activity of these specimens was measured by means of calibrated thick source alpha counting over a 42 mm scintillation screen.
The values shown assume secular equilibrium for both the U and Th decay chains. The uncertainty levels indicated represent one standard deviation.

Specimen No.	W3392	W3393	W3586	W2776	W2329	W3115	W3114	W2773	W2774	W2331
UTM Northing	4926910	4926910	4914090	4877280	4872750	4872800	4872550	4860800	4860910	4862200
Locality/ Dune Sheet	Seal Rock/Ser.2	Seal Rock/Ser.1	Reynolds Creek	Mercer Lake/ FLOR ME1	CoastGuard #1	CoastGuard #2	Munsel Lk.	SD1	SD2-1	Tree Island
Reference			4088N/430cm							
Plateau Region (oC)	275-475	275-450	300-500	300-500	200-450	300-500	300-500	275-425	300-475	300-500
Analysis Temp. (oC)	375	350	375	375	375	375	375	375	375	375
Palaeodose (Grays)	120+/-10	368+/-76	205+/-18	116+/-5	48.1+/-6.0	18.7+/-1.4	15.4+/-1.7	6.0+/-0.5	2.6+/-0.5	69.9+/-17.6
K Content (% by AES)	2.25+/-0.05	1.00+/-0.05	2.85+/-0.05	1.300+/-0.005	1.450+/-0.005	1.85+/-0.05	1.70+/-0.05	1.400+/-0.005	1.300+/-0.005	1.350+/-0.005
Rb Content (ppm assumed)	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25
Moisture Content (% by weight)	16.8+/-3	9.7+/-3	15.2+/-3	22.7+/-3	1.6+/-3	1.3+/-3	0.2+/-3	10+/-3 (assumed)	10+/-3 (assumed)	3.9+/-3
Specific Activity (Bq/kg U+Th)	25.5+/-0.8	123+/-3	37.8+/-1.2	27.1+/-0.9	30.5+/-0.9	21.3+/-0.6	21.6+/-0.6	32.4+/-0.9	17.8+/-0.6	30.9+/-1.0
Cosmic Contribution mGy/yr	126+/-25	56+/-25	126+/-25	126+/-25	150+/-50	150+/-25	116+/-25	138+/-25	141+/-25	150+/-50
Annual Radiation Dose	2584+/-51	3318+/-67	3388+/-53	1660+/-23	1954+/-43	2562+/-59	2406+/-60	2086+/-26	1723+/-24	2158+/-50

($\mu\text{Gy/yr}$)

TL Age (ka) 46.4+/-4.1 111+/-23 60.5+/-5.4 70.1+/-3.0 24.6+/-3.1 7.3+/-0.6 6.4+/-0.7 2.9+/-0.3 1.5+/-0.3 32.4+/-8.2
The specific activity of these specimens was measured by means of calibrated thick source alpha counting over a 42 mm scintillation screen.
The values shown assume secular equilibrium for both the U and Th decay chains. The uncertainty levels indicated represent one standard deviation.

Specimen No.	W2328	W3116	W3117	W2327	W3118	W3119	W2775	W2330	W3121	W3122
UTM										
Northing	4864850	4844150	4834890	4830210	4831310	4825870	4820420	4819270	4806560	4806340
Locality/	Woakhink/	Sparrow/SP	UL/Light	WildWood	UD1B/	Lakeside	Radar	North	VG1	Napa/GO1
Dune Sheet	NW1	1	House		630cm	LK1	Ridge/RD1	Hauser		
Reference										
Plateau Region (oC)	325-500	275-500	275-500	200-300	sloping	300-400	300-500	300-400	275-500	275-500
Analysis Temp. (oC)	375	375	375	375	325(a)	375	375	375	375	375
Palaeodose (Grays)	85.2+/-10.7	137+/-9	81.8+/-14.3	12.0+/-1.1	375(b) 12.8+/-3.6(a) 11.7+/-1.6(b)	11.2+/-1.0	55.7+/-6.0	53.9+/-10.4	68.4+/-4.4	86.5+/-9.4
K Content (% by AES)	1.500+/-0.005	2.00+/-0.05	1.60+/-0.05	1.700+/-0.005	1.70+/-0.05	2.15+/-0.05	1.200+/-0.005	1.300+/-0.005	2.40+/-0.05	1.85+/-0.05
Rb Content (ppm assumed)	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-15
Moisture Content (% by weight)	2.9+/-3	0.8+/-3	0.4+/-3	4.7+/-3	1.1+/-3	0.1+/-3	8.9+/-3	18.9+/-3	5.7+/-3	10.5+/-3
Specific Activity (Bq/kg U+Th)	28.4+/-0.9	36.5+/-1.2	39.8+/-1.3	34.5+/-1.0	18.5+/-0.6	22.1+/-0.7	19.9+/-0.6	28.9+/-0.9	36.2+/-1.1	23.1+/-0.7
Cosmic Contribution mGy/yr	150+/-50	128+/-25	128+/-25	150+/-50	104+/-25	116+/-25	150+/-25	150+/-50	150+/-25	111+/-25

Annual Radiation Dose (μGy/yr)	2290+/-50	3027+/-61	2676+/-62	2570+/-50	2306+/-59(a)	2904+/-60	1693+/-25	1770+/-43	3280+/-58	2314+/-54
TL Age (ka)	37.2+/-4.8	45.3+/-3.1	30.6+/-5.4	4.7+/-0.4	2311+/-59(b) 5.6+/-1.6(a) 5.0+/-0.7(b)	3.9+/-4	32.9+/-3.6	30.5+/-5.9	20.9+/-1.4	37.4+/-4.1

The specific activity of these specimens was measured by means of calibrated thick source alpha counting over a 42 mm scintillation screen. The values shown assume secular equilibrium for both the U and Th decay chains. The uncertainty levels indicated represent one standard deviation.

Specimen No.	W3120	W3587	W3126	W3127	W3391	W3125	W3588	W3589	W3598	W3174
UTM Northing	4800020	4786210	4784640	4784640	4762470	4771120	4702210	4702210	4183500	4184240
Locality/ Dune Sheet Reference	PonyRidge	Five Mile Rock 4639N/1150 cm	BAND GOLF 1	BAND GOLF 2	Fourmile Road	HAGA'S Pit/BAND	Otter Point 2208N/680c m	Otter Point 2208N/900c m	Golden Gate/8.5m	Pardee House
Plateau Region (oC)	275-500	300-375	275-425	275-400	275-375	275-500	300-350	300-400	275-400	275-500
Analysis Temp. (oC)	375	325	375	375	325	375	325	325	375	375
Palaeodose (Grays)	>181+/-11	160+/-19	89.4+/-14.0	78.0+/-6.5	135+/-44	212+/-16	71.5+/-14.4	111+/-7	108+/-8	79.4+/-7.2
K Content (% by AES)	2.00+/-0.05	2.15+/-0.05	1.50+/-0.05	1.45+/-0.05	1.30+/-0.05	1.25+/-0.05	1.60+/-0.05	1.40+/-0.05	1.35+/-0.05	1.15+/-0.05
Rb Content (ppm assumed)	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25
Moisture Content (% by weight)	16.8+/-3	1.5+/-3	2.9+/-3	3.8+/-3	0.3+/-3	4.1+/-3	1.1+/-3	0.8+/-3	12.6+/-3	8.5+/-3
Specific Activity (Bq/kg U+Th)	48.2+/-1.1	29.0+/-0.9	26.7+/-0.6	23.2+/-0.7	23.6+/-0.8	23.4+/-0.7	23.5+/-0.7	22.6+/-0.7	62.6+/-1.6	49.7+/-1.5

Cosmic Contribution mGy/yr (μGy/yr assumed)	144+/-25	66+/-25	143+/-25	83+/-25	105+/-25	150+/-25	102+/-25	83+/-25	87+/-25	147+/-25
Annual Radiation Dose (μGy/yr)	2764+/-52	2955+/-60	2251+/-58	2050+/-58	2010+/-61	1905+/-58	2297+/-60	2062+/-60	2478+/-56	2204+/-58
TL Age (ka)	>65.5+/-4.1	54.3+/-6.4	39.7+/-6.3	38.1+/-3.4	67.3+/-21.7	111+/-9	31.1+/-6.3	54.0+/-3.8	43.7+/-3.3	36.0+/-3.4
The specific activity of these specimens was measured by means of calibrated thick source alpha counting over a 42 mm scintillation screen. The values shown assume secular equilibrium for both the U and Th decay chains. The uncertainty levels indicated represent one standard deviation.										
Specimen No.	W3590	W3591	W3173	W3394	W3395	W3175	W3176	W3177	W3396	W3397
UTM Northing	4180106	4180220	4180220	4086620	4083470	4062320	4059660	4056090	3771300	3769900
Locality/ Dune Sheet	Soccer Field	GG ParkA	GG ParkB	Manresa/ MONT	Sunset/ MONT	Marina	Blanco Airport	Aromas	Yardang Canyon/ SANM	Nidever
Reference	0106N/400c m	0216N/500c m	650 cm							
Plateau Region (oC)	300-500	300-425	300-500	275-425	275-475	275-450	275-475	276-425	275-500	300-475
Analysis Temp. (oC)	325	375	375	375	375	375	375	375	375	375
Palaeodose (Grays)	28.3+/-2.1	15.3+/-1.6	23.6+/-1.5	181+/-22	16.1+/-2.0	23.3+/-1.6a 18.0+/-2.3b	98.8+/-9.2	>248+/-39	184+/-10	>263+/-19
K Content (% by AES)	1.75+/-0.05	1.90+/-0.05	1.15+/-0.05	2.10+/-0.05	1.75+/-0.05	1.90+/-0.05	2.55+/-0.05	2.55+/-0.05	2.05+/-0.05	1.25+/-0.05
Rb Content (ppm assumed)	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25	100+/-25
Moisture Content (% by weight)	0.3+/-3	0.2+/-3	0.3+/-3	1.1+/-3	0.5+/-3	1.1+/-3	0.5+/-3	1.3+/-3	0.3+/-3	1.1+/-3

[illegible]

Moisture Content (% by weight)	3.3+/-3	2.5+/-3	5+/-3	3+/-3 assumed	3+/-3 assumed	1.4+/-3	2.0+/-3	0.9+/-3	0.7+/-3	1.4+/-3
Specific Activity (Bq/kg U+Th)	66.0+/-2.1	42.9+/-1.3	76.5+/-2.4	46.7+/-1.4	106+/-2	89.5+/-1.9	85.5+/-1.5	69.7+/-1.7	112+/-3	58.8+/-1.0
Cosmic Contribution mGy/yr	185+/-25	150+/-25	185+/-25	160+/-25	147+/-25	150+/-25	185+/-25	160+/-25	158+/-25	150+/-25
Annual Radiation Dose (µGy/yr)	2954+/-64	2590+/-61	3916+/-65	3338+/-61	3777+/-61	3775+/-65	3284+/-62	3405+/-64	4330+/-77	3423+/-60

TL Age (ka) >60.4+/-4.9 99.8+/-9.4 0.7+/-0.05 20.7+/-2.1 46.2+/-5.8 >59.1+/-3.8 3.2+/-0.3 22.5+/-2.7 30.0+/-2.9 23.5+/-1.4

The specific activity of these specimens was measured by means of calibrated thick source alpha counting over a 42 mm scintillation screen.

The values shown assume secular equilibrium for both the U and Th decay chains. The uncertainty levels indicated represent one standard deviation.

Specimen No.	W3182	W3183
UTM Northing	2531690	2531290
Locality/ Dune Sheet Reference	CBFO 2531691N	CBFO 2531287N
Plateau Region (oC)	300-400	300-500
Analysis Temp. (oC)	375	350
Palaeodose (Grays)	10.2+/-2.8	4.5+/-0.6
K Content (% by AES)	1.85+/-0.05	0.380+/-0.005
Rb Content (ppm assumed)	100+/-25	50+/-25

Moisture Content (% by weight)	0.8+/-3	1.0+/-3
Specific Activity (Bq/kg U+Th)	83.8+/-2.6	39.6+/-0.9
Cosmic Contribution mGy/yr	185+/-25	185+/-25
Annual Radiation Dose (μGy/yr)	3884+/-70	1400+/-28
TL Age (ka)	2.6+/-0.7	3.2+/-0.4

The specific activity of these specimens was measured by means of calibrated thick source alpha counting over a 42 mm scintillation screen.

The values shown assume secular equilibrium for both the U and Th decay chains. The uncertainty levels indicated represent one standard deviation.