Hydrologic Data on the Pueblos of Jemez, Zia, and Santa Ana, Sandoval County, New Mexico

By Steven D. Craigg

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CONVERSION FACTORS

In this report measurements are given in inch-pound units. The following table contains factors for converting these units to metric units.

Multiply	By	To obtain
inch	25.40	millimeter
foot	0.3048	meter
mile	1.609	kilometer
square mile	2.590	square kilometer
gallon per minute	0.06309	liter per second
cubic foot per second	0.02832	cubic meter per second

HYDROLOGIC DATA ON THE PUEBLOS OF JEMEZ, ZIA, AND SANTA ANA, SANDOVAL COUNTY, NEW MEXICO

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ABSTRACT

This report presents currently available geohydrologic data on the Pueblos of Jemez, Zia, and Santa Ana. Data about the occurrence, quantity, and quality of water from wells, springs, and streams are presented in nine tables. Data are tabulated for 73 wells and 39 springs. Water-quality analyses are presented for 26 wells and 19 springs. The location of data sites, water-level altitudes for wells, land-surface altitudes at springs, water-quality data, and other information are shown on two plates. These data provide a base with which to better define the water resources of the three pueblos.

INTRODUCTION

Purpose and Scope

The Pueblos of Jemez, Zia, and Santa Ana are concerned about the use and development of water supplies by an increasing population in the Jemez River valley. The Tribal Councils of the pueblos have formed the Jemez River Indian Water Authority (JRIWA) to organize and direct efforts to study the water resources in the Jemez River valley and watershed, the majority of which lies on pueblo lands. The U.S. Geological Survey has undertaken a 1-year project in cooperation with JRIWA to provide geohydrologic data and to conduct an appraisal of the water resources on the pueblos, which consist of approximately 500 square miles in Sandoval County, New Mexico (fig. 1).

This report presents pertinent geohydrologic data that are currently available. Some data were collected onsite during late 1983 and 1984. The information presented in this report will be useful in better defining the ground- and surface-water systems and the water chemistry on the pueblo lands, which will aid water managers in developing the pueblo water resources.

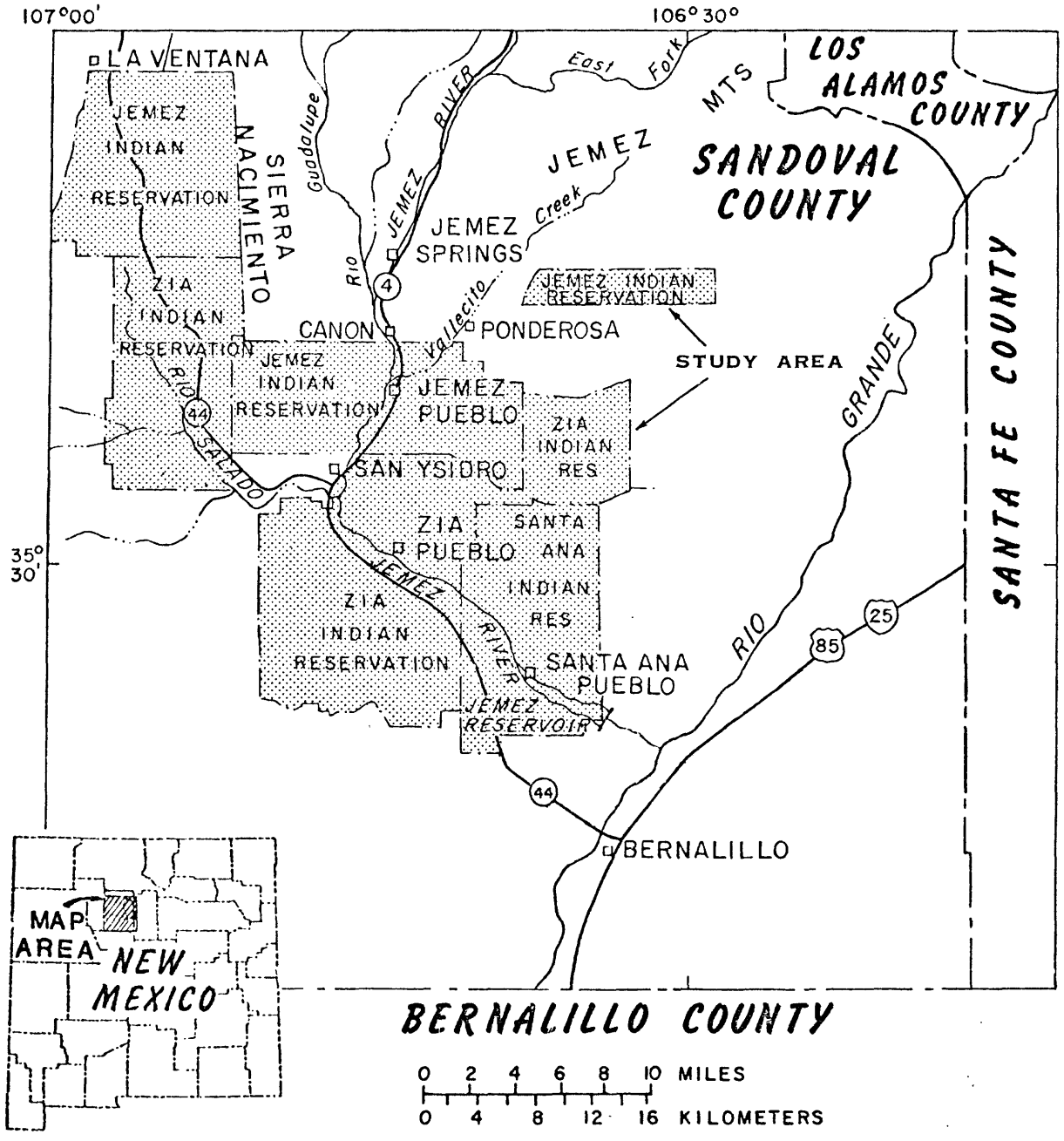

Figure 1.--Location of the study area.

Acknowledgments

The author would like to thank the people of the Pueblos of Jemez, Zia, and Santa Ana for the full cooperation extended to the U.S. Geological Survey. A word of thanks also to the personnel of the Bureau of Indian Affairs, especially the Albuquerque Area Office and Southern Pueblos Agency, for providing hydrologic information about wells and springs. Mr. Frank Trainer (Hydrologist, U.S. Geological Survey) contributed useful ideas and helpful discussions about the general geohydrology of the area.

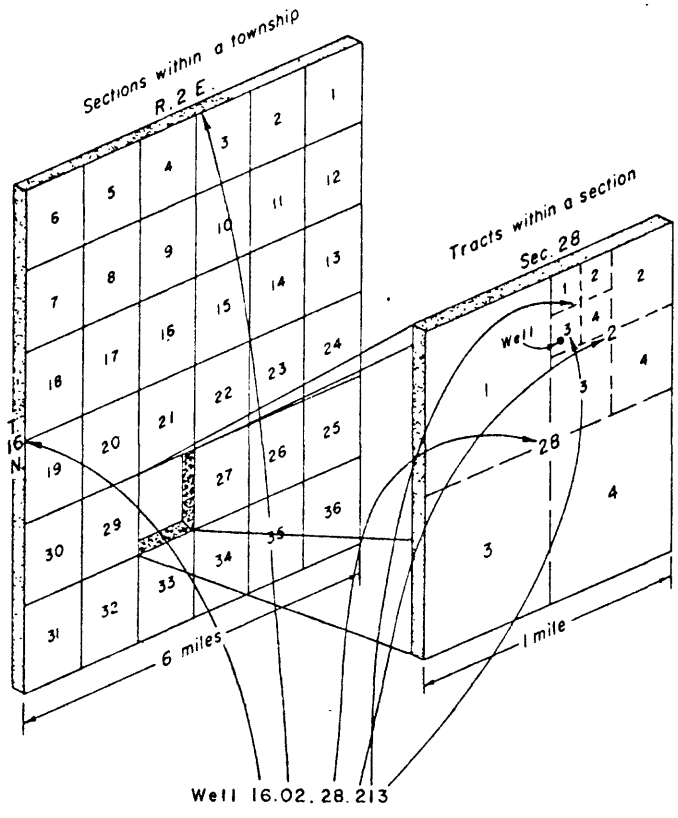

Figure 2.--Well- and spring-numbering system.

Well- and Spring-Numbering System

The numbering system used in this report to locate a well or spring is that used by the New Mexico State Engineer and is based on the township, range, and section land grid. In this system, each well or spring has a unique location number consisting of four segments that are separated by periods, as shown in figure 2. The first segment indicates the township north of the New Mexico baseline, and the second segment denotes the range east or west of the New Mexico principal meridian. The third segment indicates the section within which the well or spring is located. The fourth segment of the location number is determined by dividing the section into quarters numbered 1, 2, 3, and 4 which correspond to the northwest, northeast, southwest, and southeast quarters, respectively. Each quarter section is similarly divided as many as three times depending on how accurately the well or spring can be located. In unsurveyed areas, section lines were projected.

PRESENTATION OF DATA

Existing hydrologic data were gathered from various files and publications of the U.S. Geological Survey, the U.S. Bureau of Indian Affairs, and the U.S. Indian Health Service. Some additional data were collected onsite by the U.S. Geological Survey during 1983 and 1984 to supplement and update existing information.

Water-well information (location, depth, water levels, and other data) is reported in table 1. Records of springs are given in table 2. Chemical analyses of water from wells are reported in tables 3 and 4. Chemical analyses of water from springs are given in tables 5 and 6. Information about surface water is reported in tables 7, 8, and 9.

The well locations, principal water-bearing units, water-level altitudes, and specific conductance of water are shown on plate 1. The spring locations, water-bearing units, land-surface altitudes at springs, and specific conductance of spring discharges are shown on plate 2.

A seepage investigation was conducted by measuring streamflow at ten sites along the Jemez River on March 1, 1984. During the investigation, no water was being diverted from the river into irrigation ditches, and the gage height at the streamflow-gaging station at Cañones (Jemez River near Jemez) varied by only 0.02 foot. The results of the investigation, including some water-quality data, are summarized in table 7. The discharge and specific-conductance measurements are shown in figures 3 and 4.

Fischer and Borland (1983) presented results of two seepage investigations conducted on the Jemez River on February 20 and 24, 1981. Results were inconclusive, however, because of unsteady flow during those days.

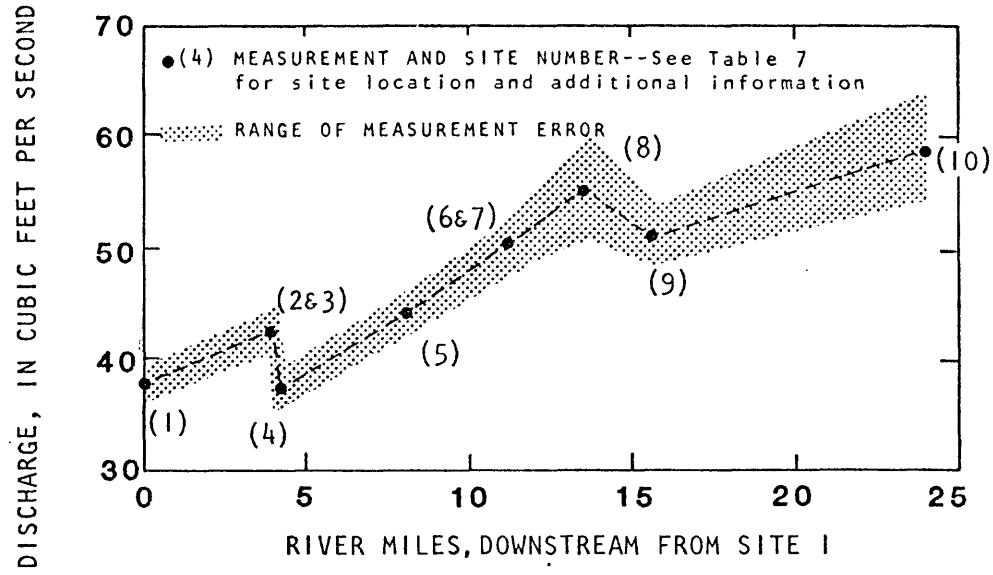

Figure 3.--Discharge of the Jemez River on March 1,1984

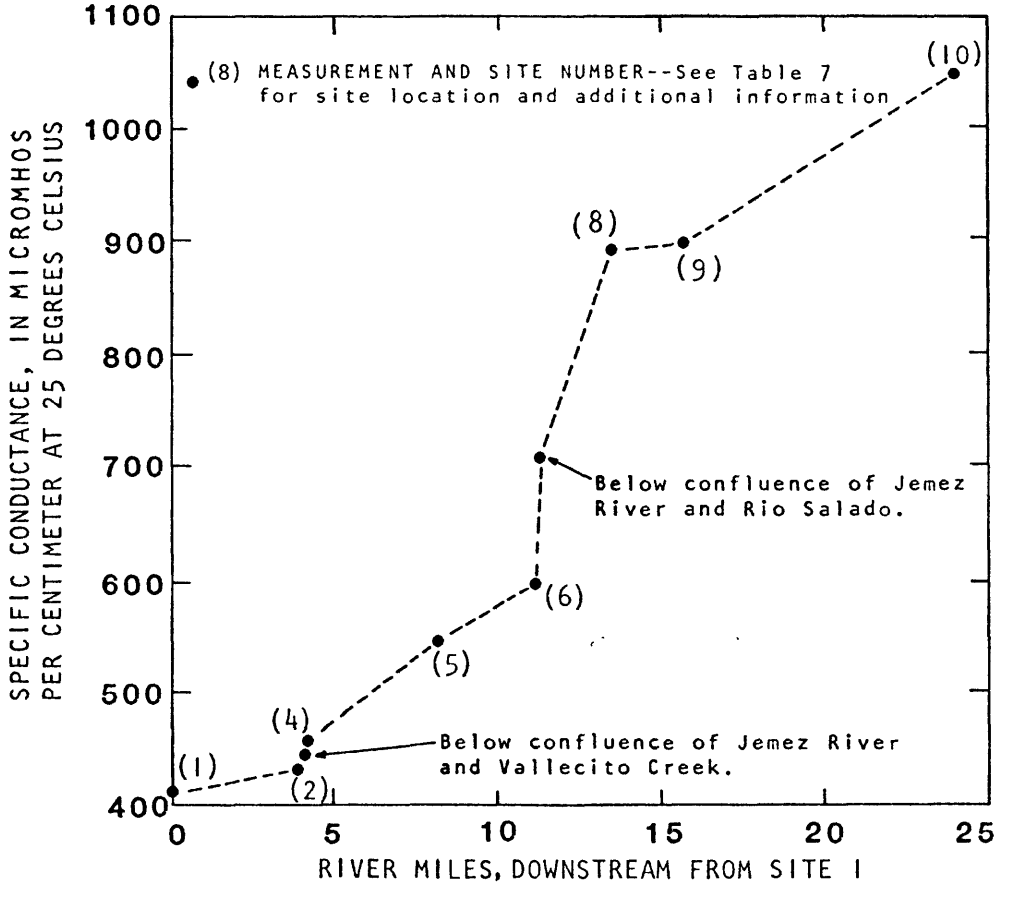

Figure 4.--Specific conductance of water in the Jemez River, March 1, 1984.

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Fischer, E. E., and Borland, J. P., 1983, Estimation of natural streamflow in the Jemez River at the boundaries of Indian lands, central New Mexico: U.S. Geological Survey Water-Resource Investigations Report 82-4113, 27 p.

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Table 1. Records of wells on the Pueblos of Jemez, Zia, and Santa Ana.

EXPLANATION

Location number: See text for explanation. Location numbers followed by P were projected by extending township, range, and section lines.

Latitude and longitude: Determined from U.S. Geological Survey 7.5-minute topographic quadrangle maps.

Depth: Reported in feet below land surface. Depths followed by M were measured; questionable depths are followed by (?); all others were reported. An asterisk (*) following the depth indicates a driller's log is available for the well.

Altitude: Altitude of the land surface at the well, in feet above sea level, determined from U.S. Geological Survey 7.5-minute topographic quadrangle maps.

Depth to water: Depth to static water level, in feet below land surface. Depths with decimal-point accuracy were measured; reported depths are followed by R; questionable depths are followed by (?). A plus sign (+) preceding the measurement indicates the water level is above land surface (e. g. a flowing artesian well); an F following the measurement indicates the well was flowing when visited.

Altitude: Altitude of the water level, in feet above sea level, rounded to the nearest foot.

Principal water-bearing units(s): The geologic unit(s) from which the well obtains water, recorded in the order of importance. Questionable units are followed by (?). The abbreviations for water-bearing units are as follows: Qal - alluvium; Qt - terrace deposits; QTs - Santa Fe Group; Tz - Zia Sand; Tv - Tertiary-aged extrusive volcanic rocks, undifferentiated; Km - Mancos Shale, undifferentiated; Kd - Dakota Sandstone; Jm- Morrison Formation, undifferentiated; Rca - Agua Zarca Member of Chinle Formation; Pm - Madera Limestone.

Producing interval(s): The portion(s) of the well open to the water-bearing unit(s), in feet below land surface.

Yield: The quantity of water produced by the well, in gallons per minute. Quantities followed by M were measured; those followed by E were estimated; all others were reported.

Specific conductance: Specific conductance is a measure of the ability of water to conduct an electric current. It is useful because it is an approximate measure of the dissolved-solids concentration; multiplying specific conductance by 0.65 provides a reasonable estimate of dissolved-solids concentration in milligrams per liter. In the table specific conductances followed by L were measured in a laboratory and chemical analyses are available (See tables 3 and 4). All other specific conductances were measured onsite; those followed by T were measured in a storage tank or trough. FL indicates an onsite measurement and that a chemical analysis is also available. An L alone indicates that chemical analysis is available, but specific conductance was not measured; questionable values are followed by (?).

Use: D - domestic; P - public supply; S - livestock; B - bathing; O - observation; T - test hole; N - none; R - recreation.

Table 1. Records of wells on the Pueblos of Jemez, Zia, and Santa Ana.

Part 1. Jemez Pueblo

Location number and local name or number if known	Latitude and longitude	Year completed	Depth (feet)	Altitude (feet)	Water level			Principal water-bearing unit(s)
					Depth to water (feet)	Date	Altitude (feet)	
16.02E.16.332a B1A observation well Iwt	3535381064420	1981	22	5525	3.18	7-9-82	5521	Qal
16.02E.16.332b B1A observation well Iz	3535381064420	1981	83	5525	5.28	7-9-82	5523	Tz
16.02E.16.334 Irrigation Test PW4	3536401064418	1978	91*	5525	3.92	4-24-78	5521	Qal
16.02E.16.342 Irrigation Test PW3	3536441064403	1978	97*	5528	6.5	4-28-78	5521	Qal
16.02E.16.411 IHS well 1	3537001064357	1959	81	5545	5.0	3-19-82	5540	Qal
16.02E.16.412 IHS well 2	3536581064350	1979	100*	5555	15.0	3-19-82	5540	Qal
16.02E.27.213 Stockwell #1	3535331064253	1956	220	5655	101.98	1-24-84	5553	QTs
17.03E.23.333P RWP-2	3540571063618	1960	210	7210	-	-	-	QTs,Tv(?)
17.01W.02.214P RWP-4	3544191065455	1963	550*	6755	95.3	1-24-84	6660	Kd
17.01W.05.124P RWP-3	3544181065753	1959	950*	6488	150R 124.8	2-13-59 1-25-84	6338 6363	Km
18.01W.14.111P RWP-7	3547521065440	1971	90*	6860	63.16	1-26-84	6797	Qt
18.01W.19.241P RWP-8	3546401065826	1982	290*	6590	255.4	1-25-84	6335	Km
18.01W.20.442P RWP-5	3546171065718	1969	935*	6587	215R 211.99	9-8-69 1-25-84	6372 6375	Kd
18.01W.30.214P	3545541065805	-	-	6465	293.35	1-25-84	6172	Km,Kd(?)
18.02W.36.421P RWP-1	3544361065937	1958	74*	6350	27.45	1-25-84	6323	Qal

Part 2. Zia Pueblo

14.01E.02.121 C200-1	3528431064830	1961	236*	5690	144.35	1-24-84	5546	Km
14.01E.02.314 C200-2	3528101064805	-	-	5745	107.03	1-24-84	5638	Km(?)
14.01E.03.414 ECW-1	3528081064916	1939	132*	5755	82.58	1-19-84	5672	Km
14.02E.01.132 Salas-16	3528271064115	-	-	5370	55.00	1-23-84	5315	Qal
14.02E.02.422 RWP-13	3528131064127	1968	147	5385	85.04	1-23-84	5300	QTs

Producing intervals (feet)	Yield (gal/min)	Date	Specific conductance (micromhos per centimeter at 25°C)	Date	Use	Remarks
14-19	-	-	1020 L	12-8-81	O	Observation well for aquifer test. Not shown on plate 1.
70-75	-	-	800 L	12-8-81	O	do.
44-82	510 M	4-24-78	820 L	7-26-82	T,N	Extensive pumping-test data available. Drilled depth = 125 feet. Geophysical logs available.
51-87	540 M	4-5-78	1050 L	7-26-82	T,N	Extensive pumping-test data available. Drilled depth = 110 feet. Geophysical logs available.
19-81	45	8-20-62	946 L 1020 FL	1-19-65 8-30-73	P	Public supply well 1 for Jemez Pueblo.
75-90	100	4-23-79	1178 L 1151 L	4-79 11-81	P	Drilled depth 325 feet. Public supply well 2 for Jemez Pueblo. Pumping-test data available.
-	0.5 E	4-17-84	704 L 720	4-4-74 1-17-84	S	On site specific conductance = 670 micromhos (4-4-74). Windmill.
-	20	1960	-	-	S	Jensen pump jack.
-	5	4-16-63	-	-	S	Windmill. Stock tank dry on 1-24-84. Possibly open hole from 460-550 feet.
935-947	12	2-13-59	4250	1-25-84	S	Windmill. Open hole from 935-950 feet.
80-85	1.0 M	12-6-83	850 T	12-6-83	S	Temperature = 11.0°C. Windmill; located on hill above Thompson Spring.
280-290	10	6-11-82	7000 T	1-25-84	S	Windmill. Possible open hole from 190-290 feet.
880-925	-	-	-	-	S	Windmill.
-	-	-	-	-	N	Abandoned; windmill fallen down; plate welded on top of casing. Depth measured at about 320 feet.
-	15	11-25-58	2600	1-25-84	S	Windmill located along east bank of Rio Puerco.
-	-	-	-	-	N	Abandoned windmill.
-	-	-	-	-	N	do.
116-130	7	8-28-39	1350 T	1-19-84	S	Windmill.
-	-	-	2700 T	1-23-84	S	Windmill.
-	7	11-68	-	-	S	Replaced well 8. Tank dry on 1-23-84, sucker rod broken.

Table 1. Records of wells on the Pueblos of Jemez, Zia, and Santa Ana - Continued

Part 2. Zia Pueblo, Cont.

Location number and local name or number if known	Latitude and longitude	Year completed	Depth (feet)	Altitude (feet)	Water level			Principal water-bearing unit(s)
					Depth to water (feet)	Date	Altitude (feet)	
14.02E.05.323 RWP-4	3528101064522	1955	240*	5554	116R 151.59	4-18-57 6-12-84	5438 5402	QTs
14.02E.18.432 RWP-10	3526151064602	1965	848*	5770	780R	8-16-65	4990	QTs
14.02E.23.321 146-Z-2	3525421064204	1939	448*	5595	362R 373.30	4-18-57 1-23-84	5233 5222	QTs
15.01E.13.422 Henningsen	3531461064644	1959	12	5445	4.00	6-3-59	5441	Qal
15.01E.23.444 2-C-278	3530301063015	-	143*	5521	101.7 102.18	3-24-59 12-6-83	5419 5419	Jm
15.02E.03.333 old RWP-9	3533071064332	1963	413*	5730	321R	2-7-63	5409	QTs
15.02E.03.433 new RWP-9A	3533071064257	1971	423	5770	398(?)	1-17-84	5372(?)	QTs
15.02E.02.233 RWP-12	3533371064157	1968	595*	5890	507R	10-17-68	5383	QTs
15.02E.06.222a Irrigation Test 16	3533 -10645 -	1954	181*	5470	-	-	-	Qal
15.02E.06.222b Irrigation Test 2	3533 -10645 -	1954	177*	5470	20R	3-26-54	5450	Qal
15.02E.07.422 Irrigation Test 1	3532051064545	1954	85*	5520	-	-	-	Qal, QTs(?)
15.02E.12.432 RWP-3	3532261064045	1939	503*	5770	376.27	12-18-51	5394	QTs
15.02E.16.212 RWP-11	3532081064350	1965	380*	5690	305R 285(?)	12-13-79 1-17-84	5385 5405(?)	QTs
15.02E.16. Corral Well #15	35 - -106 - -	1980	191*	-	161R	2-25-80	-	QTs
15.02E.17.421 Recreation well	3537131064456	-	-	5480	91.34	1-12-84	5389	QTs
15.02E.19.142 Abandoned Test Hole	3531 -10646 -	1967	263*	5430	-	-	-	Qal,QTs
15.02E.22. No. 6 Irrigation	35 - -106 - -	1937	42	-	-	-	-	Qal, QTs(?)
15.02E.22.34 "proposed" domestic well	3530 -10640 -	1952	170	5460	-	-	-	QTs
15.02E.22.343 School Dug Well	3530451064252	1930	8	5390	5.1	12-18-51	5385	Qal
15.02E.22.414a Zia #2 - Main Public Supply Well	3530441064251	1971	320*	5525	150R	4-11-83	5375	QTs
15.02E.22.414b RWP-7; Public Supply Standby Well	3530421064244	1952	323*	5530	140R 148R	6-13-52 1-18-60	5390 5382	QTs

Producing intervals (feet)	Yield (gal/min)	Date	Specific conductance (micromhos per centimeter at 25°C)	Date	Use	Remarks
125-135	30	10-3-55	399 L 420	4-18-57 1-19-84	S	Pumping (1-19-84). Temperature = 14.5°C; Lab pH = 7.8. Windmill
808-848	5	8-16-65	500 T	6-12-84	S	Windmill.
-	5	10-10-39	507 L 520 T	5-7-56 1-23-84	S	Windmill. Tank full; iced over (1-23-84).
4-12	-	-	23,000	6-3-59	N	Abandoned. Sodium adsorption ratio = 56.
-	-	-	6510 L	3-24-59	S	Windmill. BIA maintenance crew at site; sucker rods pulled.
-	4	2-7-63	-	-	N	Abandoned; apparently caved. Attempted water-level measurement on 1-12-84; held tape at 385 feet, slightly damp at 45 feet, but very rusty.
-	3	1971 .	610 T	1-12-84	S	Windmill with 2700 feet of pipeline to tank. Attempted water-level measurement on 1-12-84 with no success. Attempted another measurement on 1-17-84; tape hits obstruction at 406 feet.
-	8	10-17-68	410 T	1-12-84	S	Windmill; mill turning rapidly but well not pumping, sucker rods not moving (1-12-84).
-	-	-	-	-	T,N	Irrigation test on east side of Jemez River. Abandoned. Not shown on plate 1.
-	60	3-25-54	1290 L 5920 L	3-26-54 4-4-54	T,N	Irrigation test on east side of Jemez River. Abandoned. Geologist's log available.
-	-	-	-	-	T,N	Irrigation test on east side of Jemez River. Abandoned.
-	7	12-22-39	490 L 520 T	4-4-74 1-11-84	S	Windmill.
365-380	6	12-13-79	780 T	1-12-84	S	Windmill. BIA maintenance crew at site on 1-17-84 pulling sucker rods.
161-191	3	2-25-80	-	-	-	Open hole 161-191. Not shown on Plate 1.
-	-	-	550	8-1-84	R,D	Used as water for picnic area at Zia Lake. Pump pulled and casing open on top (1-12-84).
143-148	-	-	4500	6-14-67	T,N	Abandoned at 263 feet because of poor water quality.
-	7	1937	-	-	-	Not shown on Plate 1.
-	-	-	848 L	5-19-52	N	Bailer sample. Reportedly located 1000 feet north of Pueblo. Well was probably abandoned, or possibly deepened to 323 feet and then called RWP-7 (Zia public supply standby well). Not shown on Plate 1.
-	-	-	2260 L	12-18-51	N	Abandoned; replaced by public supply system.
260-297	-	-	510 L 550 563 L	4-4-74 4-11-83 4-83	P	Numerous chemical analyses available. Drilled depth 325 feet.
271-297	12	6-16-52	458 L 519 L 370 292 L	1-20-60 2-27-65 4-11-83 4-83	P	Pumping-test data available, numerous chemical analyses available. Recovery to static water level in 16 minutes. Drilled depth 330 feet.

Table 1. Records of wells on the Pueblos of Jemez, Zia, and Santa Ana - Continued

Part 2. Zia Pueblo, Cont.

Location number and local name or number if known	Latitude and longitude	Year completed	Depth (feet)	Altitude (feet)	Water level: Depth to water (feet)	Water level: Date	Water level: Altitude (feet)	Principal water-bearing unit(s)
15.02E.27.122	3530231064307	-	-	5430	63.42	1-11-84	5367	QTs, Qal(?)
15.02E.27.141 Dug domestic well	3530121064316	1932	8	5395	5.09	12-18-51	5390	Qal
15.02E.36.314 Galvan dug well	3529041064114	1943	18	5345	10.6	12-19-51	5334	Qal
15.03E.08.123 No. 13	3532551063856	1970	727*	5970	640R 667R	4-22-70 6-4-81	5330 5303	QTs
15.03E.10.324 Borrego 4	3532321063638	1940	800	6090	770R	3-2-40	5320	QTs
15.03E.12.322 Borrego 5	3532381063429	1960	1109*	6233	1005R	1-25-60	5228	QTs
15.04E.05.143 Borrego 1	3533371063233	Before 1937	100	5989	35.89	1-10-84	5953	Qal
16.02E.33.313 No. 16	3534151064430	1969	275*	5590	118.30	1-12-84	5472	QTs
16.03E.24.421 Borrego 3	3536081063404	1959	56*	6275	13.18	1-11-84	6262	Qal
16.03E.26.114 Borrego 7	3535331063548	1980	1253*	6670	1100R	1980	5570	QTs
16.04E.30.222 Borrego 6	3535411063252	1966	625*	6540	540R	3-18-66	6000	QTs
16.04E.31.144 Borrego 2	3534291063323	Before 1937	220	6090	28.48	1-11-84	6062	QTs, Qal(?)
16.01W.01.41 Kaseman Oil test 1	35 - -106 - -	1926	550	-	+517.5R F	10-26 9-26-29	-	Tcc
16.01W.01.421P Warm Springs	3538441065318	1926	2008*	6025	+57.5[2/] +517.5[4/] F[3/]	"early" 1927 4-28-64 5-8-84	6082 6542 -	Pm
16.01W.14.11 RWP-6	35 - -106 - -	1972	226*	-	32R Dry R	6-1-70 1972	-	Jm
17.01W.22.221	3541551065522	-	138M	6300	22.50	1-26-84	6278	Kd(?)

Part 3. Santa Ana Pueblo

13.03E.03.223 Perea	3523231063630	1957	183*	5280	137.45	3-10-81	5143	QTs
13.04E.18.311 Irrigation 907	3521211063354	Before 1939	230M	5265	194.47	3-10-81	5071	QTs
14.03E.06.423 Jemez windmill	3528131063931	1922	43	5320	22.49 19.47	12-28-59 1-31-84	5298 5301	Qal

Producing intervals (feet)	Yield (gal/min)	Date	Specific conductance (micromhos per centimeter at 25°C)	Date	Use	Remarks
-	-	-	390(?)	4-11-83	S	Windmill at village.
-	-	-	1140 L	6-16-52	N	Abandoned. Formerly used for domestic needs.
-	-	-	1910 L	12-19-51	N	Abandoned.
715-725	6 3	4-22-70 6-4-81	230 T	1-11-84	S	Reamed out in 1981. Windmill.
-	1.5	3-15-83	260 T	1-11-84	S	Windmill.
1058-1105	7 12	1-22-60 1-25-60	301 L 240	1-25-60 1-11-84	S	Windmill. First drilled in 1957 to 996 feet, but was dry.
-	-	-	360 T	1-10-84	S	Windmill. Also known as Headquarters Well.
-	3 1.5 E	12-3-69 1-17-84	620	1-17-84	S	Windmill. 2A-16 and 4A-16 painted on tank.
45-56	3	2-13-59	285	1-11-84	S	Windmill. Originally drilled before 1937 to 30 feet; deepened in 1959 to 70 feet and plugged back to 56 feet.
1238-1253	6	1980	260 T	1-10-84	S	Windmill. Well sucking air through casing (1-10-84).
595-615	10	3-18-66	245 T	1-10-84	S	Windmill.
-	-	-	265 T	1-10-84	S	Windmill.
-	2450 E	9-26-29	L	9-26-26	N	Abandoned oil test on Ojo Del Espiritu Santo Grant.
1890-2008	2050 E[1] 2465 M[2] 2660 M[3] 450 E[3] 1550 R[3] 4100 E[4] 63 M[3]	10-26 "summer" 1927 8-24-29 9-29-48 3-14-64 4-28-64 5-8-84	15,700 L 15,000	6-5-73 5-8-84	B	Numerous chemical analyses available. Kaseman oil test No. 2. Log of formation tops and temperature available. Site formerly used as a resort. Sources of hydrologic data: [1] Renick, 1931; [2] Clark, 1929; [3] U.S. Geological Survey, field data; [4] U.S. Bureau of Mines, field data.
-	3	6-1-70	-	-	N	Completed in Brushy Basin Member of Jm. No water encountered below 135 feet; other BIA records from 1972 report well is dry.
-	-	-	-	-	N	Abandoned oil test? On Ojo Del Espiritu Santo Grant. Open casing.
160-180	5	4-18-57	736 L 800 T	4-18-57 2-1-84	S,O	Windmill. Periodic water levels from 1957.
-	5	4-8-69	-	-	S,D,O	Windmill. Periodic water levels from 1957.
-	10	1922	-	-	N	Abandoned windmill; on semi-stabilized sand dunes just above Jemez River.

Table 1. Records of wells on the Pueblos of Jemez, Zia, and Santa Ana - Concluded

Part 3. Santa Ana Pueblo, Cont.

Location number and local name or number if known	Latitude and longitude	Year completed	Depth (feet)	Altitude (feet)	Water level			Principal water-bearing unit(s)
					Depth to water (feet)	Date	Altitude (feet)	
14.03E.12.113 RWP-11	3527421063453	1959	1274*	6297	1090R	1959	5207	QTs
14.03E.18.433 RWP-1	3526141063940	1955	133*	5370	104R 102.47	4-22-58 2-1-84	5266 5268	QTs
14.03E.22.124 RWP-2A	3525581063630	-	260	5350	137.73	2-2-84	5212	QTs
14.03E.29.421 RWP-12	3524471063930	1969	370*	5585	335R 340.16	11-4-69 2-1-84	5250 5245	QTs
14.04E.29.423 RWP-13	3524431063157	1971	620*	5670	585R	8-9-71	5085	QTs
15.03E.27.344 RWP-7	3529381063640	1963	670*	5780	625R	2-63	5155	QTs
15.04E.29.241 Simms Ranch Well	3530131063158	-	700(?)	5930	-	-	-	QTs
14.03E.03.434 RWP-6	3527571063623	1958	637*	5725	585R	6-10-58	5140	QTs
13.04E.07. RWP-2	35 - -106 - -	1956	210	-	-	-	-	QTs
14.03E.22.134 No. 2	3525351063652	-	-	-	-	-	-	Qal(?)
14.03E.22.311	3525401063659	Before 1954	63(?)	5225	-	-	-	Qal
14.03E.22.323 Irrigation 553	3525371063648	1917	35 55(?)	5237	-	-	-	Qal
14.03E.22.323	3525331063658	1924	29	5237	16.33	12-28-59	5221	Qal

Producing intervals (feet)	Yield (gal/min)	Date	Specific conductance (micromhos per centimeter at 25°C)	Date	Use	Remarks
1135-1274	12	1959	310 T	1-31-84	S	Windmill. Originally drilled in 1957 to 1092 feet, but was dry. On Santa Ana Mesa.
-	12	8-12-55	2570 L 2250 T	4-18-57 2-1-84	S	Windmill.
-	-	-	-	-	D	Domestic use at old Santa Ana Pueblo.
-	5	11-4-69	550 T	2-1-84	S	Windmill. 20 feet of perforations.
600-620	10	8-9-71	-	-	S	Windmill. On Santa Ana Mesa. Santa Ana escort reported well is "dry".
650-668	5	2-63	290 T	1-31-84	S	Windmill. Pumping test for 3 hours at 7 gal/min.
-	-	-	580 T	2-2-84	S,D	On Santa Ana Mesa at former Simms Ranch. Jensen pump jack. Water used for domestic purposes at ranchhouse; also pipelined to stock tank about 1/4 mile northeast of well. Depth reported by BLM personnel (2-1984).
595-637	7	6-10-58	357 L 350 T	5-8-59 1-31-84	S	Windmill.
-	-	-	-	-	-	Not shown on Plate 1.
-	-	-	-	-	N	At old village. Not shown on Plate 1.
-	-	-	624 L,(?)	8-12-54	N	Abandoned. At old village. Not shown on Plate 1.
-	-	-	590(?)	8-9-54	N	Abandoned. At old village. Not shown on Plate 1.
-	-	-	1500 L	9-27-24	N	Abandoned. Possibly same well as Irrigation 553?

(p. 17 follows)

Table 2. Records of springs on the Pueblos of Jemez and Zia

EXPLANATION

Location number: See text for explanation. Location numbers followed by P were projected by extending township, range, and section lines.
Latitude and longitude: Determined from U.S. Geological Survey 7.5-minute topographic quadrangle maps.
Altitude: Altitude of the land surface at the spring, in feet above sea level, determined from U.S. Geological Survey 7.5-minute topographic quadrangle maps.
Principal water-bearing unit(s): The geologic unit(s) which yields water to the spring, recorded in order of importance. Abbreviations for water-bearing units are given in table 1; other units used here are as follows: Tv - Tertiary-aged extrusive volcanic rocks, undifferentiated; Tz - Zia Sand; Je - Entrada Sandstone; Rcp - Petrified Forest Member of Chinle Formation; Pa - Abo Sandstone; p€gn-Precambrian gneiss; p€g- Precambrian granite.
Yield: The quantity of water produced by the spring, in gallons per mintue. Quantities followed by M were measured; those followed by R were reported; those followed by E were estimated; those preceded by < indicates the yield was less than the value given.
Specific conductance: Specific conductances followed by L were measured in a laboratory and chemical analyses are available (tables 5 and 6). Al others were measured onsite; an L alone indicates that a chemical analysis is available but specific conductance was not measured; FL indicates an onsite measurement and that a chemical analysis is also available.
Use: D, domestic; P, public supply; S, livestock; B, bathing; N, none; R, recreation.

Table 2. Records of springs on the Pueblos of Jemez and Zia

Location number and local name or number if known	Latitude and longitude	Altitude (feet)	Principal water-bearing unit(s)	Yield (gal/min)
Part 1. Jemez Pueblo				
16.01E.03.441	3538321064904	6960	Pa	<1 E
16.01E.05.244 Log Spring	3538491065057	7190	p€gn	9.0 M
16.01E.20.412 Swimming Pool Spring	3536061065120	6060	IPm	8 E 20 E
16.01E.21.123a	3536251065039	6360	Qt,Pa(?), IPm(?)	-
16.01E.21.123b	3536261065036	6365	Qt,Pa(?), IPm(?)	-
16.01E.25.422 Blue Water Spring	3535171064636	5700	Trca	2.0 M 0.5 E
16.02E.07.423 Owl Springs	3537431064548	5780	IPm	72 M
16.02E.10.424 Vallecito "1"	3537441064229	5715	Trca	3.0 M
16.02E.11.232 Vallecito "2"	3538051064140	5710	Qal	5.0 M
16.02E.11.442 Vallecito "3"	3537371064125	5720	Tz	0.25 E
16.02E.18.214 Tunnel Spring	3537501064554	5780	IPm	<1 E 0.5 E
16.02E.20.331 Salt Spring	3535521064533	5535	Trca,IPm	<1 E
16.02E.29.142 Indian Spring	3535281064510	5490	IPm	2 R
16.02E.30.323	3535101064635	5575	Qal,Trc(?)	<1 E
16.03E.20.412	3536071063802	7140	QTs	-
16.03E.29.342	3535021063845	6155	QTs	-
16.03E.29.344 Ojo Chamisa	3534541063847	6170	QTs	<1 E
17.03E.25.113	3540431063508	7190	Tv	2.0 M
17.04E. La Jara Spring	35 - -106 - -	-	-	2.25 R
17.01W.10.241 Holy Ghost Spring	3543211065528	6395	Kd,Km(?)	9.5 M
18.01E.07.424	3548081065158	8570	p€g	-
18.01E.17.324 Bear Spring	3547151065124	8860	p€g	1.0 R
18.01W.14.112 Thompson Spring	3547481065356	6845	Qal	1.25 R

Date	Specific conductance (micromhos per centimeter at 25°C)	Date	Use	Remarks
5-23-73	651 L	5-23-73	S	Near intersection of two thrust faults. Onsite specific conductance = 640 micromhos.
5-23-73	487 L	5-23-73	S	Onsite specific conductance = 450 micromhos. Developed.
9-14-24 5-8-84	L 10,500	4-19-24 5-8-84	N	Issues from Tc in bottom of large crater mound near Pajaritu fault; extensive bedded travertine deposits in area. Temperature = 19.5°C; crater is 50 feet in diameter and water discharges over the rim. Renick (1931) reported at least 12 large springs and "a number" of smaller ones in this area.
-	-	-	S	Issues from terrace deposits overlying Pa.
-	4500	11-17-84	S	Temperature = 25°C (11-17-84).
9-5-73 5-9-84	2440 L 2500	9-5-73 5-9-84	S	Appearance of water is bright red.
12-7-83	788 L 630 L 650	5-24-73 4-4-74 12-7-83	P,H,S	Temperature = 13.5°C (12-7-83). Backup public supply for Jemez Pueblo; developed in 1953.
5-24-73	1620 L 2800 FL	2-20-58 5-24-73	S	Probably issued from Tcq.
5-25-73	527 L	5-25-73	S	do. Onsite specific conductance = 540 micromhos.
2-28-84	480	2-28-84	S	Flows 300-400 feet downstream.
5-24-73 5-9-84	1070 L 1100	5-24-73 5-9-84	S	Trainer (1978) reported source as Magdalena Group.
5-24-73	6420 L	5-24-73	N	Onsite specific conductance = 8200 micromhos (12-7-83).
8-30-62	5680 L 7000 FL	8-30-62 8-30-73	B	In channel of Jemez River. Source probably bedrock beneath channel deposits.
9-5-73	3190 L	9-5-73	N	Source actually Zia Sand(?).
-	-	-	S	In channel at south end of Borrego Mesa.
-	-	-	S	Approximately 700 feet upstream from Ojo Chamisa.
6-8-73	367 L	6-8-73	S	Onsite specific conductance = 495 micromhos. Developed.
9-18-73	182 L	9-18-73	S	-
8-30-63	-	-	S	Developed. Not shown on Plate 2.
12-6-83	574 L 580	8-1-83 12-6-83	R,S,D	Temperature = 12.5°C (12-6-83). Developed fishing pond and picnic area at site.
-	-	-	S	-
9-66	-	-	S	Developed.
7-29-71	-	-	S	Developed. Near contact with Km, just below Jemez Pueblo stockwell RWP-7.

Table 2. Records of springs on the Pueblos of Jemez and Zia - Concluded

Location number and local name or number if known	Latitude and longitude	Altitude (feet)	Principal water-bearing unit(s)	Yield gal/min
Part 2. Zia Pueblo				
14.02E.18.314	3526251064637	5735	QTs	Dry
16.01E.06.221	3539061065215	6320	Qt	-
16.01E.18.441	3536441065214	6092	Qt	-
16.01E.19.114 Cuchillo "3"	3536251065252	5790	Qal, Tc(?)	-
16.01E.20.322 Peñasco "1"	3536071065132	6000	Pm	-
16.01E.20.332 Peñasco "2"	3535511065150	5960	Pm	5 E
16.01E.29.113 Peñasco "3"	3535321065153	5830	Pm	10 E
16.01E.29.114 Peñasco "4"	3535331065152	5830	Pm	-
16.01W.20.421	3536071065730	5780	Km	-
16.01W.24.224a Cuchillo "1"	3536301065305	5808	Tc	-
16.01W.24.224b Cuchillo "2"	3536231065305	5795	Qal, Tc(?)	-
16.01W.29.232 Ojito Spring	3535281065736	5785	Km	2.0 M 5 E
17.01E.29.312	3540291065152	7075	Qt	-
17.01W.13.322	3542151065311	6700	Jm	-
17.01W.28.243 Chamisa Vega Spring	3540341065625	6100	Km	1 E
17.01W.36.243 Cachana Spring	3539381065313	6140	Qal	Dry

Date	Specific conductance (micromhos per centimeter at 25°C)	Date	Use	Remarks
6-12-84	-	-	S	Abandoned.
-	960 L	10-2-73	S	Issues from Qt where unit overlies contact of Je and Tcp along southwest limb of small syncline.
-	-	-	S	Issues from Qt where unit overlies Tcp.
-	L	9-22-24	S	Source also possibly Tc?
-	-	-	N	Issues from Tc near Pajarito Fault; extensive bedded travertine deposits in area. Renick (1931) reported at least 12 large and a "number" of smaller ones in Arroyo Peñasco area. Springs are saline and issue from crater or mound-like features composed of travertine.
5-8-84	15,000	5-8-84	N	do. Temperature = 22.5°C. Water level is 10 feet deep inside crater; gas emits from water surface. Discharge is from several "vents" near base of mound.
5-8-84	12,000	5-8-84	N	do. Temperature = 27°C. Water level is 1 foot deep inside crater; gas emits from water surface. Discharge is from a single "vent" near base of mound.
-	-	-	N	do. Spring is inside crater mound at depth of 6 feet. Altitude of water surface same as Penasco "3" (5-8-84). Associated with Peñasco "3."
-	-	-	S	-
-	-	-	S	Source also Qal?
-	-	-	S	Source also Tc?
6-5-73 8-2-83	10,100 L 10,600 L	6-5-73 8-2-83	N	Issues from Km at contact with underlying Kd.
-	-	-	S	Source also pCg?
-	-	-	S	Reportedly "very strong" spring by BIA personnel.
8-1-83	2,450 L	8-1-83	S	Issues from sandstone in Km at headcut of arroyo.
6-12-84	1,130 L	7-46	S	BIA personnel visited on 8-1-83 and reported arroyo bottom to be damp, but no surface flow.

(p. 23 follows)

Table 3. Major chemical constituents in water from wells on the Pueblos of Jemez, Zia, and Santa Ana

EXPLANATION

Location number: See text for explanation; numbers correspond to those given in table 1.

Laboratory: USGS, U.S. Geological Survey; BIA, U.S. Bureau of Indian Affairs; PHS, U.S. Public Health Service; HED, New Mexico Health and Environment Department; NMBMMR, New Mexico Bureau of Mines and Mineral Resources.

Pumping rate: The rate at which well was pumping or flowing, in gallons per minute, when sample was collected. Values followed by E indicate flow was estimated.

Note: All constituents are dissolved and the concentrations are reported as milligrams per liter, unless otherwise noted. Tr indicates trace amount; < indicates concentration is known to be less than value given; - indicates value was not reported; (?) indicates a questionable value. Precision as reported by laboratory.

Table 3. Major chemical constituents in water from wells on the Pueblos of Jemez, Zia, and Santa Ana

Location number and local name or number if known	Date of collection	Laboratory	Pumping rate (gal/min)	Calcium	Magnesium	Sodium	Potassium	Bicarbonate (as HCO_3)	Carbonate (as CO_3)	Sulfate	Chloride	Silica	Fluoride	Nitrite plus nitrate (as N)
Part 1. Jemez Pueblo														
16.02E.16.334 Irrigation Test PW 4	7-26-82	BIA	510	76.1	15.8	75.9	10.6	327	<2.40	26.9	86.9	-	1.16	<0.02
16.02E.16.342 Irrigation Test PW 3	1-24-78	BIA	-	49.19	18.24	147.14	16.42	464.97	10.46	63.88	140.07	-	1.12	0.04
	4-12-78	do	-	90.18	19.46	144.34	15.64	482.06	Tr	59.09	142.90	-	1.50	0.06
	7-26-82	do	540	88.1	36.5	46.0	6.65	266	9.00	221	2.13	-	0.34	<0.05
16.02E.16.411 IHS Well 1	1-17-65	USGS	-	68	16	-	-	385	0	49	87	53	1.3	-
	8-30-73	do	-	73	15	120	15	416	0	40	100	54	1.3	0
	8-17-82	BIA	-	60.1	25.5	41.4	5.47	366	16.8	95.1	9.22	-	0.36	<0.03
16.02E.16.412 IHS Well 2	4-79	PHS	-	79.2	19.9	131.1	18.72	429.4	0	44.1	138.2	-	1.15	0.11
	11-81	PHS	-	84.4	19.3	128.8	20.28	458.5	0	43.2	130.4	-	1.15	0.08
16.02E.27.213 Stockwell #1	4-4-74	USGS	-	64	9	69	9.6	186	0	190	5	30	0.5	4.70
16.02E.16.332a BIA observation Well IWT	12-8-81	BIA	-	70.1	17.0	131	10.2	280	40.8	51.9	126	-	1.12	-
16.02E.16.332b BIA observation Well IZ	12-8-81	BIA	-	30.0	7.29	143	6.65	188	24.0	98.0	76.6	-	1.48	-
Part 2. Zia Pueblo														
14.02E.05.323P RWP-4	4-18-57	USGS	7.0	48	11	-	-	130	0	29	3.0	18	0.4	14.0
14.02E.23.321 146-Z-2	4-18-57	USGS	-	-	-	-	-	130	0	98	110	-	-	-
15.01E.23.444 2-C-278	3-24-59	USGS	-	250	14	-	-	416	0	3,050	275	11	1.2	0.4
15.02E.06.222b Irrigation Test 2	4-4-54	USGS	-	184	31	-	-	1,530	0	285	1,140	91	5.0	1.0
15.02E.12.432 RWP-3	4-4-74	USGS	-	49	1.5	56	5.5	228	0	57	4.2	36	0.4	1.9
15.02E.22.34 "Proposed" domestic well	5-19-52	USGS	-	71	15	-	-	158	0	194	60	23	0.6	2.2
15.02E.22.343 School dug well	12-18-51	USGS	-	110	23	-	-	490	0	200	380	42	1.4	1.2
15.02E.22.414a	4-4-74	USGS	-	-	-	53	7.1	-	-	-	34	-	-	-
Zia #2 - Main public supply well	7-29-81	HED	-	48.4	8.1	52.9	7.02	151.7	0	84.0	38.1	-	0.61	2.58
	4-11-83	BIA	-	48.1	8.51	50.6	7.04	143	<2.40	78.8	40.3	-	0.60	-
15.02E.22.414b	1-20-60	USGS	28	45	5.2	-	-	156	0	47	34	30	0.6	1.3
Public supply standby well	2-27-65	USGS	-	48	9.0	-	-	160	0	66	36	31	0.6	1.7
	4-11-83	BIA	-	14.0(?)	<0.30(?)	32.2	5.87	9.00(?)	64.1(?)	18.7(?)	16.3(?)	-	0.49	-
15.02E.27.141 Dug domestic well	6-16-52	USGS	-	-	-	-	-	140	0	-	58	-	0.8	-
15.02E.36.314 Galvan dug well	12-19-51	USGS	-	92	17	-	-	300	0	350	260	2.5	1.7	0.7
15.03E.12.322 Borrego 5	1-25-60	USGS	12	-	-	-	-	-	-	-	5.5	-	-	-
16.01W.01.41 Kaseman oil test 1	9-29-26	USGS	-	400	73	-	-	1,498	0	3,645	2,660	18	-	-
16.01W.01.421 Warm springs	8-24-29	USGS	-	404	109	-	-	1,400	0	3,605	3,120	-	-	-
	3-6-45	do	-	380	72	-	-	1,440	0	3,430	3,070	-	-	-
	9-29-48	do	450 E	368	73	-	-	1,470	0	3,530	3,010	27	2.6	-
	2-24-49	do	-	367	69	-	-	1,480	0	3,520	3,030	-	-	-
	4-3-56	do	-	328	76	-	-	1,470	0	3,320	2,900	35	-	-
	7-29-58	do	-	301	67	-	-	1,410	0	3,340	2,970	31	4.5	-
	3-14-64	do	-	345	56	3,550	87	1,450	0	3,260	2,990	31	2.8	-
	6-5-73	do	-	350	61	3,500	88	-	0	3,300	3,100	30	3.4	0.02
	6-6-73	do	-	-	-	-	-	1,420	0	-	-	-	-	-
	10-2-73	do	-	-	-	-	-	1,412	-	-	-	-	-	-
	1-25-74	do	-	-	-	-	-	-	-	-	-	-	-	-
	12-2-74	NMBMMR	-	340	62	3,300	80	1,086	0	2,690	3,180	31	2.8	-
	8-1-83	BIA	-	390	15.8 (?)	3,472	86.0	1,405	<2.40	3,494	3,056	-	2.80	-
Part 3. Santa Ana Pueblo														
13.03E.03.223 Perea	4-18-57	USGS	5.0 E	81	19	-	-	130	0	170	32	36	0.8	13.0
14.03E.18.433 RWP-1	4-18-57	USGS	6.0E	250	49	-	-	190	0	450	480	-	-	0.77
14.03E.03.434 RWP-6	5-8-59	USGS	-	-	-	-	-	130	0	52	12	-	-	-
14.03E.22.311	8-12-54	USGS	-	-	-	-	-	-	-	-	42	58	-	-
14.03E.22.323	9-27-24	USGS	-	91	17	-	-	210	0	277	154	-	-	6.7

Hardness		Dissolved solids		Temperature (degrees Celsius)	pH (units)		Specific conductance (micromhos per centimeter at 25° Celsius)		Percent sodium	Sodium adsorption ratio	Remarks
Calcium-magnesium (as $CaCO_3$)	Noncarbonate	Sum of constituents	Residue at 180° Celsius		On-site	Laboratory	On-site	Laboratory			
255	-	-	514	18.0	-	7.65	820	832	38.1	2.07	Tables 1, 4.
310	-	-	731	-	-	8.11	-	1,230	51	3.64	Tables 1, 4.
305	-	-	756	-	-	8.06	-	1,220	51	3.61	do.
370	-	-	750	18.0	-	7.80	1,050	1,101	20.9	1.04	do.
236	0	582	-	-	7.6	-	-	946	-	-	do; slight H_2S odor.
240	0	626	-	19.5	8.0	-	1,020	-	50	3.5	Tables 1, 4.[2]
255	-	-	619	-	-	7.8	-	985	26	1.0	do.
280	-	-	694	-	-	8.0	-	1,178	54	3.4	do; turbidity = 0.9.
290	-	-	722	-	-	8.01	-	1,151	47	3.3	Tables 1, 4. Turbidity = 0.3.
200	46	493	-	15.0	7.8	8.1	670	704	42	2.2	Tables 1, 4.
245	-	-	731	-	-	8.2	-	1,020	52	3.6	Boron = 0.44; table 1.
105	-	-	575	-	-	8.00	-	800	73	6.1	do.
160	57	249	247	14.5	7.8	-	-	399	-	0.5	Sodium + potassium = 13. Table 1.
130	23	-	-	-	7.4	-	-	783	-	-	Table 1.
680	339	5,300	5,320	16.0	7.7	-	-	6,510	83	25	Sodium + potassium = 1,490. Table 1.
586	0	3,680	-	-	-	-	-	5,290	82	21	Sodium + potassium = 1,190.
130	0	332	-	17.0	7.9	-	-	490	47	2.2	Tables 1, 4.
238	109	538	-	-	-	7.9	-	848	44	2.4	Table 1. Bailer sample. Sodium + potassium = 86.
380	0	1,350	-	-	-	-	-	2,260	-	7.8	Table 1. Sodium + potassium = 350.
-	-	-	346	18.5	-	-	-	510	2	-	Table 1.
154	0	-	350	-	-	8.28	-	567	41	1.9	Turbidity = 0.1. Table 4.
155	-	-	368	-	-	7.9	-	563	40	1.8	
134	6	290	290	-	7.9	-	-	458	42	1.7	Sodium + potassium = 45.
160	29	-	330	-	7.6	-	-	519	-	1.6	Sodium + potassium = 46.
36(?)	-	-	148(?)	-	-	9.00	-	292(?)	62	2.3	Tables 1, 4.
180	65	-	-	-	-	-	-	1,140	-	-	Table 1. Temperature = 19.5°C (12-18-51).
300	56	1,180	-	-	-	-	-	1,910	-	7.8	Table 1. Sodium + potassium = 310.
-	-	-	-	23.5	-	-	-	301	-	-	Table 1.
1,299	-	10,984	-	46.0	-	-	-	-	-	5.4	Table 1. Sodium + potassium = 3,450.
1,457	-	11,540	-	50.5	-	-	-	-	-	41	Sodium + potassium = 3,608.
1,240	-	11,300	-	-	-	-	-	-	-	44	Some H_2S gas; BO_3 = 60; sodium + potassium = 3,600.
1,220	-	11,400	-	-	6.8	-	-	15,400	-	45	Sodium + potassium = 3,640.
1,200	0	11,400	-	-	-	-	-	15,400	-	45	Sodium + potassium = 3,660; gas bubbling up with water.
1,130	0	10,900	-	82.2 (?)	6.6	-	-	15,000	87	45	Sodium + potassium = 3,500.
1,030	0	11,000	-	-	7.2	-	-	14,900	88	49	Sodium + potassium = 3,590.
1,090	0	11,000	-	-	7.3	-	-	15,300	87	47	Tables 1, 4. Slight H_2S odor.
1,100	0	11,100	-	52.0	6.8	-	-	15,700	86	45	Partial ananlysis in 1926 reported
-	-	-	-	-	-	-	-	-	-	-	carbonate = 1,710, sodium chloride =
-	-	-	-	51.5	-	-	-	-	-	-	2,890, and dissolved solids = 5,580
-	-	-	-	-	-	-	-	-	-	-	(Renick, 1931).
-	-	-	-	52.0	-	-	-	-	86	43	
1,025	-	-	11,190	-	-	8.34	-	15,100	87	47	
280	180	504	503	16.0	7.4	-	-	736	-	1.1	Sodium + potassium = 44; table 1.
820	660	-	-	16.5	7.3	-	-	2,570	-	3.7	Sodium + potassium = 220, table 1.
140	0	-	-	-	7.7	-	-	357	-	-	Table 1.
170	0	-	-	-	-	-	-	624	-	-	Table 1.
297	-	914	-	-	-	-	-	1,500	-	5.0	Sodium + potassium = 198; Iron = 0.48; Table 1.

Table 4. Minor and radiochemical constituents in water from wells on the Pueblos of Jemez and Zia

EXPLANATION

Location number: See text for explanation; numbers correspond to those given in tables 1 and 3.

Laboratory: USGS, U.S. Geological Survey; BIA, U.S. Bureau of Indian Affairs; PHS, U.S. Public Health Service; HED, New Mexico Health and Environment Department; NMBMMR, New Mexico Bureau of Mines and Mineral Resources.

Location number and local name or number if known	Date of collection	Laboratory	Minor constituents										
			Arsenic	Barium	Boron	Cadmium	Chromium	Copper	Iron	Lead	Lithium	Manganese	Mercury
Part 1. Jemez Pueblo													
16.02E.16.334 Irrigation Test 4	7-26-82	BIA	9.90	224	420	0.60	<1.00	-	-	<1.00	-	-	<0.20
16.02E.16.342 Irrigation Test 3	1-24-78	BIA	-	-	1,240	-	-	-	20	-	-	-	-
	4-12-78	do	-	-	1,080	-	-	-	330	-	-	-	-
	7-26-82	do	24.1	490	800	<0.10	<1.00	-	-	6.90	-	-	<0.20
	8-17-82	do	24.7	204	<50	<0.10	<1.00	-	-	2.40	-	-	<0.20
16.02E.16.411 IHS Well 1	1-17-65	USGS	-	-	-	-	-	-	600	-	-	-	-
	8-30-73	do	17	-	900	-	-	-	540	-	890	750	-
	8-17-82	BIA	16.8	479	<50	<0.10	<1.00	-	-	18.2	-	-	<0.20
16.02E.16.412 IHS Well 2	4-79	PHS	-	-	-	-	-	-	<250	-	-	270	-
	11-81	do	-	-	-	-	-	-	100	-	-	280	-
16.02E.27.213 Stockwell #1	4-4-74	USGS	12	-	240	-	-	-	3,700	-	140	20	-
Part 2. Zia Pueblo													
15.02E.12.432 RWP-3	4-4-74	USGS	4	-	110	-	-	-	1,700	-	60	<10	-
15.02E.22.414a Zia #2 - Main Public Supply Well	7-29-81	HED	14	<100	-	<1	<5	-	<100	<5	-	<50	1.6
	1-18-82	do	-	-	-	-	-	-	(Total)	-	-	-	-
15.02E.22.414b Public Supply	7-29-81	HED	5	100	-	<1	<5	-	2,600 (Total)	10	-	60	1.6
Standby Well	4-11-83	BIA	-	-	910	-	-	-	-	-	-	-	-
16.01W.01.421P Warm Springs	3-14-64	USGS	600	-	4,800	-	-	40	-	60	-	-	-
	6-5-73	do	360	<35*	7,500	<12*	<2*	27*	1,400	<3*	<740*	90	-
	12-2-74	NMBMMR	-	-	7,000	20	16	106	2,100	31	7,200	120	-
	8-1-83	BIA	36.1(?)	950	7,090	2.00	<1.00	-	-	<1.00	-	-	<0.20

Note: All constituents are dissolved and the concentrations are reported as micrograms per liter unless otherwise noted. Tr indicates trace amount; > indicates concentration is known to be greater than value given; < indicates concentration is known to be less than value given; - indicates value was not reported; (?) indicates a questionable value. Precision as reported by laboratory. Gross alpha, gross beta, and radium reported as picocuries per liter; uranium reported as micrograms per liter. An asterisk following a value indicates analysis conducted by spectrographic techniques.

			Radiochemical Constituents					
Selenium	Silver	Zinc	Gross alpha (as natural uranium)	Gross beta (as Cesium 137)	Gross beta (as Strontium 90)	Radium (as radium 226)	Uranium	Remarks
<2.00	<0.20	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
<2.00	<0.20	-	-	-	-	-	-	
<2.00	<0.20	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
<2.00	<0.20	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
<5	<1	-	-	-	-	-	-	Sample on 10-14-81 reports mercury
-	-	-	5.4	(7.5 combined)		-	-	<0.5.
<5	<1	-	0.1	4.2	-	-	-	Sample on 10-14-81 reports mercury <0.5.
-	-	-	-	-	-	-	-	
-	-	1,500	-	-	-	-	-	Aluminum = 2,600, Iodide = 300, Bromide = 4.6.
-	<2*	<25*	-	-	-	-	-	Bromide = 8.1, Strontium = 10,000*.
-	-	27	-	-	-	-	3.2	Aluminum = 300, Bromide = 1.2; See Trainer, 1978, table 7.
5.70	<0.20	-	-	-	-	-	-	

Table 5. Major chemical constituents in water from springs on the Pueblos of Jemez and Zia

EXPLANATION

Location number: See text for explanation; numbers correspond to those given in table 2.

Laboratory: USGS, U.S. Geological Survey; BIA, U.S. Bureau of Indian Affairs.

Flow rate: The rate at which the spring was flowing, in gallons per minute, when sample was collected. Values followed by E were estimated; < indicates flow was less than value given.

Location number and local name or number if known	Date of collection	Laboratory	Flow rate (gal/min)	Calcium	Magnesium	Sodium	Potassium	Bicarbonate (as HCO_3)	Carbonate (as CO_3)	Sulfate	Chloride	Silica	Fluoride	Nitrite plus nitrate (as N)
Part 1. Jemez Pueblo														
16.01E.03.441	5-23-73	USGS	<1 E	96	15	24	1.7	331	0	72	11	32	3.0	0.04
16.01E.05.244 Log Spring	5-23-73	USGS	9.0	57	13	28	2.6	217	0	63	9	26	3.1	0.06
16.01E.20.412 Swimming Pool Spring	4-19-24	USGS	8 E	260	70	-	-	1,301	0	1,728	2,330	30	-	-
16.01E.25.422 Blue Water Spring	9-5-73	USGS	2.0	210	37	310	14	252	0	990	160	10	4.0	0.02
16.02E.07.423 Owl Spring	5-1-53	USGS	-	102	19	-	-	436	0	90	133	29	2.4	-
	5-24-73	USGS	15	88	12	69	4.1	338	0	55	60	24	1.8	0.11
	4-4-74	USGS	-	-	-	-	-	-	-	-	-	-	-	-
16.02E.10.424 Vallecito "1"	2-20-58	USGS	-	-	-	-	-	682	0	126	126	-	-	-
	5-24-73	USGS	3.0	60	11	510	41	788	0	220	290	15	7.0	Tr
16.02E.11.232 Vallecito "2"	5-25-73	USGS	5.0	21	4	87	12	281	0	38	7	12	3.1	0.01
16.02E.18.214 Tunnel Spring	5-24-73	USGS	<1 E	100	15	120	7.3	416	0	-	96	35	3.0	Tr
16.02E.20.331 Salt Spring	5-24-73	USGS	<1 E	110	18	1,400	63	1,320	0	470	1,400	13	8.6	Tr
16.02E.29.142 Indian Spring	8-30-62	USGS	2 R	100	9	-	-	1,280	0	286	1,140	48	7.3	-
	8-30-73	USGS	-	110	21	1,300	73	1,456	0	270	1,200	68	4.0	Tr
16.02E.30.323	9-5-73	USGS	<1 E	270	62	420	26	586	0	850	410	15	3.4	0.02
16.03E.29.344 Ojo Chamisa	6-8-73	USGS	<1 E	31	4	46	3.3	211	0	20	3	33	0.4	0.11
17.03E.25.113P	9-18-73	USGS	2.0	19	6	7	5.9	86	0	17	2	56	0.1	Tr
17.01W.10.241P Holy Ghost Spring	9-22-24	USGS	-	90	12	-	-	259	-	99	4.0	30	-	-
	8-1-83	BIA	-	80.1	7.29	34.5	1.65	256	<2.40	70.6	0.71	-	0.67	0.58
Part 2. Zia Pueblo														
16.01E.06.221P	10-2-73	USGS	-	77	26	100	5.5	335	0	120	82	20	2.0	0.13
16.01E.19.114P Cuchillo "3"	9-22-24	USGS	-	90	12	-	-	259	0	99	4.0	30	-	0.06
16.01W.29.232 Ojito Spring	6-5-73	USGS	2.0	120	9	2,400	6.6	241	11	4,500	580	4	2.9	0.08
	8-2-83	BIA	5 E	130	13.4	2,575	117(?)	223	23.1	5,378	574	-	2.90	-
17.01W.28.243P Chamisa Vega Spring	8-1-83	BIA	1 E	539	23.1	101	7.43	143	<2.40	1,464	1.42	-	0.62	-
17.01W.36.243P Cachana Spring	7-46	USGS	-	44	9.9	-	-	470	0	91	82	-	4.4	0.18

Note: All constituents are dissolved and the concentrations are reported as milligrams per liter unless otherwise noted. Tr indicates trace amount; (?) indicates a questionable value; < indicates concentration is known to be less than value given; - indicates value was not reported. Precision as reported by laboratory.

Hardness		Dissolved solids		Temperature (degrees Celsius)	pH (units)		Specific conductance (micromhos per centimeter at 25° Celsius)		Percent sodium	Sodium adsorption ratio	Remarks
Calcium-magnesium (as $CaCO_3$)	Noncarbonate	Sum of constituents	Residue at 180° Celsius		On-site	Laboratory	On-site	Laboratory			
300	30	418	-	11.5	7.6	-	640	651	15	0.6	Tables 2, 6.
200	18	310	-	15.0	7.6	-	450	487	23	0.9	do.
937	0	7,460	-	21.0	-	-	-	-	-	5.7	Table 2; sodium + potassium = 400. Temperature = 19.5°C, specific conductance = 10,500, flow rate = 20 E (5-8-84).
680	540	1,830	-	15.0	6.4	-	2,500	2,440	49	5.4	Tables 2, 6.
332	0	-	-	-	-	-	-	1,220	-	3.4	Tables 2, 6. Sodium + potassium =
270	0	882	-	15.6	7.3	-	900	788	69	1.9	144 (5-1-53).
-	-	-	-	15.5	-	-	630	-	-	-	
230	0	-	-	-	7.7	-	-	1,620	-	-	Tables 2, 6.
200	0	1,560	-	-	7.6	-	2,800	-	82	17	
69	0	324	-	13.5	7.7	-	540	527	69	4.7	do.
310	0	674	-	-	7.0	-	900	-	45	3.1	do.
350	0	4,150	-	14.5	6.4	-	8,200	-	88	34	do.
285	0	3,470	-	-	8.0	-	-	5,680	-	-	Slight H_2S odor; tables 2, 6. Sodium
360	0	3,770	-	22.6	8.0	-	7,000	0	86	31	+ potassium = 240 (8-30-62).
930	440	2,350	-	18.5	7.0	-	3,200	3,190	49	6.2	Tables 2, 6.
94	0	245	-	-	7.5	-	495	367	51	2.2	Tables 2, 6.
72	0	159	-	11.5	6.8	-	180	182	17	0.4	do.
274	-	-	396	15.5	-	-	-	-	-	-	Sodium + potassium = 29. Tables 2, 6.
230	-	-	363	-	-	-	-	574	24	1.0	Temperature = 12.5°C, onsite specific conductance = 580 micromhos per centimeter at 25° Celsius, discharge = 9.5 gal/min (12-6-83).
300	25	599	-	26.0	7.9	-	-	960	42	2.5	Tables 2, 6.
274	62	396	-	15.5	-	-	-	-	-	0.8	Tables 2, 6. Sodium + potassium = 29.
340	120	7,750	-	21.0	8.5	-	10,100	-	94	60	Tables 2, 6.
358	-	-	8,410	-	-	8.74	-	10,600	-	59	
2,555	-	-	2,410	-	-	8.26	-	2,450	-	1.2	Tables 2, 6.
150	0	674	-	-	-	-	-	1,130	-	7.4	Table 2. Sodium + potassium = 210.

Table 6. Minor and radiochemical constituents in water from springs on the Pueblos of Jemez and Zia

EXPLANATION

Location number: See text for explanation; numbers correspond to those given in tables 2 and 5.

Laboratory: USGS, U.S. Geological Survey; BIA, U.S. Bureau of Indian Affairs.

Location number and local name or number if known	Date of collection	Laboratory	Minor Constituents										
			Arsenic	Barium	Boron	Cadmium	Chromium	Copper	Iron	Lead	Lithium	Manganese	Mercury
Part 1. Jemez Pueblo													
16.01E.03.441	5-23-73	USGS	0	-	20	-	-	-	30	-	-	0	-
16.01E.05.244 Log Spring	5-23-73	USGS	3	-	50	-	-	-	60	-	-	20	-
16.01E.25.422 Blue Water Spring	9-5-73	USGS	2	-	-	-	-	-	15,000	-	640	260	-
16.02E.07.423	5-24-73	USGS	0	-	170	-	-	-	40	-	-	0	-
Owl Spring	4-4-74	do	-	-	-	-	-	-	-	-	110	-	-
16.02E.10.424 Vallecito "1"	5-24-73	USGS	20	-	3,300	-	-	-	30	-	-	70	-
16.02E.11.232 Vallecito "2"	5-25-73	USGS	43	-	670	-	-	-	90	-	-	80	-
16.02E.18.214 Tunnel Spring	5-24-73	USGS	8	-	320	-	-	-	-	-	-	-	-
16.02E.20.331 Salt Spring	5-24-73	USGS	86	-	5,800	-	-	-	1,500	-	>2,800*	340	-
16.02E.29.142	8-30-62	USGS	-	-	6,100	-	-	-	30	-	-	-	-
Indian Spring	8-30-73	do	69	-	8,200	-	-	-	50	-	6,700	300	-
16.02E.30.323	9-5-73	USGS	5	-	1,200	-	-	-	80	-	1,100	630	-
16.03E.29.344 Ojo Chamisa	6-8-73	USGS	15	-	50	-	-	-	20	-	-	0	-
17.03E.25.113P	9-18-73	USGS	-	-	-	-	-	-	60	-	-	0	-
17.01W.10.241P Holy Ghost Spring	8-1-83	BIA	1.40	215	630	<0.10	<1.00	-	-	<1.00	-	-	<0.20
Part 2. Zia Pueblo													
16.01E.06.221P	10-2-73	USGS	2	-	290	-	-	-	0	-	210	13	-
16.01E.19.114P Cuchillo "3"	9-22-24	USGS	-	-	-	-	-	-	300	-	-	-	-
16.01W.29.232	6-5-73	USGS	0	<25*	1,800	<12*	<1*	<25*	30	<3*	1,200*	20	-
Ojito Spring	8-2-83	BIA	<1.00	400	2,450	<0.10	<1.00	-	-	<1.00	-	-	<0.20
17.01W.28.243P Chamisa Vega Spring	8-1-83	BIA	<1.00	1325	890	<0.10	<1.00	-	-	<1.00	-	-	<0.20

Note: All constituents are dissolved and the concentrations are reported as micrograms per liter unless otherwise noted. Tr indicates trace amount; indicates concentration is known to be greater than value given; indicates concentration is known to be less than value given; - indicates value was not reported. Precision as reported by laboratory. Gross alpha, gross beta, and radium reported as picocuries per liter; uranium reported as micrograms per liter. An asterisk following value indicates analysis was conducted by spectrographic techniques.

			Radiochemical Constituents					
Selenium	Silver	Zinc	Gross alpha (as natural uranium)	Gross beta (as Cesium 137)	Gross beta (as Strontium 90)	Radium (as radium 226)	Uranium	Remarks
-	-	-	-	-	-	-	-	Bromide = 0.2.
-	-	-	-	-	-	-	-	Bromide = 0.2.
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	Bromide = 0.2.
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	Bromide = 1.0.
-	-	-	-	-	-	-	-	Bromide = 0.3.
-	-	-	-	-	-	-	-	Bromide = 0.6.
-	-	-	-	-	-	-	-	Bromide = 5.0, strontium = 6,000*; See Trainer, 1978, table 7.
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	0.37	1.0	Bromide = 5.0.
-	-	-	-	-	-	-	-	Bromide = 0.5.
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
<2.00	<0.20	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	Bromide = 0.5.
-	-	-	-	-	-	-	-	
-	<1*	<25*	-	-	-	-	-	Strontium = 8,500*, see Trainer,
5.90	0.20	-	-	-	-	-	-	1978, table 7.
3.80	<0.20	-	-	-	-	-	-	

Table 7. Results of streamflow measurements along the Jemez River on March 1, 1984.

EXPLANATION

Site number and name: Sites are numbered sequentially, in downstream order; names correspond to some nearby geographic landmark or political boundary.

Streamflow: The volume of water that flowed past the particular site at the time of measurement; reported in cubic feet per second.

Possible measurement error; Reported as a percentage (plus or minus) of the discharge measured at a site; based on various channel and flow conditions.

Site number and name	Latitude and longitude	Streamflow	Time of measurement (Begin)	Time of measurement (End)	Possible measurement error (percent)	Specific conductance (micromhos per centimeter at 25° Celsius)
1. Jemez River near Jemez (U.S. Geological Survey gaging station)	353942 1064434	37.8 -	0950 -	1032 -	±5 -	410 440
2. Jemez River above Vallecito Creek	353730 1064348	41.3	0955	1015	±5	435
3. Vallecito Creek at mouth	353727 1064345	1.51	1025	1040	±5	550
4. Jemez River at Jemez Pueblo	353637 1064403	37.2	1110	1140	±5	460
5. Jemez River at Highway 4	353430 1064527	44.2 -	1110 -	1140 -	±5 -	550 580
6. Jemez River above Rio Salado	353227 1064618	50.2	1250	1310	±5	600
7. Rio Salado at mouth	353222 1064620	0.13	1235	1245	±5	15,000
8. Jemez River near Zia Reservoir	353120 1064513	55.1	1230	1300	± 5 to ±8	895
9. Jemez River at Zia Pueblo	353013 1064327	50.6	1330	1400	±5	900
10. Jemez River at Santa Ana Pueblo	352544 1063715	58.7	1430	1500	±8	1,050

Chloride concentration: Reported in milligrams per liter; samples taken at sites 1 through 6. Analyses by U.S. Geological Survey.

River miles: Distance of a particular site in miles downstream from Site 1.

Note: Measurements of specific conductance and water temperature, and chloride samples taken at midstream, at middepth.

Water temperature (degrees Celsius)	Chloride concentration	Time	River miles	General appearance of water	Remarks
3.0	46	1000	0	Clear	Outside gage height = 3.61 feet.
9.0	48	1300	-	do	Outside gage height = 3.59 feet.
3.5	49	1030	3.6	Very slightly reddish brown	Channel material consists of cobbles, gravel and sand.
3.0	21	1030	-	Reddish brown; muddy	Channel material consists of gravel and sand.
5.0	48	1110	4.2	Very slightly reddish brown	Channel material consists of cobbles, gravel, and sand.
7.5	74	1135	8.1	do	Channel material consist mostly of sand with some gravel.
11.0	-	1400	-	do	
9.5	100	1250	11.2	do; silt and sand transport.	Channel material is sand; 4 feet of quicksand in places.
14.5	-	-	-	Clear	Extensive surface deposits of white salts and alkali along flood plain.
10.5	-	-	13.4	Very slight brown; silt transport	Channel material is sand and silt; floodplain is a broad alluvial valley.
14.5	-	-	15.6	Slight brown; silt transport.	do.
13.0	-	-	23.9	Brown; silt and sand transport.	do; water flowing in two broad distributary channels.

Table 8. Chemical analyses of water from the Jemez River, Arroyo Peñasco, Cuchillo Arroyo, and Rio Salado

EXPLANATION

Name and location: Name of stream and its proximity to same nearby geographic landmark or political boundary.

Laboratory: USGS, U.S. Geological Survey; BIA, U.S. Bureau of Indian Affairs.

Streamflow: See table 7 for explanation. Values reported here are instantaneous; values followed by E were estimated.

Specific conductance: See table 1 for explanation.

Name and location	Date of collection	Laboratory	Streamflow	Calcium	Magnesium	Sodium	Potassium	Bicarbonate (as HCO_3)	Carbonate (as CO_3)	Sulfate	Chloride	Silica	Fluoride	Nitrite plus nitrate (as N)
Jemez River nr Jemez (U.S. Geological Survey gaging station)	9-25-24	USGS	-	63	9.0	-	-	290	-	16	94	49	-	-
	7-10-74	do	18	-	-	-	-	233	0	-	93	-	-	-
	11-14-74	do	-	48	5.1	60	9.8	203	-	15	71	38	0.9	0.05
	12-3-80	do	26	-	-	-	-	-	-	-	72	-	-	-
	2-12-81	do	19	52	5.9	72	12	-	-	15	83	42	0.9	-
	5-6-81	do	131	24	2.5	17	3.2	-	-	2.4	19	19	0.3	0
	8-5-81	do	19	53	6.6	80	11	-	-	1.0	100	43	1.0	-
	11-4-81	do	24	49	5.3	66	11	219	-	5.0	92	43	1.2	0.11
	4-15-82	do	331	24	2.3	9.8	2.8	87	-	8.0	8.9	20	0.3	<0.10
	9-2-82	do	38	43	4.7	47	8.2	-	-	14	53	37	0.7	-
	11-10-82	do	59	31	3.4	35	6.8	137	-	19	39	39	0.8	<0.10
	3-3-83	do	52	39	4.2	36	5.8	-	-	20	40	33	0.7	<0.10
	5-26-83	do	561	20	1.9	8.2	2.4	-	-	4.0	7.7	16	0.1	<0.10
	7-19-83	do	42	49	5.6	47	8.5	-	-	12	54	33	0.8	<0.10
Jemez River at Jemez Pueblo	8-17-82	BIA	-	44.0	4.86	69.0	12.5	161	16.2	59.1	69.1	-	0.95	0.04
Jemez River at Highway 4 nr San Ysidro	9-7-73	USGS	-	71	10	220	0	443	0	-	210	44	2.1	0.01
	1-29-74	do	23.2	62	8	120	1.0	314	0	32	120	43	1.3	0.01
Arroyo Peñasco at Highway 44 near San Ysidro	6-29-74	do	-	140	61	2,800	0	878	-	2,800	2,300	23	3.7	0.06
Rio Salado at Highway 44 near San Ysidro	9-15-24	do	-	480	96	-	-	386	-	4,543	2,370	25	-	-
	8-8-57	do	1 to 2 E	-	-	2,050	-	209	0	-	1,880	9.3	-	-
	1-29-74	do	-	390	55	3,800	3.1	483	0	4,700	3,100	12	1.7	0.18
Cuchillo Arroyo at Highway 44	6-29-74	do	-	420	94	4,200	0	501	-	4,600	4,000	15	2.7	0.10

Note: All constituents are dissolved and the concentrations are reported in milligrams per liter, unless otherwise noted. < indicates concentration is known to be less than value given; - indicates value was not reported. Precision as reported by laboratory.

Hardness		Dissolved Solids		Temperature (degrees Celsius)	pH (units)		Specific conductance (micromhos per centimeter at 25° Celsius)		Percent sodium	Sodium adsorption ratio	Selected minor constituents (micrograms per liter)	Remarks
Calcium-magnesium (as $CaCO_3$)	Noncarbonate	Sum of constituents	Residue at 180° Celsius		On-site	Laboratory	On-site	Laboratory				
194	-	466	-	-	-	-	-	-	-	2.8	Iron = 170.	Analysis number 15 reported in Renick (1931). Sodium + potassium = 91.
-	-	-	-	25.0	8.2	-	636	-	-	-	-	
140	0	350	341	4.0	7.4	-	584	-	46	2.2	Arsenic = 50, Barium <100, Boron = 570, Iron = 190, Lead = 2, Manganese <10, Lithium = 700, Uranium = 0.9.	Radiochemical analysis available.
-	-	-	-	4.0	8.0	8.3	550	691	-	-	-	Dissolved oxygen = 10.8 milligrams per liter.
150	0	398	-	4.0	8.5	8.1	650	650	48	2.5	Boron = 710, Iron = 30.	-
70	0	133	-	15.5	8.5	8.0	220	237	33	0.9	Arsenic = 17, Boron = 130, Chromium = 10, Copper = 2, Iron = 40, Lead = 2, Zinc = 4, Selenium = 1, Uranium = 0.8	Suspended sediment = 27 milligrams per liter. Radiochemical analysis available.
160	0	417	-	24.0	8.4	8.2	680	707	50	2.9	Boron = 770, Iron <10.	-
140	0	382	-	10.0	8.2	8.1	675	675	48	2.5	Boron = 690, Iron = 42.	Suspended sediment = 23 milligrams per liter.
69	-	119	133	9.0	8.2	8.0	175	200	23	0.5	Arsenic = 7, Copper = 2, Zinc <12.	Radiochemical analysis available.
130	-	296	-	24.0	8.4	8.4	360	459	43	1.9	Boron = 470, Iron = 79.	-
92	-	242	-	9.5	7.9	7.9	350	370	43	1.6	Arsenic = 31, Boron = 330, Chromium <10, Copper = 1, Iron = 84, Lead = 2, Zinc = 7, Uranium = 1.9.	Radiochemical analysis available. Suspended sediment = 87 milligrams per liter.
120	-	256	-	7.0	8.6	8.4	370	410	39	1.5	Boron = 320, Iron = 120.	-
58	-	-	-	10.5	7.8	7.8	130	168	-	0.5	Boron = 80, Iron = 90.	-
145	-	-	-	21.0	8.4	8.3	420	512	-	1.7	Boron = 460, Iron = 28.	-
130	-	-	392	-	-	8.50	-	633	-	2.6	Arsenic = 39.3, Barium = 102, Boron = 300.	-
220	0	854	-	14.5	7.6	-	1,400	-	-	6.4	Iron = 10, Manganese = 290.	-
190	0	556	-	1.5	7.8	-	900	-	-	3.8	Arsenic = 47, Boron = 1,000, Iron = 30, Lithium = 960, Manganese = 120.	-
600	-	-	8,260 (on 1-25-74)	18.0	-	-	14,400	-	-	50	Arsenic = 70, Boron = 7,400, Bromide = 8.0, Iron = 50, Lithium = 6,100, Manganese = 10.	-
1,594	-	10,835	11,040	-	-	-	-	-	-	34	Iron = 750.	Analysis number 14 reported in Renick (1931). Sodium + potassium = 3,130.
1,480	1,310	-	-	18.0	7.8	-	-	10,300	75	23	-	-
1,200	850	12,300	-	2.0	7.6	-	-	16,600	-	-	Arsenic = 0, Boron = 8,000, Iron = 20, Lithium = 8,300, Manganese = 150.	-
1,400	-	-	12,800 (on 1-25-74)	27.0	-	-	24,600	-	-	48	Arsenic = 12, Boron = 9,100, Bromide = 8.7, Iron = 370, Lithium = 8,000, Manganese = 330.	-

Table 9. Miscellaneous streamflow and water-quality measurements on the Jemez River, Vallecito Creek, Arroyo Peñasco, and Rio Salado.

EXPLANATION

Name and location: Name of stream and its proximity to some nearby geographic land mark or political boundary.

Streamflow: See table 7 for explanation. Values reported here are instantaneous; values followed by E were estimated.

Specific conductance: See table 1 for explanation. Values reported here were measured onsite by U.S. Geological Survey personnel, unless noted otherwise. Values followed by an asterisk (*) indicates that a chemical analysis is available and is reported in table 8.

Chloride concentration: Reported in milligrams per liter.

Name and location	Date	Streamflow	Specific conductance (micromhos per centimeter at 25° Celsius	Water temperature (degrees Celsius)	Chloride concentration	Remarks
Jemez River near Jemez (U.S. Geological Survey gaging station)	9-25-24	-	-*	-	94	Analysis number 15 reported in Renick (1931) as Jemez Creek near Jemez.
	6-18-74	-	714	25.5	100	-
	7-10-74	18	636*	25.0	93	-
	11-14-74	-	584*	4.0	71	-
	12-3-80	26	550*	4.0	72	Suspended sediment concentration = 5 milligrams per liter.
	1-30-81	24	580	4.5	-	-
	2-12-81	19	650*	4.0	83	-
	2-20-81	32.2	-	-	-	-
	2-24-81	30.0	-	-	-	-
	3-17-81	32	625	7.0	-	-
	4-22-81	147	240	9.0	-	-
	5-6-81	131	220*	15.5	19	-
	6-3-81	104	260	12.0	-	-
	7-8-81	29	605	14.0	-	-
	8-5-81	19	680*	24.0	100	-
	9-2-81	23	640	20.0	-	-
	10-8-81	35	510	13.5	-	-
	11-4-81	24	675*	10.0	92	-
	12-15-81	20	600	3.0	-	-
	1-5-82	24	690	3.0	-	-
	2-17-82	28	500	10.0	-	-
	4-15-82	331	175*	9.0	8.9	-
	5-12-82	211	400	9.0	-	-
	7-8-82	27	690	15.0	-	-
	9-2-82	38	360*	24.0	53	-
	11-10-82	59	350*	9.5	39	-
	1-19-83	33	475	4.0	-	-
	3-3-83	52	370*	7.0	40	-
	5-3-83	-	-	12.0	-	-
	5-10-83	780	140	8.0	-	-
	5-26-83	561	130*	10.5	7.7	-
	7-19-83	42	420*	21.0	54	-
	9-14-83	41	460	19.0	-	-
Jemez River above Vallecito Creek	2-20-81	37.1	-	-	-	-
	2-24-81	26.2	-	-	-	-
	3-1-84	41.3	435	3.5	-	Table 7. Lab pH = 7.6
Jemez River below sewage ponds for Jemez Pueblo	2-20-81	34.7	-	-	-	-
	2-24-81	28.4	-	-	-	-
Jemez River at Jemez Pueblo	3-1-84	37.2	460	5.0	-	Table 7. Lab pH = 7.8.

Table 9. Miscellaneous streamflow and water-quality measurements on the Jemez River, Vallecito Creek, Arroyo Peñasco, and Rio Salado.

Name and location	Date	Streamflow	Specific conductance (micromhos per centimeter at 25° Celsius	Water temperature (degrees Celsius)	Chloride concentration	Remarks
Jemez River at Highway 4 near San Ysidio	9-7-73	-	1,400*	14.5	210	-
	1-29-74	23.2	900*	1.5	120	-
	2-7-74	23.7	1,000	-	148	-
	2-22-74	23.7	880	-	124	-
	3-4-74	35.9	740	-	100	-
	3-12-74	48.3	740	-	129	-
	3-18-74	76.5	485	-	113	-
	2-24-81	31.6	-	-	-	-
	3-1-81	44.2	550	7.5	-	Table 7. Lab pH = 7.4.
Jemez River above Rio Salado	3-1-84	50.2	600	9.5	100	Table 7. Lab pH = 7.5
Jemez River below Rio Salado	2-20-81	41.0	-	-	-	-
	2-24-81	31.9	-	-	-	-
	3-1-84	50.3	710	10.0	-	Table 7. Specific conductance reported represents the average of four values measured across the river (650, 850, 620, and 720 micromhos per centimeter at 25° Celsius).
Jemez River at Zia Pueblo	2-20-81	38.0	-	-	-	-
	2-24-81	43.0	-	-	-	-
	3-1-84	50.6	900	14.5	-	Table 7.
Jemez River at Santa Ana Pueblo	2-20-81	35.9	-	-	-	-
	2-24-81	39.1	-	-	-	-
	3-1-84	58.7	1,050	13.0	-	Table 7.
Vallecito Creek at mouth	2-28-84	1 to 2 E	500	7.5	-	-
	3-1-84	1.51	550	3.0	-	Table 7. Lab pH = 7.9.
Vallecito Creek at Highway 4 near Jemez Pueblo	2-20-81	0.38	-	-	-	-
	2-24-81	0.67	-	-	-	-
	2-28-84	1.3	-	-	-	-
	3-1-84	1 to 2 E	680	4.0	-	-
Arroyo Penasco at Pajarito Fault	5-8-84	0.2 E	3,600	23.0	-	Source is combination of upstream discharge of saline springs and snowmelt.
Arroyo Peñasco below Swimming Pool Spring	5-8-84	0.4 E	7,000	20.0	-	Discharge has apparently doubled in the reach from Pajarito Fault and this locality because of groundwater seepage. Discharge from Swimming Pool Spring does not reach Arroyo Peñasco as surface flow.
Arroyo Peñasco at Highway 44 near San Ysidro	1-25-74	-	-	-	2,210	-
	6-29-74	-	14,400*	18.0	2,300	-
	3-1-84	0.3	13,800	13.0	-	Data from Bureau of Indian Affairs.
	5-8-84	0.5 E	12,000	17.0	-	-
Rio Salado at Highway 44 near San Ysidio	9-15-24	-	-*	-	2,370	Analysis number 14 reported in Renick (1931); dissolved solids = 11,040 milligrams per liter; water depth 1 to 3 inches when sampled. Bicarbonate = 169 milligrams per liter; carbonate = 7.9 milligrams per liter.
	5-18-46	-	729	-	78	-
	8-8-57	1 to 2 E	10,300*	18.0	1,880	-
	1-29-74	-	16,600	2.0	3,100	-
	2-20-81	0.29	-	-	-	-
	2-24-81	0.03	-	-	-	-
Rio Salado at mouth	3-1-84	0.13	15,000	14.5	-	Table 7.

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