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COPY

E. N. PENNEBAKER
CONSULTING GEOLOGIST
P.O. BOX 817
SCOTTSDALE, ARIZONA

October 13, 1962

Mr. Paul C. Henshaw
Vice President Exploration
Homestake Mining Company
100 Bush Street
San Francisco 4, California

Dear Paul:

RE: Esperanza-Lone Star Claims
(Marriott Property)
Near Safford, Graham Co., Ariz.

On October 2 and 3, 1962, I examined the Esperanza-Lone Star claims situate about 10 miles ENE of Safford, Graham County, Arizona. This is a large group of unpatented lode mining claims apparently controlled by Harold Marriott of Miami, Arizona. They are located in the southeastern part of T6S, R27E, Salt River Base & Meridian.

In 1958 these claims were under lease and option to Kennecott Copper Corporation, and at that time Kennecott explored the ground by five diamond drill holes ranging from 1013 to 1940 feet in depth.

The Esperanza area is of interest because it lies about 5 miles southeast of Kennecott's low-grade Safford ore body, and a few miles northwest of the Safford deposit is the San Juan discovery of Phelps Dodge Corporation.

Bedrock in the Esperanza area is andesite intruded by a very fresh-looking porphyry. The area of exposed bedrock is limited because much of the nearby terrane is capped by thick flows of post-mineral basalt. Near drill hole No. 1 there is a strong showing of green copper minerals.

Drill hole No. 1 revealed a substantial amount of copper, as follows:

0 - 170 ft.....	Leached monzonite capping
170 - 440 ft.....	270' @ 2.05% Cu Cu oxide ore in monzonite
440 - 890 ft.....	450' @ 0.37% Cu Mixed oxides & sulfides in monzonite
890 - 1280 ft.....	390' @ .60% Cu Fairly clean sulfides below a depth of 1130 ft. In monzonite.

The other four holes flanked Hole No. 1 on the northwest and on the southeast and average only about 0.2% of total copper, mostly in andesite.

The core from this drilling is stored in a shed at the Safford airport. The boxes are not stacked in order, and they are in a dark room with no lighting. Consequently they must be carried out to be examined, and a proper study of the core would require several days.

I did examine pertinent sections of Hole No. 1 and determined three important facts, namely:

1. Partial oxidation extends to a depth of about 1100 feet. This causes metallurgical difficulties.
2. Mineralization is in a surprisingly fresh-looking porphyry carrying relatively large biotite spangles, and primary mineralization consists of tiny chalcopyrite grains in threads and minute patches of gray quartz.
3. There is no porphyry of this type occurring with Kennecott's Safford ore body.

I called on Annan Cook, who is in charge of Kennecott's Safford program. He was engaged in reviewing the project for a Peruvian geologist and invited me to listen in. Consequently I was able to examine geological and geophysical maps and ore body sections.

The mineralized zone is accompanied by a satisfactory IP anomaly surrounding the Safford ore body and extending northwesterly to cover PD's San Juan deposit. On the southeast it narrows in the Esperanza ground, includes Hole No. 1, and dies out very close to this hole.

A self-potential anomaly reflects the Safford ore body. At Esperanza the self-potential anomaly has a very small closure around Hole No. 1.

Therefore, successful geophysical and drilling results for the Safford ore body are in accord, as are also the unpromising anomalies and the poor drilling results at Esperanza.

Although the mineralization encountered in Hole No. 1 might escape laterally and lead to an ore body, such a possibility is highly speculative and at variance with the foregoing. Consequently I do not recommend that the Esperanza be acquired.

A much fuller examination of this project could be made, including a careful study of the core. However, in view of the facts now available, this does not appear to be warranted. Furthermore the

economics of this very low-grade district with deep oxidation and poor metallurgy (85% recovery) coupled with a high stripping ratio is not promising for a return of capital within a reasonable period. In line with this, I am confidentially informed that Kennecott is seriously considering pulling out and letting their Safford project wait for the future.

Yours very truly

E. N. Pennebaker

ENP:mc

C O P Y

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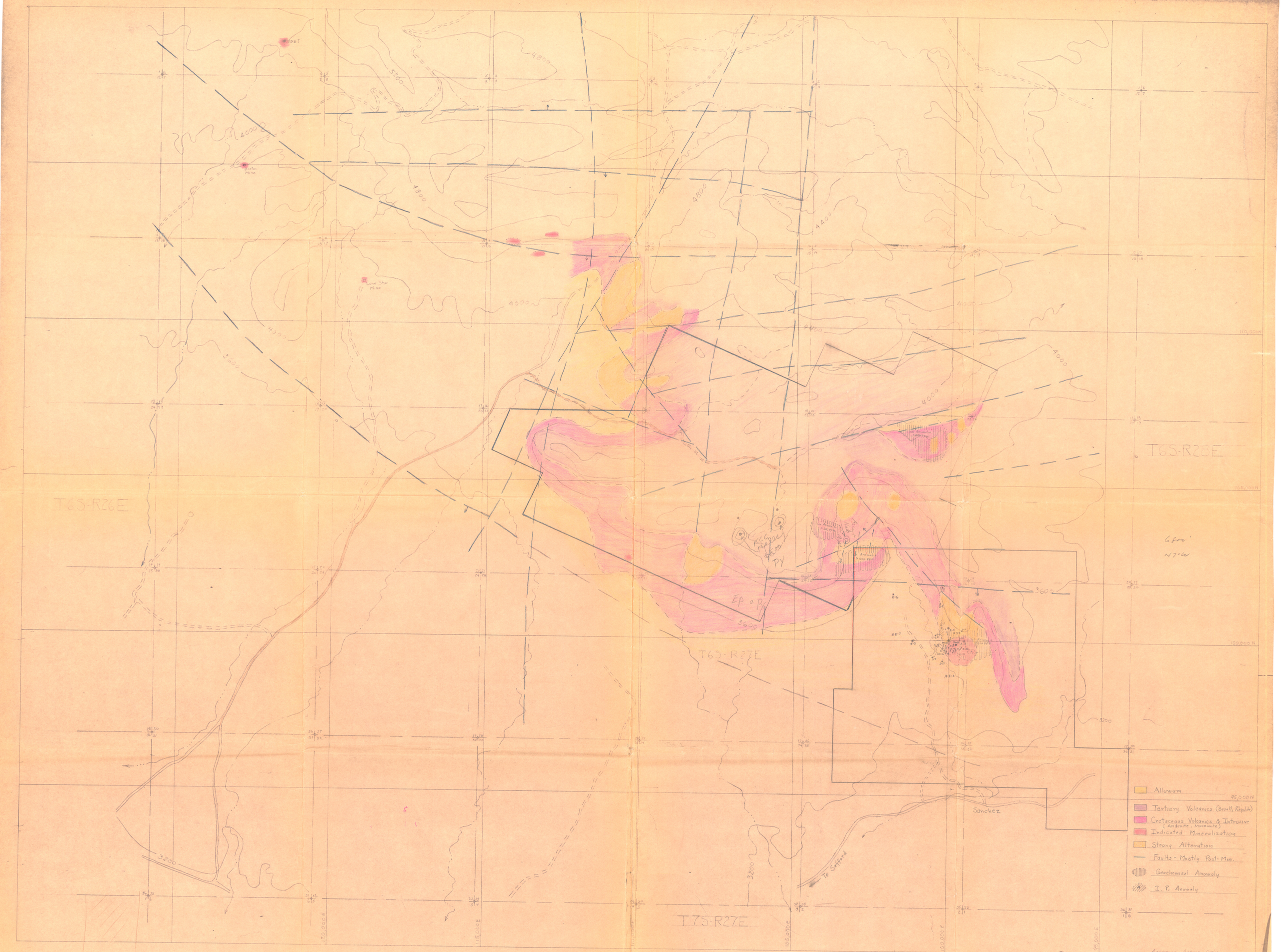
E. N. Pennebaker

ENP:mc

REVISIONS	SURVEY-	DATE	CERRO DE PASCO CORPORATION	BLOCK-
	GEOLOGY-	DATE	Carpentier Prospect, Sanchez, Ansona	
	DRAWN- S.B.K.	DATE 3/2/58	Claim Map	DRAWING NUMBER-
	TRACED-	DATE	SCALE- 1" = 1000' COORD.- DATUM-	

Form - N

SAFFORD CLAIMS
ESPERANZA



T6S-R26E
T6S-R27E
T6S-R28E
T7S-R27E
Lone Star Mine
Sanchez
To Safford
Alluvium
Tertiary Volcanics (Basalt, Rhyolite)
Cretaceous Volcanics & Intrusive (Andesite, Monzonite)
Indicated Mineralization
Strong Alteration
Faults - Mostly Post-Min.
Geochemical Anomaly
I. P. Anomaly
Accuracy Approx. Only
REVISIONS
SURVEY - DATE
GEOLOGY - DATE
DRAWN - S.B.K. DATE 3/2/65
TRACED - DATE
CERRO DE PASCO CORPORATION
Carpenter Prospect, Sanchez, Arizona
Topographic and Geologic Plan
SCALE - 1" = 1000'
COORD. -
DATUM -
BLOCK -
DRAWING NUMBER

CARPENTER AREA GEOL