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Title of article "Quaternary Continental Stratigraphy, Landscape Evolution, and Application to Archeology; Jarilla Piedmont and Graben Floor..."

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		Sieve and Pipette Data*							
Sample Number	Facies type	% vcrs pebbles	% crs pebbles	% med pebbles	% fine pebbles	% granules	% vcrs sand	% crs sand	% med sand
1.1	D8	0.0	6.4	11.2	14.9	6.6	9.3	8.8	8.1
1.2	D8	0.0	7.4	3.8	7.6	13.0	17.9	13.5	10.1
1.3	D8	0.0	3.5	11.1	13.4	19.6	19.8	17.0	9.2
2.1	D8	0.0	4.2	7.3	15.6	18.5	18.9	12.6	8.6
3.1	D8	16.9	14.0	16.9	10.4	8.1	9.5	10.0	6.0
3.2	D8	16.1	18.6	9.9	10.0	9.8	9.5	8.0	4.9
16.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.6	23.9
20.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.8	51.4
21.1	E/A	0.0	0.0	0.0	0.0	16.9	5.9	5.9	20.2
21.7	E	0.0	0.0	0.0	0.0	0.4	0.4	2.6	27.2
22.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.9
24.1	E	0.0	0.0	0.0	0.0	0.0	0.0	2.8	38.2
30.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.2	12.8
32.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.9	27.6
34.1	E	0.0	0.0	0.0	0.0	0.0	0.1	0.2	21.6
44.1	E	0.0	0.0	0.0	0.0	0.0	0.1	3.0	20.4
46.1	E	0.0	0.0	0.0	0.0	0.0	0.0	1.1	31.7
54.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.5	19.0
58.1	E	0.0	0.0	0.0	0.0	0.0	0.0	3.3	42.9
60.1	E	0.0	0.0	0.0	0.0	0.0	0.1	0.8	23.3
62.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.5	21.8
66.21	E	0.0	0.0	0.0	0.0	0.0	0.0	0.2	22.2
68.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.5	32.5
71.11	E	0.0	0.0	0.0	0.0	0.0	0.0	0.6	21.8
72.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.6	28.3
73.1	E	0.0	0.0	0.0	0.0	0.0	0.4	4.3	31.2
74.1	E	0.0	0.0	0.0	0.0	0.0	0.0	1.3	35.5
77.31	E	0.0	0.0	0.0	0.0	0.3	1.4	8.8	41.8
79.1	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.1	E/A	0.0	0.0	0.0	0.0	9.3	4.2	4.7	17.9
87.1	E/A	0.0	0.0	0.0	0.0	3.6	3.8	3.3	5.4
89.1	E/A	0.0	0.0	0.0	0.0	2.3	3.0	5.5	17.3
90.1	A	10.1	6.7	8.3	5.2	5.7	6.3	8.6	10.2
98.1	A	9.4	9.9	9.5	11.5	14.4	13.6	11.4	12.3
98.4	E	0.0	0.0	0.0	0.0	0.5	0.7	1.8	9.2
99.1	E/A	0.0	0.0	0.0	0.0	3.1	2.6	4.0	12.6
99.2	A	9.4	15.6	11.4	8.2	7.1	5.9	5.4	10.6
100.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.8	19.1
101.1	E	0.0	0.0	0.0	0.0	0.0	0.0	1.7	44.0
102.1	E	0.0	0.0	0.0	0.0	1.6	8.3	12.1	34.4
103.1	E	0.0	0.0	0.0	0.0	0.0	0.0	0.8	36.3
104.1	E	0.0	0.0	0.0	0.0	0.0	0.5	1.5	15.4

Abbreviations: crs = coarse, med = medium , v = very, DB = drainage basin deposit, E =

*Grain size classes as follows: v crs pebbles = -6ø to -5ø, crs pebbles = -5ø to -4ø, 0ø, crs sand = 0ø to 1ø, med sand = 1ø to 2ø, fine sand = 2ø to 3ø, v fine sand = 3ø to

TABLE 1. GRAIN SIZE DATA FOR UNIT Q4, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Right Half)

% fine sand	% v fine sand	% silt	% clay	Recalculated Sand	Silt	Clay	Recalculated Gravel	Sand	Mud
9.4	11.3	13.9	0.1	76.9	22.8	0.2	39.2	46.8	14.0
9.0	8.7	8.7	0.4	86.8	12.7	0.5	31.8	59.2	9.0
3.7	1.5	0.9	0.3	97.8	1.7	0.5	47.6	51.2	1.2
5.7	4.0	3.7	0.9	91.6	6.7	1.7	45.5	49.9	4.6
3.9	2.2	1.7	0.4	93.7	5.2	1.1	66.1	31.7	2.1
4.6	4.2	3.6	0.8	87.7	10.0	2.3	64.4	31.2	4.4
55.4	16.8	3.2	0.2	96.6	3.2	0.2	0.0	96.6	3.4
33.2	12.7	1.9	0.0	98.1	1.9	0.0	0.0	98.1	1.9
30.5	13.0	7.6	0.0	90.9	9.1	0.0	16.9	75.5	7.6
49.3	15.9	3.4	0.7	95.8	3.4	0.7	0.4	95.4	4.1
53.7	28.2	5.5	0.4	94.1	5.5	0.4	0.0	94.1	5.9
40.9	14.3	3.6	0.2	96.2	3.6	0.2	0.0	96.2	3.8
61.0	21.7	4.1	0.2	95.7	4.1	0.2	0.0	95.7	4.3
49.1	17.6	4.6	0.2	95.2	4.6	0.2	0.0	95.2	4.8
56.9	17.6	3.6	0.1	96.4	3.6	0.1	0.0	96.4	3.6
40.6	26.8	8.1	1.0	90.9	8.1	1.0	0.0	90.9	9.1
49.3	14.8	2.9	0.2	96.9	2.9	0.2	0.0	96.9	3.1
54.2	22.4	3.6	0.3	96.1	3.6	0.3	0.0	96.1	3.9
40.5	10.8	2.3	0.3	97.4	2.3	0.3	0.0	97.4	2.6
48.2	21.0	6.0	0.7	93.3	6.0	0.7	0.0	93.3	6.7
52.4	20.3	4.8	0.3	94.9	4.8	0.3	0.0	94.9	5.1
60.4	14.4	2.6	0.1	97.3	2.6	0.1	0.0	97.3	2.7
50.2	13.7	3.1	0.0	96.9	3.1	0.0	0.0	96.9	3.1
51.1	20.3	5.5	0.7	93.8	5.5	0.7	0.0	93.8	6.2
49.7	17.4	3.6	0.3	96.0	3.6	0.3	0.0	96.0	4.0
43.0	15.0	5.1	0.9	94.0	5.1	0.9	0.0	94.0	6.0
46.6	15.0	3.3	0.4	96.4	3.3	0.4	0.0	96.4	3.6
38.7	7.5	1.2	0.3	98.5	1.2	0.3	0.3	98.2	1.5
0.0	11.2	0	88.0	11.2	0.0	88.0	0.0	11.2	88.8
33.5	20.8	8.5	1.1	89.4	9.4	1.2	9.3	81.1	9.6
24.2	38.7	19.4	1.6	78.2	10.1	1.6	3.6	75.4	21.0
40.8	23.6	6.9	0.7	92.2	7.0	0.7	2.3	90.2	7.6
13.2	14.6	10.2	0.9	82.4	16.1	1.4	25.9	52.8	11.2
4.9	2.2	0.9	0.1	97.7	2.1	0.2	54.6	44.3	1.0
30.7	38.8	17.5	0.8	81.6	17.6	0.8	0.5	81.2	18.4
39.6	27.6	10.1	0.4	89.2	10.5	0.4	3.1	86.4	10.5
16.8	7.2	2.4	0.2	94.7	5.0	0.3	51.6	45.8	2.6
46.1	26.2	7.5	0.4	92.2	7.5	0.4	0.0	92.2	7.8
39.8	12.0	2.4	0.1	97.6	2.4	0.1	0.0	97.6	2.4
30.0	11.3	1.9	0.4	97.7	1.9	0.4	1.6	96.1	2.2
51.4	10.1	1.4	0.0	98.6	1.4	0.0	0.0	98.6	1.4
49.7	25.5	6.0	1.5	92.5	6.0	1.5	0.0	92.5	7.5

eolian deposit, A = arroyo deposit, E/A = eolian and arroyo deposits mixed by bioturbation. med pebbles = -4Ø to -3Ø. fine pebbles = -3Ø to -2Ø, granules = -2Ø to -1Ø, v crs sand = -1Ø to 4Ø, silt = 4Ø to 8Ø, clay < 8Ø.

TABLE 2. SOIL DESCRIPTION DATA, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Upper-Left Quarter)

Site* no.	Strati-graphic unit	Depth (cm)	Horizon	Color dry;wet	Structure†	Dry Consist-ence§	Wet Consist-ence**
21	Q4	0-37	C1	5YR6/6;7.5YR6/6	sg	h	ss,po
		37-47	C1	5YR8/2;5YR8/4	sg	sh-h	ss,ps
	Q1	47-83	2Kb1	7.5YR6/5;5.4	m	sh-h	ss.ps
		83-1-3	28tkb1	7.5YR7/4;5/6	2f-mabk	sh-h	so,po
		103-115	2Kb1	6.25YR7/6;7.5YR5/6	m	h	so,po
		115-168	38tkb1	5YR8/4;7/4	3f-vcabk	h	ss,ps
		168-200+	3Kb1	5YR5/8;4/6	m	lo	so,po
71A	Q4	0-30	C	5YR6/6;4/6	sg;1mpl	l	so,po
	Q3	30-43	Ab1	5YR5/5;5YR4/6	sg;1m-vfsbk	s	so,po
		43-87	Bwb1	5YR6/8;4/6	sg;1c-vfsbk	s	so,po
	Q2	87-112	Btk1b2	5YR6/8;6.25YR4/8	1c-vfsbk	h	ss,ps
		112-129	Btk2b2	5YR5/8;5/8	1c-vfsbk	h	so,ps
	Q1	129-145	K1b3	5YR8/1;7/4	3c-fsbk,3vc-fpl	eh	so,po
		145-208	K2b3	5/yr8/1;8/3	m	eh	so,po
		208-238+	K3b3	5YR7/3;5.5/6	sg, & concretions	l,eh	so,po
73	Q4	0-16	C	7.5YR5/4;4.5/6	sg;2mpl	l	so,po
	Q3	16-29	28kb1	7.5YR5/4;4/6	1vf-csbk;sg	sh	ss,ps
		29-51	28tk1b1	7.5YR6.4d,6/6d	1vf-vcabk;sg	sh	ss,ps
		51-76	28tk2b1	7.5YR6/4d,6/6d	1vf-vcabk;sg	sh	ss,po
	Q1	76-90	K1b2	10YR8/1d	3vcpl	eh	so,po
		90-134	K2b2	10YR8/1;7.5YR8/4	m;2m-vcsbk	eh	so,po
		134-200	K3b2	7.5YR7/2d,8/1d	3vcpl	eh	so,po
		200+	K4b2	7.5YR8/4;5YR7/2	m;1m-vcabk	eh	so,po
74	Q4	0-28	C	7.5YR6/6;4.5/6	sg;2c----vfpl	l	so,po
	Q3	28-36	Ab1	7.5YR5/4;4/6	sg;1m-vfsbk	l	so,po
		36-68	Bwb1	5YR5/6;7.5YR4.5/6	1o-vfsbk;sg	s	ss,ps
	Q2	68-183	Btkb2	7.5YR6/6;4.5/6	1c-vfabk;sg	sh-h	ss,ps
		183-210	Bkb2	5YR6/6;7.5YR4.5/6	1c-vfabk;sg	h	ss,ps
	Q1	210-230	2Kb3	5YR6/4,&8/1;7.5YR5/6	ef-vfabk;3fcpr	eh	s,p
77c	Q4	0-16	C	5YR5/6;&8/4;5/6	sg;1c-vfsbk	l	so,po
	Q3	16-29	28wb1	5YR5/6;4.5/6	1c-vfsbk;sg	s	ss,ps
		29-48	2Btkb1	5YR5/6;4/6	1msbk	s,sh	ss,ps
	Q2	48-104	28Btk1b2	5YR5/8;&5/6;4/8	1vf-cabk,1f-mpr	h	ss,ps
		104-121	2Btk2b2	5YR5/6;5/8	1vf-cabk,sg	sh	ss,ps
		121-153	28Bkb2	5YR6/6,&7/4;5/8	1vf-csbk,sg	s	gs,ps
	Q1	153+	3§kb3	5YR8/1;8/4	m	eh	so,po
79	Q4	0-10	C	10YR6/3;4/4	3vc-fabk;2mpl	sh	s,p
		10-13	2C	5YR5/6;4/6	sg;1f-vfsbk	l	so,po
	Q3	13-66	3Bwb1	5YR5/8;5/8	sg;2vc-fabk	s	ss,ps
	Q2	66-101	3Btk1b2	2.5YR5/8;5YR4/8	2vc-vfabk;sg	sh-h	ss,ps
		101-127	3Btk2b2	2.5YR5/8;5YR4/8	2c-vfabk;sg	sh	so,po
		127-187	3Bkb2	5YR6/8;8/3	1vc-vfabk;sg	s	ss,ps
	Q1	187-196+	3Kb3	5YR8/1d	m	h-eh	..
83	Q3	0-71	Bkb/e1	7.5YR5/4;4/6	sg;1m-vfsbk	s	so,po
	Q1	71-186	2Btkb3	7.5YR5/6;4/6	sg;1m-vfsbk	s	ss,ps
		186-253	3K1b3	7.5YR8/1;6/5	m;sg	eh	so,po
		253-285	4Bk1b3	5YR6/6;7.5YR4/6	1m-vfsbk;sg	h	so,po
		285-315+	5Bk2b3	5YR7/4;5YR6/5	sg;1m-vfsbk	h-vh	so,po

TABLE 2. SOIL DESCRIPTION DATA, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Upper-Right Quarter)

Texture	Clay Films	Roots***	Boundary†††	Carbonate morphology§§§	Carbonate %	Bulk density	carbonate g/cc
sgs	n.o.	..	cw	eo	90.7	..	..
s	n.o.	..	aw	d; reworked Ql, brecciated	1.5	..	..
..	2mbr&lnpf	..	ci	ev; st.III,brecc/massive	35.1	..	..
..	lnbr	..	aw	es;st.II	69.2	..	..
..	n.o.	..	as	ev;st.III	12.0	..	..
s	n.o.	..	cw	es;st.II	45.0	1.77	69.6
..	n.o.	..		ev;st.III	2.0	1.92	3.8
s	n.o.	2vf,f	as	eo	0.2	..	..
ls	n.o.	2vf,f	cw	eo	0.2	..	..
s	lnco	lm;2vf	cw	eo	0.0	1.69	0.0
s	2nbr	2m,lf,2vf	cw	es;st.II,2fsf	3.4	1.67	5.6
s	lnbr	2m,lf,2vf		es;st.I,lfisf	2.6	1.71	4.4
..	n.o.	2m	gw	ev;st.IV,3cd&rsc	59.6	1.58	94.2
..	n.o.	2m	gw,i	ev;st.III	59.8	1.49	89.1
..	n.o.	lf		ev;st.III,3crsc,d	22.6	1.75	39.6
s	n.o.	lvf	as	es;st.Id,flisf	1.7	..	..
s	n.o.	2f,vf	cs	es;st.I,clisf	6.2	1.64	10.2
s	3nkbr	lvf,f	cs	ev;st.II,clisf,sc	4.9	1.59	7.8
s	3nkbr	lf	ai	ev;st.I,clisf	5.7	1.73	9.9
..	n.o.	0	ci	ev;st.IV,lams	88.1	1.90	167.4
..	n.o.	0	ci	ev;st.IV,lams	54.3	1.37	74.4
..	n.o.	0	ai,ab	ev,st.III,vm2rsc,sm	30.5	1.65	50.3
..	n.o.	0?		ev;st.III,massive	52.5	1.69	88.7
s	n.o.	2f-vf	as	eo	0.3	..	..
s	n.o.	lf	as	eo	0.2	..	..
s	n.o.	3c-m	ai	eo	0.3	1.58	0.5
s	2nbr	lf	ci	ev;st.II,c3iss,sf,d	1.7	1.68	2.9
s	lnbr&lnpf	lf	aw-ai	e;st.I,c3iss,sf,d	3.9	1.82	7.1
sil	4kbr	0-lf		ev;st.IV,m3iss,rsc	24.6	1.70	41.8
s	n.o.	lf-vf	as	eo	0.3	1.63	0.5
s	n.o.	lvf-m	cw	eo	0.5	1.75	0.9
s	n.o.	lvf-m	cw	ws;st.I,c2rsf,sc	3.1	1.67	5.2
s	2nkbr	lvf-m	cw	ev;st.....I,c2rsf,sc	1.8	..	..
s	2nkbr	lf	cw	ev;st.I,c2rsf,sc	1.9	..	..
s	4kpf	0	ai	ev;st.II,c2rsf,sc	1.9	..	..
..	2nkbr	0		ev;st.II,m2-3rsc,d	61.6	..	..
si	lnpf	lvf-f	as	ev;d	15.7	1.34	34.4
s	n.o.	lf-vf	as	eo	..	1.62	0.0
s	n.o.	lc-f	aw	eo	0.5	1.59	0.8
s	lnco	lc-f	cw	es;st.II,c2isf	2.5	1.90	4.8
s	n.o.	lm-f	gw	es;st.II,c2isf,2rsc	3.6	1.72	6.2
s	n.o.	lm-f	ai	e;st.I,flrsc	0.8	1.70	1.4
..		0		ev;st.III,m2rsc,d	54.6	..	..
gls	n.o.	2m-vf	aw	ev;st.II,mco	7.2	..	..
sgls	n.o.	lf-vf	aw	ec;st.II,III	7.9	1.71	13.5
..	n.o.	2m-vf	aw	wv;st.III	21.6	1.73	37.4
sgls	n.o.	lf-vf,2m	aw	ev;st.II,firsc	10.0	1.73	17.3
vgs	n.o.	lf-vf		ev;st.IIcco,d	15.5	..	..

TABLE 2. SOIL DESCRIPTION DATA, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Lower-Left Quarter)

85	Q4	0-5	C	7.5YR4/6;4/4	sg	l	so,po
	Q3	5-21	Bkb/el	7.5YR5/7;5/6	sg;lm-vfsbk	s	ss,po
	Q1	21-74	Klb3	7.5YR8/0,6/4;6/6	2f-vfabk	vh,eh	ss,po
		74-112	2Kb2b3	7.5YR6/4;6/6	sg;lf,vfabk	s	so,po
		112-140	3K3b3	7.5YR6/4;6/6	lm-vfabk	sh,eh	so,po
		140-175+	4K4b3	7.5YR6/4;5/6	sg	sml	so,po
87	Q4	0-45	C	7.5YR6/4;3/4	sg;lf-vfsbk	l	so,po
	Q3	45-66	Abl	7.5YR5/3;3/4	lm-vfabk;sg	s	so,po
		66-77	Bwbl	7.5YR5/4;4/4	lm-vfabk;sg	s	so,po
		77-91	2Bkbl	7.5YR8/2;4/6	sg;lf-vfsbk	l	so,po
		91-113	3Bkbl	7.5YR6/5;4/6	lc-mpr	s	so,po
		113-192	4Bkbl	7.5YR8/4,6/6;5/6	sg;lf-vfsbk	l	so,po
	Q2	192-246+	5Btkb2	7.5YR8/0;7/4	lm-vfsbk;sg	h-eh	so,po
89	Q4	0-4	C	7.5YR5/6;4/6	sg	l	so,po
	Q2	4-53	Vklbl	7.5YR6/6;4/6	lc-vfsbk;sg	s	ss,po
		53-83	Bk2bl	5YR6/6;4/6	lc-vgsbk	s	so,po
		83-95	2Bk3bl	5YR5/6;4/6	sg;lm-fsbk	s	so,po
		95-107	3Bk4bl	5YR6/6;6.25YR4/6	lm-vsbk;sg	s	so,po
		107-122	4Bk5bl	7.5YR6/6;5/6	2m-vfabk	sh	s,p
		122-177	5Bk6bl	5YR5/6;4/6	lc-vfsbk,sg	s	so,po
		177-186+	5Bk7bl	5YR5/8;4/6	lc-vfsbk;sg	s	so,po
90	Q4	0-3	Av	10YR7/4;7.5YR4/4	lf-mpl	sh	ss,ps
		3-11	C	7.5YR6/4;4/4	sg;2m-vfsbk	l	so,po
	Q3	11-43	Bkbl	7.5YR6/4;5/6	sg;vfsbk	s	so,po
	Q2	43-106	Btkb2	5YR5/8,6/6;7.5YR5/6	2m-vfabk	sh	ss,ps
	Q1	106-135	Klb3	5YR8/0;7.5YR7/4	sg;3m-vfbk	vh	ss,po
		135-200+	K2b3	7.5YR6/4;5/4	sg;lf-vfsbk	l	so,po
95	Q3	0-31	Bklb/el	7.5YR6/4;4/6	sg;lm-vfsbk	l-sh	so,po
		31-74	Bk2bl	7.5YR6/;4/6	lm-vfsbk;sg	sh	ss,ps
		74-121	Bk3bl	7.5YR5/4;4/6	lm-vfsbk;sg	sh	ss,ps
	Q2	121-148	Btklb2	5YR5/6;7.5YR4.5/6	2m-vfabk	sh-h	so,po
		148-182+	Btk2b2	5YR5/6;4/6	2mOvfabk	vh	ss,ps
96	Q2	0-14	Btkqb/e2	7.5YR5/6;4/6	2m-vfsbk;sg	s	so,po
		14-36	Btk2b2	7.5YR5/6;4.5/6	2m-vfabk;sg	[illegible],eh	so,po
	Q1	36-62	K1B3	7.5YR7/4;5/6	2f-vfsbk	eh	so,po
		62-123	K2b3	7.5YR7/4;5/6	2m-vfsbk	vh	ss,ps
		123-188	Bkb3	7.5YR7/4;5/6	lm-vfsbk;sg	sh	ss,po
102	Q4	0-27	C	7.5YR4/6;5/6	sg;lmabk	s	ss,ps
	Q1	27-61	Bklbl	7.5YR6/4m	sg;lmabk	sh	ss,ps
		61-126	2Kbl	10YR5/4,8/0;7.5YR6/4	3mabk;2mpr	h	s,ps-p
		126-137	3Bklbl	5Y6/2;10YR6/4m	sg;lmabk	s-l	so,po
		137-165+	3Bk2bl	10YR5/4m	sg;lmabk	s-l	ss,ps

*Trench locations shown in Fig. 2.

†Structure abbreviations: sg = single grain, m = massive, l = weak, 2 = moderate, 3 = strong, sbk = sugangular blocky, pl = platey, pr = prismatic. Predominant structure is followed by ";

§Dry consistence abbreviations: l = loose, s = soft, sh = slightly hard, h = hard, vh = very

**Wet consistence abbreviations: so = not sticky, ss = slightly sticky, s = sticky, po = not

††Texture abbreviations: sg = slightly gravelly (5 - 20% gravel), g = gravelly (20 - 50% grav silt loam, si = silt, scl = sandy clay loam, nd = texture not determined for heavily cemented

§§Clay film abbreviations: n.o. = none observed in the field under 10x magnification, l = few grains, pl = films on ped faces, co = colloidal stains on grains, po = films of pores, cv = co clay.

***Roots abbreviations: O = none observed, l = few, 2 = common, 3 = many, vf = very infe, f =

†††Boundary abbreviations: a = abrupt, c = clear, g = gradual, s = smooth,, w = wavy, i = irre

§§§Carbonate morphology abbreviations: eo = no effervescence observed, e = effervesces slight large, l = few, c = common, m = many, vm = very many, d = disseminated, sf = segregated as fil segregated along seams, i = irregular, r = round, lams = horizontal laminations, st.I-IV = car

TABLE 2. SOIL DESCRIPTION DATA, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Lower-Right Quarter)

sgs	n.o.	2f-vf	as	e,d	0.3	..	..
s	n.o.	2m-vf	aw	ev;st.I,flsf,cco	3.2	1.60	5.1
gsls	n.o.	2c-m,1f-vf	cw	ev;st.III,d,clsc,csf	7.6	1.91	14.5
gs	n.o.	1f-vf	aw	ev;st.III,cco	8.7	..	..
sgls	n.o.	1f	aw	ev;st.III,d,clsc,csf	15.6	1.72	26.8
vgs	n.o.	1f-vf		ev;st.II,III,d,fco	8.8	..	..
s	n.o.	2f-m,2c	as	e;d	1.7	..	..
sl	n.o.	2vf	cw	e;d	2.2	1.61	3.5
sgls	n.o.	2m-vf	aw	e;d	2.5	1.75	4.4
vgs	n.o.	2f, 2m	aw	es;st.I,d,lco	4.0	..	..
ls	n.o.	2f	aw	es;st.I,d,lsf	3.4	1.55	5.3
gs	n.o.	1m.vf	aw	e-es,st.I,d,lco	3.7	..	..
sgs	n.o.	1m,f		ev;st.III,2-3rsc	21.2	1.68	35.6
s	n.o.	1f-vf	as	eo	0.5	..	..
ls	n.o.	2m-f	cw	ev;st.I,vflisf,sc,d	4.6	1.44	6.6
ls	n.o.	2c-f	cw	ev;d	4.6	1.47	6.8
gs	n.o.	1f-vf	aw-cw	ev;st.I,d,vflisf	2.8	..	..
ls	n.o.	1f-vf	as	ev;st.I,d,vflisf	4.1	1.49	6.1
sil	1npo&2nbr	1f	as	es;d	8.5	1.39	11.8
ls	1nbr	1m-vf	c?	es;st.I,d,firsc	4.1	1.83	7.5
ls	n.o.	1vf		es;st.I,d,clisf	2.8	1.56	4.4
gscl	v,rt(st&c)	0	as	es;st.I,d	..	..	..
gls	n.o.	1f-vf	aw	es;st.I,d	0.9	..	..
vgsl	n.o.	1f-vf	ci	ev;stI,d,sf	9.9	..	..
gsl	n.o.	1v-vf,1m	ai	es;st.II,csf,frisc	5.7	..	..
..	n.o.	f-vf	ci	ev;st.III,sm	26.2	1.70	44.5
sl	n.o.	1f		ev;st.I,d	15.6	..	..
sgscl	1nbr	2m-f,1vf	g	ev;st.I,d,fsf	8.7	1.74	15.1
sgscl	n.o.	2m-f,1vf	cs	ev;st.I,d,fsf	6.1	..	..
vgscl	n.o.	1m-vf	aw	ev;st.I,d,csf	3.9	1.71	6.7
ls	2nkbr&2npo	1vf	cw	ev;st.II,msf	2.7	1.63	4.4
ls	1nbr	1vf		ev;st.III,csf,c2sc	6.9	1.70	11.7
ls	1nbr	2f-vf	cw	ev;st.II,d,sf,fsc	7.6	1.68	12.8
sl	1nbr	2f-vf,2m	aw	ev;st.II,d,sf,fsc	5.9	1.69	10.0
..	1nbr	2vf	cw	ev;st.III	21.6	1.59	34.3
..	2nkbr&2nkpf	1vf	cw	ev;st.III,3rsc,ss,d	15.7	..	..
..	n.o.	1f		ev;st.I,d	21.4	0.87	18.6
s	1nkbr	2f-vf	cw	ev;d	9.1	1.48	13.5
sgs	n.o.	1f-vf	ci	ev;st.II,d,clse,sf	43.3	1.44	62.4
l	rkbr&pf	1f-vf	ai	ev;st.III,m3sc,mlss	27.5	1.67	45.9
s	4kbr	1f-vf	ai	ev,st.II,f2sc	3.1	1.60	5.0
ls	n.o.	1vf		es;st.II,f2sc	14.2	1.70	24.1

vf = very fine, 1 = fine, m = medium, c = coarse, vc = very coarse, abd = angular blocky,
" and then by the secondary structure where appropriate.
hard, eh = extremely hard.
plastic, ps = slightly plastic, p = plastic.
el), vg = very gravelly (> 50% gravel), s = sand, ls = loamy sand, sl = sandy loam, sil =
carbonate horizons.
, 2 = common, 3 = many, n = thin, k = thick, nk = thin to thick, br = bridges between
ats on vessicles, rt = coals on roots, st & c = coats and films consist of both silt and

fine, m = medium.
gular.
ly, es = effervervesces strongly, ev = effervesces violently, 1 = fine, 2 = medium, 3 =
iments; sc = segregated as concretions or nodules, sm = segregated as soft masses, ss =
bonate morphology stages of Gile, Hawley and Grossman (1981).

TABLE 3. STRATIGRAPHIC UNITS IDENTIFIED IN TRENCHES AND THEIR THICKNESS (in cm), SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Left Half)

Trench Number		16	20	21	22	24	29	30	31	32	33	34	38	40	42	43	44	45
	AV																	
Q4	C	118	50	47	53	65	11	41	62	68	22	50	68	5	15	70	25	26
	Total	118	50	47	53	65	11	41	62	68	22	50	68	5	15	70	25	26
	A						32		26	19								
	BW									60		52			76			
	BK	40			23	145		21	17	28	44	61	80	77	104	64	175	
Q3	Bk2													40		29		
	Bk3																	
	Btk																	
	Total	40	0	0	23	145	32	21	43	107	44	113	80	117	180	93	175	0
	Btk1	42					142	64										
	Btk2																	
Q2	Bk		41															
	Bk2																	
	Total	42	41	0	0	142	64				0				0	0	0	0
	K1		40	36			22				38				10	5	10	54
	K2			20	79						24							
Q1	K3			12							22							
	K4			53														
	K5			12														
	Total		40	68	79		22				84				10	5	10	54
Total		200	131	115	155	210	185	148	105	175	150	163	148	132	200	173	200	80

Trench Number		71b	71c	72	73	74	75	77a	77b	77c	78	79	82	83	84	85	86	87
	AV																	
Q4	C	22	8	82	16	28	16	16	100	16	18	13	18		7	5		45
	Total	22	8	82	16	28	16	16	100	16	18	13	18	0	7	5	0	45
	A			28		8	16											21
	BW	124	21	48		32	99	31		13	76	53					88	11
	Bk	54		27	13			23	52		20		21	71	48	16	21	14
Q3	Bk2																109	101
	Bk3																	
	Btk				47			24		19								
	Total	178	21	103	60	40	115	78	52	32	96	53	21	71	48	16	218	147
	Btk1		32	56		115	70	33	43	56	41	35			38		22	54
	Btk2		22						23	17	35	26						
Q2	Bk		25			27	50	53	31	32		50						
	Bk2																	
	Total		79	56	0	142	120	86	97	105	76	111	0	0	38	0	22	54
	K1		6		14	20			5	5	15	9	69	115	57	45		
	K2		81		44								25	67	60	38		
Q1	K3		5		66								12	32		28		
	K4				5									30		35		
	K5																	
	Total		92		124	20			5	5	15	9	106	214	117	111		
Total		200	200	241	200	230	251	180	254	158	205	186	145	285	210	132	240	246

TABLE 3. STRATIGRAPHIC UNITS IDENTIFIED IN TRENCHES AND THEIR THICKNESS (in cm), SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Right Half)

46	47	49	52	54a	54b	57	58	59	60	61	62	64	65	66a	66b	68	70	71a
25	31	27	75	29	150	21	46	14	6	12	10	18	24	7	55	20	24	30
25	31	27	75	29	150	21	46	14	6	12	10	18	24	7	55	20	24	30
			19			9		9					10		19	12		13
	38		56						54	48	89		70	28	24		32	44
31	72	14		38	18	40	68	53	30	25	43	87	81	37	58	93	29	
27															34			
58	110	14	75	38	75	49	68	62	84	73	132	87	161	65	135	105	61	57
70							36			90		41	30				50	35
																		17
31						42		36			23						54	
								56										
101	0	0	0	0	0	42	36	92	0	90	23	41	30	0			104	52
16	16	45		23	5	3		17	10	5		9		53			11	16
		52		41														63
				34														30
16	16	97		98	5	3		17	10	5		9		53			11	109
200	157	138	150	165	260	115	150	185	100	180	165	155	215	125	190	125	200	248

88	89	90	91	93	94	95	96	97	98a	98b	98c	98d	98e	99	100	101	102	103	104
		3																	
6	4	11	8	7	16			12	94	42	25	5	27	18	24	26	27	130	11
6	4	14	8	7	16	0	0	12	94	42	25	5	27	18	24	26	27	130	11
													80		10				
10												15			60				
31		32		132	53	31		48		16	23	39		132		68			
89				60	61	90					36	83							
											61								
130	0	32	0	192	114	121	0	48	0	16	120	137	80	132	70	68	0		0
	49	63	16	51	41	27	14	22	56	62	54	23	43	10		61			165
						34	22	44											
	30		31												77				
	103		18																
	182	63	65	51	41	61	36	66	56	62	54	23	43	10	77	61	0		165
		129	22		37		26	24							5		34		
		65	41				61										65		
			44				65										11		
																	28		
		194	107		37		152	24							5		110		
136	186	300	180	250	208	182	188	150	150	120	199	165	150	160	176	155	137	130	176

TABLE 4. GRAIN SIZE DATA FOR UNIT Q3, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Left Half)

		Sieve and Pipette Data*							
Sample Number	Facies type	% vcrs pebbles	% crs pebbles	% med pebbles	% fine pebbles	% granules	% vcrs sand	% crs sand	% med sand
16.20	E	0.0	0.0	0.0	0.0	0.0	0.2	1.8	24.8
22.20	E	0.0	0.0	0.0	0.0	0.0	0.1	0.6	13.2
24.20	E	0.0	0.0	0.0	0.0	0.0	0.0	1.2	21.4
30.20	E	0.0	0.0	0.0	0.0	0.0	0.3	1.5	17.7
32.20	E	0.0	0.0	0.0	0.0	0.0	0.0	1.1	22.5
34.20	E	0.0	0.0	0.0	0.0	0.0	0.0	5.7	20.0
44.20	E	0.0	0.0	0.0	0.0	0.0	0.0	2.0	27.2
46.20	E	0.0	0.0	0.0	0.0	0.0	0.0	1.1	24.7
54.12	E	0.0	0.0	0.0	0.0	2.1	1.9	3.2	20.1
58.20	E	0.0	0.0	0.0	0.0	0.0	0.0	1.6	34.1
60.20	E	0.0	0.0	0.0	0.0	0.0	0.2	1.5	18.4
62.20	E	0.0	0.0	0.0	0.0	0.0	0.0	0.8	21.5
66.22	E	0.0	0.0	0.0	0.0	0.0	0.0	0.3	22.8
68.20	E	0.0	0.0	0.0	0.0	0.0	0.0	0.4	27.2
71.12	E	0.0	0.0	0.0	0.0	0.0	0.0	0.7	13.6
71.13	E	0.0	0.0	0.0	0.0	0.0	0.3	1.4	20.6
72.20	E	0.0	0.0	0.0	0.0	0.0	0.3	1.5	26.5
73.20	E	0.0	0.0	0.0	0.0	0.2	1.8	6.0	27.6
72.30	E	0.0	0.0	0.0	0.0	0.0	0.2	4.7	29.0
74.20	E	0.0	0.0	0.0	0.0	0.0	0.0	1.4	26.0
74.30	E	0.0	0.0	0.0	0.0	0.0	0.0	2.1	25.6
77.20	E	0.0	0.0	0.0	0.0	0.0	0.0	1.9	25.1
77.30	E	0.0	0.0	0.0	0.0	0.3	1.3	4.8	32.6
79.20	E	0.0	0.0	0.0	0.0	0.1	0.3	1.9	27.1
83.10	A	5.4	0.8	6.1	9.4	13.7	11.9	8.5	6.9
85.20	E/A	0.0	0.0	0.0	0.0	3.5	3.9	6.6	17.4
87.20	E/A	0.0	0.0	0.0	0.0	1.3	2.1	3.9	11.2
87.30	E/A	0.0	0.0	2.0	4.6	3.5	3.9	4.3	11.6
87.40	A	3.6	10.5	17.4	12.1	6.5	4.2	3.2	8.3
87.50	E/A	0.0	0.0	0.0	0.0	2.2	1.6	3.1	10.9
87.60	A	3.5	2.0	7.6	9.7	12.1	15.9	15.6	18.4
90.20	A	22.5	10.5	9.0	6.7	8.5	9.0	5.9	4.4
95.10	E/A	0.0	0.0	0.0	6.1	7.3	6.9	7.1	8.9
95.20	E/A	0.0	3.6	3.8	5.6	6.1	6.2	5.4	7.5
95.30	E/A	0.0	0.0	0.0	0.0	4.2	4.3	8.8	15.2
95.40	A	5.9	4.8	9.7	17.0	19.6	14.9	8.4	7.0
99.30	E/A	0.0	0.0	0.0	0.0	6.2	2.8	4.2	20.5
100.20	E/A	0.0	0.0	0.0	0.0	0.2	0.4	1.0	23.9
101.20	E	0.0	0.0	0.0	0.0	0.4	0.5	1.8	24.9

Abbreviations: crs = coarse, med = medium, v = very, E = eolian deposit, A = arroyo de

*Grain size classes as follows: v crs pebbles = -6Ø to -5Ø, crs pebbles = -5Ø to -4Ø, crs sand = 0Ø to 1Ø, med sand = 1Ø to 2Ø, fine sand = 2Ø to 3Ø, v fine sand = 3Ø to 4Ø,

TABLE 4. GRAIN SIZE DATA FOR UNIT Q3, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Right Half)

% fine sand	% v fine sand	% silt	% clay	Recalculated Sand	Silt	Clay	Recalculated Gravel	Sand	Mud
49.9	19.0	3.3	0.9	95.8	3.3	0.9	0.0	95.0	4.2
51.9	27.7	6.1	0.4	93.5	6.1	0.4	0.0	93.5	6.5
48.4	21.6	6.2	1.1	92.6	6.2	1.1	0.0	92.6	7.4
45.6	26.6	6.8	1.4	91.8	6.8	1.4	0.0	91.8	8.2
48.5	21.8	5.9	0.1	94.0	5.9	0.1	0.0	94.0	6.0
50.0	20.2	3.7	0.3	96.0	3.7	0.3	0.0	96.0	4.0
45.2	18.8	5.3	1.5	93.2	5.3	1.5	0.0	93.2	6.8
52.0	18.4	3.6	0.2	96.2	3.6	0.2	0.0	96.2	3.8
40.8	22.6	6.8	2.6	90.4	7.0	2.6	2.1	88.5	9.4
47.9	14.1	2.0	0.3	97.7	2.0	0.3	0.0	97.7	2.3
40.3	29.5	8.4	1.8	89.8	8.4	1.8	0.0	89.8	10.2
49.0	23.5	4.7	0.4	94.9	4.7	0.4	0.0	94.9	5.1
56.1	17.8	3.0	0.1	97.0	3.0	0.1	0.0	97.0	3.0
53.7	15.7	3.0	0.1	97.0	3.0	0.1	0.0	97.0	3.0
48.3	25.7	10.4	1.3	88.4	10.4	1.3	0.0	88.4	11.6
48.8	20.7	7.0	1.2	91.8	7.0	1.2	0.0	91.8	8.2
47.7	18.2	4.9	0.9	94.1	4.9	0.9	0.0	94.1	5.9
37.6	18.1	5.8	3.0	91.2	5.8	3.0	0.2	91.0	8.7
39.5	17.5	5.1	4.0	90.9	5.1	4.0	0.0	90.9	9.1
46.3	20.1	5.7	0.5	93.8	5.7	0.5	0.0	93.8	6.2
45.8	19.8	6.5	0.1	93.4	6.5	0.1	0.0	93.4	6.6
43.8	20.2	7.2	1.6	91.1	7.2	1.6	0.0	91.1	8.9
39.0	15.2	4.9	1.9	93.2	4.9	1.9	0.3	92.9	6.8
42.0	20.5	6.6	1.5	91.9	6.6	1.5	0.1	91.8	8.1
13.4	14.9	7.1	1.8	86.3	11.0	2.7	35.5	55.7	8.9
37.9	23.3	5.8	1.6	92.4	6.0	1.6	3.5	89.2	7.4
27.9	33.0	17.6	3.0	79.1	17.8	3.0	1.3	78.1	20.6
30.6	27.1	10.3	2.2	86.1	11.5	2.4	10.1	77.5	12.5
18.0	11.5	4.1	0.6	90.5	8.2	1.3	50.1	45.2	4.8
38.0	32.2	10.4	1.6	87.3	10.6	1.6	2.2	85.9	11.9
11.7	2.8	0.6	0.1	98.9	1.0	0.1	34.9	64.4	0.7
5.7	7.8	8.4	1.5	76.9	19.6	3.5	57.3	32.8	9.9
15.1	22.1	22.9	3.4	69.6	26.4	4.0	13.4	60.3	26.3
14.8	21.9	21.3	3.9	68.9	26.3	4.8	19.1	55.8	25.2
20.4	20.4	23.6	3.1	72.1	24.6	3.3	4.2	69.1	26.7
6.5	3.7	2.7	0.0	93.8	6.2	0.0	56.9	40.5	2.7
32.2	22.5	9.1	2.4	87.8	9.7	2.5	6.2	82.3	11.5
46.0	21.6	5.9	1.0	93.1	6.0	1.0	0.2	92.8	6.9
45.7	20.9	5.0	0.7	94.3	5.0	0.7	0.4	93.9	5.7

posit, E/A = eolian and arroyo deposits mixed by bioturbation.
med pebbles = -4Ø to -3Ø, fine pebbles = -3Ø to -2Ø, granules = -2Ø to -1Ø, v crs sand = 1Ø to 0Ø, silt = 4Ø to 8Ø, clay < 8Ø.

TABLE 5. GRAIN SIZE DATA FOR UNIT Q2, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Left Half)

		Sieve and Pipette Data*							
Sample Number	Facies type	% vcrs pebbles	% crs pebbles	% med pebbles	% fine pebbles	% granules	% vcrs sand	% crs sand	% med sand
16.3	E	0.0	0.0	0.0	0.0	0.6	3.8	8.6	21.2
20.2	E	0.0	0.0	0.0	0.0	0.0	0.4	3.1	21.3
30.3	E	0.0	0.0	0.0	0.0	0.0	2.0	4.7	24.8
46.5	E	0.0	0.0	0.0	0.0	0.3	1.3	2.4	22.5
58.3	E	0.0	0.0	0.0	0.0	0.0	1.4	25.1	43.9
62.4	E	0.0	0.0	0.0	0.0	0.8	3.2	4.9	21.8
71.4	E	0.0	0.0	0.0	0.0	0.3	1.9	4.4	25.3
71.5	E	0.0	0.0	0.0	0.0	0.2	1.5	3.4	24.3
72.3	E	0.0	0.0	0.0	0.0	1.2	2.4	4.1	22.8
74.4	E	0.0	0.0	0.0	0.0	0.0	1.1	3.8	31.0
74.5	E	0.0	0.0	0.0	0.0	0.5	7.0	6.3	27.2
77.4	E	0.0	0.0	0.0	0.0	0.0	0.5	3.4	30.1
77.5	E	0.0	0.0	0.0	0.0	2.2	1.6	2.9	23.0
77.6	E	0.0	0.0	0.0	0.0	0.5	1.4	3.0	24.0
79.3	E	0.0	0.0	0.0	0.0	0.0	2.4	5.3	31.5
79.4	E	0.0	0.0	0.0	0.0	0.0	2.9	6.5	32.6
79.5	E	0.0	0.0	0.0	0.0	0.3	0.8	2.8	27.0
87.7	A	0.0	0.0	0.0	0.0	10.5	8.6	5.4	19.3
89.3	A	0.0	0.0	0.0	0.0	0.8	2.8	4.5	11.7
89.4	A	0.0	4.6	7.0	8.9	13.8	10.4	7.3	11.4
89.5	E	0.0	0.0	0.0	0.0	0.5	1.2	2.1	6.8
89.6	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89.7	E	0.0	0.0	0.0	0.0	0.0	0.3	1.8	18.9
90.3	A	2.9	5.2	10.1	7.5	7.6	10.9	9.8	7.3
91.1	A	6.1	6.1	6.0	12.7	22.6	22.6	13.7	5.0
95.5	E	0.0	0.0	0.0	0.0	3.7	5.9	7.5	15.7
95.6	E	0.0	0.0	0.0	0.0	3.6	6.6	5.5	17.0
96.1	E	0.0	0.0	0.0	0.0	0.9	4.3	6.8	21.0
96.2	E	0.0	0.0	0.0	0.0	1.1	9.0	10.7	19.7
98.6	E	0.0	0.0	0.0	0.0	2.3	3.7	5.6	22.6
99.4	E	0.0	0.0	0.0	0.0	6.5	8.2	5.9	16.9
100.3	E	0.0	0.0	0.0	0.0	0.5	1.1	2.4	21.5
101.3	E	0.0	0.0	0.0	0.0	0.8	1.2	3.7	25.2
104.2	E	0.0	0.0	0.0	0.0	2.5	5.3	4.8	11.2

Abbreviations: crs = coarse, med = medium, v = very, E = eolian deposit, A = arroyo de
*Grain size classes as follows: v crs pebbles = -6Ø to -5Ø, crs pebbles = -5Ø to -4Ø, crs sand = 0Ø to 1Ø, med sand = 1Ø to 2Ø, fine sand = 2Ø to 3Ø, v fine sand = 3Ø to 4Ø,

TABLE 5. GRAIN SIZE DATA FOR UNIT Q2, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Right Half)

% fine sand	% v fine sand	% silt	% clay	Recalculated Sand	Silt	Clay	Recalculated Gravel	Sand	Mud
38.6	16.8	4.9	5.5	89.5	4.9	5.6	0.6	89.0	10.4
45.7	21.6	5.3	2.6	92.1	5.3	2.6	0.0	92.1	7.9
43.6	17.0	4.2	3.7	92.1	4.2	3.7	0.0	92.1	7.9
48.6	18.6	4.7	1.5	93.7	4.7	1.5	0.3	93.4	6.3
16.6	7.5	4.6	1.0	94.5	4.6	1.0	0.0	94.5	5.5
37.0	20.8	7.4	4.1	88.4	7.4	4.1	0.8	87.7	11.5
44.7	15.1	3.4	5.0	91.6	3.4	5.0	0.3	91.3	8.3
48.9	15.2	3.0	3.4	93.5	3.0	3.4	0.2	93.4	6.4
43.9	17.6	4.6	3.5	91.8	4.7	3.5	1.2	90.7	8.1
42.0	14.4	6.2	1.5	92.3	6.2	1.5	0.0	92.3	7.7
38.9	12.9	3.5	3.9	92.7	3.5	3.9	0.5	92.2	7.3
44.8	12.6	3.7	4.8	91.4	3.7	4.8	0.0	91.4	8.6
47.6	16.7	3.9	2.1	93.8	4.0	2.2	2.2	91.8	6.1
45.0	18.1	6.1	2.0	91.9	6.1	2.0	0.5	91.4	8.0
39.1	13.6	3.5	4.7	91.9	3.5	4.7	0.0	91.9	8.1
39.3	11.8	2.7	4.3	93.1	2.7	4.3	0.0	93.1	6.9
46.2	15.9	4.6	2.3	93.1	4.6	2.3	0.3	92.8	6.9
43.3	9.5	2.1	1.3	96.2	2.3	1.5	10.5	86.1	3.4
27.8	31.3	16.4	4.8	78.7	16.5	4.8	0.8	78.1	21.2
18.2	12.8	4.8	0.8	91.4	7.3	1.2	34.3	60.1	5.6
27.9	39.8	16.8	4.9	78.2	16.8	4.9	0.5	77.8	21.7
0.0	32.3	53.3	14.2	32.3	53.5	14.2	0.0	32.3	67.7
44.3	24.0	9.2	1.6	89.2	9.2	1.6	0.0	89.2	10.8
10.4	13.3	11.5	3.5	77.5	17.3	5.2	33.3	51.7	15.0
2.4	1.6	1.2	0.1	97.2	2.6	0.2	53.5	45.2	1.3
27.7	21.3	11.5	6.7	81.1	11.9	7.0	3.7	78.1	18.2
31.2	22.6	7.8	5.6	86.1	8.1	5.8	3.6	82.9	13.4
30.9	21.7	9.0	5.4	85.4	9.1	5.5	0.9	84.6	14.5
23.1	17.1	13.2	6.1	80.5	13.4	6.1	1.1	79.6	19.3
34.2	19.5	7.7	4.3	87.7	7.9	4.4	2.3	85.6	12.0
31.7	20.5	4.8	5.5	88.9	5.2	5.9	6.5	83.2	10.3
47.0	21.7	3.9	1.9	94.1	4.0	1.9	0.5	93.6	5.8
44.6	17.9	3.3	3.3	93.4	3.3	3.3	0.8	92.7	6.5
32.9	29.6	9.1	4.7	85.9	9.3	4.8	2.5	83.7	13.7

posit, P = pond deposit.
med pebbles = -4Ø to -3Ø, fine pebbles = -3Ø to -2Ø, granules = -2Ø to -1Ø, v crs sand = 1Ø to 0Ø, silt = 4Ø to 8Ø, clay < 8Ø.

TABLE 6. GRAIN SIZE DATA FOR UNIT Q1, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Left Half)

		Sieve and Pipette Data*							
Sample Number	Facies type	% vcrs pebbles	% crs pebbles	% med pebbles	% fine pebbles	% granules	% vcrs sand	% crs sand	% med sand
21.5	E	0.0	0.0	0.0	0.0	0.5	5.1	4.4	12.5
22.3	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54.4	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54.5	E	0.0	0.0	0.0	0.0	0.0	1.5	3.6	19.1
74.6	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.2	E/A	0.0	0.0	0.0	0.0	13.7	10.3	9.1	7.9
83.4	E/A	0.0	0.0	0.0	0.0	7.1	4.6	4.0	8.6
83.5	A	23.4	11.0	13.7	12.5	11.8	6.5	2.6	3.3
85.3	E/A	0.0	0.0	0.0	0.0	6.5	8.0	8.4	16.1
85.4	A	0.0	4.0	4.3	6.5	12.3	12.9	10.1	13.4
85.5	E/A	0.0	0.0	0.0	0.0	5.9	10.8	7.6	10.1
85.6	A	7.7	2.3	17.6	15.4	10.9	7.6	5.3	8.7
90.5	A	38.3	3.4	5.6	9.6	9.0	7.2	5.2	3.9
96.4	E/A	0.0	0.0	0.0	0.0	13.7	13.0	9.1	10.9
96.5	A	0.0	10.9	3.0	3.9	5.7	6.3	6.2	10.0
96.6	A	38.6	12.2	12.8	10.8	6.6	4.4	2.1	2.2
102.2	E	0.0	0.0	0.0	0.0	6.3	12.0	9.7	18.9
102.3	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102.4	E	0.0	0.0	0.0	0.0	0.6	1.5	1.9	10.8
102.5	E	0.0	0.0	0.0	0.0	0.3	3.2	4.7	8.2

Abbreviations: crs = coarse, med = medium, v = very, E = eolian deposit, P = pond depo.
*Grain size classes as follows: v crs pebbles = -6Ø to -5Ø, crs pebbles = -5Ø to -4Ø, crs sand = 0Ø to 1Ø, med sand = 1Ø to 2Ø, fine sand = 2Ø to 3Ø, v fine sand = 3Ø to 4Ø,

TABLE 6. GRAIN SIZE DATA FOR UNIT Q1, SOUTHEASTERN WHITE SANDS MISSILE RANGE, NEW MEXICO (Right Half)

% fine sand	% v fine sand	% silt	% clay	Recalculated Sand :	Silt	: Clay	Recalculated Gravel :	Sand :	Mud
52.0	20.4	5.0	0.1	94.9	5.0	0.1	0.59	4.4	5.1
0.0	41.5	47.5	11.1	41.5	47.5	11.1	0.0	41.5	58.5
0.0	39.6	14.9	45.5	39.6	14.9	45.5	0.0	39.6	60.4
40.7	24.3	6.8	4.2	89.0	6.8	4.2	0.0	89.0	11.0
0.0	41.4	58.6	0.0	41.4	58.6	0.0	0.0	41.4	58.6
16.9	26.2	13.1	2.8	81.6	15.2	3.2	13.7	70.4	15.9
32.0	33.2	10.1	0.4	88.7	10.9	0.4	7.1	82.4	10.5
6.9	5.7	2.7	0.0	90.3	9.6	0.0	72.4	25.0	2.7
29.8	20.1	9.5	1.8	88.0	10.1	1.9	6.5	82.3	11.2
19.6	11.8	4.3	0.9	92.9	5.9	1.2	27.1	67.8	5.2
26.7	26.0	8.6	4.3	86.4	9.1	4.5	5.9	81.2	12.8
14.3	7.1	2.8	0.4	93.1	6.0	0.9	53.8	43.0	3.2
5.1	7.0	5.7	0.0	83.2	16.8	0.0	65.9	28.4	5.7
18.3	19.5	11.7	4.0	81.9	13.5	4.6	13.7	70.7	15.6
22.2	21.5	8.9	1.5	86.4	11.6	2.0	23.4	66.2	10.5
4.4	3.4	2.5	0.0	86.9	13.1	0.0	81.0	16.5	2.5
27.2	14.8	6.4	4.7	88.1	6.9	5.0	6.3	82.5	11.1
0.0	38.0	44.9	17.0	38.0	44.9	17.0	0.0	38.0	62.0
44.1	31.5	7.9	1.7	90.3	8.0	1.8	0.6	89.7	9.7
30.3	33.8	15.8	3.6	80.5	15.9	3.6	0.3	80.3	19.4

sit, A = arroyo deposit, E/A = eolian and arroyo mixed by bioturbation.
med pebbles = -4Ø to -3Ø, fine pebbles = -3Ø to -2Ø, granules = -2Ø to -1Ø, v crs sand = 1Ø to 0Ø, silt = 4Ø to 8Ø, clay < 8Ø.

TABLE 7. CARBON-14 RADIOMETRIC DATES FROM BURIED HEARTHS, SE WHITE SANDS MISSLE RANGE, NEW MEXICO (data provided by the Office of Contract Archeology, University of New Mexico).

TRENCH	SOIL HORIZON	CARBON-14 AGE (years before 1950)
61-8	Bw	460 +/- 80
61-8	Bw	840 +/- 110
61-8	Bw	850 +/- 70
66-2	Bw	2170 +/- 80
66-2	Bw	1060 +/- 60
79-2	Bw	3630 +/- 90
79-2	Bw	2070 +/- 430
98	Bk	1040 +/- 100
near 79	Bw	3600 +/- 90
near 79	Bw	2040 +/- 30
near 79	Bw	3995 +/- 105
near 79	Bw/Bk	4075 +/- 120
near 79	Bw	3300 +/- 105
near 61	Bk	2880 +/- 50
near 61	Bk	2750 +/- 270
near 61	Bw	920 +/- 70
near 61	?	1040 +/- 90
near 61	Bw	2045 +/- 95
near 61	Bw	2140 +/- 80
near 61	Bw	1040 +/- 60
near 61	Bw	2440 +/- 90
near 61	Bw	760 +/- 70
near 61	?	640 +/- 80
near 61	?	1030 +/- 110
near 61	Bk	1310 +/- 100
near 61	Bk	540 +/- 90
near 61	Bk	440 +/- 70