

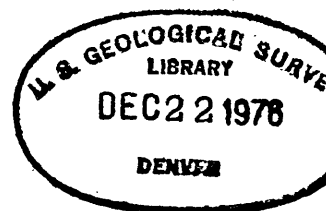
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PRELIMINARY REPORT ON SAMPLES COLLECTED DURING LITHIUM RECONNAISSANCE
STUDIES OF THE ROCKY MOUNTAIN AND ADJACENT STATES
By ELIZABETH B. TOURTELOT and ALLEN L. MEIER

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This report is preliminary and has not been edited
or reviewed for conformity with U.S. Geological Survey
standards or nomenclature.

PRELIMINARY REPORT ON SAMPLES COLLECTED DURING LITHIUM RECONNAISSANCE
STUDIES OF THE ROCKY MOUNTAIN AND ADJACENT STATES

by

Elizabeth B. Tourtelot and Allen L. Meier

Samples were collected throughout the Rocky Mountain States and in Arkansas, Nebraska, and Texas to determine the general distribution of lithium and to study the geochemical relationships of lithium with mineralogy and with other elements. Sample localities were selected in different geologic environments to evaluate potential sources of lithium. Emphasis was placed on nonpegmatite sources, including sedimentary and volcanic rocks.

Samples were analyzed for lithium in the field by atomic absorption, using the methods described by Meier (1976). Water samples were collected in 250-ml polyethylene bottles. Field pH was determined by indicator paper accurate to a plus or minus 0.5-pH unit. A field specific-conductance meter was used to determine conductivity. X-ray diffractometer analyses were run by Robert Brown. Analyses for other elements were run in the U.S. Geological Survey laboratories in Denver, Colo. The senior author was assisted in the field by Candace Wood in 1974, by Laura Wray in 1974-75, and by Kathy Van Weelden in 1976. John Seward assisted with the field analyses in 1974-75.

Reconnaissance sampling was very dependent on information from colleagues about local geology. We particularly wish to thank Jimmy E. Goolsby, William R. Keefer, J. David Love, Jack Murphy, Charles H. Maxwell, James C. Ratte, Glenn R. Scott, Richard A. Sheppard, Thomas A. Steven, Richard B. Taylor, Harry A. Tourtelot, and E-an Zen, all of the U.S. Geological Survey, for information and encouragement. Many others, too numerous to list, have all contributed information and ideas.

The analytical results presented here are preliminary. No interpretation is attempted. The analyses are tabulated by State and by county within the State. For each State, rock and soil samples are on one table, and the water analyses are on another. The change in analytical technique in the spring of 1975, (reported by Meier, 1976) resulted in improved accuracy and precision for lithium analyses made on samples collected after that time.

Tabulation of the data follows (tables 1-15). General sample localities are shown on outline state maps (figs. 1-7). Sample numbers indicate who collected the sample (first letter), where (State, second and, if necessary, third letters), and the year (first number). Multiple samples collected at one locality (a specific number) are given letter designations. For example, TNM6-17A indicates that sample A was collected at a place (17) in New Mexico in 1976 by Tourtelot. Sample TNM6-17B would be another sample in the same locality. Sample TNM6-16A may or may not be a nearby sample. Sample G74-21A (table 4) was collected by R. K. Glanzman. On the outline maps, because of scale, several closely spaced sample localities are grouped to show their general location.

Reference cited

Meier, A. L., 1976, Analytical methods and problems of lithium determination in rocks, sediments, and brines, in Vine, J. D., ed., Lithium resources and requirements by the year 2000: U.S. Geol. Survey Prof. Paper 1005, p. 161-162.

Table 1 --Data from water samples collected in Montana, 1974-76
 [Leaders (--) indicate no data]

Field No.	Locality	Sec.	T.	R.	L1	Cl	Na	Conductivity Micromhos	Temp. °C
					mg/l				
Beaverhead County									
TM4-2A	Jardine Hot Spring	26	5S	15W	0.37	12	250	960	~100
TM4-3A	Elkhorn Hot Springs, upper	28	4S	12W	.057	--	90	--	~50
TM4-3B	do, lower	do	do	do	.060	7	100	200	do
TM4-11	Red Butte, warm spring	32	9S	13W	.097	--	220	--	~10
Choteau County									
TM4-16C	White Lake	2	23N	10E	1.5	--	7,900	--	--
Fergus County									
TM4-23	Gigantic Warm Spring	19	17N	18E	.031	--	20	--	20
TM4-32	Big Spring area, spring	8	14N	19E	.014	--	5	--	cold
TM4-34A	Big Spring, pond	5	do	do	.013	--	6.3	--	do
Gallatin County									
TM4-39	Bozeman Hot Springs, pond	13	2S	4E	.045	48	110	620	hot
Jefferson County									
TM4-14	Diamond S Hot Spring	10	5N	4W	.27	19	170	520	~100
Meagher County									
TM4-36	Sulfur Springs, pool	13	9N	6E	1.5	170	330	2,050	41
Park County									
TM4-43A	Chico Hot Springs, pool	13	6S	8E	.034	13	150	390	--
TM4-43B	do, spring	do	do	do	.035	--	40	--	hot
TM4-37	Clyde Park, spring	9	2N	9E	.016	--	55	--	cold
TM4-63B	Corwin Springs, La Duke Spring	32	8S	8E	.35	55	160	2,150	61
TM4-63C	Corwin Springs	do	do	do	.33	--	150	2,250	64
Ravalli County									
TM4-9A	Medicine Hot Springs	12	1N	20W	.22	10	80	340	~54
TM4-10A	Sleeping Child Hot Springs	7	4N	19W	.21	12	170	540	~70
TM4-10B	do	do	do	do	.20	--	140	--	do
Sheridan County									
TM4-19A	Horseshoe Lake	24	33N	58E	.20	--	13,000	--	--
TM4-20	Westby, small lake	1	36N	do	.48	--	1,100	--	--
TM4-22	Medicine Lake	31	32N	56E	.069	--	110	--	--
Sweet Grass County									
TM4-41A	Anderson Spring area, spring	29	3S	13E	.003	--	2.5	--	cold
TM4-41B	do	do	do	do	.001	--	1.5	--	do
TM4-41C	do	do	do	do	.002	--	2	--	do
TM4-64	Anderson Hot Spring	28	do	do	.010	5	1.5	460	24
TM4-42	McLeod Hot Spring	15	2S	13E	.072	--	60	--	hot

Table 2 .--Data from rock samples collected in Montana, 1974.

[Blanks indicate no data]

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm
Beaverhead County								
TM4-1	Clay	Challis(?)	Tertiary	Trail Creek Canyon	16	10S	14W	32
TM4-2B	Mud	Spring deposit	Holocene	Jardine Hot Spring	26	5S	15W	21
TM4-4A	Clay	Amsden(?)	Mississippian Pennsylvanian(?)	Grasshopper Valley	34	6S	12W	31
TM4-4B	do	do	do	do	do	do	do	44
TM4-5A	Shale	Phosphoria	Permian	Vipond Park	22	2S	10W	6
TM4-5B	do	do	do	do	do	do	do	15
TM4-6A	Phosphate	do	do	West Limb mine	10	do	do	11
TM4-6B	Shale	do	do	do	do	do	do	22
TM4-7A	Siltstone	do	do	Vipond Park	12	do	do	90
TM4-7B	do	do	do	do	do	do	do	68
TM4-12	do	Belt Supergroup	Precambrian	Shesher Creek	do	10S	15W	4
TM4-107A to 107M	Clay and siltstone (13 samples)	Lake beds	Tertiary	Horse Prairie	2	do	12W	4 1/14 2/3-27
TM4-108A to 108I	Clay and siltstone (9 samples)	do	do	do	31	9S	do	1/16 2/3-32
Cascade County								
TM4-28	Fault gouge	Flathead Sandstone faulted against Greyson Shale		Jefferson Creek			3/unsurveyed	32
Chouteau County								
TM4-15	Igneous dike		Tertiary	Shonkin Creek	14	21N	9E	35
TM4-16A	Salt	Precipitate from lake evaporation	Holocene	White Lake	2	23N	10E	55
TM4-16B	Mud	Lake deposit	do	do	do	do	do	20
Fergus County								
TM4-24A	Granitic intrusive		Tertiary	S. Moccasin Mountains	2	16N	18E	10
TM4-24B	do		do	do	do	do	do	12
TM4-24C	Mafic dike		do	do	do	do	do	20
TM4-25	Quartz vein	In Madison limestone		do	do	do	do	15
TM4-29	do	do		New Year area	11	do	19E	57
TM4-30A	Granitic rock, altered	Intrusion	do	Cumberland mine, Maiden area	5	do	20E	19
TM4-30B	Clay	Intrusion, altered	do	do	do	do	do	52
TM4-30C	Gossan	do	do	do	do	do	do	65
TM4-31	Coal	Morrison	Jurassic	Lewistown	13	15N	19E	7
TM4-33	do	do	do	Big Spring	8	14N	do	12

Table 2 .--Data from rock samples collected in Montana, 1974 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm
Gallatin County								
TM4-40A	Sandstone	Livingston	Cretaceous	Bozeman Pass	13	2S	7E	17
TM4-40B	do	do	do	do	do	do	do	8
TM4-40C	Siltstone	do	do	do	do	do	do	14
TM4-40D	Sandstone	do	do	do	do	do	do	12
TM4-40E	Siltstone	do	do	do	do	do	do	6
Judith Basin County								
TM4-26A	Bentonite	Mowry Shale	Cretaceous	Stanford	12	16N	11E	11
TM4-26B	do	do	do	do	do	do	do	20
TM4-27	Quartz latite porphyry	Barker Quartz Latite	Eocene	Yoga Peak	5	13N	9E	25
TM4-35A	Black shale	Morrison	Jurassic	Utica	19	do	12E	56
TM4-35B	Concretion	do	do	do	do	do	do	104
Liberty County								
TM4-17A	Limestone	Madison Limestone	Mississippian	East Butte	20	36N	5E	12
TM4-17B	Limestone, altered	do	do	do	do	do	do	<1
TM4-17C	Granitic intrusion		Tertiary	do	do	do	do	13
Park County								
TM4-38	Sandstone and shale	Livingston	Cretaceous	Clyde Park	4	2N	9E	27
TM4-60	Travertine		Pleistocene	Gardiner	24	9S	8E	14
TM4-61	Ochre		do	do	do	do	do	11
TM4-62A	Travertine		do	do	13	do	do	22
TM4-63A	do		do	Corwin Springs	32	8S	do	10
Sheridan County								
TM4-19B	Beach sand		Holocene	Horseshoe Lake	24	33N	58E	5
TM4-21	Lignite	Fort Union	Paleocene	Antelope	31	34N	56E	30

1/ Average

2/ Range

3/ Lat. 46°55', Long. 110°40'

Table 3 --Data from X-ray diffraction analyses of samples collected from Beaverhead County, Montana, 1974.

[See table 2 for location. Leaders (---) indicate not detected. For mineralogic data, samples scanned at a rate of 2° per minute at 3,000 counts per second (full scale) using CuK alpha radiation generated at 34 kilovolts and 18 milliamperes. VS, very strong; peak height > 8 in. S, strong; peak height 3-8 in. M, moderate; peak height 1-3 in. W, weak; peak height 0.5-1 in. VW, very weak; peak height < 0.5 in.]

Field No.	L1 ppm	14-15A clay	10A clay or mica	7A clay	Gypsum	Quartz	Potassium feldspar	Plagio-clase	Calcite	Other
TM4-107A	4	S	---	W	VS	M	---	W	---	---
TM4-107B	20	W	W	W	---	VS	W	W	---	---
TM4-107C	16	W	M	VW	---	VS	VW	VW	---	---
TM4-107D	15	M	M	W	---	VS	VW	VW	---	---
TM4-107E	12	M	M	M	---	VS	---	M	---	---
TM4-107F	9	M	M	W	---	VS	W	M	---	---
TM4-107G	27	---	VW	---	---	VS	W	W	---	---
TM4-107H	12	M	---	M	---	S	M	W	---	---
TM4-107I	15	M	M	M	W	VS	W	W	---	---
TM4-107J	7	S	---	S	---	S	M	M	---	---
TM4-107K	3	S	---	W	---	M	M	M	---	---
TM4-107L	16	M	W	W	---	VS	---	W	---	---
TM4-107M	27	---	VW	---	---	VS	---	---	---	---
TM4-108A	8	VW	VW	---	---	---	M	---	VS	---
TM4-108B	10	M	W	---	---	S	M	M	---	---
TM4-108C	13	M	W	---	---	S	W	M	---	---
TM4-108D	23	W	W	---	---	VS	W	W	M	---
TM4-108E	3	S	---	VW	---	W	S	S	---	---
TM4-108F	22	W	W	VW	---	VS	VW	W	---	---
TM4-108G	12	S	---	W	---	S	W	W	---	---
TM4-108H	32	VW	W	---	---	VS	W	VW	---	---
TM4-108I	22	W	W	---	M	VS	W	VW	---	---

Table 4 --Data from water samples collected in Wyoming, 1974-76
 [Leaders (--) indicate no data]

Field No.	Locality	Sec.	T.	R.	L1	Cl	Na	Conductivity Micromhos	Temp. °C
					mg/l				
Carbon County									
TW4-45A	Soda Lake, brine	26	25N	89W	1.7	--	24,000	--	--
TW5-50	Saratoga Hot Spring	13	17N	84W	1.2	550	--	2,720	48.9
Fremont County									
TW4-46	Badwater Creek Road, well in Wind River Formation	35	39N	93W	.03	--	230	230	15
TW4-48	Cedar Ridge, Texaco #1 State Copper Mountain Unit, abandoned oil well	13	do	92W	.15	--	83	--	15
TW4-50	North of Badwater Creek, well	35	do	91W	.067	--	690	--	11.1
TW4-51A	Blue Holes, upper pond	8	40N	105W	.10	--	25	--	--
TW4-51D	Blue Holes spring	do	do	do	.10	--	20	--	16.1
TW4-51H	Blue Holes pond	do	do	do	.10	--	26	--	--
TW4-52A	Warm Spring Creek Geyser	32	42N	107W	.065	20	14	440	27
TW4-53A	Warm Spring Creek spring	do	do	do	.055	--	33	--	28.9
TW4-84	Beaver Rim	15	32N	90W	.029	--	175	--	cold
TW4-86	Dickie Springs	15	27N	101W	.005	--	100	--	do
TW4-87	Edmund Springs	35	do	do	.033	--	450	--	do
TW4-89	North side of Oregon Buttes, pond	34	do	do	.013	--	950	--	do
Hot Springs County									
TW4-72	Thermopolis, Big Spring	36	43N	95W	.90	380	350	2,350	57.2
TW4-73	Kirby Creek, VE Bar well	2	42N	92W	.050	15	210	1,600	21
TW4-75	McCarthy Ranch, spring	19	do	90W	.097	4	70	2,190	cold
Lincoln County									
TW4-77	Collett Creek, spring	23	21N	119W	.025	--	60	--	cold
Park County									
TW4-65	Badger Spring	--	56N	105W	.013	5	420	420	cold
TW4-67	Little Sunlight Creek	26	55N	106W	.004	--	1,000	--	do
TW4-68E	Sweetwater Mineral Springs	--	52N	do	.006	--	1,640	--	cold
TW4-69A	De Mario Hot Springs	3	do	102W	.21	32	240	1,400	32
Teton County									
TW4-59A	Huckleberry Hot Springs	--	48N	115W	.80	108	200	700	60
TW4-59C	do	--	do	do	.80	--	200	700	60
TW4-59D	do	--	do	do	.80	--	200	700	63.3
G74-21A	Astoria Hot Springs	33	39N	116W	.20	--	--	--	36.7

Table 5 .--Data from samples collected in Wyoming, 1974-76.

[Blanks indicate no data; leaders (--) indicate not detected. For mineralogic data, samples scanned at a rate of 2° per minute at 3,000 counts per second (full scale) using CuK alpha radiation generated at 34 kilovolts and 18 milliamperes. VS, very strong; peak height > 8 in. S, strong; peak height 3-8 in. M, moderate; peak height 1-3 in. W, weak; peak height 0.5-1 in. VW, very weak; peak height < 0.5 in.]

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Fremont County																			
TW4-45B	Black mud		2/H	Soda Lake	26	25N	89W	16	--	VW	VW	--	VS	VS	S	M	M	--	
TW4-45C	Salt crust		do	do	do	do	do	6	--	--	VW	--	S	M	--	--	--	--	Thenardite, VS
TW5-49A	Claystone		M	Middlewood Hill	31	17N	87W	50											
TW5-49B	do		do	do	do	do	do	60											
TW4-47A	Gypsum	Wind River	E	Badwater Creek	16	39N	92W	18	W	VW	VW	--	VW	M	S	--	--	--	Gypsum, VS
TW4-47B	do	do	do	do	do	do	do	12	W	--	VW	--	VW	--	VS	--	--	--	Gypsum, VS
TW4-49A	Claystone	do	do	SW Lysite Mountain	22	40N	91W	8	W	--	S	M	--	--	--	--	--	--	
TW4-49B	Tuff	do	do	do	do	do	do	15	VW	VW	--	M	S	--	--	--	S	--	
TW4-51B	Tufa		Q	Blue Holes	8	40N	105W	11	--	--	--	--	--	--	--	--	VS	--	--
TW4-51C	do		do	do	do	do	do	15	--	--	--	--	--	--	--	--	VS	--	--
TW4-51E	Mud		do	do	do	do	do	17	W	M	M	--	VS	M	M	VS	S	--	
TW4-51F	Tufa		do	do	do	do	do	12	--	--	--	--	VW	--	--	--	VS	--	--
TW4-51G	Wood from tufa		do	do	do	do	do	12	--	VW	--	--	W	VW	--	--	VS	--	--
TW4-51I	Siltstone	Chugwater	T	do	do	do	do	37	W	S	M	--	VS	VW	M	S	S	--	Gypsum, VW
TW4-52B	Sand		Q	Warm Spring geyser	32	42N	107W	23	S	S	S	--	VS	VS	--	--	--	--	
TW4-52C	Sandstone		do	do	do	do	do	52	M	M	M	--	VS	VS	--	--	--	--	
TW4-53B	Hot spring precipitate		do	Warm Spring Creek	do	do	do	13	W	W	W	--	S	W	W	VS	--	--	
TW4-54	Sand		do	do	do	do	do	15	--	--	VW	--	VS	--	--	--	VW	--	--
TW4-76A	Claystone		T	East Dry Creek	34	40N	92W	14	W	VW	--	--	VS	VS	S	W	S	--	Gypsum, S
TW4-76B	do		do	do	do	do	do	18	M	VW	--	VW	VS	S	S	W	S	--	Gypsum, S
TW4-85A	Sandstone	White River	O	Beaver Rim	11	30W	90W	60											
TW4-85B	do	do	do	do	do	do	do	10	M	--	--	--	M	VW	M	VS	--	--	
TW4-85C	do	do	do	do	2	do	do	47	S	M	--	--	VS	M	M	S	--	--	
TW4-85D	do	do	do	do	do	do	do	37	W	M	--	VW	S	W	M	VS	--	--	
TW4-85E	do	do	do	do	3	do	do	48	M	M	VW	--	S	--	S	S	--	--	

Table 5 .--Data from samples collected in Wyoming, 1974-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/Zeo-lite	Quartz	K-feld-spar	Plagio-clase	Cal-cite	Dolo-mite	Other
Fremont County (continued)																		
TW4-85F	Claystone	Wagonbed	E	Beaver Rim	10	30W	96W	65	S	W	--	--	M	M	M	--	--	--
TW4-85G	Chert	do	do	do	do	do	do	5										
TW4-85H	Silty claystone	do	do	do	do	do	do	60	S	W	--	--	S	S	S	--	--	--
TW4-85I	do	do	do	do	do	do	do	24	M	W	--	--	M	--	S	--	--	--
TW4-85J	Sandstone	do	do	do	3	do	do	15										
TW4-85K	Sandy siltstone	do	do	do	do	do	do	100	M	--	S	--	VS	M	--	--	--	--
TW4-88A	Shale	Bridger	E	Oregon Buttes	35	27N	101W	75	--	S	VW	S	S	--	M	--	--	--
TW4-88B	Claystone	do	do	do	do	do	do	39	--	3/M	VW	M	S	--	S	--	--	Amphibole, W
TW4-88C	do	do	do	do	do	do	do	41	--	3/M	--	W	S	--	S	--	--	Amphibole, W
TW4-88D	do	do	do	do	do	do	do	50	--	3/M	--	M	S	--	M	--	--	Amphibole, VW
TW4-88F	Shale	do	do	do	do	do	do	60	W	3/S	VW	M	S	--	M	--	--	Amphibole, VW
TW4-88G	Silty claystone	Laney Shale Mbr.	do	do	do	do	do	47	W	S	VW	M	S	--	S	M	--	Amphibole, W
TW4-88H	Shale	do	do	do	do	do	do	43	M	M	VW	VW	S	--	M	--	--	Amphibole, VW
TW4-88I	Siltstone	do	do	do	do	do	do	60	VW	3/M	VW	S	S	--	M	--	--	Amphibole, W
TW4-88J	Shale	do	do	do	do	do	do	50	M	3/M	--	--	VS	W	M	--	--	Gypsum, M
TW4-88K	Soil	do	Q	do	do	do	do	41	--	3/M	VW	--	VS	W	M	W	W	--
TW5-43A	Altered schist	do	Pg	Copper Mountain	20	40N	93W	420										
TW5-43B	Green mica	do	do	do	do	do	do	790										
TW5-43C	Pegmatite dike	do	do	do	do	do	do	4										
TW5-43D	do	do	do	do	do	do	do	10										
TW5-43E	do	do	do	do	do	do	do	7										
TW5-43F	do	do	do	do	do	do	do	11										
TW5-43G	do	do	do	do	do	do	do	11										
TW5-43H	Granite	do	do	do	do	do	do	130										
TW5-43I	Micaceous schist	do	do	do	do	do	do	270										
TW5-43S	Massive sulfide	do	do	do	24	do	94W	19										

Table 5.--Data from samples collected in Wyoming, 1974-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Lf ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other
Fremont County (continued)																		
TW5-44A	Claystone	Wagonbed	E	Copper Mountain	32	40N	93W	27										
TW5-44B	do	do	do	do	do	do	do	52										
TW5-45A	Metasediment		PG	do	do	do	do	71										
TW5-45B	Granite		do	do	do	do	do	32										
TW5-46A	W ore		do	do	28	do	do	380										
TW5-46B	Clay from vein		do	do	do	do	do	130										
TW5-46C	Quartz		do	do	do	do	do	63										
TW5-46D	do		do	do	do	do	do	27										
TW5-46E	Clay from vein		do	do	do	do	do	87										
TW5-46F	Gneiss		do	do	do	do	do	41										
TW5-46G	Muscovite		do	do	do	do	do	500										
Hot Spring County																		
TW4-74A	Silty claystone	Tepee Trail	E	Lysite Mountain	20	42N	90W	22	--	VW	M	--	S	S	--	--	--	--
TW4-74B	Tuff	do	do	do	do	do	do	60	W	--	--	--	VS	S	--	--	--	--
TW4-74C	Siltstone	do	do	do	do	do	do	43	W	W	--	--	S	S	--	--	--	--
TW4-74E	do	do	do	do	do	do	do	20	M	--	--	--	M	M	--	--	--	Analcite, M
TW4-74F	Concretion	do	do	do	do	do	do	8	W	--	S	--	M	M	--	--	--	Analcite, M
TW4-74G	Siltstone	do	do	do	do	do	do	18	M	--	--	--	S	S	--	--	--	--
TW4-74H	do	do	do	do	do	do	do	33	VW	W	M	--	VS	S	M	--	--	Amphibole, VW
TW4-74I	Sandstone	do	do	do	do	do	do	25	W	--	--	--	S	--	--	--	--	Analcite, S
TW4-74J	Siltstone	do	do	do	do	do	do	48	VW	VW	--	--	VS	--	--	--	--	Analcite, VS
TW4-74K	Claystone	do	do	do	do	do	do	10	M	W	--	--	W	--	--	--	--	Analcite, VS
TW4-74L	Concretions	Aycross	do	do	do	do	do	55	--	--	--	--	VS	--	M	--	--	--
TW4-74M	Siltstone	do	do	do	do	do	do	15	VW	VW	--	--	S	--	VS	--	--	Gypsum, S Amphibole, VW Analcite, M
TW4-74N	do	do	do	do	do	do	do	25	--	--	--	--	VS	--	--	VS	--	--

Table 5.--Data from samples collected in Wyoming, 1974-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Lf ppm	14-15A clay	10A clay or mica	7A clay	1/2 Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Hot Spring County (continued)																			
TW4-74N	Siltstone	Aycross	E	Lysite Mountain	20	42N	90W	18	--	--	--	--	VS	W	--	S	--	Gypsum, W Analcime, M	
TW4-74O	Coal	do	do	do	do	do	do	16	--	--	--	--	VS	W	W	--	--	Gypsum, S Analcime, M	
TW4-74P	Siltstone	do	do	do	do	do	do	14	VW	W	VW	--	VS	M	--	--	--	Analcime, M	
TW4-74Q	do	do	do	do	do	do	do	43	W	--	W	--	VS	M	W	S	--	Analcime, S	
TW4-74R	Shale	do	do	do	do	do	do	23	VW	M	S	--	VS	M	M	--	--	Analcime, S	
TW4-74S	Coal	do	do	do	do	do	do	11	--	--	--	--	S	--	--	--	--	Analcime, S	
Lincoln County																			
TW4-78A	Marlstone	Green River	E	Fossil Ridge	28	21N	118W	28	--	3/W	--	--	VS	W	M	S	--	--	
TW4-78B	Limestone	do	do	do	do	do	do	10	--	--	--	--	W	--	--	VS	--	--	
TW4-78C	do	do	do	do	do	do	do	8	--	--	--	--	W	--	--	VS	--	--	
TW4-78D	Paper shale	do	do	do	do	do	do	10	--	--	--	--	W	--	--	S	S	--	
TW4-78E	Oil shale	do	do	do	do	do	do	11	--	--	--	--	W	--	--	VS	M	--	
TW4-78F	Limestone	do	do	do	do	do	do	11	--	--	--	--	W	--	--	VS	M	--	
TW4-78G	do	do	do	do	do	do	do	9	--	--	--	--	VW	--	--	VS	VS	--	
TW4-78H	do	do	do	do	do	do	do	11	--	--	--	--	W	--	--	VS	M	--	
TW4-78I	Shale	do	do	do	do	do	do	65	--	3/VW	--	--	S	VW	--	--	VS	--	
Natrona County																			
TW4-82	Conglomerate	Moonstone	M(?)	Sagehen Springs	7	30N	89W	19	--	VW	--	VW	M	S	M	VS	--	--	
TW4-83A	Sandstone		T	Black Mountain	2	32N	do	41											
TW4-83B	do		do	do	do	do	do	36											
Park County																			
TW4-66A	Agglomerate		E(?)	Burnt Gulch	34	55N	106W	4	S	--	--	--	W	--	VS	--	--	--	
TW4-66B	Basalt		do	do	do	do	do	4	S	--	--	--	--	--	VS	--	--	--	
TW4-68A	Altered andasite			Sweetwater Mineral Springs		52N	do	5	--	--	--	--	--	M	S	--	--	Gypsum, VS	
TW4-68B	Sinter		Q	do		do	do	5	--	--	--	--	--	M	--	--	--	Gypsum, VS	

Table 5.--Data from samples collected in Wyoming, 1974-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Park County (continued)																			
TW4-68C	Sinter		Q	Sweetwater Mineral Springs		52N 105W	3	--	--	M	--	--	--	S	--	--	--	Gypsum, M	
TW4-68D	Mud		do	do		do do	4	W	--	--	--	--	--	S	--	--	--	--	
TW4-69B	Tufa		do	De Mario Hot Springs	3	do 102W	6	--	--	--	--	--	S	VW	VW	--	--	Anhydrite, V	
TW4-69C	do		do	do	do	do do	3	--	--	--	--	--	S	M	--	--	--	Anhydrite, V Sulfur, VS	
TW4-69D	do		do	do	do	do do	6	--	--	--	--	--	--	--	--	--	--	Gypsum, VS Sulfur, VS	
TW4-69E	do		do	do	do	do do	10	--	--	--	--	--	--	--	--	--	VS	--	Gypsum, S
TW4-70A	Tuff		T	Wood River		46N 103W	10	M	--	--	--	--	S	--	VS	--	--	Amphibole, W	
TW4-70B	Concretion		do	do		do do	8	S	VW	--	--	--	M	--	VS	--	--	Amphibole, W	
TW4-70C	Tuff		do	do		do do	7	W	--	--	--	--	S	--	VS	--	--	--	
TW4-71	Clay		do	do	21	do 102W	7	S	--	--	--	--	W	--	S	--	--	--	
Sweetwater County																			
TW4-79A	Sandstone	Wilkins Peak	E	Green River	23	18N 107W	21	--	--	--	--	--	S	VW	VW	VS	VS	--	
TW4-79B	Shale	do	do	do	do	do do	120	M	M	--	--	--	S	W	M	S	S	Analcime, W	
TW4-79C	do	do	do	do	do	do do	75	--	VW	--	--	--	M	W	VW	S	S	--	
TW4-79D	Silty claystone	do	do	do	do	do do	70	4/W	M	--	--	--	M	M	M	S	M	Analcime, M	
TW4-79F	Shale	do	do	do	do	do do	37	4/W	M	--	--	--	M	M	M	S	M	Analcime, M	
TW4-79G	do	do	do	do	do	do do	145	4/W	W	--	--	--	M	M	W	VS	S	--	
TW4-79H	Shaly siltstone	do	do	do	do	do do	105	4/M	VW	--	--	--	VW	VW	--	S	S	--	
TW4-79I	Marlstone	do	do	do	do	do do	55	--	VW	--	--	--	M	VW	M	VW	VS	--	
TW4-79J	do	do	do	do	do	do do	60	4/M	W	--	--	--	M	VW	VW	S	S	Analcime, W	
TW4-79K	do	do	do	do	do	do do	43	4/M	M	--	--	--	M	M	M	S	M	Analcime, M	
TW4-79L	do	do	do	do	do	do do	50	4/VW	W	--	--	--	M	--	--	S	S	--	
TW4-79M	Calcareous shale	do	do	do	do	do do	31	4/W	VW	--	--	--	M	VW	VW	VS	S	Halite, W	
TW4-79N	Sandstone	do	do	do	do	do do	19	--	VW	--	--	--	M	VW	W	VS	S	--	

Table 5.--Data from samples collected in Wyoming, 1974-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/2zeo-lite	Quartz	K-feld-spar	Plagio-clase	Cal-cite	Dolo-mite	Other
Sweetwater County (continued)																		
TW4-790	Shale	Wilkins Peak	E	Green River	23	18N	107W	50	4/M	M	--	--	S	W	M	S	M	--
TW4-79P	do	do	do	do	do	do	do	90	4/M	W	--	--	S	VW	W	VS	S	--
TW4-79Q	Sandstone	do	do	do	do	do	do	31										
TW4-79R	Calcareous shale	do	do	do	do	do	do	90	4/M	VW	--	--	W	--	VW	S	S	--
TW4-79S	Silty shale	do	do	do	do	do	do	74	--	M	VW	--	S	M	S	S	M	Analcite, M
TW4-79T	Sandstone	do	do	do	do	do	do	34	4/VW	W	--	--	S	W	M	S	VS	--
TW4-79U	Claystone	do	do	do	do	do	do	120	4/M	W	--	--	M	VW	W	S	M	Analcite, W
TW4-79V	Siltstone	do	do	do	do	do	do	27	--	M	--	--	S	W	S	M	--	Analcite, M
TW4-79W	do	do	do	do	do	do	do	46	--	M	--	--	S	W	M	M	M	Analcite, S
TW4-79X	do	do	do	do	do	do	do	31	--	M	VW	--	S	--	S	M	--	Analcite, S
TW4-79Y	do	do	do	do	do	do	do	24	--	M	VW	--	VS	M	S	S	--	Analcite, M
TW4-79Z	do	do	do	do	do	do	do	25	--	S	VW	--	S	M	S	--	M	Analcite, M
TW4-80A	Shale	do	do	do	16	do	106W	180	M	W	--	--	M	--	W	M	S	Analcite, M
TW4-80B	do	do	do	do	do	do	do	65	M	W	--	--	M	--	M	M	M	Analcite, M
TW4-80C	Silty shale	do	do	do	do	do	do	55	M	W	--	--	M	M	M	M	M	Analcite, M
TW4-800	Shale	do	do	do	do	do	do	70	W	W	--	--	M	--	S	S	S	Analcite, W
TW4-80E	do	do	do	do	do	do	do	90	M	W	--	--	S	--	S	M	S	Analcite, VW
TW4-80F	do	do	do	do	do	do	do	100	W	W	--	--	S	--	S	M	S	Analcite, VW
TW4-80G	Siltstone	do	do	do	do	do	do	22	VW	W	--	--	S	--	M	S	S	Analcite, VW
TW4-80H	Shale	do	do	do	do	do	do	41	4/W	W	--	--	M	--	S	--	S	Analcite, VW
TW4-80I	do	do	do	do	do	do	do	50	--	W	--	--	M	--	S	--	S	Analcite, M
TW4-80J	Siltstone	do	do	do	do	do	do	24	--	W	--	--	S	--	M	M	S	--
TW4-80K	do	do	do	do	do	do	do	80	--	M	--	--	W	--	M	M	M	Analcite, M
TW4-80L	Shale	do	do	do	do	do	do	55	W	M	--	--	M	--	M	M	S	Analcite, M
TW4-81A	Oil shale	do	do	Firehole Basin	34	16N	107W	75	--	VW	--	--	S	--	S	S	S	--

Table 5 --Data from samples collected in Wyoming, 1974-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Lf ppm	14-15A clay	10A clay or mica	7A clay	1/2 Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Sweetwater County (continued)																			
TW4-81B	Marlstone	Wilkins Peak	E	Firehole Basin	34	16N	107W	75	--	VW	--	--	S	W	VW	S	S	Pyrite, VW	
TW4-81C	do	do	do	do	do	do	do	78	VW	W	--	--	S	VW	VW	VS	VS	--	
TW4-81D	Oil shale	do	do	do	do	do	do	65	--	W	--	--	S	W	W	S	S	--	
TW4-81E	Marlstone	do	do	do	do	do	do	80	VW	W	--	--	S	--	M	VS	S	--	
TW4-81F	Oil shale	do	do	do	do	do	do	70	--	VW	--	--	M	W	M	S	S	--	
TW4-81G	do	do	do	do	do	do	do	48	--	VW	--	--	S	W	W	S	S	--	
TW4-81H	Siltstone	do	do	do	do	do	do	38	--	M	--	--	M	M	M	--	--	Analcime, S	
TW4-81I	Silty shale	do	do	do	do	do	do	55	--	W	--	--	S	--	W	M	S	Analcime, M	
TW4-81J	Clayey siltstone	do	do	do	do	do	do	105	--	W	--	--	S	W	S	S	S	--	
TW4-81K	Oil shale	do	do	do	do	do	do	115											
TW4-81L	do	do	do	do	do	do	do	90											
TW5-47A	Leucite		Q	Leucite Hills	19	21N	101W	13											
TW5-47B	do		do	do	do	do	do	12											
TW5-48A	Pumice		do	do	15	do	102W	13											
TW5-48B	do		do	do	do	do	do	12											
TW5-48C	do		do	do	do	do	do	21											
TW5-48D	Glass		do	do	do	do	do	40											
Teton County																			
L1-70A	Claystone	Teewinot	P	Shadow Mountain	1	43N	115W	200	M	W	--	--	M	VW	VW	S	S	Aragonite, M	
L1-70B	do	do	do	do	do	do	do	200	M	VW	--	--	M	W	W	S	W	Aragonite, M	
L1-70C	do	do	do	do	do	do	do	290	M	VW	--	--	M	--	M	M	M	Aragonite, M	
L1-71	do	do	do	do	do	do	do	200	M	W	VW	--	M	W	VW	S	W	Aragonite, M	
L1-72A	Calcite	do	do	do	do	do	do	--	--	--	--	--	--	--	--	VS	--	--	
L1-72B	Claystone	do	do	do	do	do	do	200	M	VW	--	--		W	W	S	--	--	
L1-73A	Pumicite	do	do	do	do	do	do	--	W	--	--	--	M	W	M	VW	M	Glass hump	
L1-73B	Limestone	do	do	do	do	do	do	70	W	VW	--	--	W	VW	VW	VS	--	--	
L1-73C	Claystone	do	do	do	do	do	do	150	W	VW	--	--	M	--	VW	VW	S	--	

Table 5 ---Data from samples collected in Wyoming, 1974-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/Zeo-lite	Quartz	K-feld-spar	Plagio-clase	Cal-cite	Dolo-mite	Other	
Teton County (continued)																			
L1-73D	Claystone	Teewinot	P	Shadow Mountain	1	43N	115W	440	M	VW	--	--	M	--	--	--	VS	--	
L1-73E	Dolomite	do	do	do	do	do	do	70	VW	VW	--	--	W	VW	VW	--	VS	--	
L1-73F	do	do	do	do	do	do	do	100	VW	VW	--	--	W	--	W	VW	S	--	
L1-73G	Pumicite	do	do	do	do	do	do	23	--	--	--	--	VW	--	VW	VW	--	Glass hump	
L1-73H	Claystone	do	do	do	do	do	do	160	W	VW	--	--	M	--	M	W	VS	--	
L1-73I	do	do	do	do	do	do	do	230	W	W	--	--	M	VW	VW	S	S	Amphibole,	
L1-73J	Pumicite	do	do	do	do	do	do	30	--	--	--	--	--	--	VW	--	--	Glass hump	
L1-73K	do	do	do	do	do	do	do	15	--	--	--	--	--	--	--	--	--	Glass hump	
L1-73L	Claystone	do	do	do	do	do	do	290	W	VW	--	--	S	VW	W	--	VS	--	
L1-73M	do	do	do	do	do	do	do	390	M	W	VW	--	VS	W	W	VW	S	Amphibole,	
L1-73N	do	do	do	do	do	do	do	380	M	W	VW	--	M	VW	VW	--	M	Amphibole,	
L1-73O	do	do	do	do	do	do	do	160	W	VW	--	--	M	VW	VW	W	S	--	
L1-73P	Pumicite	do	do	do	do	do	do	55	--	--	--	--	W	W	--	--	--	Glass hump	
L1-73Q	do	do	do	do	do	do	do	47	--	--	--	--	W	VW	VW	--	--	Glass hump	
L1-73R	do	do	do	do	do	do	do	20	--	--	--	--	--	--	--	--	--	Glass hump	
L1-73S	Claystone	do	do	do	do	do	do	370	M	VW	--	--	M	--	M	--	M	--	
L1-73T	do	do	do	do	do	do	do	290	M	VW	--	--	S	W	M	--	VS	--	
L1-73U	do	do	do	do	do	do	do	180	M	VW	--	--	S	--	W	W	M	--	
L1-73V	do	do	do	do	do	do	do	200	M	W	VW	--	S	W	W	W	S	--	
L1-73W	do	do	do	do	do	do	do	81	M	VW	--	--	M	--	VS	W	VW	--	
L1-73X	do	do	do	do	do	do	do	64	W	VW	--	--	M	VW	VW	VS	VW	--	
L1-73Y	do	do	do	do	do	do	do	70											
L1-74	do	do	do	do	do	do	do	200	W	VW	--	--	M	--	VW	VS	S	--	
L1-75	do	do	do	do	2	do	do	200	M	VW	--	--	M	--	--	S	M	Aragonite, P	
L1-76A	do	do	do	Gros Ventre River	19	42N	do	70	M	VW	--	--	M	VW	VW	S	VW	Amphibole, V	
L1-76B	do	do	do	do	do	do	do	70	M	VW	--	--	S	VW	VW	S	--	--	
L1-76C	do	do	do	do	do	do	do	70	M	VW	VW	--	S	W	VW	M	W	--	
TW4-55	Tuffaceous limestone	do	do	Shadow Mountain	12	43N	do	55	--	--	--	--	W	--	--	VS	--	--	
TW4-56	Pumicite	do	do	do	31	44N	114W	17	--	--	--	--	--	--	--	W	VW	Glass hump	
TW4-58A	Tuff	do	do	Pilgrim Creek		46N	do	15	VS	VW	--	--	VS	S	S	M	--	--	
TW4-58B	Concretion	do	do	do		do	do	10	W	--	--	--	M	--	M	VS	--	Amphibole, V	
TW4-58C	Tuff	do	do	do		do	do	15	M	--	--	--	W	VW	M	--	--	Glass hump	
TW4-57	Sandstone	do	do	do		do	do	17	M	VW	--	--	M	W	S	VS	--	Amphibole, V	
TW4-59B	Black Mud		Q	Huckleberry Hot Spring		48N	115W	43	--	VW	--	--	S	M	M	W	--	--	
TW4-59E	do		do	do		do	do	10	--	--	--	--	W	--	--	--	--	Mostly amorphous	

1/ Includes clinoptilolite and heulandite only

2/ H, Holocene; Q, Quaternary; P, Pliocene; M, Miocene; O, Oligocene; E, Eocene; T, Tertiary; Tr, Triassic; PG, Precambrian

3/ Mixed layer clay with a very broad peak

4/ Peak at 12A - sepiolite(?)

Table 6 .--Data from water samples collected in Colorado, 1974-76
 [Leaders (--) indicate no data]

Field No.	Locality	Sec.	T.	R.	L1	Cl	Na	Conductivity Micromhos	Temp. °C
					mg/l				
Archuleta County									
TC6-49	Pagosa Springs ^{1/}	14	35N	2W	2.85	184	800	4,160	38
Chaffee County									
TC4-93	Hortense Hot Springs	24	15S	79W	.18	26	340	430	~70
TC4-94	Mt. Princeton Hot Springs	19	do	78W	.09	19	280	290	~50
TC4-105	Poncha Hot Spring, Salida pool	6	49N	9E	.22	60	450	950	hot
Garfield County									
TC5-198	Glenwood Springs	9	6S	89W	.83	10,650	12,000	24,000	52
Grand County									
TC4-123	Hot Sulfur Springs	3	1N	78W	1.2	180	350	1,600	46.7
Mineral County									
TC4-103	Wagon Wheel Gap Hot Springs	35	41N	1E	2.0	220	2,400	2,300	58.9
Moffat County									
TC4-109C	West of Craig, pond	25	7N	90W	.024	--	120	1,160	cold
TC4-110	Juniper Hot Springs, south side of Yampa River	15	6N	94W	.23	110	400	1,750	37.2
TC4-111A	Juniper Hot Springs, cold spring north side of Yampa River	do	do	do	.60	300	300	3,000	cold
TC4-111B	Juniper Hot Springs, warm spring north side of Yampa River	do	do	do	.42	--	500	2,400	15.5
Routt County									
TC4-115A	Steamboat Springs, Sulfur Spring	8	do	84W	2.7	1,500	2,000	7,700	~24
TC4-115B	Steamboat Springs, tiny spring near Sulfur Spring	do	do	do	2.7	--	2,000	7,900	do
TC4-115C	Steamboat Springs, Soda Spring	do	do	do	1.1	540	540	3,800	16.7
TC4-116	Steamboat Springs, Lithia Spring	do	do	do	2.8	1,500	1,400	7,700	22.2
TC4-117	Routt Hot Springs	18	7N	do	.35	132	200	940	64.4
Saguache County									
TC4-97A	Mineral Hot Springs, pool	12	45N	9W	.44	58	400	1,040	warm
TC4-97B	Mineral Hot Springs, spring	do	do	do	.38	--	350	980	58.9

^{1/} K, 88 mg/l; Ca, 200 mg/l; Mg 27 mg/l

Table 7.--Data from rock samples collected in Colorado, 1974.

[Blanks indicate no data; leaders (--) indicate not detected. For mineralogic data, samples scanned at a rate of 2° per minute at 3,000 counts per second (full scale) using CuK alpha radiation generated at 34 kilovolts and 18 milliamperes. VS, very strong; peak height > 8 in. S, strong, peak height 3-8 in. M, moderate; peak height 1-3 in. W, weak, peak height 0.5-1 in. VW, very weak; peak height < 0.5 in.]

Field No.	Rock Type	Formation	2/Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other
Chaffee County																		
TC4-92A	Clay		0(?)	Ruby Hill	12	15S	77W	64	S	--	--	--	--	--	--	--	--	--
TC4-92B	do		do	do	do	do	do	56	S	--	--	--	--	--	--	--	--	--
TC4-95A	Clay, sandy	Dry Union	M-P	Salida Dump (old)	8	49N	8E	18	S	M	--	--	S	S	S	--	--	--
TC4-95B	Siltstone	do	do	do	do	do	do	31	S	S	W	S	VS	S	S	--	--	--
TC4-95C	do	do	do	do	do	do	do	24	M	M	VW	--	S	W	M	S	--	--
TC4-96A	do	do	do	do	do	do	do	40	S	S	W	W	VS	S	M	--	--	--
TC4-96B	Conglomerate	do	do	do	do	do	do	29	M	M	W	--	S	M	M	S	--	--
TC4-96C	Clay	do	do	do	do	do	do	48	S	M	M	--	S	--	W	--	--	--
TC4-96D	do	do	do	do	do	do	do	43	S	S	M	--	VS	S	M	--	--	--
TC4-96E	do	do	do	do	do	do	do	42	S	S	M	--	S	M	M	--	--	--
Grand County																		
TC4-118	Shale	Pierre Shale	C	Rabbit Ears Village	35	5N	82W	38	--	M	W	--	S	VW	--	VS	--	--
TC4-119A	Clay	Troublesome	M	Troublesome Creek	12	1N	80W	33	M	M	VW	--	S	M	W	M	--	--
TC4-119B	do	do	do	do	do	do	do	35	M	M	VW	--	S	M	W	VW	--	--
TC4-119C	Siltstone	do	do	do	do	do	do	32	W	M	VW	--	VS	M	S	M	--	--
TC4-120A	do	do	do	do	6	do	79W	32	M	M	VW	--	S	M	M	--	--	--
TC4-120B	Clay	do	do	do	do	do	do	37	M	M	VW	VW	S	M	M	--	--	--
TC4-120C	do	do	do	do	do	do	do	40	M	M	VW	?	S	M	M	--	--	--
TC4-120D	Concretion	do	do	do	do	do	do	15	W	W	--	--	M	M	W	VS	--	--
TC4-121A	Mudstone	do	do	do	8	do	do	41	S	M	VW	--	VS	S	M	S	--	--
TC4-121B	Siltstone	do	do	do	do	do	do	27	M	W	VW	--	VS	M	M	VS	--	--
TC4-121C	Clay	do	do	do	do	do	do	59	VS	M	--	--	W	--	--	--	--	--
TC4-122A	Limestone, shaly	do	do	do	9	do	do	18	--	--	--	--	M	--	--	VS	--	--

Table 7.--Data from rock samples collected in Colorado, 1974 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/2 Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Grand County (continued)																			
TC4-122B	Shale, limy	Troublesome	M	Troublesome Creek	9	1N	79W	29	--	W	W	--	S	--	--	VS	--	--	
TC4-122C	do	do	do	do	do	do	do	35	--	W	W	--	S	--	--	VS	--	--	
TC4-124A	Siltstone	Middle Park	Pal	Grandby	do	1S	76W	45	S	W	--	--	VS	W	M	--	--	--	
TC4-124B	do	do	do	do	do	do	do	49	S	M	--	--	S	M	S	--	--	--	
Mineral County																			
TC4-98A	Tuff, altered	Creede	0	Creede	1	41N	1W	55	M	M	--	M	M	--	S	--	--	--	
TC4-98B	do	do	do	do	do	do	do	45	--	M	--	M	M	M	S	M	--	Amphibole, VW	
TC4-98C	do	do	do	do	do	do	do	59	--	M	--	S	W	S	S	--	--	--	
TC4-98D	do	do	do	do	do	do	do	29	--	W	--	VW	W	W	M	VS	--	--	
TC4-98E	do	do	do	do	do	do	do	50	VW	S	VW	M	M	S	M	M	--	--	
TC4-98F	Clay	do	do	do	do	do	do	88	S	M	VW	W	--	S	M	M	--	--	
TC4-98G	Tuff, altered	do	do	do	do	do	do	85	W	M	--	M	M	S	M	M	--	--	
TC4-98H	do	do	do	do	do	do	do	60	M	VW	--	W	--	--	M	W	--	--	
TC4-98I	do	do	do	do	do	do	do	72	S	VW	--	W	--	--	M	--	--	--	
TC4-98J	do	do	do	do	do	do	do	52	S	VW	--	M	--	?	M	--	--	--	
TC4-98K	do	do	do	do	do	do	do	45	M	VW	--	M	--	W	M	--	--	--	
TC4-98L	do	do	do	do	do	do	do	32	--	M	--	W	W	S	S	S	--	--	
TC4-99A	do	do	do	Creede, Five-mile Bridge	10	do	do	45	W	M	--	S	VS	--	M	--	--	--	
TC4-99B	do	do	do	do	do	do	do	23	VW	W	--	W	M	W	M	VS	--	--	
TC4-99C	do	do	do	do	do	do	do	34	--	M	--	S	S	M	W	--	--	Amphibole, VW	
TC4-99D	Shale	do	do	do	do	do	do	50	--	W	--	W	VS	W	W	M	--	Gypsum, S	
TC4-99E	Sandstone	do	do	do	do	do	do	23	VW	W	--	M	M	M	M	VS	--	Amphibole, VW Gypsum, VW	
TC4-99F	Siltstone	do	do	do	do	do	do	36	--	VS	--	M	VS	W	M	VS	--	Amphibole, VW Gypsum, W	
TC4-100	Tailings			Creede mill dump	31	42N	1E	34	--	--	--	--	VS	M	W	--	--	Gypsum, W	
TC4-101A	Calcareous tuff	Creede	0	Phipp's Ranch	15	41N	do	22	--	--	--	VW	M	--	--	VS	--	--	

Table 7 --Data from rock samples collected in Colorado, 1974 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/2 Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Mineral County (continued)																			
TC4-101B	Travertine	Creede	0	Phipp's Ranch	15	41N	1E	14	--	--	--	--	VW	--	--	VS	--	--	
TC4-101C	Soil	C horizon	H	do	do	do	do	53	W	W	--	W	S	W	W	S	--	--	
TC4-101D	Tuff, altered	Creede	0	do	do	do	do	60	--	S	--	S	S	S	M	--	--	Amphibole, M	
TC4-101E	do	do	do	do	do	do	do	110	--	S	--	M	S	M	M	M	--	--	
TC4-101F	do	do	do	do	do	do	do	93	--	M	--	--	--	--	--	--	--	--	
TC4-101G	do	do	do	do	do	do	do	130	--	S	--	M	S	M	VS	--	--	Amphibole, VI	
TC4-102	Siltstone	do	do	do	do	do	do	90	--	M	--	M	M	W	W	--	--	do	
Moffat County																			
TC4-109A	Soil	Surface crust	H	Craig	25	7N	90W	7	--	VW	--	--	VS	M	S	--	--	Amphibole, VI	
TC4-109B	do	B horizon	do	do	do	do	do	11	--	VW	--	--	VS	M	W	--	--	--	
TC4-111C	Claystone	Morrison	J	Juniper Hot Springs	15	6N	94W	34	VW	VW	--	--	VS	--	M	--	--	--	
TC4-112A	Siltstone	do	do	do	3	do	do	47	M	W	--	--	VS	S	S	--	--	--	
TC4-112B	Limestone	do	do	do	do	do	do	12	VW	VW	--	--	M	--	M	VS	--	--	
TC4-113	Siltstone, limy	Browns Park	M	Lay Creek	25	do	93W	15	M	--	--	--	--	--	--	VS	--	--	
TC4-114A	Clay	do	do	Craig	35	7N	92W	69	M	W	--	--	S	W	S	--	--	--	
TC4-114B	Tuff, altered	do	do	do	do	do	do	55	S	VW	--	--	W	--	M	--	--	--	
Park County																			
TC4-85A	Vein	Pikes Peak Granite	P6	Lake George	23	11S	72W	23	--	--	--	--	VS	VW	--	--	--	Fluorite, VS	
TC4-85B	Altered zone	do	do	do	do	do	do	26	--	S	--	--	VS	VS	--	--	--	Fluorite, M	
TC4-86A	Greisen	do	do	do	15	do	do	54	W	VS	--	--	VS	S	--	--	--	Fluorite, W	
TC4-86B	do	do	do	do	do	do	do	200	M	VS	--	--	VS	--	--	--	--	Fluorite, M	
TC4-86C	do	do	do	do	do	do	do	530	M	VS	--	--	VS	W	--	--	--	do	
TC4-86D	do	do	do	do	do	do	do	170	W	VS	--	--	VS	M	--	--	--	Fluorite, W	
TC4-86E	do	do	do	do	do	do	do	240	--	VS	--	--	--	--	--	--	--	do	

Table 7.--Data from rock samples collected in Colorado, 1974 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Park County (continued)																			
TC4-87A	Amphibolite	Idaho Springs	PE	Lake George	8	11S	72W	7	W	VS	M	--	M	M	VS	--	--	Amphibole,	
TC4-87B	Quartz	do	do	do	do	do	do	2	--	M	--	--	VS	--	VS	--	--	--	
TC4-87C	Quartz vein	do	do	do	do	do	do	1	--	M	--	--	VS	--	VS	--	--	--	
TC4-87D	Weathered material	do	do	do	do	do	do	7	--	VS	--	--	VS	--	--	--	--	--	
TC4-87E	Contact zone	do	do	do	do	do	do	6	--	S	--	--	VS	--	--	--	--	Siderite(?), VS	
TC4-88	Vein	Pikes Peak Granite	do	do	5	do	do	9	--	M	--	--	VS	--	S	--	--	--	
TC4-89A	do	do	do	do	16	do	do	<1	--	W	--	--	S	--	VS	--	--	Beryl, VS Fluorite, I	
TC4-89B	Breccia	do	do	do	do	do	do	23	3/VS	W	S	--	--	--	--	VS	--	Amphibole,	
TC4-89C	do	do	do	do	do	do	do	8	M	--	--	--	--	--	--	VS	--	--	
TC4-89E	Weathering product	do	do	do	do	do	do	59	S	S	VS	--	--	--	--	--	--	--	
TC4-89F	do	do	do	do	do	do	do	1	--	S	--	--	--	S	VS	VS	--	--	
TC4-89G	Mica	do	do	do	do	do	do	47	M	VS	--	--	--	--	M	S	--	Amphibole,	
TC4-90B	Ore	do	do	Boomer Mine	21	do	do	60	W	S	--	--	--	--	--	--	--	Beryl, VS	
TC4-90C	Vein	do	do	do	do	do	do	200	M	A/VS	S	--	--	--	--	--	--	--	
TC4-90D	Ore	do	do	do	do	do	do	400	M	VS	M	--	--	--	--	--	--	--	
TC4-90F	Garnet rock	do	do	do	do	do	do	2	--	--	--	--	M	--	--	--	--	Garnet, VS	
TC4-90G	Ore	do	do	do	do	do	do	12	--	W	--	--	--	--	--	--	--	Malachite,	
TC4-90H	Ore	do	do	do	do	do	do	150	W	VS	--	--	S	--	--	--	--	Beryl, VS	
TC4-90I	Weathered vein	do	do	do	do	do	do	40	--	VS	--	--	VS	--	--	--	--	--	
TC4-90J	Weathered ore	do	do	do	do	do	do	92	M	VS	--	--	S	W	S	--	--	Amphibole,	
TC4-90K	Ore	do	do	do	do	do	do	150	--	VS	--	--	VS	--	--	--	--	Beryl, S	
TC4-90L	do	do	do	do	do	do	do	26	--	VS	--	--	S	S	VS	--	--	--	
TC4-91A	Claystone & sandstone	Antero	0	Antero Reservoir	5	13S	76W	74	M	M	YW	M	S	M	M	--	--	--	
TC4-91B	Siltstone	do	do	do	do	do	do	36	M	W	--	--	M	--	S	--	--	--	

Table 7 --Data from rock samples collected in Colorado, 1974 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Park County (continued)																			
TC4-91C	Claystone	Antero	0	Antero Reservoir	5	13S	76W	27	M	W	--	--	M	--	VW	--	--	--	
TC4-91D	do	do	do	do	do	do	do	34	S	M	--	--	M	W	VW	--	--	--	
Saguache County																			
TC4-104A	Tuff		T	Flagpole Hill	6	44N	8E	8	W	S	--	--	--	M	S	--	--	Amphibole,	
TC4-104B	do		do	do	do	do	do	12	M	M	--	--	W	M	VS	--	--	--	
TC4-104C	do		do	do	do	do	do	14	M	M	--	--	M	--	S	--	--	--	

1/ Includes clinoptilolite and heulandite only.

2/ O - Oligocene; M-P - Miocene-Pliocene; C - Cretaceous; M - Miocene; Pal - Paleocene; H - Holocene; J - Jurassic; PG - Precambrian; T - Tertiary.

3/ Chlorite and a sepiolite-like mineral.

4/ Phlogopite(?).

Table 8 --Data from water samples collected in New Mexico, 1974-76
[Leaders (--) indicate no data]

Field No.	Locality	Sec.	T.	R.	L1	Cl	Na	Conductivity Micromhos	Specific Gravity	Temp. °C
					mg/l					
Catron County										
TNM5-11	Boundary Hot Spring, Middle Fork Gila River ^{1/}	24	12S	14W	.34	115	--	700	1.0005	66.7
TNM4-187	San Francisco Hot Spring	14	do	20W	.44	--	520	1,300	1.001	35.6
TNM6-48B	Zuni Salt Lake brine ^{2/}	28	3N	18W	.25	170,000	100,000	80,000	--	--
TNM6-48K	Zuni Salt Lake, Smith Springs ^{3/}	do	do	do	.02	100	680	1,490	--	15.5
Eddy County										
TNM5-4	Nash Draw Salt Lake	9	23S	29E	1.3	--	--	400,000	1.1932	--
Grant County										
TNM4-181	Mimbres Hot Springs	12	18S	10W	.12	19	380	440	1.000	55.5
TNM4-183	Faywood Hot Springs	20	20S	11W	.18	--	360	610	1.000	54.4
TNM4-185	Mangus Spring	8	17S	16W	.027	--	340	690	1.000	cold
TNM5-8M	Smith Spring ^{4/}	17	18S	18W	.011	--	--	480	1.0005	do
TNM5-9D	Meerschaum Canyon, spring ^{5/}	28	14S	13W	.005	--	--	480	1.0004	do
TNM5-10	Gila Hot Springs	5	13S	13W	.21	110	--	600	1.0006	64.4
Hidalgo County										
TNM4-160	Playas, stock well	15	29S	17W	.055	--	360	400	1.000	cold
TNM4-162E	Playas, surface water	29	28S	do	.087	--	700	1,750	1.001	--
TNM4-162F	Playas, stock well	do	do	do	.11	--	420	550	1.000	cold
TNM4-163	do	30	27S	do	.27	--	520	1,000	1.000	do
TNM4-164	do	36	30S	do	.055	--	330	370	1.000	do
TNM4-165F	S. Alkali Flat, surface water	22	23S	20W	.13	--	730	1,650	1.000	do
TNM4-169	Pyramid Mountains, stock well west side	15	25S	19W	.038	--	350	490	1.000	do
TNM4-170	East of Lordsburg, well	1	23S	18W	.11	28	450	660	1.000	37.8
Luna County										
TNM4-173A	Victorio Mountains, stock well	32	24S	12W	.094	--	400	1,040	1.001	cold
TNM4-174A	Black Rock Canyon, spring	19	do	7W	.006	--	280	200	1.000	do
Sierra County										
TNM4-146	Geronimo's Spring, downtown Truth or Consequences	33	13S	4W	1.5	--	100	4,400	1.001	40
Socorro County										
TNM4-145	Socorro and Sedillo Springs collecting pool	22	3S	1W	.064	15	420	340	1.000	31.7
TNM4-143	Sedillo Spring	do	do	do	.064	--	520	370	1.000	33.3
TNM4-144	Socorro Spring	do	do	do	.065	--	400	350	1.000	31.7
TNM4-147A	Questa Spring arroyo	36	9S	6W	.005	--	330	540	1.000	cold
TNM4-147B	Questa Spring stock tank	do	do	do	.008	--	320	510	1.000	do
TNM6-13A	Apache Warm Springs ^{6/}	--	8S	8W	.11	120	--	760	1.000	27.8
TNM6-13B	do, smaller spring ^{7/}	--	do	do	.12	140	--	880	1.0007	do

Table 8 . Data from water samples collected in New Mexico, 1974-76 (Continued)

[Leaders (--) indicate no data]

Field No.	Locality	Sec.	T.	R.	mg/l		Na	Conductivity Micronhos	Specific Gravity	Temp. °C
					Li	Cl				
Torrance County										
TNM6-1B	Laguna del Perro, surface ^{8/} brine	32	5N	10E	5.5	190,000	--	150,000	1.2249	cold
TNM6-2A	Laguna del Perro, brine from about 46 cm ^{9/}	do	do	do	5.2	75,000	--	60,000	1.1149	do

^{1/} F, 8.0 mg/l^{2/} K, 800 mg/l; Ca, 180 mg/l; Mg, 2,600 mg/l^{3/} K, 9 mg/l; Ca, 18 mg/l; Mg, 12 mg/l^{4/} F, 1.8 mg/l^{5/} F, 1.4 mg/l^{6/} K, 5.2 mg/l^{7/} K, 6.2 mg/l^{8/} K, 2,000 mg/l^{9/} K, 1,000 mg/l

Table 9 --Data from rock samples collected in New Mexico, 1974-75.

[Blanks indicate no data; leaders (--) indicate not detected. For mineralogic data, samples scanned at a rate of 2° per minute at 3,000 counts per second (full scale) using CuK alpha radiation generated at 34 kilovolts and 18 milliamperes. VS, very strong; peak height > 8 in. S, strong; peak height 3-8 in. M, moderate; peak height 1-3 in. W, weak; peak height 0.5-1 in. VW, very weak; peak height < 0.5 in.]

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/2Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other
Catron County																		
TNM5-12A	Sandstone	Gila Conglomerate	2/T	Gila Hot Springs	unsurveyed	12S	13W	105	M	VW	VW	VS	VS	VS	VS	--	--	--
TNM5-12B	do	do	do	do	do	do	do	17	M	VW	VW	VS	S	S	S	S	--	--
TNM4-156A	Vein	Dat11	do	Wildhorse Canyon	20	9S	9W	49	VW	--	--	--	S	W	VW	VS	--	--
TNM4-156B	do	do	do	do	do	do	do	91	VW	--	--	--	VS	VW	--	S	--	--
Grant County																		
TNM4-182A	Tuff, altered	Sugarlump	0	Dwyer	32	19S	10W	28	M	W	--	--	VS	S	VS	--	--	Amphibole, VW
TNM4-182B	do	do	do	do	do	do	do	29	VW	W	--	--	S	S	S	--	--	do
TNM4-182C	do	do	do	do	do	do	do	38	--	VW	--	S	S	M	W	--	--	--
TNM4-182D	do	do	do	do	do	do	do	24	--	VW	--	M	S	M	M	--	--	--
TNM4-182E	do	do	do	do	do	do	do	32	--	VW	--	M	S	S	S	--	--	Amphibole, VW
TNM4-182F	do	do	do	do	do	do	do	36	--	--	--	S	--	--	--	--	--	--
TNM4-182G	do	do	do	do	do	do	do	23	--	--	--	S	--	--	--	--	--	--
TNM4-182H	do	do	do	do	do	do	do	63	VW	--	--	M	S	W	--	--	--	--
TNM4-182I	do	do	do	do	do	do	do	62	--	VW	--	M	S	W	--	--	--	--
TNM4-183B	Travertine	Hot Spring deposit	H	Faywood Hot Springs	20	20S	11W	34	--	--	--	--	--	--	--	VS	--	--
TNM4-183AA	Tuff, altered	Dat11	T	Bayard	14	18S	13W	52	VS	--	--	--	--	--	M	--	--	--
TNM4-183AB	do	do	do	do	do	do	do	33	--	VW	--	--	--	M	S	--	--	--
TNM4-183AC	do	do	do	do	do	do	do	28	VS	VW	--	W	--	--	S	--	--	--
TNM4-183AD	do	do	do	do	do	do	do	8	M	W	--	W	VS	--	S	--	--	--
TNM4-184	Siltstone	Gila Conglomerate	do	Mangas Creek valley	34	17S	16W	40	M	M	VW	VW	VS	M	M	M	--	Amphibole, VW Palygorskite, VS
TNM5-9A	"meerschaum"	do	do	Meerschaum Canyon	not surveyed			9	S	--	--	VS	S	--	--	VS	--	
TNM5-9B	Vein	do	do	do	do			13										
TNM5-9C	Conglomerate	do	do	do	do			25	S	VW	--	VS	S	W	W	VS	--	Palygorskite, VW
TNM4-186A	Siltstone	do	do	Buckhorn, north	29	14S	18W	52	VW	VW	--	VW	S	VS	S	S	--	--

Table 9 .--Data from rock samples collected in New Mexico, 1974-75 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Grant County (continued)																			
TNM4-186B	Claystone	Gila Conglomerate	T	Buckhorn, north	29	14S	18W	50	W	VW	--	VW	S	S	S	--	--	--	
TNM4-186C	do	do	do	do	do	do	do	150	W	VW	--	VW	M	W	W	S	--	--	
TNM4-186D	Siltstone	do	do	do	do	do	do	75	W	W	--	W	S	S	M	--	--	Amphibole, VW	
TNM4-186E	Claystone	do	do	do	do	do	do	68	W	W	--	VW	M	M	S	--	--		
TNM4-186F	do	do	do	do	do	do	do	97	W	W	--	VW	S	S	VS	--	--		
TNM4-186G	do	do	do	do	do	do	do	52	M	VW	--	VW	M	W	W	--	--		
TNM4-186H	Concretions	do	do	do	do	do	do	12											
TNM4-186I	Claystone	do	do	do	do	do	do	92	VW	W	--	VW	M	M	M	S	--	--	
TNM4-186J	Siltstone	do	do	do	do	do	do	43	W	W	--	VW	M	M	M	--	--	Amphibole, VW	
TNM4-186K	do	do	do	do	do	do	do	63	W	W	--	W	S	M	S	--	--	do	
TNM4-186L	do	do	do	do	do	do	do	33	W	VW	--	VW	S	M	S	--	--		
TNM4-186M	Sandstone	do	do	do	do	do	do	170	M	VW	--	VW	M	S	M	--	--		
TNM4-186N	Claystone	do	do	do	do	do	do	88											
TNM4-186O	Siltstone	do	do	do	do	do	do	14	VW	W	--	VW	S	W	S	--	--	Amphibole, VW	
TNM5-16A	Silty clay	do	do	Buckhorn, east	10	15S	do	200	W	M	VW	VW	S	S	S	--	--	do	
TNM5-16B	do	do	do	do	do	do	do	93											
TNM5-16C	do	do	do	do	do	do	do	155											
TNM5-16D	do	do	do	do	do	do	do	145											
TNM5-16E	Siltstone	do	do	do	do	do	do	180											
TNM5-16F	Limestone	do	do	do	do	do	do	110											
TNM5-16G	Siltstone	do	do	do	do	do	do	140											
TNM5-16H	Claystone	do	do	do	do	do	do	180											
TNM5-16I	Silty clay	do	do	do	do	do	do	115											
TNM5-16J	Siltstone	do	do	do	do	do	do	85											
TNM5-16K	do	do	do	do	do	do	do	60											
TNM5-16L	Claystone	do	do	do	do	do	do	120											

Table 9 --Data from rock samples collected in New Mexico, 1974-75 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/Zeo-lite	Quartz	K-feld-spar	Plagio-clase	Cal-cite	Dolo-mite	Other
Grant County (continued)																		
TNMS-16M	Siltstone	Gila Conglomerate	T	Buckhorn, east	10	15S	18W	92										
TNMS-16N	Claystone	do	do	do	do	do	do	120										
TNMS-16O	Chert	do	do	do	do	do	do	44										
TNMS-16P	Silty clay	do	do	do	do	do	do	155										
TNMS-16Q	Siltstone	do	do	do	do	do	do	75										
TNMS-17A	do	do	do	do	do	do	do	150										
TNMS-17B	Silty clay	do	do	do	do	do	do	130										
TNMS-17C	Siltstone	do	do	do	do	do	do	80										
TNMS-17D	Chert	do	do	do	do	do	do	42										
TNMS-17E	Siltstone	do	do	do	do	do	do	65	W	M	VW	M	VS	VS	S	S	--	Amphibole, VW
TNMS-17F	Claystone	do	do	do	do	do	do	94										
TNMS-17G	Chert	do	do	do	do	do	do	35										
TNMS-17H	do	do	do	do	do	do	do	18										
TNMS-18A	do	do	do	do	9	do	do	24										
TNMS-18B	do	do	do	do	do	do	do	17										
TNMS-18C	Claystone	do	do	do	do	do	do	56										
TNMS-18D	Tuff, altered	do	do	do	do	do	do	46										
TNMS-18E	do	do	do	do	do	do	do	38	M	M	--	W	S	S	S	--	--	--
TNMS-18F	do	do	do	do	do	do	do	39										
TNMS-18G	Siltstone	do	do	do	do	do	do	51										
TNMS-18H	Claystone	do	do	do	do	do	do	145										
TNMS-18I	Siltstone	do	do	do	do	do	do	39										
TNMS-18J	Claystone	do	do	do	do	do	do	95										
TNMS-18K	Limestone	do	do	do	do	do	do	77										
TNMS-18L	Siltstone	do	do	do	do	do	do	100										

Table 9 ---Data from rock samples collected in New Mexico, 1974-75 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Grant County (continued)																			
TNMS-18M	Siltstone	Gila Conglomerate	T	Buckhorn, east	9	15S	18W	105											
TNMS-18N	Chert	do	do	do	do	do	do	84											
TNMS-18O	Claystone	do	do	do	do	do	do	160											
TNMS-18P	Tuff, altered	do	do	do	do	do	do	240	S	--	--	--	--	--	--	--	--	--	Hydrobiotite, M Glass
TNMS-18Q	Siltstone	do	do	do	do	do	do	170	M	M	VW	S	S	S	S	S	--	--	Amphibole, VW Fluorite, W
Hidalgo County																			
TNMA-159	Soil	Playa sediment	H	Playas	29	29S	17W	32	VW	W	--	--	S	M	M	W	--	--	
TNMA-1/161A	Silt	do	do	do	11	do	do	76	--	W	--	--	S	W	VW	S	--	--	Analcime, VW
TNMA-161B	Mud	do	do	do	do	do	do	68	--	W	--	--	S	VW	VW	S			Analcime, W
TNMA-161C	Clay	do	do	do	do	do	do	82	--	W	--	--	M	VW	W	M	--	--	Analcime, M
TNMA-161D	do	do	do	do	do	do	do	85	--	W	--	--	M	VW	--	M	--	--	do
TNMA-161E	do	do	do	do	do	do	do	88	--	W	--	--	S	VW	VW	M	--	--	do
TNMA-2/162A	Silt	do	do	do	29	28S	do	83	--	W	--	--	M	VW	VW	M	--	--	do
TNMA-162B	do	do	do	do	do	do	do	85	--	W	--	--	M	VW	VW	M			do
TNMA-162C	do	do	do	do	do	do	do	87	--	W	--	--	M	VW	VW	M			do
TNMA-162D	do	do	do	do	do	do	do	95	--	W	--	--	M	--	--	M			do
TNMA-6/165A	Silt	do	do	South Alkali Flat	22	23S	20W	140	--	VW	--	--	M	VW	VW	M			Analcime, VW
TNMA-165B	do	do	do	do	do	do	do	130	--	W	--	--	M	W	VW	M			Analcime, W
TNMA-165C	do	do	do	do	do	do	do	120	--	W	--	--	M	W	W	M			do
TNMA-165D	do	do	do	do	do	do	do	110	--	W	--	--	M	W	W	M			Analcime, VW
TNMA-165E	do	do	do	do	do	do	do	120	--	VW	--	--	M	VW	VW	M			do
TNMS-7/5A	do	do	do	do	28	do	do	115											
TNMS-5B	do	do	do	do	do	do	do	93											
TNMS-5C	do	do	do	do	do	do	do	82											
TNMS-5D	do	do	do	do	do	do	do	95											

Table 9 .--Data from rock samples collected in New Mexico, 1974-75 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/Zeo-lite	Quartz	K-feld-spar	Plagio-clase	Cal-cite	Dolo-mite	Other	
Hidalgo County (continued)																			
TNM5-5E	Silt	Playa sediment		South Alkali Flat	22	23S	20W	100											
TNM5-5F	do	do	do	do	do	do	do	95											
TNM5-5G	do	do	do	do	do	do	do	95											
TNM5-5H	do	do	do	do	do	do	do	90											
TNM5-5I	do	do	do	do	do	do	do	105											
TNM5-5J	do	do	do	do	do	do	do	105											
TNM5-5K	do	do	do	do	do	do	do	86											
TNM5-5L/6A	do	do	do	North Alkali Flat	18	22S	do	74											
TNM5-6B	do	do	do	do	do	do	do	83											
TNM5-6C	do	do	do	do	do	do	do	89											
TNM5-6D	do	do	do	do	do	do	do	94											
TNM5-6E	do	do	do	do	do	do	do	100											
TNM5-6F	do	do	do	do	do	do	do	120											
TNM5-6G	do	do	do	do	do	do	do	100											
TNM5-6H	do	do	do	do	do	do	do	110											
TNM4-166A	Ore		T	Shakespeare, south	1	24S	19W	12	VW	W	M	--	VS	--	--	VS	--	--	
TNM4-166B	do		do	do	do	do	do	14	VW	W	M	--	VS	--	--	S	--	--	
TNM4-166C	Gangue		do	do	do	do	do	30	VW	W	W	--	VS	--	--	VS	--	--	
TNM4-167	Alluvium		Q	do	32	23S	18W	30	M	--	W	--	S	--	S	S	--	--	
TNM4-168A	Fluorite		T	do	26	do	19W	98	VW	--	--	--	S	--	--	S	--	Fluorite, VS	
TNM4-168B	Vein		do	do	do	do	do	12											
TNM4-168C	do		do	do	do	do	do	55	VW	--	--	--	S	VW	--	S	--	Fluorite, VS	
Luna County																			
TNM4-171A	Calcite			Victoria Mountains	28	24S	12W	4	--	--	--	--	--	--	--	VS	--	--	
TNM4-171B	Vein		do	do	do	do	do	120	9/M	M	--	--	S	--	--	--	--	Pyrite, M	
TNM4-171C	Soil		Q	do	do	do	do	14	VW	M	--	--	M	--	--	VS	--	Talc(?), M	
TNM4-172A	Nodule		ePa	do	33	do	do	10	--	W	VW	--	S	--	--	--	--	M	--
TNM4-172B	Ore		do	do	do	do	do	110	--	--	--	--	VS	--	--	--	--	--	Cerussite, M

Table 9 --Data from rock samples collected in New Mexico, 1974-75 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/2zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Luna County (continued)																			
TNMA-172C	Ore			Victoria ePa Mountains	33	24S	12W	110	--	--	--	--	VS	--	--	--	--	Cerussite, M	
TNMA-173B	Tailings	From drill hole	do	do	do	do	do	29	VW	W	--	--	VS	S	W	M	W	Cerussite, V	
TNMA-173C	Gossan			do	do	do	do	14	VW	--	--	--	S	--	--	M	--	Beudantite(?) M plus other	
TNMA-173D	Tailings			do	do	do	do	22	--	--	--	--	VS	--	--	M	--	do	
TNMA-174B	Ore		T	Black Canyon, Little Florida Mountains	19	do	7W	5	--	--	--	--	W	--	--	VS	--	--	
TNMA-174C	Rhyolite		do	do	do	do	do	23	--	W	--	--	VS	S	S	--	--	--	
TNMA-174D	Calcite		do	do	do	do	do	1	--	--	--	--	--	--	--	VS	--	--	
TNMA-174E	Ore		do	do	do	do	do	13	--	--	--	--	--	--	--	--	--	Cryptomelane, ramsdellite & pyrolusite	
TNMA-174F	Agglomerate		do	do	do	do	do	32	--	--	--	--	VS	--	M	--	--	--	
TNMA-174G	Jasperoid plus		do	do	do	do	do	7	--	--	--	--	VS	--	M	--	--	--	
TNMA-174H	Ore		do	do	do	do	do	9	--	--	--	--	--	--	--	VS	--	Pyrolusite, M cryptomelane, M	
TNMA-174I	Agglomerate		do	do	do	do	do	7	--	--	--	--	S	--	S	--	--	--	
TNMA-174J	Ore		do	do	do	do	do	120	--	--	--	--	VS	M	--	--	--	--	
TNMA-175	Caliche		Q	Florida Gap	do	do	do	<1	--	--	--	--	W	VW	--	VS	--	--	
TNMA-176A	Agglomerate		T	Little Florida Mountains	do	do	do	14	--	--	--	--	--	--	M	VS	--	Pyrolusite, W	
TNMA-176B	Ore		do	do	do	do	do	4	--	--	--	--	--	--	--	S	--	Pyrolusite, M	
TNMA-176C	Agglomerate, weathered		do	do	do	do	do	3	--	--	--	--	M	W	--	VS	--	--	
TNMA-177A	Ore		do	do	7	do	do	6	--	--	--	--	--	--	--	VS	--	Pyrolusite, M	
TNMA-177B	Agglomerate		do	do	do	do	do	39	--	VW	--	--	VS	S	--	--	--	--	
TNMA-178A	Ore		do	Fluorite Ridge	18	22S	8W	37	--	--	--	--	S	--	--	S	--	Fluorite, VS	
TNMA-178B	do		do	do	do	do	do	33	--	--	--	--	S	--	--	--	--	do	
TNMA-178C	Porphyry, altered		do	do	do	do	do	57	W	M	W	--	VS	W	--	--	--	--	
TNMA-178D	Ore		do	do	do	do	do	48	--	--	--	--	VS	--	--	S	--	Fluorite, VS	

Table 9 .--Data from rock samples collected in New Mexico, 1974-75 (continued)

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	14-15A clay	10A clay or mica	7A clay	1/2zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Luna County (continued)																			
TNM4-178E	Gossan		T	Fluorite Ridge	18	22S	8W	54	--	--	--	--	VS	--	--	VW(?)	--	--	
TNM4-178F	Ore		do	do	do	do	do	120	--	--	--	--	VS	--	--	--	--	--	
TNM4-178G	Jasperoid		do	do	do	do	do	25	--	--	--	--	VS	--	--	--	--	--	
TNM4-178H	Fluorite		do	do	do	do	do	18	--	--	--	--	S	--	--	--	--	--	Fluorite, VS
TNM4-178I	do		do	do	do	do	do	16	--	--	--	--	M	--	--	--	--	--	do
TNM4-178J	do		do	do	do	do	do	70	--	--	--	--	VS	--	--	--	--	--	
TNM4-179A	Volcanic rock, altered		do	do	17	do	do	28	--	VW	--	--	VS	W	--	S	--	--	
TNM4-179B	do		do	do	do	do	do	24	VW	W	W	--	VS	S	--	S	--	--	
TNM4-179C	Alluvium		Q	do	do	do	do	27	W	W	W	--	VS	VW	--	S	--	--	
TNM4-179D	Siltstone		T	do	do	do	do	37	W	W	M	--	VS	S	--	--	--	--	
TNM4-179E	do		do	do	do	do	do	21	W	W	W	--	VS	M	--	--	--	--	
TNM4-179F	Vein		do	do	do	do	do	40	--	--	--	--	VS	--	--	W	--	--	Fluorite, VS
TNM4-179FF	Fluorite		do	do	do	do	do	19	--	--	--	--	M	--	--	W	--	--	do
TNM4-179G	Siltstone		do	do	do	do	do	34	W	W	W	--	VS	W	--	--	--	--	
Sierra County																			
TNM4-148A	Latite		T	Aragon	5	1DS	5W	15	VW	VW	VW	--	M	M	--	--	--	--	
TNM4-148B	do, altered		do	do	do	do	do	68	M	W	W	--	S	M	M	--	--	--	
TNM4-148C	do		do	do	do	do	do	35	W	VW	W	--	S	M	M	--	--	--	
TNM4-148D	Clay		do	do	do	do	do	5	--	VS	M	--	S	--	--	--	--	--	
TNM4-148E	Rhyolite, altered		do	do	do	do	do	9	--	S	W	--	S	W	--	--	--	--	
TNM4-148F	do		do	do	do	do	do	15	--	S	W	--	S	--	--	--	--	--	
TNM4-148G	Rhyolite		do	do	do	do	do	6	--	--	--	--	VS	VS	W	--	--	--	
TNM4-150A	Vein		do	Monticello	26	do	6W	<1	--	--	--	--	VS	--	--	--	--	--	
TNM4-150B	do		do	do	do	do	do	8	--	--	--	--	--	--	--	--	--	--	Gypsum, VS

Table 9.--Data from rock samples collected in New Mexico, 1974-75 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/2 Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Sierra County (continued)																			
TNM4-150C	Fluorite vein		T	Monticello	26	10S	6W	11	--	--	--	--	VS	W	--	M	--	Fluorite, VS	
TNM4-150E	do		do	do	do	do	do	19	--	--	--	--	VS	--	--	--	--	do	
TNM4-150F	do		do	do	do	do	do	27	--	--	--	--	VS	--	--	M	--	do	
TNM4-150G	Vein, weathered		do	do	do	do	do	74	--	--	--	--	VS	W	--	--	--	--	
TNM4-150H	do		do	do	do	do	do	52	--	--	--	--	S	--	--	VS	--	Fluorite, M	
TNM4-150I	do		do	do	do	do	do	84	--	--	--	--	VS	--	--	M	--	Fluorite, S	
TNM4-154	Rhyolite		do	New Mexico, Rt. 52	31	11S	do	7	M	VW	--	--	VS	M	S	--	--	--	
TNM4-155A	Ore		do	Chloride Creek	30	do	8W	60	W	--	--	--	VS	--	--	--	--	--	
TNM4-155B	Tailings from drill hole		do	do	do	do	do	54	W	--	M	--	S	M	S	W	--	--	
TNM4-155C	Tuff		do	do	do	do	do	82	M	--	M	--	S	M	--	M	--	--	
TNM4-155D	do		do	do	do	do	do	37	W	--	M	--	S	M	S	W	--	--	
TNM4-157A	Altered volcanic rock		do	Kaolinite quarry	19	10S	9W	20	--	--	M	--	M	--	--	--	--	Alunite, M cristobalite, S	
TNM4-157B	do		do	do	do	do	do	18	--	--	M	--	W	--	--	--	--	do, do	
TNM4-157C	do		do	do	do	do	do	24	--	--	S	--	VS	--	--	--	--	do, do	
TNM4-157D	Chert		do	do	do	do	do	6	--	--	--	--	VS	--	--	--	--	Unknown at 22°, S	
TNM4-157E	Altered volcanic rock		do	do	do	do	do	1	--	--	W	--	W	--	--	--	--	Cristobalite, S	
TNM4-157F	Chert		do	do	do	do	do	3	--	--	--	--	VS	--	--	--	--	Cristobalite, M	
TNM4-157G	Altered volcanic rock		do	do	do	do	do	16	--	--	--	--	W	--	--	--	--	Cristobalite, S	
TNM4-157H	do		do	do	do	do	do	2	--	--	M	--	W	--	--	--	--	do	
TNM4-157I	do		do	do	do	do	do	7	--	--	M	--	M	--	--	--	--	do	
TNM4-157J	do		do	do	do	do	do	<1	--	--	--	--	M	--	--	--	--	do	
TNM4-157K	"chert"		do	do	do	do	do	4	--	--	--	--	--	--	--	--	--	do	

Table 9 --Data from rock samples collected in New Mexico, 1974-75 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	14-15A clay	10A clay or mica	7A clay	1/Zeolite	Quartz	K-feldspar	Plagioclase	Calcite	Dolomite	Other	
Socorro County																			
NM4-151A	Perlite		T	Socorro perlite quarry	27	3S	1W	6	--	--	--	--	W	--	--	--	--	--	Glass
NM4-151B	do		do	do	do	do	do	9	W	--	--	--	--	--	--	--	--	--	do
NM4-151C	do		do	do	do	do	do	7	M	--	--	--	--	--	--	--	--	--	do
NM4-151D	do		do	do	do	do	do	12	W	--	--	--	VW	M	--	--	--	--	do
NM4-151E	do		do	do	do	do	do	55	M	VW	--	--	VW	VW	VW	W	--	--	do
NM4-153A	Tuff, altered		do	do	do	do	do	110	S	VW	--	--	S	M	M	--	--	--	--
NM4-153B	Rhyolite		do	do	do	do	do	18	--	--	--	--	S	M	S	--	--	--	--
NM4-153C	Tuff, altered		do	do	do	do	do	170	S	VW	--	--	S	M	VS	--	--	--	--
NM4-153D	do		do	do	do	do	do	140	S	--	--	--	W	--	M	--	--	--	--
NM4-152A	Dolomite	Madera limestone	†	Magdalena	1	2S	3W	4	--	--	--	--	--	--	--	S	VS	--	--
NM4-152B	do		do	do	do	do	do	7	--	--	--	--	S	--	--	--	--	--	Pyrite, S Galena, M

1/ Includes clinoptilolite and heulandite only

2/ H, Holocene; Q, Quaternary; P, Pliocene; M, Miocene; O, Oligocene; E, Eocene; T, Tertiary; R, Triassic; PC, Precambrian; ePa, Early Paleozoic; †, Pennsylvanian

3/ Sample set TNM4-186 contains diatomaceous sediments

4/ Sample set TNM4-161 from 1 m deep auger hole

5/ Sample set TNM4-162 from 0.6 m deep auger hole

6/ Sample set TNM4-165 from 0.6 m deep auger hole

7/ Sample set TNM5-5 from 1.3 m deep auger hole

8/ Sample set TNM5-6 from 1.3 m deep auger hole

9/ Chlorite mineral

Table 10.--Data from rock samples collected in New Mexico, 1975-76.

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	L1 ppm	Other percent
Catron County									
TNM5-12A	Sandstone	Gila Conglomerate	Tertiary	Gila Hot Springs	Unsurveyed	12S	13W	105	Mg, 0.98
TNM5-12B	do	do	do	do	do	do	do	17	Mg, 0.95
TNM6-48A	Black mud		Quaternary	Zuni Salt Lake	28	3N	18W	33	K, 0.88 F, 0.096
TNM6-48C	Soll		do	do	do	do	do	19	K, 0.63 F, 0.12
TNM6-48D	Algal mass		do	do	do	do	do	5	K, 0.03 F, 0.16
TNM6-48E	Cinders		do	do	do	do	do	12	K, 0.85 F, 0.034
TNM6-48F	Basalt		do	do	do	do	do	7	K, 0.94 F, 0.027
TNM6-48G	Clay		do	do	do	do	do	32	K, 1.4 F, 0.086
TNM6-48H	Silt		do	do	do	do	do	13	K, 0.97 F, 0.062
TNM6-48I	do		do	do	do	do	do	23	K, 1.5 F, 0.078
TNM6-48J	Clay		do	do	do	do	do	33	K, 1.4 F, 0.076
Grant County									
TNM5-7A	Ore	Gila Conglomerate	Tertiary	Caprock district	33	19S	19W	14	Mg, 0.13
TNM5-7B	do	do	do	do	do	do	do	19	Mg, 0.17
TNM5-7C	Opaline vein	do	do	do	do	do	do	21	Mg, 0.013
TNM5-7D	Quartz vein	do	do	do	do	do	do	10	Mg, 0.36
TNM5-7E	Chert vein	do	do	do	do	do	do	18	Mg, 0.050
TNM5-7F	Manganiferous conglomerate	do	do	do	do	do	do	28	Mg, 0.12
TNM5-7G	Altered conglomerate	do	do	do	do	do	do	41	Mg, 0.15
TNM5-7H	Ore	do	do	do	do	do	do	25	Mg, 0.13
TNM5-8A	Silty clay			Ash Creek	17	18S	18W	40	Mg, 0.072
TNM5-8B	Altered zone			do	do	do	do	55	Mg, 1.40
TNM5-8C	do			do	do	do	do	91	Mg, 0.25
TNM5-8D	do			do	do	do	do	46	Mg, 0.078
TNM5-8E	do			do	do	do	do	39	Mg, 0.10
TNM5-8F	do			do	do	do	do	25	Mg, 0.07D
TNM5-8G	do			do	do	do	do	40	Mg, 0.18
TNM5-8I	do			do	do	do	do	83	Mg, 0.42
TNM5-8J	do			do	do	do	do	42	Mg, 0.090
TNM5-8K	do			do	do	do	do	44	Mg, 0.056

Table 10.--Data from rock samples collected in New Mexico, 1975-76 (continued).

Field No.	Rock type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	Other percent
Grant County (continued)									
TNMS-8L	Altered zone			Ash Creek	17	18S	18W	85	Mg, 0.060
TNMS-9A	Palygorskite	Gila Conglomerate	Tertiary	Meerschaum Canyon	28	do	do	9	Mg, 2.39
TNMS-9B	Vein	do	do	do	do	do	do	13	Mg, 0.34
TNMS-9C	Conglomerate	do	do	do	do	do	do	25	Mg, 0.72
TNMS-13A	Conglomerate, altered		do	Copperas Vista	4	14S	13W	43	Mg, 1.3
TNMS-13B	Andesite, altered		Oligocene	do	do	do	do	31	Mg, 1.66
TNMS-14A	Clay (altered andesite)		do	do	8	do	do	14	Mg, 1.9
TNMS-14B	Siltstone (altered andesite)		do	do	do	do	do	8	Mg, 1.2
TNMS-14C	Clay (altered andesite)		do	do	do	do	do	10	Mg, 1.1
TNMS-15A	Altered andesite		do	do	do	do	do	13	Mg, 0.7
TNMS-15B	do		do	do	do	do	do	8	Mg, 0.65
TNMS-15C	do		do	do	do	do	do	6	Mg, 0.43
TNMS-15D	do		do	do	do	do	do	6	Mg, 0.47
Hidalgo County									
TNMS-5A	Surface crust	Playa sediments ^{1/}	Quaternary	South Alkali Flat	28	23S	20W	115	K, 2.7 Ca, 4.6 Mg, 1.8 F, 0.25
TNMS-5B	Silt	do, 15 cm	do	do	do	do	do	93	K, 2.3 Ca, 4.4 Mg, 1.5 F, 0.45
TNMS-5C	do	do, 38 cm	do	do	do	do	do	82	K, 2.2 Ca, 5.2 Mg, 1.2 F, 0.45
TNMS-5D	do	do, 41 cm	do	do	do	do	do	95	K, 2.4 Ca, 4.7 Mg, 1.5 F, 0.425
TNMS-5E	do	do, 53 cm	do	do	do	do	do	100	K, 2.3 Ca, 5.2 Mg, 1.4 F, 0.40
TNMS-5F	do	do, 69 cm	do	do	do	do	do	95	K, 2.2 Ca, 5.3 Mg, 1.6 F, 0.425
TNMS-5G	do	do, 76 cm	do	do	do	do	do	95	K, 2.3 Ca, 5.7 Mg, 1.4 F, 0.40
TNMS-5H	do	do, 89 cm	do	do	do	do	do	90	K, 2.4 Ca, 4.8 Mg, 1.3 F, 0.40

Table 10 .--Data from rock samples collected in New Mexico, 1975-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Lf ppm	Other percent
Hidalgo County (continued)									
TNM5-5I	Silt	Playa sediments, 102 cm	Quaternary	South Alkali Flat	28	23S	20W	105	K, 2.2 Ca, 6.0 Mg, 1.7 Ca, 6.0
TNM5-5J	do	do, 120 cm	do	do	do	do	do	105	K, 2.1 Ca, 7.2 Mg, 1.8 F, 0.475
TNM5-5K	do	do, 135 cm	do	do	do	do	do	86	K, 2.1 Ca, 7.2 Mg, 1.5 F, 0.325
TNM5-6A	Surface crust	do ^{1/}	do	North Alkali Flat	18	22S	do	74	K, 2.8 Ca, 2.8 Mg, 1.5 F, 0.15
TNM5-6B	Silt	do, 15 cm	do	do	do	do	do	83	K, 2.4 Ca, 3.4 Mg, 1.3 F, 0.245
TNM5-6C	do	do, 40 cm	do	do	do	do	do	89	K, 2.3 Ca, 4.7 Mg, 1.5 F, 0.35
TNM5-6D	do	do, 58 cm	do	do	do	do	do	94	K, 2.1 Ca, 4.4 Mg, 1.3 F, 0.40
TNM5-6E	do	do, 79 cm	do	do	do	do	do	100	K, 2.1 Ca, 5.1 Mg, 1.6 F, 0.325
TNM5-6F	do	do, 99 cm	do	do	do	do	do	120	K, 2.1 Ca, 5.8 Mg, 1.7 F, 0.40
TNM5-6G	do	do, 122 cm	do	do	do	do	do	100	K, 2.4 Ca, 6.3 Mg, 2.0 F, 0.325
TNM5-6H	do	do, 135 cm	do	do	do	do	do	110	K, 2.2 Ca, 4.4 Mg, 1.5 F, 0.325
Sandoval County									
TNM6-33	Claystone, silty	Ceja Member of Santa Fe Group	Pleistocene	Sand Hill	30	12N	1E	26	
TNM6-34A	Claystone	Gallisteo	Eocene	Sandía Ramp	25	13N	4E	19	
TNM6-34B	do	do	do	do	do	do	do	24	
TNM6-35A	Tuff	Peralta	Pliocene	Tent Rocks	33	17N	5E	8	
TNM6-35B	Perlite	do	do	do	do	do	do	28	
TNM6-35C	Glass	do	do	do	do	do	do	27	
TNM6-51A	Mica	Aqua Zarca Member	Triassic	Hacimiento mine	1	20N	1W	42	

Table 10.--Data from rock samples collected in New Mexico, 1975-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	Other percent
Sandoval County (continued)									
TNM6-51B	Conglomerate	Aqua Zarca Member	Triassic	Nacimiento mine	1	20N	1W	42	
TNM6-51C	Sandstone	do	do	do	do	do	do	12	
Sierra County									
TNM6-36A	Tuffa and silt	Hot spring deposit	Quaternary	Truth or Consequences	2	14S	4W	38	
TNM6-36B	Conglomerate	Alluvium	do	do	do	do	do	28	
TNM6-36C	Siltstone	do	do	do	do	do	do	20	
TNM6-36D	Tuffa	Hot spring deposit	do	do	do	do	do	<1	
TNM6-36E	do	do	do	do	do	do	do	4	
TNM6-36F	do	do	do	do	do	do	do	2	
TNM6-36G	Chert	Fault gouge		do	do	do	do	10	
TNM6-36H	Altered shale	Mancos shale	Cretaceous	do	do	do	do	29	
TNM6-36I	Tuffa	Hot spring deposit	Quaternary	do	do	do	do	20	
TNM6-36J	do	do	do	do	do	do	do	22	
TNM6-37A	Mn oxides	do	do	do	35	13S	do	<1	
TNM6-37B	Calcite	do	do	do	do	do	do	<1	
TNM6-37C	Calcareous siltstone		Paleozoic	do	do	do	do	17	
TNM6-37D	Mn oxides	Hot spring deposit	Quaternary	do	do	do	do	19	
TNM6-37E	Ore	do	do	do	do	do	do	2	
TNM6-38A	Latite	"Tin rhyolite"	Tertiary	Willow Spring Draw	31	11S	6W	25	
TNM6-38B	do	do	do	do	do	do	do	31	
TNM6-38C	Cassiterite	do	do	do	do	do	do	28	
TNM6-38D	Latite	do	do	do	do	do	do	30	
TNM6-39A	Altered rhyolite		to	Sawmill Creek	20	10S	10W	35	
TNM6-39B	do		do	do	do	do	do	36	
TNM6-39C	do		do	do	do	do	do	29	
TNM6-39D	Fault breccia		do	do	do	do	do	45	
TNM6-39E	Brecciated andesite		do	do	do	do	do	49	
TNM6-39F	Sandstone		do	do	do	do	do	55	
TNM6-39G	Conglomerate		do	do	do	do	do	62	
TNM6-40A	Sandstone		do	do	do	do	do	25	
TNM6-40B	do		do	do	do	do	do	29	
TNM6-40C	Glass		do	do	do	do	do	34	
TNM6-40D	Perlite		do	do	do	do	do	20	
TNM6-40E	Chert		do	do	do	do	do	13	
TNM6-40F	Sandstone		do	do	do	do	do	120	
TNM6-40G	Perlite		do	do	do	do	do	13	

Table 10 .--Data from rock samples collected in New Mexico, 1975-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	Other percent
Sierra County (continued)									
TNM6-40H	Breccia		Tertiary	Sawmill Creek	20	10S	10W	19	
TNM6-40I	Mn oxide		do	do	do	do	do	42	
TNM6-40J	Cristobalite-tridymite		do	do	do	do	do	28	
TNM6-40K	Altered ore		do	do	do	do	do	22	
TNM6-40L	Welded ash-flow tuff		do	do	do	do	do	49	
TNM6-41A	Altered tuff		do	Continental Divide	10	do	do	11	
TNM6-41B	do		do	do	do	do	do	9	
TNM6-41C	do		do	do	do	do	do	5	
TNM6-41D	do		do	do	do	do	do	14	
TNM6-41E	Altered sandstone		do	do	do	do	do	24	
TNM6-41F	Altered tuff		do	do	do	do	do	12	
TNM6-41G	do		do	do	do	do	do	31	
TNM6-42A	Tuff	Winston	do	Winston	11	12S	8W	11	
TNM6-42B	do	do	do	do	do	do	do	20	
TNM6-43	Altered andesite		do	Wildhorse Canyon	33	9S	9W	35	
TNM6-44A	Tuff	Winston	do	Dines Ranch	2	12S	8W	23	
TNM6-44B	Clay	do	do	do	do	do	do	42	
TNM6-45A	Breccia	Rhyolite breccia pipe	do	do	35	11S	do	11	
TNM6-45B	Tuff	do	do	do	do	do	do	36	
TNM6-45C	Opaline silica	do	do	do	do	do	do	3	
TNM6-45D	Altered breccia	do	do	do	do	do	do	33	
TNM6-46A	Sn ore		do	Willow Spring	31	do	6W	29	
TNM6-46B	Rhyolite		do	do	do	do	do	35	
TNM6-46C	do		do	do	do	do	do	33	
TNM6-46D	Tuff		do	do	do	do	do	40	
TNM6-47A	Alteration product		Paleozoic	Iron Mountain	3	10S	8W	18	
TNM6-47B	Vein		Tertiary	do	do	do	do	26	
TNM6-47C	Clayey alteration product		do	do	do	do	do	380	
TNM6-47D	Fluorite(?)		do	do	do	do	do	7	
TNM6-47E	Ore		do	do	do	do	do	7	
TNM6-47F	Clayey alteration product		do	do	do	do	do	59	
TNM6-47G	Be ore		do	do	do	do	do	15	

Table 10.--Data from rock samples collected in New Mexico, 1975-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	Other percent
Socorro County									
TNM6-3A	Mn on	Dat11	Tertiary	Socorro Mn prospects	32	35	2W	31	
TNM6-3B	Calcrete soil		Quaternary	do	do	do	do	35	
TNM6-4A	Rhyolite	Dat11	Tertiary	Socorro Mn mines	33	do	do	13	
TNM6-4B	Ore	do	do	do	do	do	do	22	
TNM6-4C	do	do	do	do	do	do	do	9	
TNM6-4D	Pumicite	do	do	do	do	do	do	29	
TNM6-4E	Jasperoid	do	do	do	do	do	do	25	
TNM6-4F	Vein calcite	do	do	do	do	do	do	8	
TNM6-4G	Pumicite	do	do	do	do	do	do	33	
TNM6-5A	Altered rhyolite	do	do	Monticello Box	unsurveyed	85	7W	42	Mg, 0.36
TNM6-5B	Tuff	do	do	do	do	do	do	44	Mg, 0.31
TNM6-6A	Gypsiferous tuff	do	do	do	do	do	do	15	Mg, 0.34
TNM6-6B	Altered tuff	do	do	do	do	do	do	13	Mg, 0.25
TNM6-6C	do	do	do	do	do	do	do	45	Mg, 0.11
TNM6-6D	Tuff	do	do	do	do	do	do	83	Mg, 0.05
TNM6-7A	Clay	do	do	do	do	do	do	13	Mg, 0.10
TNM6-7B	Rhyolite	do	do	do	do	do	do	12	Mg, 0.31
TNM6-7C	Tuff	do	do	do	do	do	do	28	Mg, 0.18
TNM6-7D	Vein	do	do	do	do	do	do	10	Mg, 0.20
TNM6-7E	Altered andesite	do	do	do	do	do	do	6	Mg, 0.40
TNM6-7F	do	do	do	do	do	do	do	19	Mg, 0.10
TNM6-7G	do	do	do	do	do	do	do	36	Mg, 1.0
TNM6-10A	Jasperoid	do	do	do	do	do	do	4	Mg, 0.02
TNM6-10B	Tuff	do	do	do	do	do	do	17	Mg, 0.34
TNM6-11	do	do	do	do	do	do	do	6	Mg, 0.63
TNM6-12A	Rhyolite	do	do	do	do	do	do	1	Mg, 0.09
TNM6-12B	do	do	do	do	do	do	do	5	Mg, 0.29
TNM6-8A	Jasperoid	do	do	do	do	do	do	19	Mg, 0.04
TNM6-8B	Tuff	do	do	do	do	do	do	45	Mg, 0.05
TNM6-8C	Clay	do	do	do	do	do	do	110	Mg, 0.14
TNM6-9A	Altered tuff	do	do	do	do	do	do	10	Mg, 0.35
Taos County									
TNM5-19A	Quartz	Yadito	Precambrian	Harding mine	29	23N	11E	62	
TNM5-19B	Soil	A horizon	Quaternary	do	do	do	do	185	
TNM5-19C	do	do	do	do	do	do	do	430	
TNM5-19D	Pegmatite	Yadito	Precambrian	do	do	do	do	9,500	

Table 10.--Data from rock samples collected in New Mexico, 1975-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm	Other percent
Torrance County									
TNM6-1A	Salt crust	Playa sediment	Quaternary	Laguna del Perro	32	5N	10E	7	
TNM6-2B	Surface crust	do	do	do	do	do	do	25	
TNM6-2C	Mud at 30 cm	do	do	do	do	do	do	41	
TNM6-2D	Mud at 60 cm	do	do	do	do	do	do	38	
TNM6-2E	Mud at 90 cm	do	do	do	do	do	do	38	
TNM6-2F	Mud at 122 cm	do	do	do	do	do	do	39	
Valencia County									
TNM6-32	Siltstone	Santa Fe Group	Tertiary	Carrizo Arroyo	6	6N	2W	38	

1/ Samples from 1.3 m auger hole.

Table 11.--Data from water samples collected in Texas, 1976

[Leaders (--) indicate no data]

Field No.	Locality	Lat.	Long.	Li	Cl	K	Conductivity Micromhos	Specific Gravity	Temp. °C
Brewster County									
TT6-17A	Hot Springs, hot springs	29°10'N	103°00'W	0.15	70	7.3	1,260	1.0012	40.5
TT6-17B	Hot Springs, Rio Grande ~ 9.4 km upstream from hot springs	do	do	.13	200	9.4	1,850	1.0008	--
Presidio County									
TT6-25A	Aqua Fria spring	29°32'N	103°41'W	.009	12.5	2.6	260	1.0000	cold

Table 12.--Data from rock samples collected in Texas, 1975-76.

Field No.	Rock Type	Formation	Age	Locality	Lat.	Long.	L1 ppm	Other percent
Brewster County								
TT6-18A	Tuff, baked	Chisos	Tertiary	Burro Mesa	29°16'	103°22'28"	36	
TT6-18B	Tuff	do	do	do	do	do	47	
TT6-18C	do	do	do	do	do	do	54	
TT6-18D	do	do	do	do	do	do	47	
TT6-18E	do	do	do	do	do	do	32	
TT6-19A	Tuffaceous sandstone	do	do	do	29°16'30"	103°22'20"	52	
TT6-19B	do	do	do	do	do	do	73	
TT6-19C	do	do	do	do	do	do	73	
TT6-19D	do	do	do	do	do	do	154	
TT6-20A	Tailings			Terlingua	29°19'45"	103°36'30"	29	
TT6-20B	Shale	Del Rio clay	Cretaceous	do	do	do	35	
TT6-20C	Tailings			do	do	do	18	
TT6-20D	do			do	do	do	16	
TT6-20E	Ore			do	do	do	43	
TT6-20F	Shale	Del Rio Clay	Cretaceous	do	do	do	19	
TT6-20G	Black shale	do	do	do	do	do	23	
TT6-24A	Bentonite	Buck Hill volcanics series	Tertiary	Fizzle Flat	29°35'	103°41'	49	
TT6-24B	do	do	do	do	do	do	59	
TT6-24C	Tuff	do	do	do	do	do	32	
Crosby County								
TT5-1A	Siltstone	Bridwell	Pliocene	Blanco Canyon	33°40'	101°07'	24	K, 0.85 Ca, 8.8 Mg, 1.0
TT5-1B	do	do	do	do	do	do	15	K, 0.49 Ca, 12.2 Mg, 0.81
TT5-1C	Caliche	do	do	do	do	do	16	K, 0.48 Ca, 12.0 Mg, 0.90
TT5-1D	do	do	do	do	do	do	12	K, 0.50 Ca, 19.2 Mg, 0.64
TT5-1E	Siltstone	do	do	do	do	do	13	K, 0.72 Ca, 10.5 Mg, 0.49
TT5-1F	do	do	do	do	do	do	8	K, 0.53 Ca, 17.0 Mg, 0.43
TT5-1G	Caliche	do	do	do	do	do	3	K, 0.32 Ca, 20.5 Mg, 0.55
TT5-1H	Chert	do	do	do	do	do	2	K, 0.27 Ca, 9.5 Mg, 0.89

Table 12.--Data from rock samples collected in Texas, 1975-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Lat.	Long.	L1 ppm	Other percent
Crosby County (continued)								
TT5-1I	Caliche	Bridwell	Pliocene	Blanco Canyon	33°40'	101°07'	7	K, 0.44 Ca, 18.0 Mg, 0.46
TT5-1J	do	do	do	do	do	do	9	K, 0.43 Ca, 19.1 Mg, 0.52
TT5-1K	do	do	do	do	do	do	7	K, 2.2 Ca, 18.0 Mg, 0.67
TT5-1L	do	do	do	do	do	do	4	K, 3.5 Ca, 18.0 Mg, 0.80
TT5-2A	do	Ogallala Group	do	do	do	101°12'30"	61	K, 0.46 Ca, 18.4 Mg, 1.6
TT5-2B	do	do	do	do	do	do	36	K, 0.42 Ca, 17.9 Mg, 0.66
TT5-2C	do	do	do	do	do	do	31	K, 0.69 Ca, 18.2 Mg, 0.69
TT5-3A	Siltstone	do	do	do	33°46'	101°15'	340	K, 1.5 Ca, 0.9 Mg, 1.6
TT5-3B	Concretion	do	do	do	do	do	12	K, 0.23 Ca, 21.9 Mg, 0.66
TT5-3C	Siltstone	do	do	do	do	do	66	K, 0.69 Ca, 21.6 Mg, 1.12
TT5-3D	Tuff	Blanco	Pleistocene	do	do	do	61	K, 0.64 Ca, 13.0 Mg, 6.0
TT5-3E	do	do	do	do	do	do	110	K, 0.82 Ca, 7.1 Mg, 2.9
TT5-3F	Siltstone	do	do	do	do	do	390	K, 2.1 Ca, 7.0 Mg, 5.1
TT5-3G	Tuff	do	do	do	do	do	190	K, 0.72 Ca, 13.2 Mg, 7.2
TT5-3H	Caliche	do	do	do	do	do	29	K, 0.79 Ca, 23.0 Mg, 1.1
El Paso County								
TT6-15A	Weathered granite		Precambrian	Franklin Mountains	31°56'	106°29'	19	
TT6-15B	Mn oxides(?)		do	do	do	do	5	
TT6-15C	Vein		do	do	do	do	7	
TT6-15D	Ore (black)		do	do	do	do	670	
TT6-15E	Ore (green)		do	do	do	do	10	

Table 12 .--Data from rock samples collected in Texas, 1975-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Lat.	Long.	Li ppm	Other percent
El Paso County (continued)								
TT6-15F	Altered vein		Precambrian	Franklin Mountains	31°56'	106°29'	1,300	
TT6-15G	Ore (black)		do	do	do	do	8	
TT6-15H	Altered granite		do	do	do	do	8	
TT6-15I	Granite		do	do	do	do	6	
TT6-15J	Altered granite		do	do	do	do	8	
TT6-15K	do		do	do	do	do	9	
TT6-15L	Greissen		do	do	do	do	10	
TT6-15M	Altered granite		do	do	do	do	6	
TT6-15N	Granite		do	do	do	do	9	
TT6-15O	Quartz		do	do	do	do	5	
TT6-15P	Granite		do	do	do	do	9	
TT6-15Q	do		do	do	do	do	11	
TT6-15R	Ore		do	do	do	do	11	
TT6-15S	Granite		do	do	do	do	10	
Hudspeth County								
TT6-27A	Salt crust	Playa sediments	Quaternary	Salt Flat	31°45'	105°00'	49	Mg, 1.74 F, 0.11
TT6-27B	Surface mud	do	do	do	do	do	61	Mg, 1.36 F, 0.16
TT6-27C	Hard limy clay, 25 cm	do	do	do	do	do	39	Mg, 8.2 F, 0.28
TT6-27D	Clay, 28 cm	do	do	do	do	do	81	Mg, 1.92 F, 0.21
TT6-27E	Clay, 46 cm	do	do	do	do	do	76	Mg, 5.6 F, 0.30
TT6-27F	Clay, 60 cm	do	do	do	do	do	84	Mg, 1.47 F, 0.24
TT6-27G	Clay, 90 cm	do	do	do	do	do	84	Mg, 1.96 F, 0.28
TT6-27H	Clay, 130 cm	do	do	do	do	do	108	Mg, 3.91 F, 0.30
TT6-28A	Surface crust	do	do	do	do	do	51	Mg, 2.37 F, 0.14
TT6-28B	Near surface	do	do	do	do	do	89	Mg, 2.22 F, 0.18
TT6-28C	Clay, 10 cm	do	do	do	do	do	106	Mg, 2.40 F, 0.22
TT6-28D	Hard limy clay, 40 cm	do	do	do	do	do	41	Mg, 8.0 F, 0.35
TT6-28E	Clay, 60 cm	do	do	do	do	do	70	Mg, 1.46 F, 0.17
TT6-28F	Clay, 90 cm	do	do	do	do	do	62	Mg, 1.19 F, 0.17

Table 12.--Data from rock samples collected in Texas, 1975-76 (continued).

Field No.	Rock Type	Formation	Age	Locality	Lat.	Long.	Li ppm	Other percent
Hudspeth County (continued)								
TT6-28G	Sandy clay, 107 cm	Playa sediments	Quaternary	Salt Flat	31°45'	105°00'	77	Mg, 1.6 F, 0.22
TT6-28H	Sandy clay, 140 cm	do	do	do	do	do	91	Mg, 3.34 F, 0.25
Jeff Davis County								
TT6-16A	Tuff		Tertiary	Musquis Canyon	30°44'	103°46'	52	
TT6-16B	do		do	do	do	do	28	
TT6-16C	do		do	do	do	do	33	
TT6-16D	do		do	do	do	do	48	
TT6-16E	do		do	do	do	do	43	
TT6-16F	do		do	do	do	do	37	
TT6-16G	do		do	do	do	do	24	
TT6-16H	Mudstone		do	do	do	do	45	
TT6-16I	do		do	do	do	do	59	
Presidio County								
TT6-21A	Tuff	Fresno	Tertiary	Rio Grande River	29°22'	104°10'	51	
TT6-21B	do	do	do	do	do	do	48	
TT6-21C	do	do	do	do	do	do	52	
TT6-21D	do	do	do	do	do	do	32	
TT6-22A	Clay	Boquillas	Cretaceous	do	29°30'	104°15'	18	
TT6-22B	do	do	do	do	do	do	39	
TT6-22C	do	do	do	do	do	do	46	
TT6-22D	Tuff		Tertiary	do	do	do	23	
TT6-22E	Sandstone		do	do	do	do	15	
TT6-22F	Quartz		do	do	do	do	4	
TT6-22G	Fault gouge		do	do	do	do	10	
TT6-23A	Tuff		do	South of Marfa	30°09'	104°07'	78	
TT6-23B	do		do	do	do	do	110	
TT6-23C	do		do	do	do	do	24	
TT6-23D	do		do	do	do	do	51	
TT6-23E	Dike rock		do	do	do	do	22	
TT6-23F	Tuff		do	do	do	do	77	
TT6-23G	Clay vein		do	do	do	do	70	
TT6-23H	Tuff		do	do	do	do	53	
TT6-23I	Clay vein		do	do	do	do	113	
TT6-25B	Salt crust		Holocene	Aqua Fria Spring	29°32'	103°41'	10	
TT6-26A	Tuff	Buck Hill	Tertiary	do	29°31'	do	12	
TT6-26B	Clay	do	do	do	do	do	38	

/ Auger hole

Table 13 .--Data from rock samples collected in Nebraska, 1975

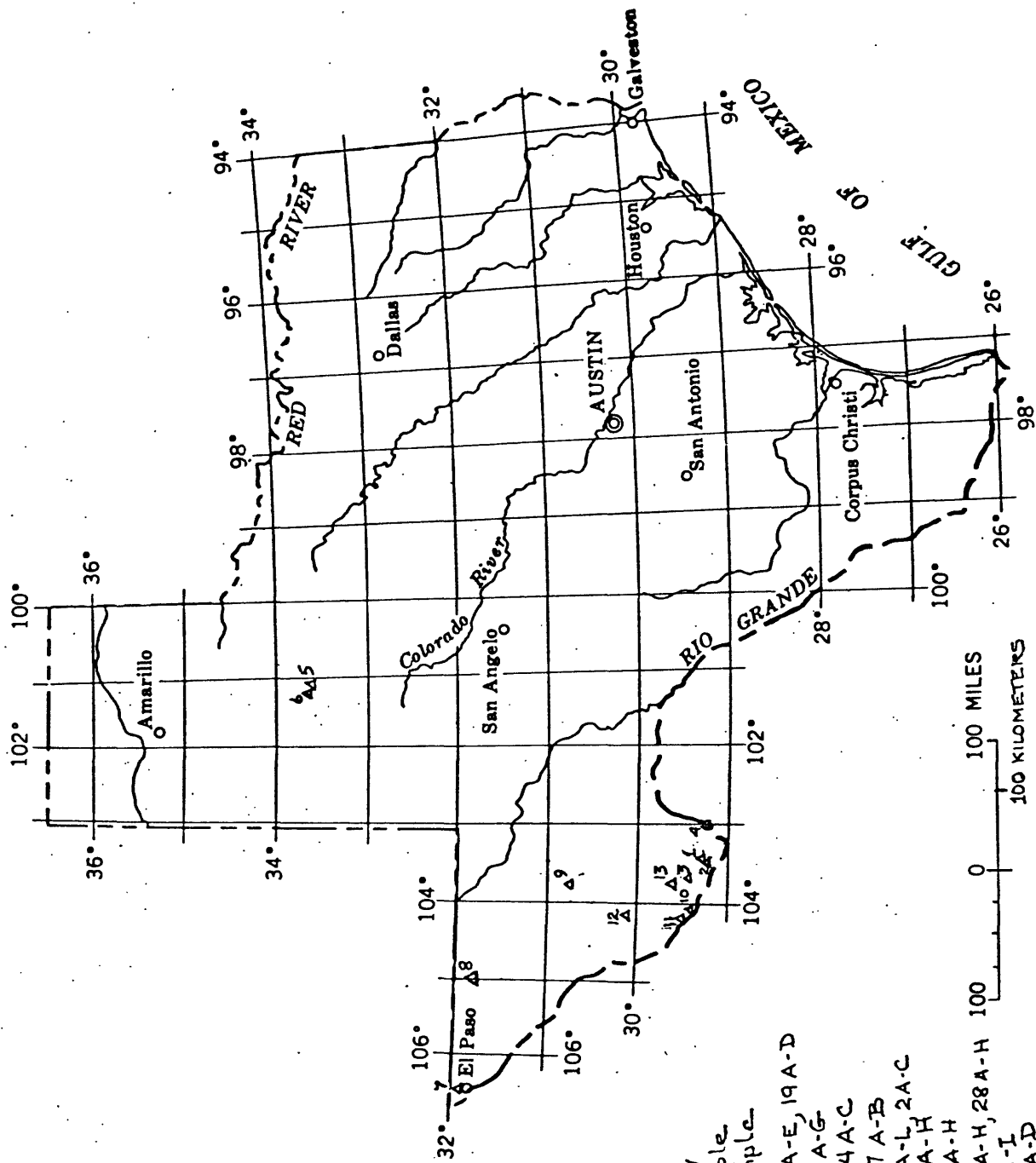
Field No.	Rock Type	Formation	Age	Locality	Sec.	T.	R.	Li ppm
Banner County								
TNBS-42A	Sandstone		Pliocene	Harrisburg	26	18N	56W	26
TNBS-42B	Tuff, altered		do	do	do	do	do	9
Dawes County								
TNBS-40A	Chalcedony	Brule	Oligocene	Isinglass Butte	22	34N	48W	20
TNBS-40B	Claystone	do	do	do	do	do	do	90
TNBS-40C	do	do	do	do	do	do	do	48
TNBS-40D	do	do	do	do	do	do	do	54
TNBS-40E	do	do	do	do	do	do	do	30
TNBS-40F	do	do	do	do	do	do	do	18
TNBS-40G	do	do	do	do	do	do	do	38
TNBS-40H	do	Chadron	do	do	do	do	do	45
TNBS-40I	do	do	do	do	do	do	do	51
TNBS-40J	do	do	do	do	do	do	do	62
TNBS-41A	do	White River Group	do	Beaver Creek-Bordeau Creek Divide	3	do	47W	71
TNBS-41B	Chalcedony	do	do	do	do	do	do	80
TNBS-41C	Claystone	do	do	do	do	do	do	41
TNBS-41D	Dolomite(?)	do	do	do	do	do	do	13
TNBS-41E	Claystone	do	do	do	do	do	do	25
Morrill County								
TNBS-31A	Limestone	Ash Hollow	Pliocene	Lookout Mound	32	18N	49W	35
TNBS-31B	Sand	do	do	do	do	do	do	45
TNBS-31C	Silicified nodules	do	do	do	do	do	do	18
TNBS-31D	Sandstone, limy	do	do	do	do	do	do	22
Sioux County								
TNBS-37	Vein	Whitney Member	Oligocene	Lookout Butte	21	33N	53W	35
TNBS-39	Tuff	Harrison Member	Miocene	Agate Springs	10	28N	55W	14

Table 14 .--Data from water samples collected in Sheridan County, Nebr., 1975

Field No.	Locality	Sec.	T.	R.	mg/l				Specific Gravity	Conductivity Micromhos	Field pH	
					Li	Ca	Mg	Na				K
TN85-32A	Unnamed pond	19	26N	45W	0.55	0.2	0.015	7,800	9,200	1.0316	34,000	~10
TN85-32B	Stock tank next to unnamed pond	do	do	do	.042	5.1	2.9	25	26	1.0021	280	~7.2
TN85-33	Wickson Lake	8	25N	do	.18	2.0	2.9	1,000	700	1.0058	6,300	~10
TN85-34	Pond next to Jesse Lake	29	do	do	.75	.4	.5	25,000	35,000	1.1859	160,000	~11
TN85-35	Palmer Lake	6	24N	do	.28	2.3	28	1,000	900	1.0075	6,800	~10
TN85-36	Lake Lane	10	do	do	.16	.4	.6	9,100	4,500	1.0292	32,000	~10

Table 15 .--Data from water samples collected in Arkansas, 1975

Field No.	Locality	Sec.	T.	R.	mg/l				Specific Gravity	Conductivity Micromhos		
					Li	Na	K	Ca			Mg	F
Pulaski County												
TAR5-20A	Jeffrey Quarry water	8	2N	12W	0.073	4.5	1.1	33	38	0.48	1.0011	470
Saline County												
TAR5-27	Green Thumb Spring	9	do	19W	.005	1.1	.3	2.4	1.8	.11	1.0010	15.4
Hot Spring County												
TAR5-30	Hot Springs, blend	4	2S	do	.008	3.9	1.2	4.0	5	.23	1.0010	250



- EXPLANATION**
 ▲ Rock sample
 ○ Water sample
1. Samples TT6-18A-E, 19A-D
 2. Samples TT6-20A-G
 3. Samples TT6-24A-C
 4. Samples TT6-17A-B
 5. Samples TT5-1A-L, 2A-C
 6. Samples TT5-3A-H
 7. Samples TT6-15A-H
 8. Samples TT6-27A-H, 28A-H
 9. Samples TT6-16A-I
 10. Samples TT6-21A-D
 11. Samples TT6-22A-G
 12. Samples TT6-23A-I
 13. Samples TT6-25A-B, 26A-B

Figure 5. -- Sample localities in Texas

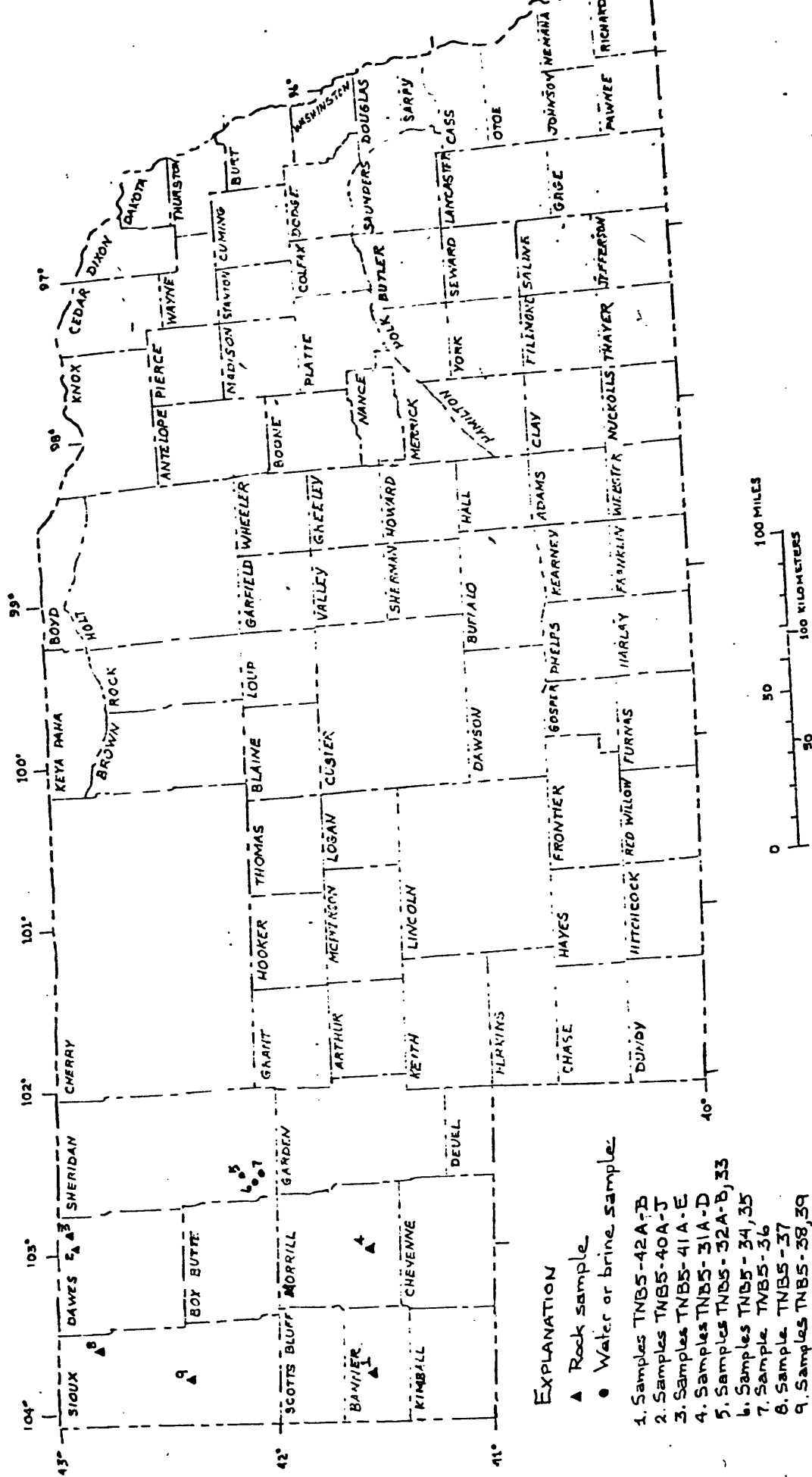


Figure 6.-- Sample localities in Nebraska.

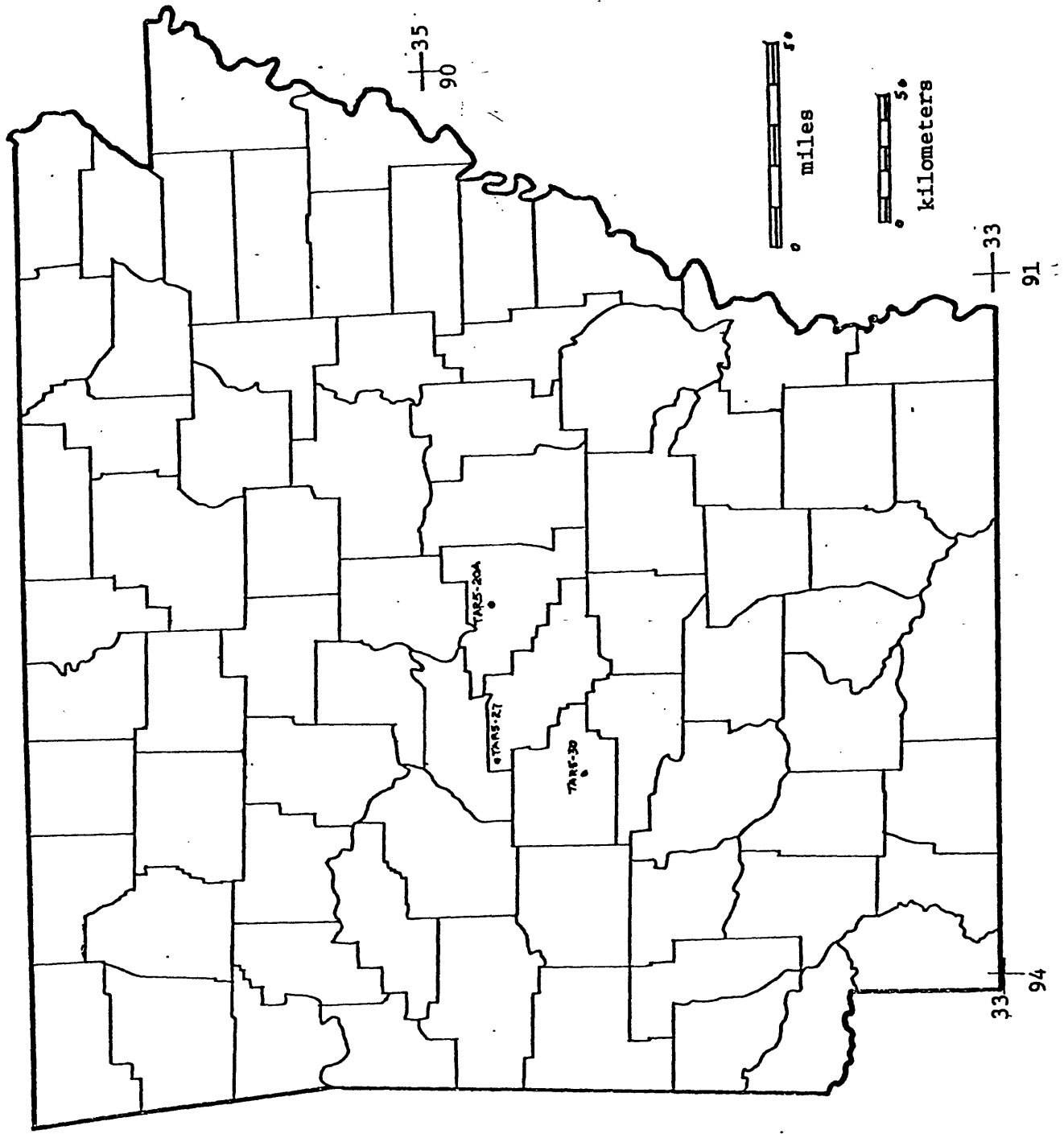


Figure 7.--Water-sample localities in Arkansas

EXPLANATION

● Water, brine or hot spring deposit sample

▲ Rock or soil sample

Map no. Samples	Map no. Samples
1 TMA-1	19 TMA-26A-B
2 TMA-2A-B	20 TMA-27
3 TMA-3A-B	21 TMA-35A-B
4 TMA-11	22 TMA-17A-C
5 TMA-4A-B	23 TMA-36
6 TMA-5A-B, 6A-B, 7A-B	24 TMA-43A-B
7 TMA-12	25 TMA-63A-C
8 TMA-28	26 TMA-60, 61, 62
9 TMA-15	27 TMA-37, 38
10 TMA-16A-C	28 TMA-9
11 TMA-23	29 TMA-10A-B
12 TMA-32, 33, 34A-B	30 TMA-19A-B
13 TMA-24A-C, 25	31 TMA-20
14 TMA-29, 30A-C	32 TMA-22
15 TMA-31	33 TMA-21
16 TMA-39	34 TMA-41A-C, 64
17 TMA-40A-E	35 TMA-42
18 TMA-14	36 TMA-107A-M, 108A-I

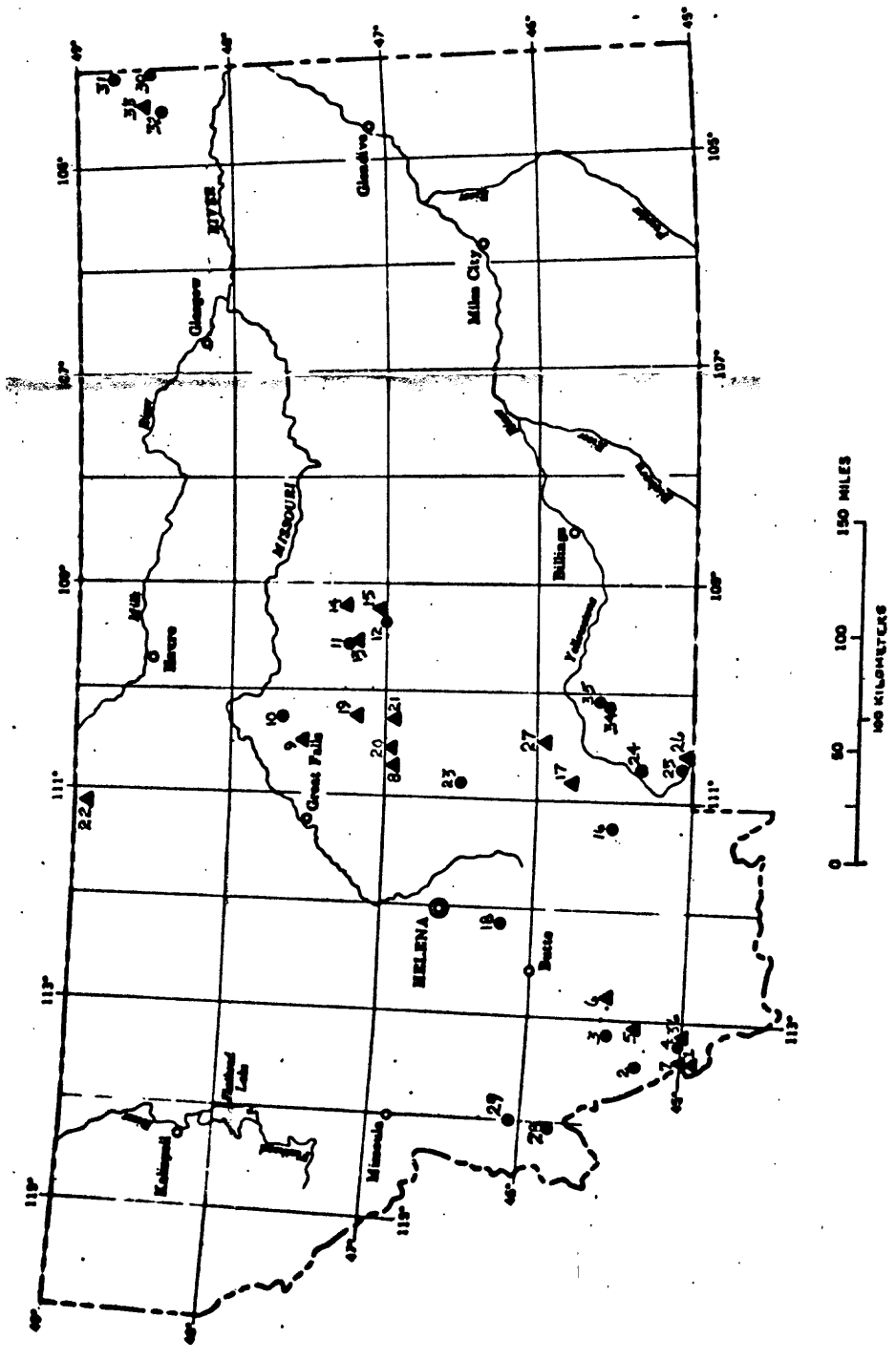


Figure 1.--Sample localities in Montana

EXPLANATION

○ Water, brine or hot spring deposit sample

△ Rock or soil sample

Map no. Samples

Map no.	Samples	Map no.	Samples
1	TW4-45A-C	18	TW4-77
2	TW5-50	19	TW4-78A-I
3	TW4-46	20	TW4-82
4	TW4-47A-B	21	TW4-83A-B
5	TW4-48	22	TW4-65, 66A-B, 67
6	TW4-49A-B	23	TW4-68A-E
7	TW4-50	24	TW4-69A-E
8	TW4-51A-I	25	TW4-70A-C
9	TW4-52A-C, 53A-B, 54	26	TW4-71
10	TW4-84	27	TW4-79A-Z, 80A-J
11	TW4-85A-J	28	TW4-81A-L
12	TW4-86, 87, 88A-K, 89	29	TW5-47A-B, 48A-D
13	TW5-43A-I, 44A-B, 45A-B, 46A-F, M 30	30	L1-70A-C, 71, 72A-B, 73A-Y, 74, 75, 76A-C; TW4-55, 56
14	TW4-76A-B	31	TW4-57, 58A-C
15	TW4-72	32	TW4-59A-E
16	TW4-73	33	G74-21A
17	TW4-74A-S, 75		

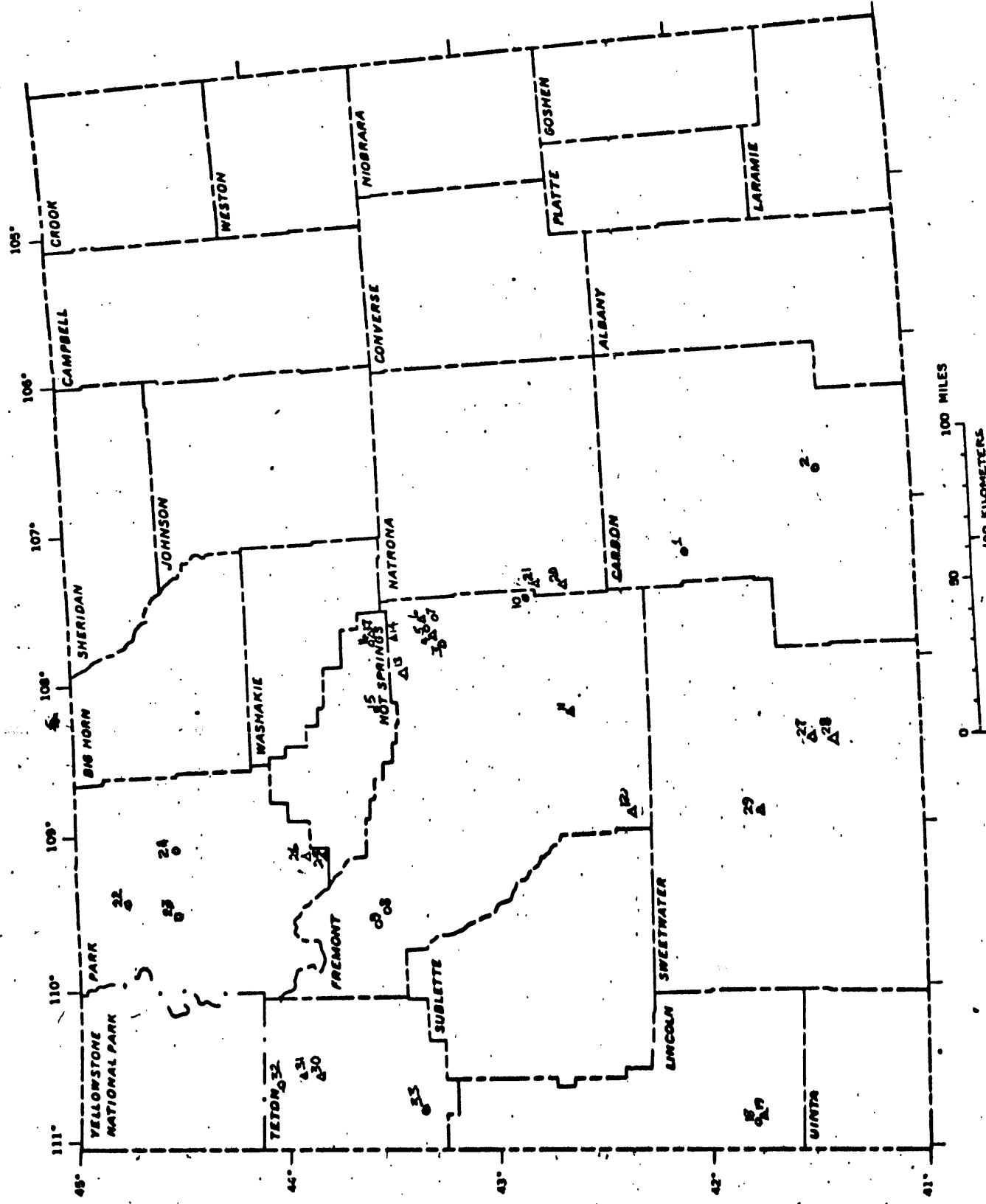
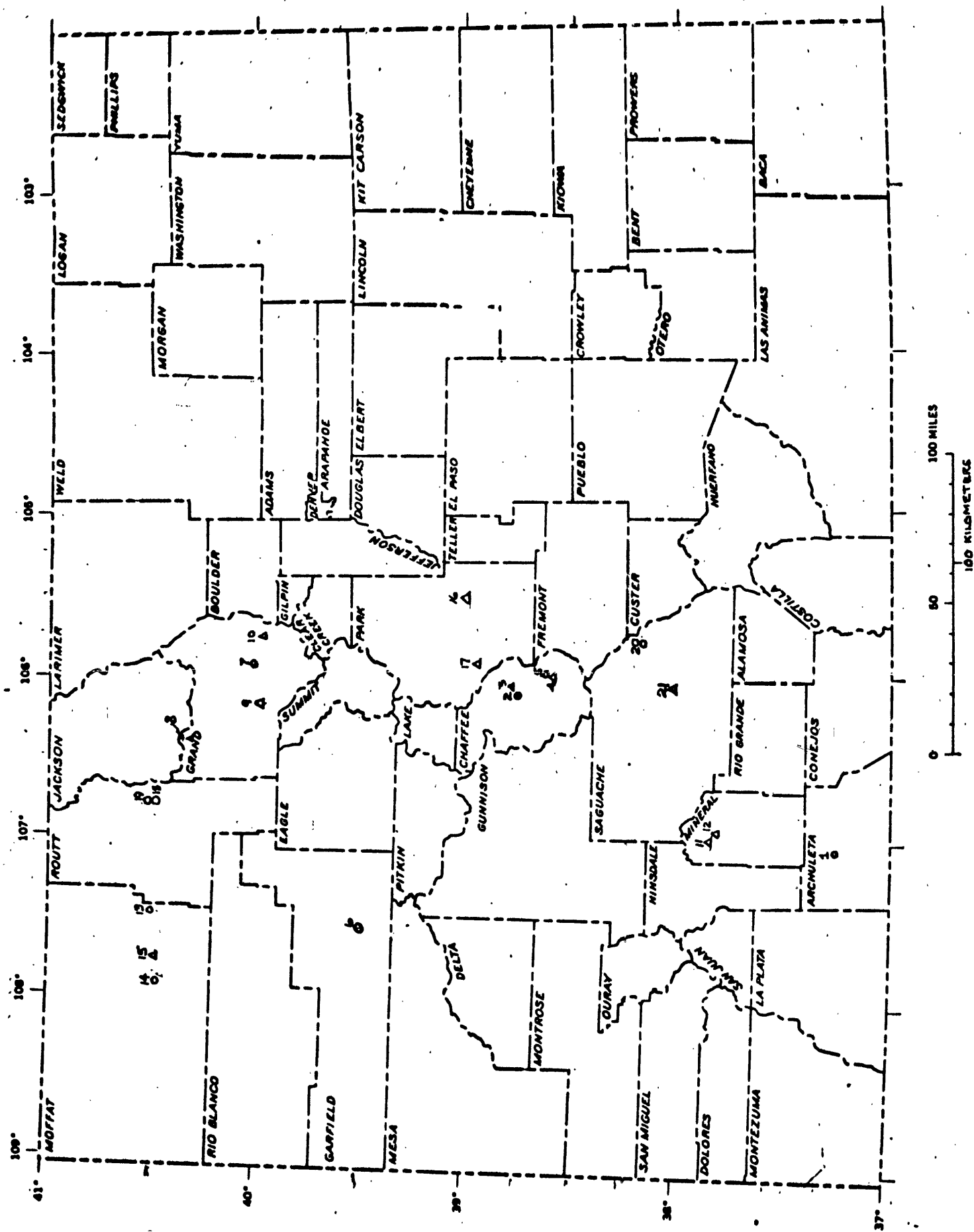


Figure 2.--Sample localities in Wyoming



EXPLANATION

o Water, brine or hot spring deposit sample

Δ Rock or soil sample

Map no. Samples	Map no. Samples
1 TC6-49	12 TC4-101A-G, 102, 103
2 TC4-93, 94	13 TC4-109A-C
3 TC4-92A-B	14 TC4-110, 111A-C, 112A-B, 113
4 TC4-95 A-C, 96A-E	15 TC4-114A-B
5 TC4-105	16 TC4-85A-B, 86A-E, 87A-E, 88,
6 TC5-198	89A-G, 90A-L
7 TC4-123	17 TC4-91A-D
8 TC4-118	18 TC4-115A-C, 116
9 TC4-119A-C, 120A-D, 121A-C, 122A-C	19 TC4-117
10 TC4-124A-B	20 TC4-97A-B
11 TC4-98A-L, 99A-F, 100	21 TC4-104A-C

Figure 3.--Sample localities in Colorado

EXPLANATION

- Rock or water sample
- ▲ Water, brine or spring deposit sample

Map No.	Samples	Map No.	Samples
1	TNN5-11	29	TNN4-171A-C, 172A-C, 173A-E
2	TNN5-12A-B	30	TNN4-174A-J, 175, 176A-C
3	TNN4-187	31	TNN4-177A-B
4	TNN6-48A-K	32	TNN4-178A-J, 179A-G, 180
5	TNN4-156A-B	33	TNN6-33
6	TNN5-4	34	TNN6-34A-B
7	TNN4-181	35	TNN6-35A-C
8	TNN4-182A-I	36	TNN4-146
9	TNN4-183A-B	37	TNN4-148A-G, 150A-I
10	TNN4-183AA-AD	38	TNN4-154, TNN6-46A-D
11	TNN4-184	39	TNN4-155A-D
12	TNN4-185	40	TNN4-157A-K, TNN6-41A-I
13	TNN4-186A-O	41	TNN6-36A-E
14	TNN5-16A-Q, 17A-H, 18A-Q	42	TNN6-37A-E
15	TNN5-7A-H	43	TNN6-38A-D, 42A-B, 43
16	TNN5-8A-H	44	TNN6-39A-E, 40A-F
17	TNN5-9A-D	45	TNN6-44A-B, 45A-D
18	TNN5-10	46	TNN6-47A-G
19	TNN5-13A-B, 14-C, 15A-D	47	TNN6-143, 144, 145
20	TNN4-159, 160	48	TNN4-151A-E, 153A-D
21	TNN4-161A-E, 162A-F	49	TNN4-152A-B
22	TNN4-163	50	TNN4-147
23	TNN4-164	51	TNN6-3A-B, 4A-C
24	TNN4-165A-F, TNN5-5A-K	52	TNN6-5A-B, 6A-D, 7A-G, 8A-C, 9, 10A-B, 11, 12A-B
25	TNN5-6A-H	53	TNN6-13A-B
26	TNN4-167, 168A-C	54	TNN5-19A-D
27	TNN4-169	55	TNN6-1A-B, 2A-F
28	TNN4-170	56	TNN6-32

