

Western Minerals, Inc.

Elsah Ill. 62028

SAN JUAN MOUNTAINS VOLCANIC REGEON, COLORADO--PETROGRAPHIC SUITE

INTRODUCTION

This suite is in two parts. Part A, is from the Summer Coon volcanic center in the eastern San Juan Mountains region. Part B represents a section through the central part of the region from South Fork to Creede to Lake City. A third suite was to have been collected in the Silverton-Ouray-Telureid area but bad weather shut us out at the end of the season. This may be collected later.

REFERENCES

Larsen, E. S. Jr., and Cress, Whitman, 1956, Geology and Petrology of the San Juan Regeon Colorado; U. S. Geological Survey, p.p. 258.

Lipman, Peter W., 1968, Geology of Summer Coon Volcanic Center, Eastern Rocky Mountains, Colorado; in Cenozoic Volcanism in the Southern Rocky Mountains, Ed. R. C. Epis; Colorado School of Mines Quarterly V. 63., P. 211-236.

USGS GQ Maps

Bristo. Head Quadrangle., Colorado, USGS GQ 631 by T.A. Stevens/

GROUP A. Del Norte Quadrangle.. Refer to Lipman Plate 1 and Table 1 p. 231-234, 1968 for most analyses and locations.

*1. Rhyolite dike on N. Side of La Garita Creek at irrigation dam 2½ mi. up creek road. (analysis locality 5) Trsi.

*2. Natural Arch Dike (andesite) Tsl1, Where dike crosses Natural Arch Road just before turn-around at Natural Arch.

3.

3. Basalt, Tsb, 1.2 mi. off La Gareta Road, on Natural Arch Road.

*4. Small rhyodacite dike (Tsl1) part of dike forms bluff off Old Woman's Creek Road. (Analysis locality 11)

*5. Banded rhyolite tuff, Tsr, outcrop on hill off Old Woman's Creek Road (analysis locality 4)

*6. Trachyandesite flow, outcrop across slight depression 100 yds S of dike specimen No. 7. Tsl. (Analysis locality 1)

*7. Quartz litite dike (very obscure) visible from La Gareta Road (Analysis locality 8)

8. Pitchstone (?) blocks in breccia, see 6,7. Dike 7 cuts the breccia.
9. Andesite porphyry dike in Carnero Creek, 6.8 mi. W of La Garetta P.O. (second dike after large mass with good columnar jointing going west on road)
- *10 Tridymite latite 3 mi. W of La Garetta P.O. in Carnero Creek, Tfc, Fish Canyon tuff. USGS PP locality 21--analysis.
- 11 Dense felsite dike, 3.6 mi. on Natural Arch Road. Dike about 50 yds N of road.
- 12 Hornblende-bearing andesite possibly intrusive 8 mi w Nat. Arch Rd.
- 13 Fish canyon tuff quartz latitic ash flow tuff, small quarry about 1.1 mi. W on La Garetta Creek Road.
- 14 Hornblende andesite porphyry outcrop above dump 2 mi. off 112, just N of Rio Grande River, 1 mi N of Del Norte, north side of Old Woman Creek Road. Tsl.

Group B. Creede, Conejos, Lake City and Bristol Head Quadrangles

1. Rhyolite porphyry 8 mi N of bridge across Rio Grande River at south fork. On Creede Road. Road cut. Tpt, Treasure Mtn rhyolite
2. Rhyolite, 4 mi. N of bridge(at locality 1), Tpt, Treasure Mtn rhyolite
3. Quartz latite, 10.4 mi N of bridge (at locality 1) roadcut in Tpp, Piedra rhyolite.
4. Latite porphyry 1 mi. N. Wagon Wheel Gap across from Historical Marker of Wagon Wheel Gap, road cut.
5. Latite porphyry, 0.5 mi from Creede-Lake City Road on Spar City Road along Rio Grande. Tfl, Fisher Campground.
6. Welded Tuff in Tpc area. 1 mi s. Antelope Springs ranch.
- *7. Vitrophyre 3.8 mi. past (N) Antelope Springs Ranch, N side of road, (Analysis locality 48)
8. Crystal tuff, Waso Peak rhyolite, Tw. 1.2 mi from Clear Creek, Bristol Head Quad.
9. WElded lapilli tuff, 14.2 mi N. Junction with road to San Juan Ranch. Tr on west side of road. Bristol Head Quad. Nelson Mtn and Rat Creek Quartz latite
10. Crystal tuff 0.2 mi N road to San Juan Ranch, Ter. Cut on east side of road. Bristol Head Quad.
11. Andesite 5 mi. N locality 9, Thbt, low outcrop west side of road. Bristol Head Quad.

- 12 Andesite porphyry 7 mi. N. of locality 11, Road cut Tdf, Bristol Head Quad. Dacite of Slumgullion Pass.
- 13 Cryatal lithic tuff, 2 mi. S. of Lake City, and 1 mi. N of Lake San Cristobal. Tsp, Picayune quartz latite.
14. Quartz latite breccia, 4 mi. N. Lake City. W. side of road, blocks from cliffs. Tlf Lake Fork Quartz latite
- 15 Alboroto rhyolite, 7.3 mi. S of South Fork on Highway 160. Road cut N. side of road.
- 16 Tw Wason Park Rhyolite 5.8 mi No. of location for 11.

Chemical Analyses

Group A	1	4	5	6	7	10	Group B
SiO ₂	71.4	63.7	71.1	56.3	61.1	60.25	70.84
Al ₂ O ₃	15.2	15.6	14.3	15.4	15.4	16.26	13.53
Fe ₂ O ₃	1.3	2.3	.35	4.1	3.1	5.31	1.16
FeO	.06	1.9	.06	3.2	2.7	.77	.52
MgO	.18	1.9	.19	4.8	3.4	2.18	none
CaO	1.4	4.1	2.7	6.7	5.0	5.28	.86
Na ₂ O	4.6	4.5	4.6	3.5	4.0	4.07	3.51
K ₂ O	4.5	2.9	4.4	2.7	3.0	3.23	5.57
H ₂ O-	.26	.18	.17	.50	.27		
H ₂ O+	.28	1.6	.51	1.1	.42	.95	3.13
TiO ₂	.19	.56	.19	.98	.88	.94	
P ₂ O ₅	.04	.20	.02	.37	.38	.09	.22
MnO	.11	.08	.04	.12	.11	.11	none
CO ₂	.05	.05	.76	.11	.05	.21	.09
Total	100	100	99	100	100	99.65	99.43