

INVESTIGATION OF THE DRY CREEK COBALT PROSPECT,  
BONNEFIELD DISTRICT, ALASKA RANGE

By James C. Barker

Critical and Strategic Minerals in Alaska --

Alaska Range Mafic/Ultramafic Complexes

\*\*\*\*\*Field Report - October 18, 1983

UNITED STATES DEPARTMENT OF THE INTERIOR

Secretary

BUREAU OF MINES

Robert C. Horton, Director

## TABLE OF CONTENTS

	<u>Page</u>
Investigation of the Dry Creek Cobalt Prospect, Bonfield District, Alaska Range .....	1

## ILLUSTRATIONS

- FIGURE 1. Location map
- FIGURE 2. Dry Creek area
- FIGURE 3. Trench profile
- FIGURE 4a. Site of sample AK 17778 - ("67" prospect)
- FIGURE 4b. Site of sample AK 17778 - ("67" prospect)
- FIGURE 5. Generalized geologic column of the Dry Creek area
- FIGURE 6. Geology sketch map of Fox Trenches

INVESTIGATION OF THE DRY CREEK COBALT PROSPECT,  
BONNEFIELD DISTRICT, ALASKA RANGE

By James C. Barker

---

On August 1, 1983, the Dry Creek exploration camp operated by Houston Oil & Minerals was visited at the invitation of Mr. Dave Gaard, Project Geologist. Base and precious metal mineralization occurs at a number of localities in the Bonnefield area (figures 1 and 2), and generally contains Pb, Ag, and Au as the chief credits with lesser Cu and Zn values. The principal mineral showings are believed to be stratiform in schistose volcanoclastic sediments. Three drills were working on the properties at the time of the visit.

The mineralization lies on unpatented mining claims held under joint venture by Houston Oil and Minerals and by Resource Associates of Alaska. The companies assisted in the bulk sample collection for the bureau. Samples for petrographic examination were also collected.

Bulk sample AK 17778 from the "67" prospect consists of pyritic and chloritic mafic volcanics. Assays provided by RAA (see figure 2) indicate approximately .15% Co with minor gold and copper values occur at the "67" prospect. The cobaltiferous zone, as shown in figure 3, is about 6 ft thick at the sample site (figure 4). The mineralization is apparently faulted on the east and in stratiform contact with dacite and rhyolite tuffs to the west. Work by the companies has consisted of only trenching and no further exploration of the site is planned.

These rocks belong to the Misty Creek Member of the Totatlanika Schist. A generalized geologic section is shown in figure 5. The Misty Creek is approximately 2500 feet thick and composed of interlayered dacitic and felsic volcanics with a basal basalt member. It is within this member that much of the mineralization of the area occurs, typically associated with the felsic volcanics.

While the "67" prospect is the only mineralized site containing presently known Co values, pyritic zones and massive sulfide deposits of Pb, Zn, Ag and Cu are common in the area. Cobalt has not been previously sought for. There also is similar mafic volcanics and pyritic mineralization on the nearby Fox Prospect. Bulk sample AK 21249 was collected at Fox, and also forwarded to the Albany center.

The discovery of cobalt in the Bonnefield District to date has indicated only negligible tonnages at one or possibly two separate surface outcroppings. However, there has not yet been an effort to search for cobalt in the area, nor to even analyze for it in known prospects of other metals. Most exploration to date has been in the intermediate to felsic volcanic units which are host to Ag-Au-Pb-Zn mineralization. Mafic volcanics are also common in the geologic succession and these rocks now appear to be favorable for pyritic deposits of Co and Cu. The likelihood for discovery of additional deposits is excellent.

It is recommended that Albany do a through assay of the heads followed by testing to determine if the cobalt can be recovered. Presumably the cobalt is associated with the pyrite. If the cobalt is recoverable, then further work in the area may be warranted in 1984.

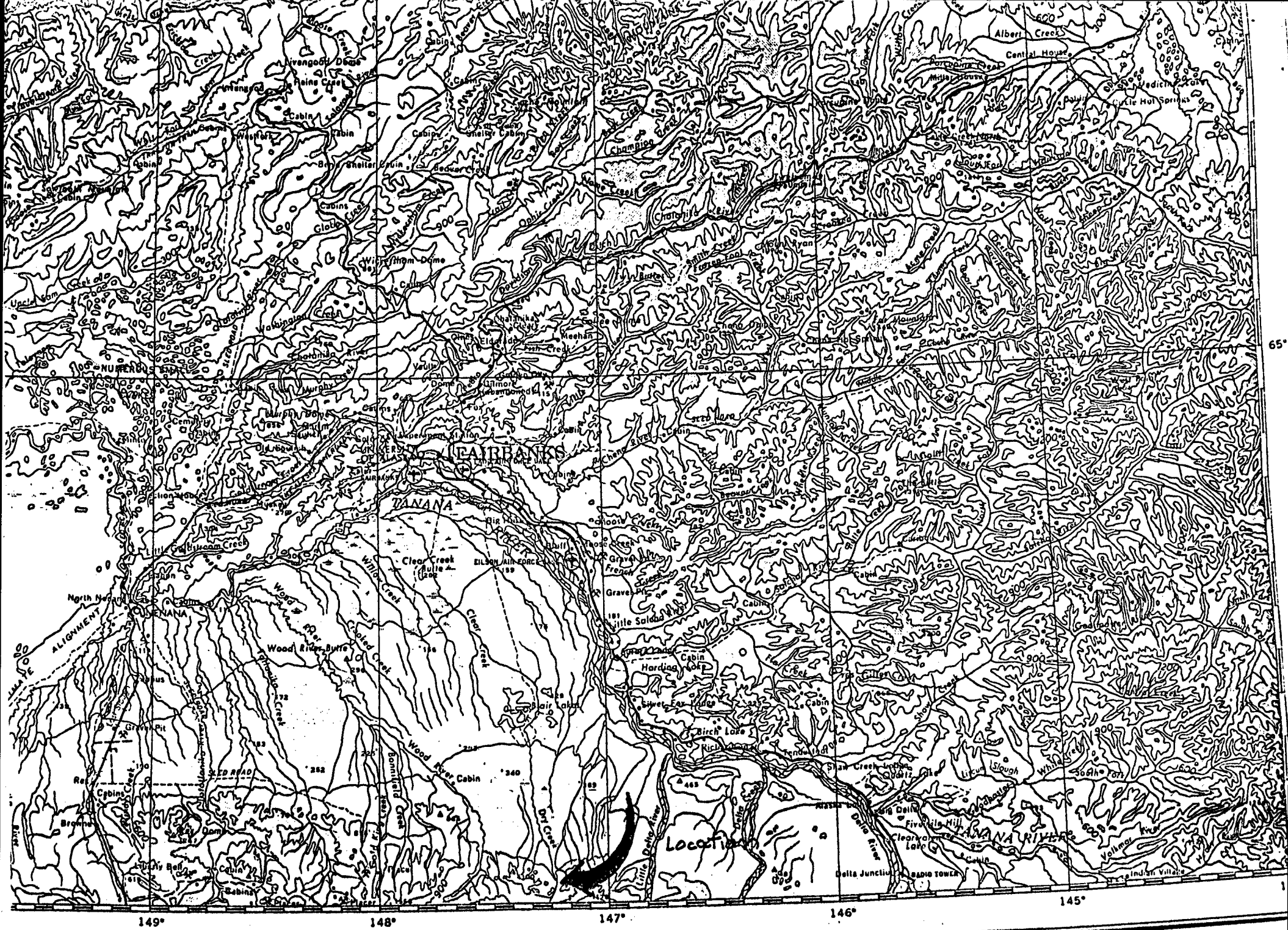
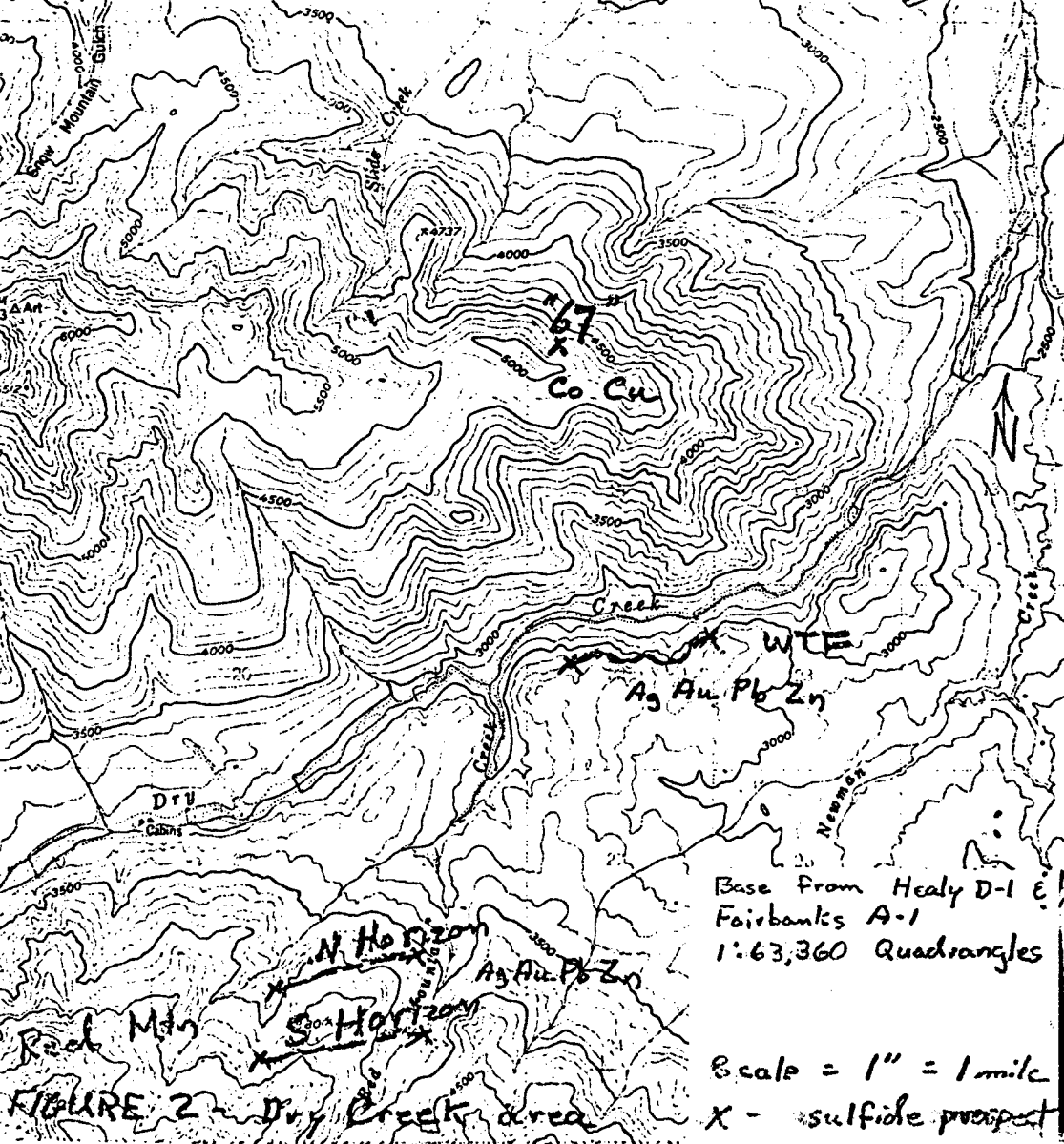
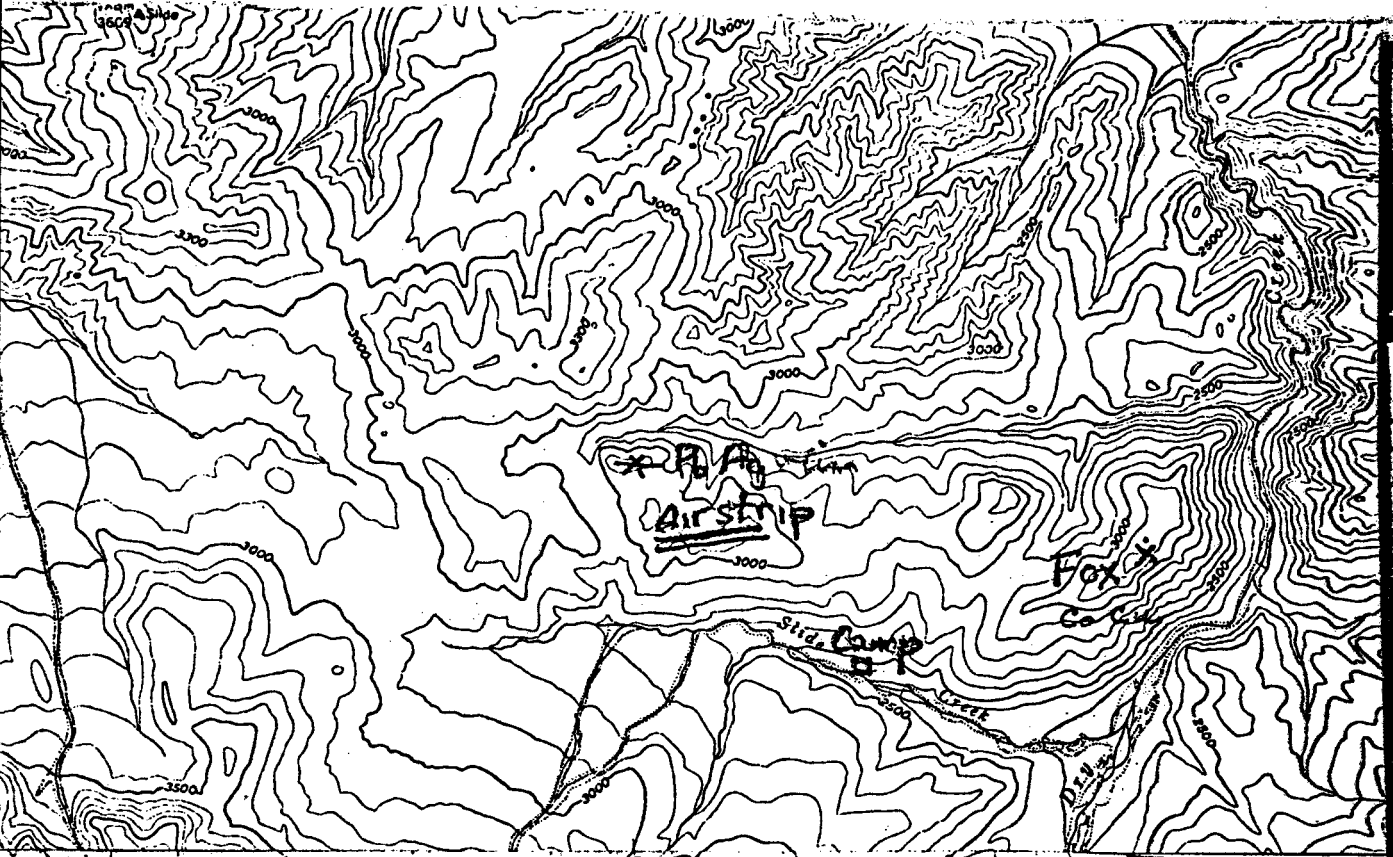


FIGURE 1 - Location Map



Base from Healy D-1 E.  
 Fairbanks A-1  
 1:63,360 Quadrangles

Scale = 1" = 1 mile  
 X - sulfide prospect

FIGURE 2 - Dry Creek area

E

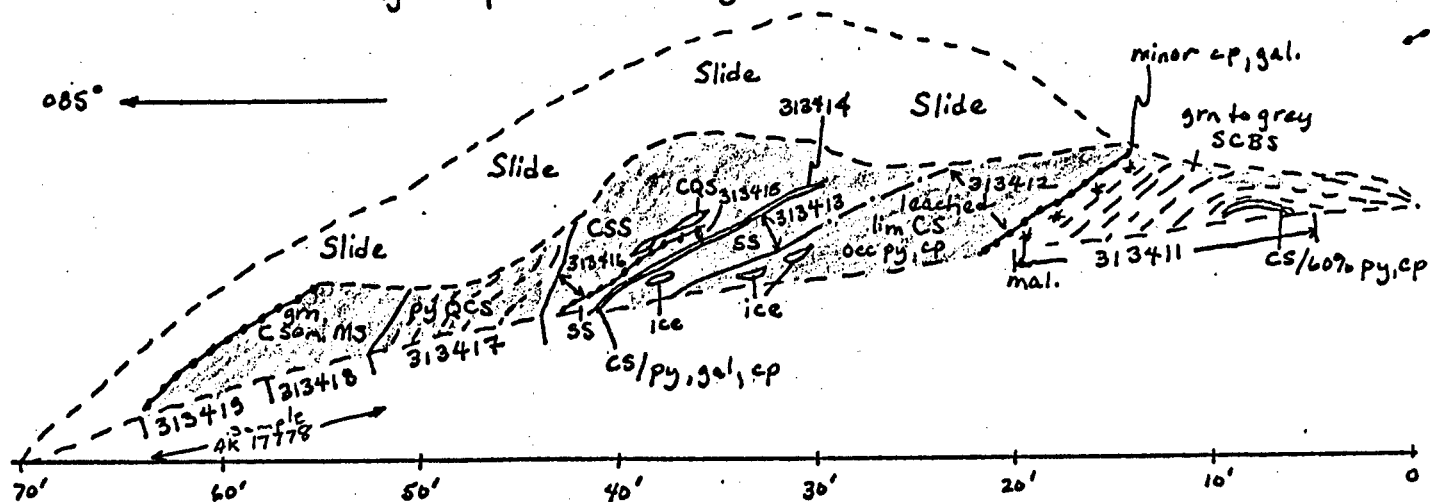
W

# Discovery Trench '67' Claim block, 1"=10'

## Looking South

Average strike of bedding = 130°  
Average dip of bedding = 32° E

- Massive sulfide to sulfide-rich mafic volcanic
- ▣ Rhyolite to dacite volcanics of the Misty Creek Member
- Sericite to chlorite black schist
- \* Malachite
- Ore Vein



	Cu	Pb	Zn	Ag	Au	Co	
313 411	1595	898	1269	10.8	0.01	32	ppm   Assay assay
412	1425	448	447	5.3	0.03	23	
413	1640	1728	1647	6.0	0.16	60	
414	2340	10575	1885	159	0.13	71	
415	1345	184	803	3.5	0.08	87	
416	1038	65	407	2.0	0.01	65	
417	955	76	292	1.8	0.01	33	
418	0.154	0.008	0.028	0.001	0.012	0.15	
419	0.189	0.010	0.021	0.001	0.018	0.15	

Geology and Sample Data  
Compiled by D. Gaard (RPA)

FIGURE B = TRENCH PROFILE



FIGURE 4a. Site of sample AK 17778 - ("67" prospect).

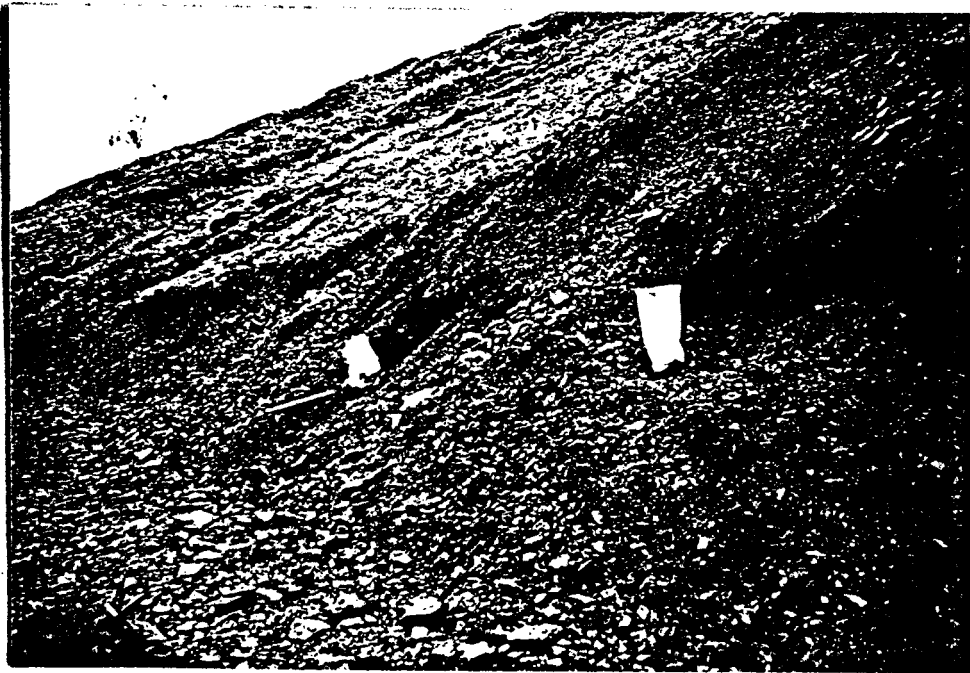


FIGURE 4b. Site of sample AK 17778 - ("67" prospect)



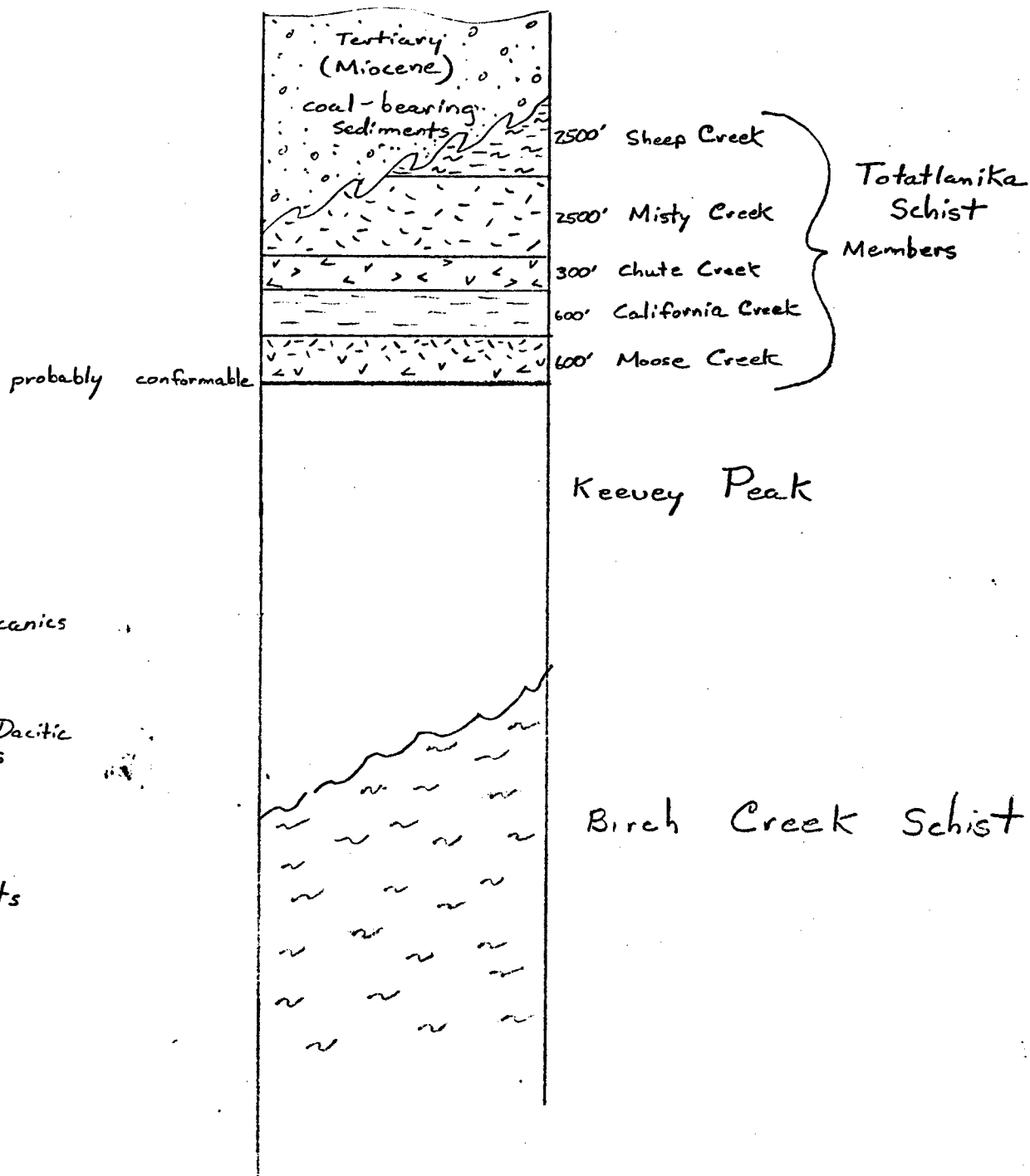


FIGURE 5 - Generalized Geologic Column of the Dry Creek Area.

