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### **APPENDIX: U-Pb ISOTOPIC DATA DETERMINED BY THERMAL-IONIZATION MASS SPECTROMETRY**

We first reported U-Pb inferred ages for the Topawa Group in an abstract in 1981 (Wright et al., 1981; see also Tosdal et al., 1989; Riggs and Haxel, 1990). These geochronologic data were determined on multigrain size and magnetic fractions of zircon, analyzed by thermal-ionization mass spectrometry (TIMS). Interpretation of these discordant U-Pb ages, which evidently reflect both inheritance of premagmatic zircon and postmagmatic loss of radiogenic Pb, is not straightforward (compare with Riggs et al., 1993). As explained in the main text, this problematic data set has been supplanted by a sensitive high-resolution ion microprobe (SHRIMP) U-Pb zircon age for the Ali Molina Formation, determined in 2003 (Table 1).

At the request of the editors, we present here the TIMS analytical data for five fractions of zircon from the Topawa Group (Table A1, below), for the benefit of anyone who may want to compare results of the two isotopic methods. Table A1 also includes data for three fractions of zircon from the Sil Nakya Formation (Haxel et al., 1978; Bilodeau and Keith, 1986).

The samples of the rhyolite member of the Ali Molina Formation from which zircon was analyzed by TIMS and using the SHRIMP instrument were both collected from the lower part of the rhyolite member, at localities separated by 1.4 km in map distance and ~0.5 km stratigraphically. This stratigraphic separation is minor compared to the 4 km thickness of the homogeneous rhyolite member (Fig. 4). The two Ali Molina samples are very similar volcanic rhyolites characterized by pronounced relict eutaxitic foliation (Fig. 5A).

Table A1. TIMS U-Pb isotopic ratios and apparent ages of zircon from the Topawa Group and the Sil Nakya Formation, southern Arizona<sup>a</sup>

Unit <sup>b</sup>	Sample	Size fraction <sup>c</sup> (mesh)	Concentration (μg/g) <sup>d</sup>		Observed ratios <sup>e</sup>			Atomic ratios <sup>f</sup>			Apparent ages <sup>g</sup> (Ma)		
			U	<sup>206</sup> Pb*	<sup>206</sup> Pb/ <sup>204</sup> Pb	<sup>207</sup> Pb/ <sup>206</sup> Pb	<sup>208</sup> Pb/ <sup>206</sup> Pb	<sup>206</sup> Pb*/ <sup>238</sup> U	<sup>207</sup> Pb*/ <sup>235</sup> U	<sup>207</sup> Pb*/ <sup>206</sup> Pb*	<sup>206</sup> Pb*/ <sup>238</sup> U	<sup>207</sup> Pb*/ <sup>235</sup> U	<sup>207</sup> Pb*/ <sup>206</sup> Pb*
AMF	PUP 17	<200	428.0	9.30	4255	0.05335	0.15818	0.02528	0.17398	0.04990	161.0	162.9	191
		<200h	571.3	12.44	2778	0.05514	0.16847	0.02533	0.17417	0.04987	161.3	163.0	188
		>200	357.8	8.03	2703	0.05536	0.16419	0.02613	0.17986	0.04993	166.2	167.9	192
MWF	PUP 21	<200	649.6	14.35	4048	0.05346	0.26421	0.02572	0.17673	0.04984	163.7	165.2	188
		>200	637.8	14.14	2335	0.05627	0.27929	0.02581	0.17762	0.04992	164.2	166.0	191
SNF	PUP 25	total	433.2	9.72	18181	0.05136	0.31450	0.02611	0.17959	0.04989	166.1	167.7	190
		<200	447.0	10.10	7143	0.05196	0.31547	0.02629	0.18067	0.04984	167.3	168.6	188
		>200	671.7	15.31	1250	0.06155	0.35850	0.02653	0.18229	0.04984	168.8	170.0	188

<sup>a</sup> Pb\* denotes radiogenic Pb. Analytical methods: Wright (1981).

<sup>b</sup> AMF—rhyolite member, Ali Molina Formation, Topawa Group; MWF—Mulberry Wash Formation, Topawa Group; SNF—Sil Nakya Formation.

<sup>c</sup> Analyzed zircon fractions weighed 10–25 mg.

<sup>d</sup> Estimated precision 0.25 %.

<sup>e</sup> Precision: <sup>208</sup>Pb/<sup>206</sup>Pb and <sup>207</sup>Pb/<sup>206</sup>Pb, ≤0.10 %; <sup>206</sup>Pb/<sup>204</sup>Pb, ≤1.0 %.

<sup>f</sup> As all zircon fractions yielded <sup>206</sup>Pb/<sup>204</sup>Pb measured ratios >1000, all common Pb has been ascribed to the sample processing blank. Total Pb blanks were 0.2–0.5 ng. Common Pb corrections: <sup>206</sup>Pb/<sup>204</sup>Pb = 18.6, <sup>207</sup>Pb/<sup>204</sup>Pb = 15.6, <sup>208</sup>Pb/<sup>204</sup>Pb = 38.0.

<sup>g</sup> Decay constants (Steiger and Jäger, 1977): <sup>235</sup>U, 0.98485 x 10<sup>−9</sup> yr<sup>−1</sup>; <sup>238</sup>U, 0.155125 x 10<sup>−9</sup> yr<sup>−1</sup>; <sup>238</sup>U/<sup>235</sup>U = 137.88.

<sup>h</sup> Fine fraction of the <200 mesh size fraction.

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