

APPENDICES

- 2 - Major-element chemical analyses of Precambrian rocks from central and south-central New Mexico
- 3 - Trace-element contents of Precambrian rocks from central and south-central New Mexico
- 4 - Sample locations

APPENDIX 2

APPENDIX 2 . Major element chemical analyses of Precambrian rocks from central and south-central New Mexico (oxides in weight percent).*

A. Mafic Metaigneous Rocks.

	NP23	NP28	NP51	NP63	NP73	MAN-B	MAN-I	MAN-75	HC1	HC2
SiO ₂	49.3	48.4	49.5	50.6	48.4	48.1	48.3	48.3	47.8	58.6
TiO ₂	0.96	0.94	1.24	1.18	1.10	1.26	1.45	1.36	1.19	0.64
Al ₂ O ₃	13.9	11.3	12.0	11.3	13.0	13.7	12.3	16.8	13.8	13.6
†Fe ₂ O ₃	12.9	12.3	13.9	13.6	12.7	13.3	13.8	12.6	15.0	7.70
MgO	8.34	9.70	9.20	7.70	9.03	8.93	8.91	4.54	8.06	5.94
CaO	8.15	8.65	10.2	10.8	10.4	9.72	10.1	11.0	10.4	6.86
Na ₂ O	3.90	3.13	1.33	1.97	2.78	2.51	2.62	3.12	1.59	3.19
K ₂ O	0.61	0.64	0.62	0.64	0.59	0.51	0.50	0.28	0.20	1.51

	HC3	MZ-2	MZ-3	MZ-5	MZ-6	MZ-24	MZ-26	MZ-29	LD122	LD131
SiO ₂	48.6	48.2	50.5	50.9	49.5	49.6	47.4	46.9	48.0	49.3
TiO ₂	1.51	0.82	0.92	0.76	0.94	0.99	1.25	1.02	1.39	2.18
Al ₂ O ₃	13.1	12.8	12.2	11.1	11.4	11.7	12.5	10.1	13.2	12.3
†Fe ₂ O ₃	17.7	13.5	14.7	14.4	15.5	13.7	14.8	16.4	14.5	15.0
MgO	6.27	10.6	6.96	8.44	8.80	8.65	9.69	11.4	8.14	7.14
CaO	8.46	10.5	9.75	9.27	8.30	10.9	10.1	10.4	9.60	9.59
Na ₂ O	2.07	1.36	2.36	2.94	3.36	2.10	1.79	1.40	2.90	1.96
K ₂ O	0.26	0.25	0.58	0.23	0.23	0.36	0.47	0.40	0.28	0.53

	M16	MAGD	SANA 19	SANA 38	SANA 42	SANA 69	SANA 94	SANA 97
SiO ₂	46.4	48.8	48.8	48.4	48.8	49.7	50.2	47.0
TiO ₂	1.63	1.54	0.98	0.88	0.97	3.04	1.34	0.97
Al ₂ O ₃	13.4	10.3	12.4	14.6	12.0	12.1	15.6	13.5
†Fe ₂ O ₃	15.5	15.7	12.6	11.4	12.1	13.7	12.9	12.1
MgO	8.43	9.40	8.82	8.34	8.76	6.35	8.23	9.62
CaO	9.16	10.1	10.1	10.6	10.9	9.78	3.18	10.5
Na ₂ O	3.14	1.85	2.71	2.72	2.33	2.64	0.71	1.46
K ₂ O	0.35	0.29	1.59	1.08	2.14	0.71	5.88	2.83

APPENDIX 2, continued

A. continued

	SANA 109	SANA 120	SANA 138
SiO ₂	48.2	48.3	47.9
TiO ₂	2.56	1.69	1.79
Al ₂ O ₃	9.63	12.7	11.8
+ Fe ₂ O ₃	18.7	14.6	15.6
MgO	7.65	7.95	9.15
CaO	10.0	10.0	9.20
Na ₂ O	1.14	2.09	2.25
K ₂ O	0.12	0.70	0.28

B. Ojita and Monte Largo plutons.

	Monte Largo (MAN)			Ojita (OJ)					
	A	30	34	2	3	4	6	7	8
SiO ₂	65.4	64.1	65.4	65.0	67.6	65.6	65.1	65.8	66.5
TiO ₂	0.82	0.59	0.62	0.58	0.70	0.54	0.74	0.83	0.67
Al ₂ O ₃	15.1	16.5	16.3	16.3	16.0	16.4	16.2	15.9	16.2
+ Fe ₂ O ₃	5.50	5.64	5.67	5.02	5.30	4.65	5.65	5.38	5.06
MgO	3.07	1.84	1.65	1.92	1.81	2.27	1.30	1.45	1.52
CaO	2.82	4.02	3.31	3.45	1.64	3.17	3.56	3.67	3.15
Na ₂ O	2.99	2.89	2.71	3.44	2.73	3.15	3.43	2.85	2.60
K ₂ O	3.82	3.91	3.83	3.80	3.74	3.71	3.51	3.59	3.81
	Mesonorms								
An	14.4	20.5	16.9	17.6	8.4	16.1	18.4	18.8	16.3
Ab	26.2	25.2	23.6	30.4	24.0	27.4	30.3	24.9	22.7
Or	9.8	13.3	13.1	13.1	13.6	13.0	14.0	11.6	13.6
Bi	19.3	15.3	14.8	14.1	14.7	14.7	10.0	13.3	13.0
Q	29.0	25.1	29.5	24.1	34.8	27.2	26.3	30.0	31.9
C	1.1	0.44	2.0	0.39	4.5	1.5	0.6	1.1	2.4

APPENDIX 2, continued.

Ojita							
	9	10	11	12	13	14	15
SiO ₂	65.4	67.9	66.3	66.9	66.5	65.9	65.6
TiO ₂	0.62	0.62	0.61	0.59	0.70	0.56	0.61
Al ₂ O ₃	16.2	15.8	16.2	16.0	15.6	16.7	16.3
†Fe ₂ O ₃	4.53	5.28	5.12	4.61	5.30	4.90	4.78
MgO	1.79	1.54	1.73	1.49	1.61	1.41	1.44
CaO	3.00	1.59	1.59	3.32	3.06	2.54	3.02
Na ₂ O	3.59	2.79	3.28	2.96	2.93	3.39	3.85
K ₂ O	4.36	3.96	4.69	3.56	3.83	4.10	3.91
Mesonorms							
An	15.3	8.1	8.1	17.0	15.6	13.0	15.5
Ab	31.3	24.3	28.6	25.8	25.6	29.5	33.6
Or	16.4	15.2	18.0	12.4	12.9	16.0	14.7
Bi	12.4	13.6	13.7	11.6	13.7	12.1	11.9
Q	23.6	34.4	28.0	31.2	30.4	26.7	23.5
C	0.53	4.2	3.2	1.7	1.5	2.4	0.53

C. Priest pluton.

MAN	G	38	41	46
SiO ₂	68.5	66.6	69.3	69.4
TiO ₂	0.47	0.45	0.26	0.37
Al ₂ O ₃	15.1	16.1	15.4	14.9
†Fe ₂ O ₃	2.66	3.72	2.11	3.19
MgO	2.37	1.47	1.18	1.38
CaO	2.08	3.08	2.58	2.56
Na ₂ O	3.96	3.96	4.34	3.74
K ₂ O	4.38	4.11	4.33	3.94
Mesonorms				
An	10.7	15.8	13.6	13.1
Ab	34.7	34.7	37.9	32.7
Or	14.3	14.9	18.7	15.1
Bi	10.2	9.6	4.4	8.0
Q	28.7	24.6	25.6	30.5
C	1.1	0.30	-0.40	0.48

APPENDIX 2, continued

D. Sandia plutons.

SD	South Pluton					North Pluton			
	1	2	3	4	5	6	7	8	9
SiO ₂	68.1	66.1	65.2	65.8	66.3	69.4	68.6	69.9	68.8
TiO ₂	0.90	1.03	1.10	1.17	0.97	0.70	0.77	0.81	0.76
Al ₂ O ₃	13.4	14.1	14.3	13.9	14.0	13.9	13.8	13.1	14.1
Fe ₂ O ₃	6.30	6.35	7.16	7.38	7.05	4.48	4.98	4.75	5.01
MgO	1.01	1.51	1.66	1.41	1.00	0.82	1.19	1.04	0.96
CaO	3.30	3.45	3.97	4.15	3.74	2.64	2.91	2.80	2.65
Na ₂ O	2.93	3.02	3.20	3.25	3.08	3.33	3.24	3.27	3.33
K ₂ O	3.56	3.94	2.91	2.44	3.36	4.23	4.01	3.83	3.89
Mesonorms									
An	17.0	17.8	20.5	21.5	19.3	13.6	15.0	14.4	13.6
Ab	25.8	26.6	28.2	28.7	27.1	29.2	28.4	28.7	29.2
Or	13.3	14.3	6.9	4.4	11.2	20.0	17.2	16.8	17.0
Bi	12.8	14.7	16.9	16.6	14.4	8.2	10.6	9.6	9.9
Q	32.0	27.7	28.6	30.3	29.2	29.7	29.8	31.9	30.4
C	-1.2	-1.3	-1.3	-1.6	-1.4	-0.8	-1.0	-1.4	-0.27

E. Sepultura pluton.

	N9	N13	NP12	NP14	NP15	NP16	NP19
SiO ₂	75.0	74.8	75.1	75.2	75.1	75.6	74.8
TiO ₂	0.12	0.25	0.50	0.09	0.17	0.10	0.31
Al ₂ O ₃	13.6	13.5	13.6	13.7	13.0	13.3	13.1
Fe ₂ O ₃	1.30	1.77	0.78	1.12	1.13	0.73	1.54
MgO	0.03	0.05	0.07	0.05	0.08	0.01	0.03
CaO	0.49	0.87	0.58	0.70	0.50	0.58	0.73
Na ₂ O	4.12	3.78	4.12	3.89	4.69	4.46	4.29
K ₂ O	4.75	4.49	4.74	4.74	4.83	4.76	4.71
Mesonorms							
An	2.5	4.4	2.9	3.5	2.6	2.8	3.6
Ab	35.5	32.2	35.2	33.2	40.0	37.8	36.5
Or	26.5	24.3	27.3	26.7	27.2	27.2	26.0
Bi	3.1	4.2	1.9	2.7	2.7	1.8	3.6
Q	32.0	34.1	32.1	33.1	28.3	30.5	30.6
C	0.76	0.92	0.69	0.92	-0.77	-0.14	-0.27

APPENDIX 2, continued

F. Los Pinos pluton.

	N2	N3	N4	NP2	NP4	NP6	NP8	NP9	NP10
SiO ₂	75.2	74.1	73.9	75.3	76.0	76.3	73.8	75.9	74.0
TiO ₂	0.25	0.25	0.21	0.27	0.25	0.15	0.31	0.22	0.28
+Al ₂ O ₃	11.7	13.0	13.0	11.9	11.3	11.0	12.1	12.0	12.1
Fe ₂ O ₃	2.78	2.49	2.91	2.74	2.61	2.82	2.67	2.31	3.43
MgO	0.17	0.05	0.05	0.05	0.08	0.04	0.10	0.07	0.05
CaO	0.74	1.01	1.08	0.79	0.76	0.48	0.90	0.63	1.19
Na ₂ O	4.32	4.36	4.18	4.37	3.91	4.75	5.32	3.93	4.20
K ₂ O	4.33	4.24	4.19	4.13	4.60	3.95	4.29	4.45	4.27
Mesonorms									
An	3.7	5.1	5.4	4.0	3.8	2.4	4.6	3.1	5.9
Ab	36.8	37.2	35.6	37.2	33.2	40.2	45.8	33.4	35.7
Or	21.8	21.8	21.0	20.9	23.9	19.8	22.0	23.4	20.9
Bi	6.9	5.8	6.8	6.4	6.1	6.6	6.2	5.4	8.0
Q	32.1	30.8	31.4	32.7	34.3	33.0	24.4	34.8	31.0
C	-1.4	-0.6	-0.2	-1.1	-1.3	-1.2	-2.9	-0.2	-1.5

G. Capirote pluton

	Unaltered Facies									Altered Facies		
	LD86	LD89	LD90	LD100	LD106	LD108	LD110	LD112	LD116	LD4	LD68	LD97
SiO ₂	76.5	77.8	77.1	77.7	74.7	75.3	76.9	75.2	76.0	77.9	75.1	75.2
TiO ₂	0.18	0.19	0.13	0.16	0.28	0.32	0.23	0.29	0.27	0.12	0.32	0.21
+Al ₂ O ₃	13.7	12.9	13.1	12.7	13.7	12.8	12.8	13.2	13.0	12.7	14.1	14.9
Fe ₂ O ₃	0.36	0.10	0.52	0.10	1.44	2.41	0.95	1.91	1.86	0.44	0.80	0.20
MgO	0.10	0.22	0.11	0.05	1.09	0.10	0.11	0.15	0.07	0.10	0.01	0.10
CaO	0.39	0.32	0.41	0.64	0.92	0.80	0.29	0.33	0.48	0.28	1.56	0.40
Na ₂ O	4.21	3.44	3.41	3.39	5.29	3.75	4.22	4.20	3.70	3.71	7.36	8.38
K ₂ O	4.06	4.53	4.72	4.76	2.08	4.02	4.00	4.22	4.12	4.25	0.25	0.11
Mesonorms												
An	2.0	1.6	2.1	3.2	4.6	4.0	1.4	1.7	2.4	1.4	7.8	2.0
Ab	36.0	29.3	29.2	28.9	45.1	32.2	36.3	36.1	32.1	31.7	63.0	71.2
Or	23.8	26.1	27.6	27.9	7.9	21.0	23.4	23.2	24.0	24.5	4.4	0.16
Bi	0.33	0.96	0.37	0.40	7.0	4.7	0.37	2.9	0.52	0.95	0.03	0.79
Q	36.1	40.2	39.0	38.8	34.3	37.1	37.3	34.8	39.1	39.9	26.4	25.5
C	1.7	1.8	1.7	0.85	1.1	0.90	1.1	1.2	1.7	1.5	-1.7	0.32

APPENDIX 2, continued

	Altered Facies con't.				Granophyre			
	LD98	LD103	LD104	LD117	LD29	LD32	LD34	LD59
SiO ₂	74.9	77.1	75.0	76.8	77.9	77.9	78.9	77.6
TiO ₂	0.26	0.27	0.26	0.12	0.18	0.17	0.16	0.18
Al ₂ O ₃	13.5	12.3	13.6	13.3	12.6	12.6	12.3	12.1
Fe ₂ O ₃	2.14	0.31	1.51	0.45	1.49	1.14	1.00	1.59
MgO	0.14	0.97	0.50	0.11	0.40	0.11	0.10	0.20
CaO	1.40	1.81	0.88	0.36	0.33	0.29	0.27	0.36
Na ₂ O	4.63	4.92	4.49	4.08	4.03	3.87	3.92	4.08
K ₂ O	2.53	1.82	3.26	4.28	2.57	3.42	2.85	3.40
Mesonorms								
An	7.0	7.6	4.4	1.8	1.7	1.5	1.4	1.8
Ab	39.6	42.4	38.3	34.9	34.3	33.4	33.6	35.3
Or	12.1	8.1	16.8	25.0	14.2	20.0	16.6	19.6
Bi	5.0	4.0	3.9	0.37	1.4	0.37	0.34	0.68
Q	35.7	38.8	35.1	36.5	45.1	42.7	45.5	45.6
C	0.63	-0.49	1.2	1.4	2.7	2.1	2.4	2.4

H. Siliceous metaigneous rocks.

	Ladron Mountains						Los Pinos Mountains					
	LD36	LD52	LD55	LD57	LD82	LD83	N32	N36	NP46	NP47	NP49	NP53
SiO ₂	75.2	75.5	65.8	71.0	72.4	70.8	71.6	70.8	74.1	74.2	74.2	71.9
TiO ₂	0.34	0.35	0.67	0.62	0.47	0.55	0.18	0.22	0.21	0.22	0.32	0.15
Al ₂ O ₃	13.4	12.8	15.6	12.0	12.0	14.6	13.8	12.4	13.5	13.2	12.9	13.8
Fe ₂ O ₃	2.46	2.98	5.42	6.84	5.65	3.86	4.11	5.74	2.49	2.40	2.70	2.43
MgO	0.23	0.35	1.07	1.04	0.30	0.56	0.61	0.49	0.05	0.05	0.05	0.05
CaO	0.59	0.80	2.73	2.54	0.54	1.43	1.63	2.53	0.75	0.70	0.66	1.50
Na ₂ O	5.28	4.23	6.18	1.35	1.55	6.88	3.24	3.88	3.76	4.24	4.27	3.80
K ₂ O	2.00	2.49	2.03	4.11	6.59	0.82	4.25	3.46	4.62	4.53	4.41	3.32
Mesonorms												
An	3.0	4.0	13.9	13.0	2.9	7.4	8.3	13.1	3.8	3.6	3.4	7.6
Ab	46.2	36.4	53.7	11.8	14.0	60.7	28.2	33.8	32.7	38.9	37.0	33.7
Or	11.3	6.5	4.1	15.4	38.2	2.3	21.1	14.8	26.5	26.1	25.0	15.7
Bi	0.79	10.9	13.1	14.9	1.1	4.1	6.7	9.7	1.4	1.2	1.8	6.7
Q	37.0	40.4	16.9	43.9	41.4	25.7	34.6	31.0	34.3	32.0	32.5	35.0
C	1.6	1.8	-1.7	0.88	1.9	-0.18	1.1	-2.3	1.1	0.18	0.22	1.2

APPENDIX 2, continued

	Los Pinos Mountains									Manzano Mtns.		
	NP58	NP62	NP64	NP68	NP81	NP22	NP24	NP32	NP36	MAN-D	MAN-E	MAN-K
SiO ₂	74.9	74.3	71.1	70.1	70.9	70.7	70.0	79.7	70.9	76.0	75.7	75.2
TiO ₂	0.19	0.21	0.22	0.16	0.18	0.61	0.31	0.17	0.67	0.37	0.29	0.35
Al ₂ O ₃	15.0	14.9	14.2	14.9	13.2	14.8	14.4	10.3	14.0	12.1	11.9	12.1
Fe ₂ O ₃	1.38	1.45	4.21	4.65	5.32	3.35	4.32	1.41	3.55	2.24	2.69	2.80
MgO	0.04	0.05	0.41	0.18	0.57	0.17	0.07	0.05	0.64	0.08	0.02	0.05
CaO	0.35	0.36	2.36	2.41	1.75	2.14	1.82	1.06	1.79	1.29	1.26	1.23
Na ₂ O	3.04	3.42	4.14	3.60	3.61	3.75	4.72	3.73	3.86	3.00	3.30	3.12
K ₂ O	4.62	4.81	2.87	3.80	3.88	3.99	3.78	3.09	4.10	4.41	4.34	4.62
	Mesonorms											
An	1.8	1.8	12.2	11.5	8.9	10.9	9.3	5.4	10.9	6.6	6.4	6.3
Ab	26.2	29.9	36.5	31.3	31.4	32.8	41.4	32.2	32.8	26.5	28.7	27.2
Or	27.4	28.4	13.3	18.7	17.4	21.4	19.3	18.0	21.4	26.8	25.9	27.5
Bi	0.40	0.40	6.1	6.5	9.3	3.7	5.3	0.40	3.7	1.0	2.0	1.5
Q	39.6	35.9	31.8	31.0	32.7	30.5	25.0	45.0	30.5	39.3	37.7	37.9
C	4.5	3.6	0.04	1.0	0.20	0.61	-0.40	-1.1	0.61	-0.17	-0.62	-0.33

	Other Areas			
	MZ-22	MZ-23	SANA-144	M13
SiO ₂	62.2	62.2	76.5	74.1
TiO ₂	0.63	0.67	0.17	0.28
Al ₂ O ₃	14.6	14.5	12.1	13.2
Fe ₂ O ₃	7.34	7.50	1.80	3.18
MgO	3.54	3.77	0.18	0.20
CaO	6.84	5.94	0.79	0.89
Na ₂ O	1.91	2.54	2.96	3.32
K ₂ O	2.44	2.37	5.02	4.33
	Mesonorms			
An	35.9	31.2	4.0	4.5
Ab	17.1	22.8	25.7	28.8
Or	1.7	0.52	29.2	23.2
Bi	19.6	20.8	0.75	4.1
Q	29.2	27.7	39.8	37.7
C	-3.7	-3.1	0.50	1.6

APPENDIX 2, continued

I. Oscura pluton.

OSC	Red Variety					Gray Variety				
	4	5	10	11	22	6	8	13	14	19
SiO ₂	73.5	72.6	74.8	74.1	74.3	73.7	72.6	74.9	74.4	72.2
TiO ₂	0.24	0.26	0.20	0.19	0.22	0.22	0.28	0.20	0.25	0.24
+Al ₂ O ₃	14.3	14.7	13.8	14.7	14.4	14.0	14.9	13.9	14.5	14.9
Fe ₂ O ₃	1.31	1.61	1.16	1.23	1.42	1.35	1.69	1.20	1.39	1.65
MgO	0.60	0.45	0.10	0.25	0.37	0.31	0.74	0.16	0.24	0.46
CaO	1.01	0.77	0.50	0.41	0.61	1.06	1.06	0.61	0.74	1.04
Na ₂ O	3.33	3.30	2.82	2.93	3.37	3.25	3.48	3.19	2.99	3.46
K ₂ O	5.21	5.81	6.12	5.69	4.81	5.61	4.75	5.34	4.97	5.55
	Mesonorms									
An	5.1	3.9	2.5	2.1	3.1	5.4	5.4	3.1	3.8	5.3
Ab	28.7	28.6	24.3	25.3	29.1	28.1	30.2	27.5	25.8	30.0
Or	29.3	33.1	35.8	32.9	27.4	32.3	26.2	31.1	28.9	31.6
Bi	2.3	1.8	0.57	1.1	1.5	1.3	2.7	0.77	0.91	1.8
Q	33.1	30.7	34.9	35.4	36.1	32.1	33.1	35.6	37.5	29.8
C	1.5	1.8	1.8	3.1	2.7	0.79	2.3	1.9	3.0	1.5

	Aplitic Variety					
	3	7	15	17	18	20
SiO ₂	71.8	73.1	73.4	72.9	72.9	72.9
TiO ₂	0.30	0.24	0.15	0.20	0.24	0.25
+Al ₂ O ₃	15.3	14.3	15.2	14.9	15.0	14.7
Fe ₂ O ₃	1.96	1.74	1.03	1.43	1.49	0.68
MgO	0.11	0.22	0.10	0.48	0.57	0.10
CaO	1.55	1.37	0.80	0.87	0.92	1.09
Na ₂ O	3.08	3.13	3.68	3.42	3.36	3.20
K ₂ O	5.40	5.40	5.14	5.30	5.02	5.58
	Mesonorms					
An	7.9	7.0	4.0	4.4	4.7	5.5
Ab	26.8	27.1	31.6	29.5	29.1	27.7
Or	31.5	31.3	30.0	30.1	28.2	32.6
Bi	0.61	1.0	0.57	1.9	2.2	0.57
Q	31.3	32.6	31.4	31.9	33.3	31.8
C	1.8	1.0	2.3	2.1	2.5	1.6

APPENDIX 2, continued

J. Capitol Peak pluton.

	SANA4	SANA11	SANA12	SANA20	SANA22	SANA25	SANA27	SANA29	SANA31	SANA32	SANA43
SiO ₂	72.4	75.0	73.6	71.2	72.9	74.1	72.8	72.8	73.8	73.0	70.3
TiO ₂	0.23	0.20	0.23	0.38	0.25	0.37	0.36	0.31	0.17	0.19	0.36
Al ₂ O ₃	15.9	14.3	14.3	15.2	14.3	13.4	14.3	14.3	14.6	15.1	16.4
[†] Fe ₂ O ₃	1.09	0.52	1.48	2.37	1.41	2.15	2.21	1.95	0.77	1.06	1.58
MgO	0.03	0.23	0.46	0.64	0.84	0.10	0.84	0.52	0.51	0.41	0.51
CaO	1.09	0.63	0.98	0.32	1.10	1.06	0.73	0.68	1.07	0.58	1.74
Na ₂ O	3.19	3.30	3.74	3.37	3.40	3.02	3.11	3.30	3.67	4.09	3.25
K ₂ O	5.52	5.32	4.71	6.02	5.31	5.30	5.15	5.64	4.91	5.07	5.36
	Mesonorms										
An	5.5	3.7	5.0	1.9	5.6	5.4	3.7	3.5	5.4	3.4	8.8
Ab	27.5	32.9	32.2	34.6	29.4	26.3	27.1	28.9	31.5	30.5	28.2
Or	32.3	30.7	26.6	33.2	29.3	30.8	28.1	32.0	27.6	28.7	30.3
Bi	0.50	1.2	1.8	3.7	3.1	0.81	3.4	2.0	2.0	1.9	2.0
Q	31.2	30.5	32.6	24.5	31.5	35.6	35.0	32.0	32.0	33.9	28.3
C	2.9	1.0	1.7	2.1	1.1	1.0	2.5	1.7	1.4	1.6	2.3

K. Ladron pluton.

	LD84	LD7	LD77	LD79	LD1	LD102
SiO ₂	74.8	75.5	75.0	75.7	77.2	75.3
TiO ₂	0.20	0.18	0.19	0.20	0.21	0.19
Al ₂ O ₃	13.5	13.4	14.6	13.3	13.4	14.2
[†] Fe ₂ O ₃	1.19	1.01	0.43	1.21	0.04	0.12
MgO	0.51	0.37	0.16	0.43	0.29	0.50
CaO	0.98	1.15	1.38	1.02	0.29	1.23
Na ₂ O	3.61	3.45	3.39	3.26	3.84	3.66
K ₂ O	4.71	4.44	4.35	4.38	4.23	4.30
	Mesonorms					
An	4.9	5.8	6.9	5.1	1.4	6.1
Ab	30.9	29.4	28.9	27.8	32.6	31.2
Or	25.6	24.2	24.8	23.5	24.3	24.1
Bi	3.7	3.3	1.5	4.0	1.0	1.9
Q	34.2	36.4	36.0	38.2	38.5	36.3
C	0.74	0.87	1.9	1.4	2.0	1.3

APPENDIX 2, continued

L. Mockingbird Gap pluton.

	N. San Andres Mtns.			Oscura Mtns.		
	SANA6	SANA8	SANA9	OSC1	OSC2	OSC9
SiO ₂	68.8	70.3	69.0	69.6	69.9	69.2
TiO ₂	0.52	0.52	0.58	0.52	0.28	0.44
Al ₂ O ₃	15.0	14.7	14.5	14.9	15.9	15.5
†Fe ₂ O ₃	3.46	3.16	3.87	3.29	1.41	2.63
MgO	1.65	1.00	1.68	1.09	1.88	1.08
CaO	1.98	1.64	1.99	2.48	1.69	1.83
Na ₂ O	3.19	3.10	3.38	3.28	3.34	3.17
K ₂ O	4.90	5.08	4.50	4.34	5.08	5.65
Mesonorms						
An	10.1	8.4	10.2	12.7	8.6	9.4
Ab	27.8	27.1	29.6	28.6	28.9	27.6
Or	23.2	26.2	20.3	21.4	25.5	30.0
Bi	8.9	6.0	9.9	6.6	6.6	5.2
Q	28.7	30.9	29.3	30.0	28.4	26.6
C	1.0	1.3	0.63	0.46	2.0	1.1

M. Miscellaneous plutons.

	Manzanita pluton					
	COY-1	COY-2	COY-3	COY-4	COY-5	COY-6
SiO ₂	72.8	73.4	79.0	72.8	72.4	74.9
TiO ₂	0.42	0.25	0.15	0.34	0.44	0.11
Al ₂ O ₃	13.4	14.4	12.0	14.2	14.1	14.6
†Fe ₂ O ₃	3.37	2.01	0.86	2.66	2.88	1.25
MgO	0.48	0.18	0.06	0.29	0.67	0.12
CaO	1.53	1.40	0.72	1.62	1.78	0.82
Na ₂ O	2.45	3.59	2.26	2.90	3.01	2.18
K ₂ O	5.04	4.25	4.44	4.68	4.21	5.51
Mesonorms						
An	7.8	7.1	3.6	8.2	9.1	4.1
Ab	21.3	31.2	19.4	25.2	26.2	18.8
Or	26.5	24.3	26.1	25.7	21.8	32.3
Bi	5.5	1.2	0.20	3.2	5.0	0.40
Q	37.5	34.5	48.3	35.9	36.4	40.5
C	1.3	1.5	2.3	1.6	1.5	3.7

APPENDIX 2, continued

	MG	PERD	WHT	SANA A	SANA 48	SANA 84	SANA 86	SANA 124	SANA 128
SiO ₂	76.0	76.6	67.4	73.7	71.8	72.0	76.1	72.1	73.2
TiO ₂	0.31	0.07	0.79	0.26	0.44	0.56	0.06	0.34	0.22
Al ₂ O ₃	11.5	12.6	14.8	14.0	13.4	12.8	13.3	15.3	15.3
† Fe ₂ O ₃	3.33	1.12	5.00	1.97	2.95	5.44	0.76	2.30	1.62
MgO	0.10	0.11	0.91	0.15	0.16	0.31	0.05	0.18	0.16
CaO	0.76	0.67	2.34	1.29	1.01	1.85	0.86	1.24	0.93
Na ₂ O	2.77	4.20	3.46	3.31	4.70	2.64	3.30	2.54	2.83
K ₂ O	4.75	4.14	4.68	4.81	5.02	3.89	5.06	5.49	5.24
Mesonorms									
An	3.9	3.4	12.1	6.6	5.2	9.4	4.3	6.3	4.7
Ab	24.0	36.1	30.5	28.7	40.9	23.0	28.3	22.1	24.5
Or	25.7	23.9	22.3	27.8	27.7	17.3	29.8	31.3	30.6
Bi	4.1	0.95	8.8	1.1	3.4	9.8	0.17	1.9	0.54
Q	41.6	35.6	26.1	34.6	24.3	39.3	36.4	35.1	36.0
C	0.56	0.06	0	1.2	-1.5	1.0	0.92	3.2	3.5

N. Feldspathic quartzite and arkosite (Rb and Sr in ppm).

	Los Pinos Mtns. (NP)									Manzano Mtns. (MAN)			
	27	29	30	33	34	56	65	66	70	C	F	J	72
SiO ₂	79.6	75.3	81.2	82.7	77.8	78.1	74.4	73.8	62.4	78.4	68.4	79.1	81.0
TiO ₂	0.28	0.32	0.45	0.16	0.25	0.18	0.38	0.30	0.65	0.50	0.55	0.58	0.41
Al ₂ O ₃	11.9	15.6	10.3	10.2	11.2	11.0	15.8	16.6	12.1	11.8	15.3	11.2	11.1
† Fe ₂ O ₃	1.97	1.40	3.05	1.39	4.00	4.45	2.66	2.36	7.88	1.84	4.50	2.82	2.02
MgO	0.32	0.05	0.07	0.05	0.32	0.17	0.54	0.59	4.44	0.20	1.05	0.42	0.31
CaO	0.38	0.31	0.32	0.37	0.66	0.81	1.21	2.00	8.52	1.26	1.68	1.12	1.40
Na ₂ O	2.28	2.18	0.46	1.04	2.16	2.09	1.21	2.00	2.91	1.86	2.49	1.81	0.94
K ₂ O	2.76	4.32	3.65	3.58	3.01	2.68	3.30	1.85	0.59	3.62	4.05	2.52	2.32
Rb	88	152	142	119	122	100	137	107	62	106	152	83	51
Sr	12	25	5	27	46	79	24	43	430	64	122	72	101

* Mafic metaigneous rock totals recalculated to 98 per cent; all other totals recalculated to 99.5 per cent.

† Total Fe as Fe₂O₃.

APPENDIX 3

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APPENDIX 3. Trace element contents of Precambrian rocks from central and south-central New Mexico (in ppm).

	NP63	MAN-75	MAN-B	MAN-I	HC1	HC2	HC3	MZ-2	MZ-3	MZ-5	MZ-6
Cr	234	44	109	62	196	258	33	381	85	77	73
Co	68	32	51	52	45	20	42	56	54	54	51
Ni	78	—	130	116	187	60	20	69	40	37	47
Rb	15	4.9	9.4	14	2.3	28	3.0	12	40	8	≤2
Sr	173	322	211	217	172	488	166	121	116	123	86
Zr	114	149	106	139	163	138	188	140	139	184	214
Ba	—	271	190	280	118	475	121	42	157	28	83
Cs	0.90	1.5	1.8	1.1	0.10	0.62	0.19	0.65	0.91	0.07	0.1
La	7.2	8	5.7	7.2	5.3	21	1.8	2.7	3.1	1.1	2.0
Ce	22	20	14	17	10	47	5.5	5.6	9.8	4.2	7.0
Sm	4.0	3.6	3.3	4.6	2.7	4.7	3.1	2.2	2.4	2.0	2.0
Eu	1.3	0.97	1.3	1.2	0.96	1.3	1.9	0.83	0.95	0.89	0.72
Tb	0.74	0.79	0.71	0.89	0.51	0.89	1.5	0.49	0.62	0.70	0.57
Yb	2.7	2.2	2.9	3.4	2.4	1.8	4.0	2.0	2.8	2.4	4.4
Lu	0.49	0.35	0.43	0.54	0.45	0.36	0.75	0.38	0.47	0.42	0.82
Y	17	15	22	29	25	30	34	20	24	22	25
La/Yb	2.7	4.0	2.0	2.1	2.2	12	0.45	1.4	1.1	0.46	0.45
Eu/Eu*	1.0	0.76	1.1	0.84	1.0	0.78	1.4	1.0	1.0	1.1	0.91

	MZ-24	MZ-26	MZ-29	LD52	LD57	LD83	LD34	LDQM	CAPG	NP22	NP32
Cr	443	130	384	1	1	1	2	8	1	4	3
Co	59	70	77	4	3	6	0.3	3	1	5	1
Ni	74	85	62	—	—	—	—	—	—	—	—
Rb	≤2	12	13	102	141	37	54	269	127	154	205
Sr	235	214	56	67	60	96	50	87	46	59	31
Zr	210	219	196	192	512	192	104	82	167	—	—
Ba	350	156	76	630	866	483	1030	380	539	795	1270
Cs	2.8	0.5	0.5	3.4	7.2	1.2	1.0	0.80	2.2	2.9	1.5
La	2.5	4.6	1.3	40	50	33	37	28	25	92	96
Ce	11	17	4.6	79	131	71	84	61	76	150	199
Sm	2.5	3.2	2.0	6.9	18	6.6	7.8	6.5	7.8	24	28
Eu	1.4	1.5	0.73	1.2	3.7	1.7	0.85	0.85	0.63	3.4	3.4
Tb	1.06	1.02	0.60	1.0	3.9	1.3	2.0	1.1	1.7	3.8	4.4
Yb	5.0	3.2	2.8	2.9	9.6	4.5	7.0	2.9	7.3	10	12
Lu	0.90	0.45	0.50	0.45	1.4	0.57	1.0	0.43	1.2	1.6	1.8
Y	26	26	25	—	—	—	—	—	—	—	—
La/Yb	0.50	1.4	0.46	14	5.2	7.3	5.3	9.7	3.4	9.2	8
Eu/Eu*	1.3	1.1	1.1	0.55	0.59	0.71	0.28	0.39	0.23	0.44	0.39

APPENDIX 3, continued

	NP36	NP46	NP47	NP58	MAN-D	MAN-E	MAN-K	N9	NP12	NP14	N2
Cr	16	3	1	1	2	8	7	8	1	2	1
Co	6	0.3	0.4	0.9	0.5	0.9	0.3	0.3	0.6	0.8	1
Rb	152	172	176	177	133	137	140	169	287	214	153
Sr	131	74	46	31	76	67	81	27	10	34	53
Zr	—	—	—	—	253	275	302	—	—	—	—
Ba	940	1100	1013	1260	1020	850	640	678	—	576	1090
Cs	—	7.1	6.4	1.3	3.9	2.9	3.5	2.3	3.5	3.1	2.5
La	49	88	64	58	64	84	66	49	48	60	65
Ce	126	168	143	137	142	123	153	142	135	145	176
Sm	14	25	20	17	16	21	14	18	17	19	22
Eu	3.4	3.3	2.5	2.8	1.8	2.1	1.9	2.2	3.6	1.5	3.1
Tb	2.8	3.5	2.9	2.6	2.6	2.8	2.6	3.2	2.7	2.4	4.1
Yb	9.4	12	11	10	11	11	11	11	13	9	13
Lu	1.6	2.0	2.5	1.8	1.5	1.5	1.4	1.9	2.0	1.5	2.0
La/Yb	5.2	7.3	5.8	5.8	5.8	7.6	6.0	4.4	3.7	6.7	5.0
Eu/Eu*	0.67	0.44	0.40	0.51	0.34	0.33	0.41	0.38	0.66	0.27	0.43

	N3	MAN-A	MAN-30	MAN-34	OA	OB	OC	OD	OE	OF	MAN-G
Cr	2	16	17	16	25	24	19	14	10	21	25
Co	0.7	11	11	11	15	16	17	15	13	13	6
Rb	117	134	165	168	167	162	155	179	154	156	164
Sr	72	173	177	171	186	209	185	134	159	188	332
Zr	—	122	156	112	—	—	—	—	—	—	82
Ba	980	544	532	690	570	600	440	580	460	540	614
Cs	2.8	5.5	9.5	5.3	15	8	11	14	11	9	8.0
La	75	35	52	42	29	41	38	34	24	29	47
Ce	163	80	105	79	58	74	67	67	56	67	90
Sm	21	5.0	11	8.4	5.8	7.2	6.7	5.9	5.3	7.2	6.6
Eu	3.2	0.88	1.0	0.73	1.5	1.7	1.6	1.4	0.75	110	0.83
Tb	3.9	0.85	1.1	0.90	0.77	0.96	1.2	1.2	0.89	1.3	0.75
Yb	10	3.4	5.3	3.6	2.8	3.3	3.1	2.7	3.1	4.5	1.8
Lu	1.9	0.51	0.88	0.60	0.34	0.56	0.54	0.52	0.37	0.56	0.29
La/Yb	7.5	10	10	12	10	12	12	13	7.7	6.4	26
Eu/Eu*	0.44	0.40	0.34	0.37	0.84	0.71	0.65	0.72	0.44	0.43	0.44

APPENDIX 3, continued

	MAN-38	MAN-41	MAN-46	SDS	SDN	OSCA	OSCB	OSCC	SANA-A	SANA-B	SANA-C
Cr	29	17	18	10	9	1	7	5	4	4	11
Co	9	5	7	18	11	3	4	3	3	7	9
Rb	182	205	214	150	192	279	249	295	183	91	221
Sr	417	332	287	228	241	155	242	132	135	165	264
Zr	198	113	132	365	364	107	116	103	208	304	—
Ba	446	689	640	243	840	687	819	462	840	420	983
Cs	9.1	6.1	12	7.6	8.3	12	5.8	6.0	2.3	7.6	5.3
La	66	34	30	49	62	46	30	35	44	74	50
Ce	136	86	78	118	140	83	83	81	98	166	114
Sm	8.7	5.4	6.1	11	13	6.2	5.8	7.0	9.2	14	10
Eu	0.84	0.74	0.70	2.9	3.1	0.94	0.98	0.81	1.5	1.2	1.3
Tb	0.66	0.72	0.59	1.9	2.3	0.71	0.94	1.0	0.89	2.6	1.1
Yb	1.8	1.1	1.6	4.1	4.9	2.7	2.4	3.7	1.5	8.0	2.5
Lu	0.28	0.26	0.31	0.64	0.79	0.41	0.35	0.54	0.24	1.2	0.36
La/Yb	37	31	19	12	13	17	13	10	29	9.3	42
Eu/Eu*	0.38	0.44	0.42	0.78	0.71	0.54	0.54	0.36	0.61	0.25	0.44

	SANA-D	SANA-E	SANA-F	SANA-G	SANA-H	SANA-K	SANA-50	SANA-84	SANA-86	MAG	WHT
Cr	4	3	16	7	1	3	11	4	1	5	14
Co	4	2	10	3	3	1	1	8	0.4	0.4	12
Rb	279	222	233	3.2	274	289	34	159	≤10	151	231
Sr	75	79	9	167	140	194	145	86	73	48	200
Zr	187	—	—	134	124	251	311	427	61	402	424
Ba	586	291	905	707	774	119	57	876	200	1020	1040
Cs	2.7	5.0	5.3	10	3.4	2.1	4.0	5.0	5.0	1.6	2.7
La	72	35	85	37	44	52	77	81	8.7	87	82
Ce	174	93	211	88	91	146	176	190	18	197	222
Sm	18	10	17	6.9	6.1	16.5	16	18	3	21	22
Eu	1.2	0.73	1.8	0.78	1.2	0.63	2.2	2.7	0.57	2.1	2.4
Tb	3.6	2.2	3.2	0.85	0.69	2.4	3.0	3.7	1.7	3.4	2.9
Yb	8.4	6.2	6.2	2.6	2.3	6.7	5.0	8.4	5.5	12	6.6
Lu	1.3	1.1	0.95	0.47	0.34	0.99	0.72	1.5	0.92	1.9	1.1
La/Yb	21	5.7	14	14	19	7.8	15	9.6	1.6	7.3	12
Eu/Eu*	0.19	0.20	0.31	0.37	0.65	0.11	0.42	0.43	0.43	0.32	0.37

APPENDIX 3, continued

	MANZ	PERD	MZ-22	MZ-23	SANA-144	MAN-C	MAN-J	MAN-72	MAN-F	NP30	NP33
Cr	5	2	30	29	9	24	47	8	32	4	1
Co	5.5	0.7	18	22	4.4	5	8	4	6	3	3
Rb	204	177	79	86	95	106	83	51	152	142	119
Sr	100	≤5	480	581	41	64	72	101	122	45	27
Zr	191	123	190	182	203	—	194	—	358	—	—
Ba	610	190	495	870	1850	521	263	727	774	370	533
Cs	10	5.9	8.1	8.7	1.6	3.1	2.0	—	4.9	4.5	5.0
La	40	36	24	25	72	35	29	43	61	34	12
Ce	99	73	69	59	144	52	68	91	131	60	32
Sm	9	10	5.9	5.2	15	5.0	6.1	9.5	16	9.5	4.2
Eu	1.3	0.55	1.6	1.5	1.2	0.90	1.2	1.4	1.7	1.2	0.68
Tb	1.4	1.7	0.87	0.56	3.0	0.75	1.1	1.4	2.1	2.0	0.76
Yb	5.0	7.8	2.1	1.9	10	2.5	3.2	4.7	9.3	9.4	2.8
Lu	0.83	1.5	0.12	0.35	1.6	0.36	0.38	0.67	1.6	1.9	0.57
La/Yb	8.0	4.6	11	13	7.2	14	9.0	9.2	6.6	3.6	4.3
Eu/Eu*	0.45	0.17	0.9	1.1	0.23	0.58	0.57	0.47	0.35	0.36	0.49

Eu/Eu* = Observed Eu content divided by Eu content interpolated by drawing a straight line between Sm and Tb on a chondrite-normalized plot.

Dash indicates no determination.

APPENDIX 4

APPENDIX 4. Sample Locations

1. Mafic Metagneous Rocks.

- NP 23, 28 Amphibolite, Montosa section of the Sevilleta Fm, 2 km W of Sierra Montosa, Los Pinos Mountains.
- NP 51, 63, 73 Amphibolite, Pinion section of the Sevilleta Fm, Pinion Canyon, Los Pinos Mountains.
- MAN-75 Amphibolite, S tributary of Monte Largo Canyon (sec. 6, T. 4 N., R. 4 E.), Manzano Mountains.
- MAN-B Amphibolite, five-sample composite, S tributary of Monte Largo Canyon (sec. 6, T. 4 N., R. 4 E.), Manzano Mountains.
- MAN-I Amphibolite, six-sample composite, S tributary of Abajo Canyon, 4 km SW of Manzano Peak, Manzano Mountains.
- HC 1, 2, 3 Greenstones, mouth of Hell Canyon, Manzanita Mountains.
- LD 122 Amphibolite, 1.3 km NE of Juan Torres Prospect, Ladron Mountains.
- LD 131 Amphibolite, South Ridge, 2 km S of Ladron Peak.
- M 16 Metagabbro, 5 km NW of Water Canyon Campground, Magdalena Mountains.
- MAGD Metagabbro, mouth of Jordan Canyon, Magdalena Mountains.

Manzanita and north Manzano Mountains:

- MZ-2 Tijeras Greenstone, 0.5 km W of Cerro Pelon.
- 3 Tijeras Greenstone, 0.5 km W of Cerro Pelon.
- 5 Tijeras Greenstone, 100 m ESE of York Mine.
- 6 Tijeras Greenstone, 200 m E of Seven Springs, Tijeras Canyon.
- 24 Chlorite-hornblende schist, 3 km SE of USGS Seismic Station, Isleta Indian Reservation.
- 26 Metadiabase, 3.5 km SE of USGS Seismic Station, Isleta Indian Reservation.
- 29 Coarse Greenstone, near mouth of Canon de los Seis, north Manzano Mountains.

San Andres Mountains:

- SANA 19 Amphibolite, S flank of Sheep Mountain, SW $\frac{1}{4}$ sec. 30, T. 11 N., R. 5 E.
- 38, 42 Amphibolite from amphibolite complex E of Salinas Peak.
- 69 Amphibolite inclusion in San Andres pluton, 2.5 km SE San Andres Peak.
- 94 Metadiabase sill, 250 m E of unconformity, Hembrillo Canyon.
- 97 Amphibolite inclusion in Mayberry pluton, ridge between Dead Man and Lost Man Canyons.
- 109 Small metadiabase sill at talc mine, 2 km SSE of Kaylor Mountain
- 120 Large metadiabase sill, 3 km ESE of Kaylor Mountain.
- 138 Metadiabase sill, head of Grandview Canyon.

APPENDIX 4, continued

2. Ojita pluton, Manzano Mountains.

- OJ 2 Mouth of Sand Canyon.
- 3, 4 About 1 km W of Bosque Peak.
- 6, 7, 8 About 1 km NW of Bosque Peak.
- 9, 10 Near summit 1 km S of Mosca Peak.
- 11, 12, 13 0.5 to 1 km W of Mosca Peak.
- 14, 15 0.5 km NE of Mosca Peak.

Composites, OA: 1, 2 OD: 10, 11
 OB: 3, 4, 5 OE: 12, 13
 OC: 6, 7 OF: 14, 15

3. Monte Largo pluton, Manzano Mountains.

- MAN-30 Latitude 37°30'N, 2.5 km W of Valencia County line.
- 34 Mouth of West Bartola Canyon.
- A Ten-sample composite.

4. Priest pluton, southern Manzano Mountains.

- MAN-38 Latitude 34°30'N, 1 km E of Muir Reservoir.
- 41 Just south of 34°30'N and 2 km SE of Muir Reservoir.
- 46 2.5 km SSE of Muir Reservoir.
- G Fourteen-sample composite.

5. North and South Sandia plutons, Sandia Mountains.

- SD 1 Road cut along I40, Tijeras Canyon, 1.3 km E of Carnue.
- 2 Road cut along I40, mouth o. Tijeras Canyon.
- 3 Embudo Canyon, NW ¼, sec. 13, T. 10 N., R. 4 E.
- 4 NW ¼ sec. 11, T. 10 N., R. 4 E.
- 5 Road cut near new home just south of mouth of Embudito Canyon on Paseo Del Puma Road.
- 6 Mouth of Pino Canyon.
- 7 Sandia Tramway base station.
- 8 La Cueva Picnic Ground, U. S. Forest Service.
- 9 Lower terminus of La Luz trail.

Composites, SDS: 1, 2, 3, 4, 5 SDN: 6, 7, 8, 9

6. Sepultura pluton, Los Pinos Mountains.

- N 9 Small canyon 3.3 km S of Burris and Nunn Ranch.
- 13 Mouth of Sepultura Canyon.
- NP 12 Mouth of Bootleg Canyon, 1.5 km ENE of Burris and Nunn Ranch.
- 14 Small canyon 3.3 km S of Burris and Nunn Ranch.
- 15 3 km SE of Burris and Nunn Ranch.
- 16 2 km SE of Burris and Nunn Ranch.
- 19 1.5 km S of Burris and Nunn Ranch.

7. Los Pinos pluton, Los Pinos Mountains.

- N 2 0.5 km NE of mouth of Bootleg Canyon.
- 3 2 km SW of summit of Whiteface Mountain.
- 4 0.5 km SW of summit of Whiteface Mountain.

APPENDIX 2, continued

- NP 2 Bootleg Canyon 2.5 km E of Burris and Nunn Ranch.
 4 Bootleg Canyon 3.3 km E of Burris and Nunn Ranch.
 6 Summit of range 3.5 km ENE of Burris and NUN Ranch.
 8 Summit of range 2.5 km S of summit of Whiteface Mountain.
 9 2 km S of summit of Whiteface Mountain.
 10 3 km ENE of Burris and Nunn Ranch.

8. Capirote pluton, Ladron Mountains.

- LD 4 Altered facies, 1 km west of Brown Ranch (formerly Lazy-C Bar).
 29 Granophyre, 1 km SE of Ladron Peak.
 32 Granophyre, 1.25 km SE of Ladron Peak.
 34 Granophyre, 1.5 km SE of Ladron Peak
 59 Granophyre, 300 m NE of Ladron Peak.
 68 Saddle between Ladron Peak and eastern peak.
 86 0.75 km SW of rock house, Canon del Norte.
 89 Granite outlier, 1.7 km NW of rock house, Canon del Norte.
 90 1.3 km WSW of Ladron Peak.
 97 3 km S of Brown (Lazy-C Bar) Ranch.
 98 2.7 km S of Brown (Lazy-C Bar) Ranch.
 100 3 km SW of Brown (Lazy-C Bar) Ranch.
 103 3.5 km S of Brown (Lazy-C Bar) Ranch.
 104 2.5 km NE of Cerro Colorado summit.
 106 Near rock house, 2.25 km N of Cerro Colorado summit.
 108 Canyon bottom, 1.7 km NNE of Cerro Colorado summit.
 110 1 km NNW of Juan Torres Prospect.
 112 0.5 km W of Juan Torres Prospect.
 116 Along dirt road 2 km NE of Cerro Colorado summit.
 117 1 km WNW of Brown (Lazy-C Bar) Ranch.

Composite, CAPG: 86, 89, 90, 110, 116

9. Siliceous Metaigneous rocks.

Ladron Mountains:

- LD 36 1 km SE of Ladron Peak.
 52 Summit of range 1 km S of Ladron Peak.
 55 Summit of range 0.5 km S of Ladron Peak.
 57 Ladron Peak summit.
 82 Ridge top 1 km NNW of Ladron Peak.
 83 2 km NNW of Ladron Peak.

Los Pinos Mountains:

- N 32, 36 } Pinion section of the Sevilleta Fm, Pinion Canyon.
 NP 46-81 }
 NP 22-36 Montosa section of the Sevilleta Fm, 2 km W of Sierra Montosa.

Manzano Mountains:

- MAN-D, E Two- and four-sample composites, respectively, S tributary of Monte Largo Canyon (sec. 6, T. 4 N., R. 4 E.).
 MAN-K Two-sample composite, Capilla Peak road.

APPENDIX 2, continued

Other Areas:

- M 13 3 km NW of Water Canyon Campground, Magdalena Mountains.
 MZ-22, -23 3 km SE of USGS Seismic Station, Isleta Indian Reservation, Manzanita Mountains.
 SANA-144 Red metavolcanic unit (4 m thick), 30 m E of unconformity, Hembrillo Canyon, San Andres Mountains.

10. Manzanita pluton, Manzanita Mountains.

- COY 1 Isleta Indian Reservation boundary 2 km E of USGS Seismic Station.
 2 300 m N of COY 1.
 3 1.7 km NW of Mt. Washington summit.
 4 1.3 km NW of Mt. Washington summit.
 5 1.3 km NE of Laser-Beam Facility, Sandia Military Base.
 6 2 km NNE of Laser-Beam Facility, Sandia Military Base.

Composite, MANZ: COY 1-6

11. Oscura pluton, Oscura Mountains.

- OSC 3 Center of sec. 12, T. 8 N., R. 5 E.
 4 E center of sec. 12, T. 8 N., R. 5 E.
 5 E center of sec. 12, T. 8 N., R. 5 E.
 6 E center of sec. 13, T. 8 N., R. 5 E.
 7 SE corner sec. 13, T. 8 N., R. 5 E.
 8 W center sec. 19, T. 8 N., R. 6 E.
 13 W center sec. 9, T. 9 N., R. 6 E.
 14 N center sec. 5, T. 9 N., R. 6 E.
 15 SW corner sec. 6, T. 7 N., R. 6 E.
 17 E center sec. 12, T. 7 N., R. 5 E.
 18 S center sec. 13, T. 7 N., R. 5 E.
 19 NW corner sec. 26, T. 7 N., R. 5 E.
 20 SE corner sec. 11, T. 7 N., R. 5 E.

Composites, OSCA: 15, 17, 18 (aplitic phase)
 OSCB: 2, 13, 14 (gray phase)
 OSCC: 4, 11 (red phase)

12. Capitol Peak pluton, northern San Andres Mountains.

- SANA 4 1.7 km S Hoffman Spring NE $\frac{1}{4}$ sec. 19, T. 9 N., R. 5 E.
 11 2 km NW Mayday No. 2 Mine in Johnson Park Canyon.
 12 Sly Canyon, 4 km E of Silver Top Mountain.
 20 S flank Sheep Mountain, SW $\frac{1}{4}$ sec. 30, T. 11 N., R. 5 E.
 22 E flank Sheep Mountain, S center sec. 17, T. 11 N., R. 5 E.
 25 SE slope Capitol Peak, center sec. 34, T. 10 N., R. 5 E.
 27 NE slope Capitol Peak, center sec. 27, T. 10 N., R. 5 E.
 29 NE slope Capitol Peak, S center sec. 22, T. 10 N., R. 5 E.
 31 N side of mouth of Lee Canyon.
 32 N side of mouth of Lee Canyon.
 43 1.5 km NE White Rock Well, sec. 35, T. 12 N., R. 4 E.

APPENDIX 4, continued

- 59 2 km S of Gunsight Peak.
 61 Mouth of Cottonwood Canyon, NE slope Gunsight Peak.
- Composites, SANA-C: 59, 61
 SANA-G: 12, 22, 27, 31 (gray phase)
 SANA-H: 11, 20, 32 (red phase)
13. Ladron pluton, Ladron Mountains.
 LD 1 End of dirt road 1.1 km W of Brown (Lazy-C Bar) Ranch.
 7 Canyon bottom 2 km NW of Brown (Lazy-C Bar) Ranch.
 77 Summit of Monte Negro Peak.
 84 2.7 km SW of USBLM Fire Station, N end of range.
 102 3.5 km S of Brown (Lazy-C Bar) Ranch.
- Composite, LDQM: 7, 79, 84
14. Mockingbird Gap pluton, Oscura and northern San Andres Mountains.
 SANA 6 N center sec. 29, T. 9 N., R. 5 E.
 8 Mouth of Johnson Park Canyon.
 9 1 km NW Mockingbird Gap Mine, sec. 32, T. 9 N.,
 R. 5 SE.
 OSC 1 S center sec. 1, T. 8 N., R. 5 E.
 2 N center sec. 12, T. 8 N., R. 5 E.
 9 N center sec. 30, T. 8 N., R. 6 E.
- Composite, SANA-K: 6, 8, 9
15. Mineral Hill pluton, southern San Andres Mountains.
 SANA 86 Near mouth of Bear Canyon, SE corner sec. 29, T. 20 N.,
 R. 5 E.
 124 Road cut in US70 N of Antelope Hill.
 125 Military installation 1 km E Antelope Hill.
 127, 128 4 km NE of San Augustin Peak.
 129 E slope of Mineral Hill near center sec. 26, T. 21 N.,
 R. 4 E.
 130 E slope of Mineral Hill near center sec. 26, T. 21 N.,
 R. 4 E.
- Composite, SANA-D: 125, 127, 129
16. Mayberry pluton, southern San Andres Mountains.
 SANA 80 Mouth of San Andres Canyon, center sec. 10, T. 18 N.,
 R. 4 E.
 81 Andrecito Creek, NW $\frac{1}{4}$, sec. 3, T. 18 N., R. 4 E.
 84 E slope Gardner Peak, N center sec. 20, T. 17 N.,
 R. 4 E.
 96 Ridge between Dead Man and Lost Man Canyons.
 98 Ridge between Dead Man and Lost Man Canyons.
- Composites, SANA-E: 80, 81
 SANA-F: 96, 98

APPENDIX 4, continued

17. Metasedimentary Rocks.

Los Pinos Mountains:

NP 27	Montosa section, 2 km W of Cerro Montosa.
29	Montosa section, 2 km W of Cerro Montosa.
30	Montosa section, 2 km W of Cerro Montosa.
33	Montosa section, 2 km W of Cerro Montosa.
34	Montosa section, 2 km W of Cerro Montosa.
56	Pinion section, Pinion Canyon.
65	Pinion section, Pinion Canyon.
66	Pinion section, Pinion Canyon.
70	Pinion section, Pinion Canyon.

Manzano Mountains:

MAN C	Two-sample composite, same location as MAN-B.
F	Three-sample composite, same location as MAN-B.
J	Two-sample composite, Capilla Peak road.
72	S tributary of Monté Largo Canyon (sec. 6, T. 4 N., R. 4 E.).

18. Miscellaneous.

Southern San Andres Mountains:

SANA 48	Strawberry Peak pluton, 1 km SE of Strawberry Peak.
49	Strawberry Peak pluton, 0.5 km ESE of Strawberry Peak.
50	Strawberry Peak pluton, aplitic phase, 0.2 km ESE of Strawberry Peak.
53	Strawberry Peak pluton, 0.8 km NW of Strawberry Peak.

Composite, SANA-B: 48, 49, 53

67	San Andres pluton, 2 km NE of San Andres Peak.
68	San Andres pluton, 2 km SE of San Andres Peak.
70	San Andres pluton, NE $\frac{1}{4}$, sec. 27, T. 18 S., R. 4 E.
73	San Andres pluton, center sec. 35, T. 19 S., R. 4 E.

Composite, SANA-A: 67, 68, 73

Magdalena Mountains:

MG Five-sample composite of Magdalena pluton.

Pedernal Hills:

PERD Five-sample composite of Pedernal pluton.

Organ Mountains:

WHT Three-sample composite of White Sands pluton.