Table 10. Spectrographic analyses, in percent, of 13 selected rock samples from Fall River County, South Dakota

Sample Number	Na	K	Be	Mg	Ca	Sr	Ba	Sc	Y	La	Ti	Zr	V	Cr	Mo	Fe
Seven rock samples at joint faces in Deadhorse Canyon, SW¼SE¼, sec. 27, T. 8 S., R. 3 E.																
D 97 446	.x+	x.	0	.x	x.-	.ox+	.ox-	0	.ooox+	.ox-	.ox	.oox	.oox+	.oox	.oox-	x.+
47	0	0	.ooox	.ox+	.x-	.oox-	.ox-	.oox	.oox-	.oox+	.oox+	.oox-	.ox-	.ox+	.ox+	xx.
49	0	0	.oox+	.x	x.-	.oox	.ox+	0	.ox-	.oox	.oox	.ox-	.x	.oox-	.ox+	xx.
50	0	0	.oox+	x.	x.	.x	.ox+	0	.oox	.oox+	.oox-	.ox-	.x-	.oox-	.ox	xx.-
52	0	0	.oox+	.x-	.x+	.ox-	.ox	0	.oox	.oox	.ox-	.ox	.ox-	.ox	.oox+	xx.
48	0	0	.oox+	.ox+	.x-	.oox-	.oox+	0	.oox+	0	.oox	.oox+	.x+	.oox-	.x	xx.
51	0	0	.oox	.x	.x+	.oox	.ox-	0	.oox-	0	.oox-	Tr	.ox	.oox	.ox+	xx.
Six (6) rock samples at the Lion No. 1 mine, sec. 12, T. 8 S., R. 3 E																
2000 21	0	0	0	.ox	.ox	.ox+	0	.oox	0	0	0	.ox+	.oox+	.ox	.oox	0	.x
22	0	0	0	.ox	.ox+	Tr	.ox-	0	.oox-	0	.ox+	.oox+	.ox+	.oox	0	.x+
23	0	0	0	.ox	.x-	.oox+	.oox+	0	Tr	0	.ox+	.oox+	.x-	.oox+	0	.x
24	.x-	x.-	Tr	.x+	.x-	.oox+	.ox-	.oox-	.box	.oox+	.x	.ox-	.ox	.oox+	.oox+	x.-
25	.ox+	.x+0		.x-	.x	.oox+	.ox	Tr	.oox	0	.x-	.ox-	.x-	.oox	0	x.
26	0	0	0	.ox+	.x-	Tr	.oox+	0	.oox	0	.ox+	.ox-	.ox	.ooox+	0	.x
Minimum Sensitivities	0.05		.0001	0.001		0.0001		0.001		0.005		0.001		0.0001		0.001

Sample Number	Co	Ni	Cu	Zn	B	Al	Ga	Si	Pb	P	As	U	U	Mn
D 97 446	.oox	.oox-	.oox+	0	.ox-	x.-	.oox	.x+	.ox-	0	0		0	.x
47	.oox-	.oox+	.ox-	.ox	0	x.-	.oox	.x+	.oox	0	0	0	0	.ox
49	.ox-	.ox+	.oox-	.ox+	0	x.-	.oox	.x	.oox-	.x+	.x-		0	x.
50	.ox-	.ox	.ox-	.ox-	0	x.	.oox-	.x-	.oox-	.x	.x-		0	x.
52	.oox+	.oox+	.ox	.ox	0	x.	.oox-	.x+	.oox+	.x+	0		0	.x-
48	.ox-	.ox+	.oox	.ox+	0	.x	.oox	.x+	.oox	0	.x		0	.x-
51	.ox-	.ox	.oox+	.ox-	0	.x	.oox	.x	.oox	0	.x-		0	.x-
Six (6) rock samples at the Lion No. 1 mine, sec. 12, T. 8 S., R. 3 E														
2000 21	Tr	Tr	.oox+	0	.oox	.x-	0	xx.	0	0	0	(.006)	0	.ox-
22	.oox	.oox	.oox-	0	Tr	.x-	0	xx.	0	0	0	(.0083)	.ox+	.x-
23	Tr	.oox+	.oox-	0	Tr	.x	0	xx.	0	0	0	(.63)	.x+	.x-
24	.oox-	.oox	.oox-	0	.oox+	x.+	.oox-	xx.	0	0	0	(.04)	0	.ox-
25	.ox-	.ox-	.oox	0	.oox	x.-	Tr	xx.	0	0	0	(.007)	0	.x+
26	Tr	.oox+	.oox+	0	Tr	.x+	0	xx.	0	0	0	(.005)	0	.ox-
Minimum Sensitivities	0.0005		0.00005		0.005		0.001		0.001		0.05		0.05	0.0005

1/ Chemical analyses

The following elements were looked for but not detected:
In all samples: Ag, Au, Nb, Sb, Ta, Th, Te, W, Bi and Sn.
In samples D 97446 to D 97452 Inclusive: U
In sample 200021 to 200026 Inclusive: P, As, Cd, Ce, Dy, Er, Gd, Ge, Hf, Hg, In, Ir, Li, Nd, Os, Pb, Pd, Pt, Re, Rh, Sm, Ti and Zn.

Example of plus and minus notation

Sub-group	Theoretical range
.x+	.464 to 1.0 %
.x	.215 to .464 %
.x-	.10 to .215 %
xx.	Anything above 10 %

Remarks

Constituents on joint faces dissolved in aqua regia
Brown colored deposit on joint face
Dark brown colored deposit on joint face about 100 feet from sample D 97446.
Bluish-black surface near a calcareous sandstone
Similar to sample D 97449, but taken 10 feet lower on joint face.
Common bluish black joint face, which grades downward in 30 ' to a "micro-pahoehoe" joint surface.
Bluish-black "micro-pahoehoe" joint face
Bluish-black "micro-pahoehoe" joint face

Sandstone, white, brown-speckled, surrounding black reaction zone, samples 200022, 200159 and 200160.
Halo zone, black, 1/4 '' to 1/2 '' wide surrounding ore pod, samples 200023 and 200163.
Ore pod containing tyuyamunite.

Mudstone, grey, above contact (samples 200025,200166 and 200167) with sandstone (samples 200026, 200168, 200169)
Contact zone, sample 200025 was taken 20 feet south, and sample 200167, 40 feet south of sample 200166.
Sandstone beneath contact, samples 200025, 200166 and 200167. Sample 200026 was taken 20 feet south and sample 200169 was taken 40 feet south of sample 200168.

Spectrographic analyses by: A. T. Myers and G. W. Boyes.