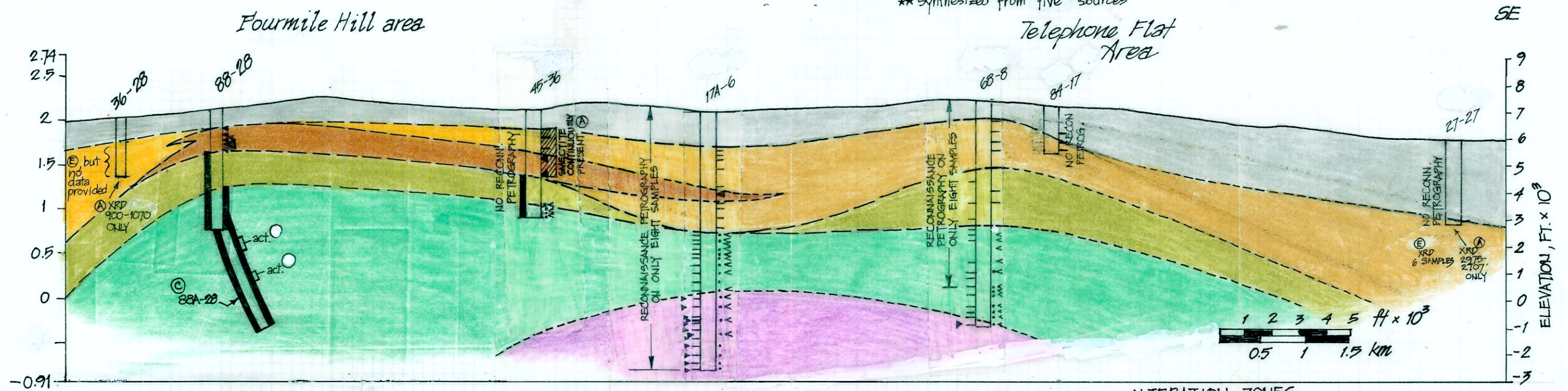


**PROVISIONAL ALTERATION SECTION THROUGH GLASS MOUNTAIN VOLCANO AND GEOTHERMAL SYSTEM**  
\*\* synthesized from five sources



**DATA TYPES, AMOUNTS, & SOURCES**

**ALTERATION ZONES**

- (A) Bargar and Keith, 1999
- (B) data from J.B. Hulen, 2002
- (C) data from mudlog by Tecton Geologic Laboratories, and Unocal Science and Technology Division (B. Smith)
- (D) Carrier, 1986; data from Geochron Laboratories, and Unocal Science and Technology Division (B. Smith)
- (E) Carrier, 1987; data from J. Hulen (XRD & reconnaissance petrography) and T.J. Reynolds (fluid-inclusion microthermometry)
- (F) Carrier, 1989a; data from J. Hulen and S.J. Lutz (XRD and reconnaissance petrography)
- (G) Carrier, 1989b; data from T.J. Reynolds (fluid-inclusion microthermometry)
- (H) J. Hulen, 2002, BINOCULAR MICROSCOPIC LOGGING AND LIMITED XRD (draft - J. Hulen) 12/10/02

Drill hole	TD	Number of samples examined and/or analyzed as of 12/10/02					WHOLE-ROCK $\delta^{18}O$ (H)
		RECON. PETROGR. samples per 100 ft	BULK XRD samples per 100 ft	CLAY XRD samples per 100 ft	CRYSTALS FOR FLUID-INCLUSION MICROTHERMOMETRY		
36-28	2146 ft	(7) (A)† → 0.33	(7) (B) → 0.33			(14) ✓	
88-28	4118 ft		(190) (B) → 1.2	(150) (B) → 1.1			
88A-28	8503 ft (TVP 8,025 ft)		(5) (H)				
45-36	4000 ft	(107) (A)† → 2.67	(107) (A) → 2.67	(10) (E) → 0.25	(9) (E) CA, QTZ, PREHN, WA (5) (A) CA, QTZ, WA	(29) ✓	
17A-6	9620 ft	(8) (G) → 0.08	(30) (F) → 0.40	(8) (F) → 0.08	(14) (G) (EP, QTZ, PLAG.)	(30) ✓	
68-8	8417 ft	(8) (G) → 0.23 (11) (H)†	(34) (E) → 0.40	(34) (F) → 0.40	(13) (G) (EP, QTZ, PLAG, WAIR)	?	
84-17	1636 ft		(6) (E) → 0.37			(13) ✓	
27-27	3000 ft		(6) (E) → 0.20 (3) (A) → 0.10			(7) ✓	

**ALTERATION ZONES**

- NO HYDROTHERMAL ALTERATION. DELTERIC ZEOLITES, SILICA, AND HEMATITE ± GOETHITE LOCALLY PRESENT
- ARGILLIC ZONE** (MODERATE-INTENSE): PERVASIVE SMECTITE (5-15% = MODERATE; >15% = INTENSE). LOCALLY MINOR. HELLANDITE & MORDENITE (& OTHER LOW-T ZEOLITES)
- PERIPHERAL PROPYLITIC ZONE**: CHLORITE, CALCITE, SMECTITE, M.L. ILLITE/SMECTITE. EPIDOTE ABSENT; INCLUDES MINOR LALUMONTITE IN 88-28
- PROPYLITIC ZONE**: CHLORITE-EPIDOTE ± ACTINOLITE, CALCITE, ALBITE, ILLITE, MIXED-LAYER CHLORITE/SMECTITE, WAIRAKITE, K-FELDSPAR; INCLUDES MINOR LALUMONTITE IN 88-28 AND 45-36. (PROBABLY AN OVERPRINT)
- POTASSIC/PROPYLITIC ZONE**: SIMILAR TO ABOVE, BUT WITH UP TO 15% SECONDARY BIOTITE, MORE K-FELDSPAR, LESS ALBITE.

**DATA POINTS & CLUSTERS**

DRILL HOLE

- 5-15 WT% SMECTITE
- 15-50 WT% SMECTITE
- >50 WT% SMECTITE
- ACTINOLITE PRESENT
- EPIDOTE PRESENT
- CHLORITE PERSASIVELY PRESENT
- SECONDARY BIOTITE PRESENT IN REPRESENTATIVE SAMPLES
- EPIDOTE PERSASIVELY PRESENT

IN REPRESENTATIVE SAMPLES

5-15 WT% CHLORITE

CHLORITE PERSASIVELY PRESENT

SECONDARY BIOTITE PRESENT IN REPRESENTATIVE SAMPLES

EPIDOTE PERSASIVELY PRESENT

(\*) RECONNAISSANCE PETROGRAPHY ALSO PROBABLY DONE "IN-HOUSE"

(†) VEINLETS; ALTERATION ONLY

(\*) ROCK TYPES, VEINLETS, ALTERATION

(\*) PRESENCE OR ABSENCE ONLY

(♦) QUALITATIVE

(▲) SEMI-QUANTITATIVE

NOT UTILIZED FOR THE ALTERATION SECTION