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## STRONTIUM ISOTOPIC ANALYSIS OF GRANDE RONDE BASALTS AND FRACTURE FILLINGS MINERALS, DRILL HOLE DC-6, HANFORD RESERVATION, WASHINGTON

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We report  $^{87}\text{Sr}/^{86}\text{Sr}$  analyses of ten basalt and thirteen fracture-filling mineral assemblages from Grande Ronde basalts from drill hole DC-6 core, Hanford Reservation, Washington. The location of this drill hole is T12N,R27E;  $46^{\circ}35'9.3''\text{N}, 119^{\circ}23'37.8''\text{W}$ . Samples were taken from drill-hole core stored at Lawrence Berkeley Laboratory in December 1982, with care being taken to select samples which contained fracture-filling minerals. This study was undertaken to see if there is a significant dif-

ference in strontium isotopic composition between basalt and fracture-filling minerals, in conjunction with other studies (see Brookins and others, 1984) ongoing at the Basalt Waste Isolation Project (BWIP) site. The mineralogy of the basalt is given in Myers and Price (1979) and the reader is referred to this source for detail. The fracture filling minerals were analyzed by x-ray diffractometry and the results are given in table 1. The strontium isotopic analyses are given in table 2. Since the rocks and fracture-filling

TABLE 1. X-ray diffraction study of Hanford fracture-filling minerals from drill core, DC-6.<sup>1</sup>

	Mineral phases identified					
	Clinoptilolite	Phillipsite	Quartz	Low cristobalite	Illite	Erionite
HFD 2427 F	x	-	-	-	-	-
2933 F	x	-	-	x	-	-
3006 F	-	x	-	-	-	-
3089 F	-	x	-	-	-	-
3275 F	-	-	-	-	-	t
3337 F	x	x	x	-	-	-
3340 F	x	-	x	x	-	-
3436 F	-	-	x	x	-	-
3541.7 F	x	-	x	x	-	-
3542 F	x	-	x	x	-	-
3572 F	-	-	x	-	-	-
3597.1 F	-	-	-	t	t	-
3636 F	x	-	x	-	-	-
3666.2 F	x	x	x	-	-	-
3688 F	t	-	x	-	-	-
3782 F	-	-	x	-	-	-

x = minor to abundant mineral; t = very minor to trace abundance; - = looked for but not found.

<sup>1</sup>The Hanford DC-6 core samples were analyzed on the UNM Geology Department's Philips x-ray diffractometer on June 7, 8, and 9, 1983, by M. T. Murphy. Sample numbers are depths in core DC-6.

TABLE 2. Strontium isotopic data—basalts and fracture fillings.

Sample <sup>1</sup>	$^{87}\text{Sr}/^{86}\text{Sr}$ (BAS)	$^{87}\text{Sr}/^{86}\text{Sr}$ (FF)
2427	0.7053	0.7060
2933	0.7050	0.7055
3006	-	0.7054
3089	0.7054	0.7056
3275	0.7050	0.7052
3337	0.7060	0.7059
3340	0.7058	0.7057
3436	0.7057	0.7089
3541.7	0.7067	0.7059
3542	0.7060	0.7063
3572	0.7056	-
3636	0.7060	0.7048
3666.2	-	0.7056
3688	-	0.7056

BAS = basalt; FF = fracture filling material.

<sup>1</sup>The sample numbers are the depths of samples from drill hole DC-6.

minerals are geologically very young, no age correction has been applied to the Sr isotopic data. All  $^{87}\text{Sr}/^{86}\text{Sr}$  data were normalized to  $^{86}\text{Sr}/^{88}\text{Sr} = 0.1194$ . Replicate runs on Eimer and Amend standard  $\text{SrCO}_3$  yielded  $^{87}\text{Sr}/^{86}\text{Sr} = 0.7080_5$  during the course of this investigation.

### REFERENCES

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