TABLE 1—Potassium-argon dates of volcanic units in map area. All dates calculated with the following constants where possible: $\lambda_r = 0.58 \times 10^{10} \text{ yr}^{-1}$, $\lambda_s = 4.962 \times 10^{10} \text{ yr}^{-1}$,

*K/K=1.167 x 104, method of reporting error varies from lab to lab. Abbreviations: san.=sankline, feld.=feldspar, plag.=plagioclase, W/R=whole rock, R=reverse, N=normal.

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Unit	Map symbol	Location	Rock type	Mag. polarity	Mat- erial	%K	Moles radio- genic ⁴⁰ Ar (x10 ¹¹)	% Radio- genic [®] Ar	Age, Ma	Comments	Reference
TEWA GROUP Upper Bandelier Tuff	Qbt		Rhyolite Pumice	ĸ	san.				1.12±0.03	Weighted average of three dates from Tsankawi Pumice	Doell et al., 1968; Izett et al., 1980
Rabbit Mtn. dome	Qtr	35°50'N, 106°27.5'W, southeast shoulder Rabbit Mtn., Bland quad.	Rhyolite	R	feld glass	3.682	0.914	45	1.43±0.04		This work
Lowe <mark>r Bandelier</mark> Tuff	Qbo		Rhyolite Pumice	R	san.				1.45±0.06	Weighted average of three dates from Guaje Pumice	Doell et al., 1968; Izett et al., 1980
POLVADERA GROUP Cetro Grande dome	Tphd	35°49.5′N, 106°23.8′W, NM–4 near BM8812, Bland quad.	Dacite	N	plag.	0.394	0.258	26	3.77±0.12		Dairymple et al., 1967
KERES GROUP Rabbit Hill dome	Tkbh	35°47.2′N, 106°22.3′W, west side of conical dome, Bland quad.	Rhyolite		W/R	4.35	3.587	9	6.22±1.2		Gardner and Got 1984
Intrusive, Bland Canyon	Tkbh	35°44'N, 106°26.5'W, bottom of Bland Canyon, Canada quad.	Rhyolite		W/R	4.39	3.888	19	6.52±0.59		Gardner and Cof 1984
Intrusive, Cerro Boletas	Tkbh	35°44′N, 106°24.5′W, west side Cerro Boletas, Cañada quad.	Rhyolite		W/R	4.08	3.701	23	6.74±0.47		Gardner and Gof: 1984
Intrusive, Bland Canyon	Tkbh	Center, B1/2 sec. 8 T17N R5E, east side Bland Canyon, Cañada quad.	Rhyolite						7.1±0.2	Analytical data never reported	Luedke and Smith 1978
Cerro Picacho dome	Tkbh	35°44.6'N, 106°22.8'W, north side Cerro Picacho, Cañada quad.	Rhyolite		W/R	3,873	2.551	49	7.12±0.4		Cardner and Goff 1984
Peralta Tuff	Tkpt	SW1/4 NE1/4 sec. 33 T17N R5E, towermost ash bed in tent rocks, Peralta Canyon, Cañada quad.	Pumice	A) allow in the Control to	san.	4.274	5.056	85	6.81±0.15		Gardner et al., 19
Capping lava, St. Peter's Dome	Tkpa	35°45.5′N, 106"22.8′W, near summit St. Peter's Dome, Frijoles quad.	Andesite	N	plag.	0.573	0.865	14.6	8.69±0.38		Dalrympie et al., 1967
Dome, upper Cochiti Canyon	Tkbd	NW1/4 SE1/4 sec. 20 T18N R5E, east side Cochiti Canyon, Bland quad.	Dacite		W/R	2.70	2.32	23	8.8±0.5		Gardner and Gof 1984
Dome, upper Biand Canyon	Tkbd	35°44'N, 106°26.5'W, east side Bland Canyon, Canada quad.	Dacite	R	plag.	0.554	0.877	44	9.11±0.19		Dalrymple et al., 1967
Dome, Rancho Cañada	Tkpa	35°42'N, 106°23.5'W, east side Cochiti Canyon, Canada quad.	Andesite	N	plag.	0.532	0.863	47.8	9.33±0.19		Dalrymple et al., 1967
Dome, east side St. Peter's Dome	Tkhd	35°46′N, 106°21′W, 1/4 km southwest of Boundary Peak, Frijoles quad.	Dacite		W/R				9.48±0.44	Average of two dates from two different laboratories	Gardner and Coff 1984
Dome, head Sanchez Canyon	Tkhd	35°46.3'N, 106°24.6'W, on road to St. Peter's Dome, Bland quad.	Dacite						9.5±2.5	Analytical data never reported	Loedke and Smit 1967
Dome, Medio dia Canyon	Tkcc	East edge, SE1/4 sec. 5 T17N R5E, east side Medio dia Canyon, Cañada quad.	Rhyolite		W/R	4.47	4.828	12	9.24±1.5		Gardner and Gof 1984
Intrusion, Cochiti Canyon	Tkcc	35°44.5′N, 106°24.8′W, east side Cochiti Canyon, Canada quad.	Rhyolite		W/R	4.04	4.808	10	9.32±1.6		Gardner and Gof 1984
Intrusion, Sanchez Canyon	Tkcc	35°43,5′N, 106°22,7′W, west flank Sanchez Canyon, Cañada quad.	Rhyolite		W/R	3.95	4.964	19	10.5±0.9		Gardner and Gof 1984
Flow, Capulin Canyon	Tkb	35°46.8′N, 106°22′W, bottom Capulin Canyon, Frijoles quad.	Basalt		W/R	0.875	1.677	27.0	11.3±0.9		This work
Flow, Sanchez Canyon	Tkee	35°43.5′N, 106°22.7′W, bottom Sanchez Canyon, Cañada quad.	Rhyolite		W/R				12.4±2.0	Average of two dates from two different laboratories	Cardner and Gof 1984
SANTA FE CROUP Flow, south side St. Peter's Dome	Tsfb	35°43.7'N, 106°22'W, Medio Canyon, Cochiti Dam quad.	Basalt		W/R	1.07	1.380	12.3	16.5±1.4		Gardner and Goff 1984

HYDROTHERMAL ALTERATION

Weak to moderate hydrothermal alteration is present in lower Keres Group rocks, particularly in canyon bottoms. The intensity and rank of alteration increases from east to west in the direction of the Cochiti mining district. Virtually no hydrothermal alteration was observed at St. Peter's Dome. Where observed to the west, alterations consist of carbonates, silica, clays, and chlorite that are replacing phenocrysts and groundmass glass in the volcanic rocks. Altered rocks vary in color from purple to green. Near Bland, white argillic alterations were observed but were not studied in any detail.

The age of this alteration was recently investigated by WoldeGabriel and Goff (1989), who dated hydrothermal illite in Paliza Canyon andesites and dacites and Bearhead rhyolites. Within the northwest map area, hydrothermally altered rocks in Cañon del Norte range from 6.5 to 5.6 Ma. Dates within the altered zone near gold-bearing quartz veins in the Cochiti district are primarily 6.5-5.9 Ma. Other dates in altered Keres Group rocks around the Valles caldera margin are 8.2-7 Ma, suggesting that major hydrothermal activity was widespread in the Jemez Mountains region from 8.2 to 5.6 Ma (WoldeGabriel, in

According to fluid inclusion studies by Wronkiewicz et al. (1984), the temperature of emplacement of the Cochiti veins was roughly 300°C. Stable isotope work on the illites from the altered rocks throughout the area suggest that maximum temperatures of alteration decreased away from the veins (WoldeGabriel and Goff, 1989). Thus we believe that widespread alteration started in the Keres Group at about 8 Ma but that alteration became very localized in the Cochiti district by 6 Ma.

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