Table 11.--Changes in composition of quartzose rocks in the lower part of the Chinle Formation during mineralization

[All figures are approximate because of the semiquantitative nature of the data. Estimates of normal concentrations of the rare earths were based on Minami's (1935) data for shales, and estimates of cadmium and thallium were based on data presented by Goldschmidt (1954). The calcium and manganese content of ore is commonly less than that of barren rocks by a factor of 0.5 to 6]

Element	Data from composite mill pulps				Data from high grade uranium ore			
	A Maximum percent observed	Maximum percent in similar barren rocks	B Median percent in similar barren rocks	Ratio A/B	A Maximum percent observed	Maximum percent in similar barren rocks	B Median percent in similar barren rocks	Ratio A/B
As	0.0060	<0.0005	<0.0005	>10	0.01	0.0014	<0.0005	>20
Ba	.X	X.	.0X	10	X.-	X.	.0X	50
Be	.000X+	.000X	.000X-	4	.00X-	.000X	<.000X-	>10
B	.00X+	.00X+	.00X+	1	.0X-	.00X+	.00X	4
Cd	.0X-	<.005	.0000X(?)	500(?)	0	<.005	----------	----------
Ce	<.02	<.02	<.02	----------	.X-	tr	<.02	>25
Co	.00X+	.00X	.00X-	4	.0X	.00X	.000X+	45
Cu	.0X+	.00X+	.00X-	45	X.+	.00X+	.00X-	4,500
Dy	<.005	<.005	----------	----------	.0X	<.005	<.000X+	>45
Er	<.005	<.005	----------	----------	.0X	<.005	<.000X	>100
Fe	X.	X.	X.-	2	X.+	X.	.X+	10
Gd	<.005	<.005	----------	----------	.0X	<.005	<.000X+	>45
La	.00X+	.00X+	<.00X	>2	.0X+	.00X+	<.00X-	>45
Mo	.0X	.00X	.000X+	45	.96	.00X	.000X	2,000
Nd	<.01	<.01	<.01	----------	.0X	<.01	<.00X	>10
Ni	.00X+	.00X	.00X-	4	.0X-	.00X	.000X	45
Pb	.0X	.00X+	.00X-	20	.X+	.00X+	.00X-	450
Sc	.00X-	.00X-	.00X-	1	.0X	.00X-	.000X+	45
Se	.00025	.0002	.00005	5	.0015	.0002	.00005	30
Sm	<.01	<.01	----------	----------	.0X-	<.01	<.000X+	>20
Sr	.X	.X	.0X+	4	.X-	.X	.0X+	2
Tl	<.01	<.01	----------	----------	.0X-	<.01	.000X-(?)	100 (?)
U	.81	.0009	.0005	1,600	>10	.0009	.0005	>20,000
V	.65	.0X-	.005	130	>10	.0X-	.005	>2,000
Y	.00X+	.00X	.00X	2	.X	.00X	.00X	100
Yb	.000X+	.000X+	.000X+	1	.0X	.000X+	.000X-	200
Zn	.0072	.0060	.0030	2	.X	.0060	.0030	100
Zr	.0X+	.0X+	.0X+	1	.X	.0X+	.0X-	20