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D.G. Brookins and

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K-Ar AGES FOR THE KIRTLAND FORMATION (CRETACEOUS), SAN JUAN BASIN, NEW MEXICO

D. G. Brookins — *Department of Geology, University of New Mexico, Albuquerque, NM 87131*
J. K. Rigby — *Bureau of Land Management, Albuquerque, NM 87107*

We report four new K-Ar dates for three K-feldspar concentrates and one biotite concentrate from volcanic ash units from the Kirtland Formation, San Juan Basin, New Mexico. Earlier data for the Kirtland Formation have been given by Brookins and Rigby (1982). The samples studied for the present report are, based on mineralogic and SEM studies, probably not influenced by detrital material, but they have been severely altered in two cases (samples JKR-62 and JKR-93). The biotite and K-feldspar concentrate from JKR-54 are the best samples for K-Ar age determinations (H. W. Krueger, personal communication, 1982). Very large samples from the three ash units were collected by J. K. Rigby in 1981 and analyzed by Geochron Laboratories, Cambridge, MA 02139. These rocks are important as they are found at or close to the Campanian-Maastrichtian boundary. We do not propose a firm date for these ashes at present, but a tentative date for these ashes is 68-71 (± 2.5) MYBP, based on the new dates and those published earlier (Brookins and Rigby, 1982).

SAMPLE DESCRIPTIONS

1. *JKR-54-2* K-Ar
Volcanic ash, Kirtland Formation (C S23, T24N,R13W; 108°11'29.5"W, 36°18' 03.5"N; Alamo Mesa West quad, San Juan Co., NM). *Analytical data:* K = 10.227, 9.896%;^{*40}Ar = 0.04732, 0.05087 ppm; ^{*40}Ar/Σ^{40}Ar = 0.724, 0.859. *Comment:* The K-feldspar concentrate is partially altered to smectite and other clay minerals. Sanidine is the dominant K-feldspar.
(sanidine; altered) 67.2 ± 2.4 m.y.

2. *JKR-54-2* K-Ar
Volcanic ash, Kirtland formation (C S23, T24N,R13W; 108°11'29.5"W, 36°18' 03.5"N; Alamo Mesa West quad, San Juan Co., NM. *Analytical data:* K = 6.168, 6.066%;^{*40}Ar = 0.02910, 0.03134 ppm; ^{*40}Ar/Σ^{40}Ar = 0.788, 0.779.
(biotite; partly altered) 68.0 ± 2.6 m.y.

3. *JKR-62-2* K-Ar
Volcanic ash, Kirtland Formation (C SE¼ SE¼ S21,T24N,R31W; 108°13'28.6"W, 36°17' 43.9"N;Alamo Mesa West quad, San Juan Co., NM). *Analytical data:* K =9.269, 9.474%;^{*40}Ar = 0.04193, 0.04619 ppm; ^{*40}Ar/Σ^{40}Ar = 0.830, 0.689. *Comment:* sanidine is dominant K-feldspar; highly altered to clay minerals.
(sanidine; altered) 64.7 ± 2.4 m.y.

4. *JKR-93-2* K-Ar
Volcanic ash, Kirtland Formation (T24N, R12W; 108°08'04.5"W, 36°16'04.8"N; Alamo Mesa quad, San Juan Co., NM). *Analytical data:* K = 9.472, 9.203%;^{*40}Ar= 0.04363, 0.04362, 0.04399 ppm; ^{*40}Ar/Σ^{40}Ar = 0.845, 0.774, 0.886. *Comment:* sanidine-rich concentrate (minor quartz) is badly altered to clay minerals.
(sanidine; altered) 64.5 ± 2.4 m.y.

REFERENCE

Brookins, D. G., and Rigby, J. K. (1982) New K-Ar dates from the Kirtland Formation (Cretaceous), San Juan Basin, New Mexico: Isochron/West, no. 33, p. 17.