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9/23/70

Ariz Star



JEK - Red with file
Santa Cruz Co.

Make KEM file for copy

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 26, 1968

TO: W. E. Saegart
FROM: J. E. Kinnison

RED MOUNTAIN EXPLORATION
KERR-McGEE, SANTA CRUZ COUNTY, ARIZONA

INTRODUCTION

Kerr-McGee, who has been drilling in the subject area for the past several years, has given us exploration maps and drill logs of Red Mountain, situated slightly to the northeast of our old Flux Mine. They propose a joint venture and further drilling. Informal conversation of recent date with their geologist in charge of the southwest, Russell Korn, indicates terms along the following lines: We could obtain a 50% interest by spending an amount equal to that which Kerr-McGee has already invested. By exceeding this amount, we can also obtain a controlling interest and thereby operating control.

The Red Mountain alteration zone has been known to Asarco for many years. The alteration is strong, but appears to be pyritic in its general nature. The principal area drilled out is confined to the western slope, in and adjacent to a molybdenum anomaly. Mr. Korn states this area-- about 6,000 x 3,000 feet-- contains numerous thin quartz stringers and intense sericite alteration. Kenyon Richard, in his report on the Sunnyside Breccia Pipe area south of Red Mountain (1951) indicates several very small breccia pipes on the western slope, although some lie outside of the molybdenum anomaly.

The geologic and topographic features are generalized on the attached map, with a cross-section through the area of principal interest.

There is a reasonable probability that Paleozoic limestones lie beneath Red Mountain. These limestones might have been better host rocks for mineralization than the volcanics and porphyry above which grade about .2% copper. Thus, this very low-grade copper might be increased to about .9% copper, perhaps similar to Mission in grade and tonnage. The point now is one for management to determine--is Asarco interested in the expensive exploration required in searching for possible deep ore--which in this case I estimate to begin at a depth of 2,500 to 3,500 feet? I should point out that there is no certainty that the Paleozoic limestones, if found beneath Red Mountain, would be raised to a grade approaching 1% because of being better host rocks.

I estimate drilling and related costs to be \$110,000 for two holes. Also, we would have to pay part of an annual claim rental, as Mr. Saegart has discussed in his transmittal statement.

DISCUSSION

Kerr McGee has drilled three deep diamond drill holes which will average about .2% copper, in various igneous rocks. These holes all were bottomed at approximately the same depth, which is about 1,000 feet below the elevation of the town of Patagonia, to the North. The majority of their drill holes are confined to that area within or adjacent to the molybdenum anomaly on the western slope of Red Mountain. Elsewhere, their holes are in small scattered groups, each group testing a particular area thought by them to represent better mineralization.

In the deep holes, I see no progressive increase in grade with increasing depth--which is the proposition put forth to us. There is, however, a quite different objective in searching for the Paleozoic limestones.

For reference I have used J. H. Courtright's report on the Flux Mine and Kenyon Richard's report on the Sunnyside areas, both done in 1951. Mr. Courtright recognized an important unconformity between Pre-ore low-dipping volcanics near the Flux, and steeply dipping Cretaceous sediments beneath. This unconformity dips toward, and must lie below, Red Mountain.

As I have shown on the attached map with cross section (compiled from Courtright's data), this unconformity should extend below Red Mountain, although the depth to it and its actual depth at any location can only be inferred. The Paleozoic limestones should lie within the alteration zone beneath the altered volcanics of Red Mountain, and they have not been penetrated by Kerr McGee's drill holes. These limestones could be better host for primary mineralization, as they are at Mission and Imperial.

This is a valid exploration objective, but it is inhibited at the very beginning by the drilling depth required to locate the unconformity, and determine what rocks lie beneath it. Taking advantage of topography, I have selected two principal drill locations and one alternate location, which are lower at the drill site collar than the collar elevation of the Kerr McGee deep holes. The depth of drilling which we would have to anticipate lies between 2,500 to 3,500 feet. I have discussed this with Mr. Wojcik and we have determined that several methods of drilling are available for these depths in these rocks, but that all methods average out to about \$15 per foot assuming 3,500 feet total depth. This cost includes direct contract cost, water, overhead, supervision, and other miscellaneous expenses. The technical details will not be listed at this time.

A simplified tabulation of estimated expense is:

Road work	\$ 1,000
Engineering and geology.....	4,000
Drilling to 3,500 feet, 2 holes	<u>105,000</u>

TOTAL	\$ 110,000
-------	------------

Mr. Saegart,

3,

7/26/68

The uncertainties for this exploration are numerous. The most critical are as follows:

1. The depth to the unconformity, below which the Paleozoic limestones would lie is not known, nor can it be confidently projected. Surface mapping by Mr. Courtright in the Flux Area indicated a dip on this surface of about 50°, but he has pointed out that drill holes, put down many years after his report, intercepted this unconformity at a more shallow depth than a 50° projection would indicate, thus suggesting that the unconformity flattens in the direction of Red Mountain. This would be in accordance with the more shallow dips of the Wieland Canyon andesite, which is about 20° northeast. This lower angle of dip is shown in the cross section on the attachment.

2. The Cretaceous section is not well known, at the Flux or anywhere else in southern Arizona, and we do not know the stratigraphic position of the beds at the Flux Mine with respect to the base of the Cretaceous. However, the same thickness is indicated both at the Flux and also near Hardshell. The outcrops show in the Hardshell group of claims (att.) that the Cretaceous beds lie on the Paleozoic strata near American Peak, in the southern part of the claims.

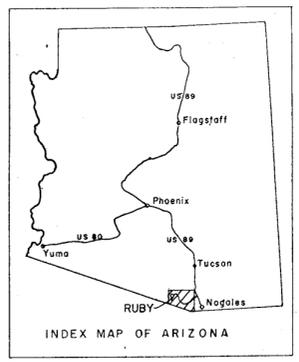
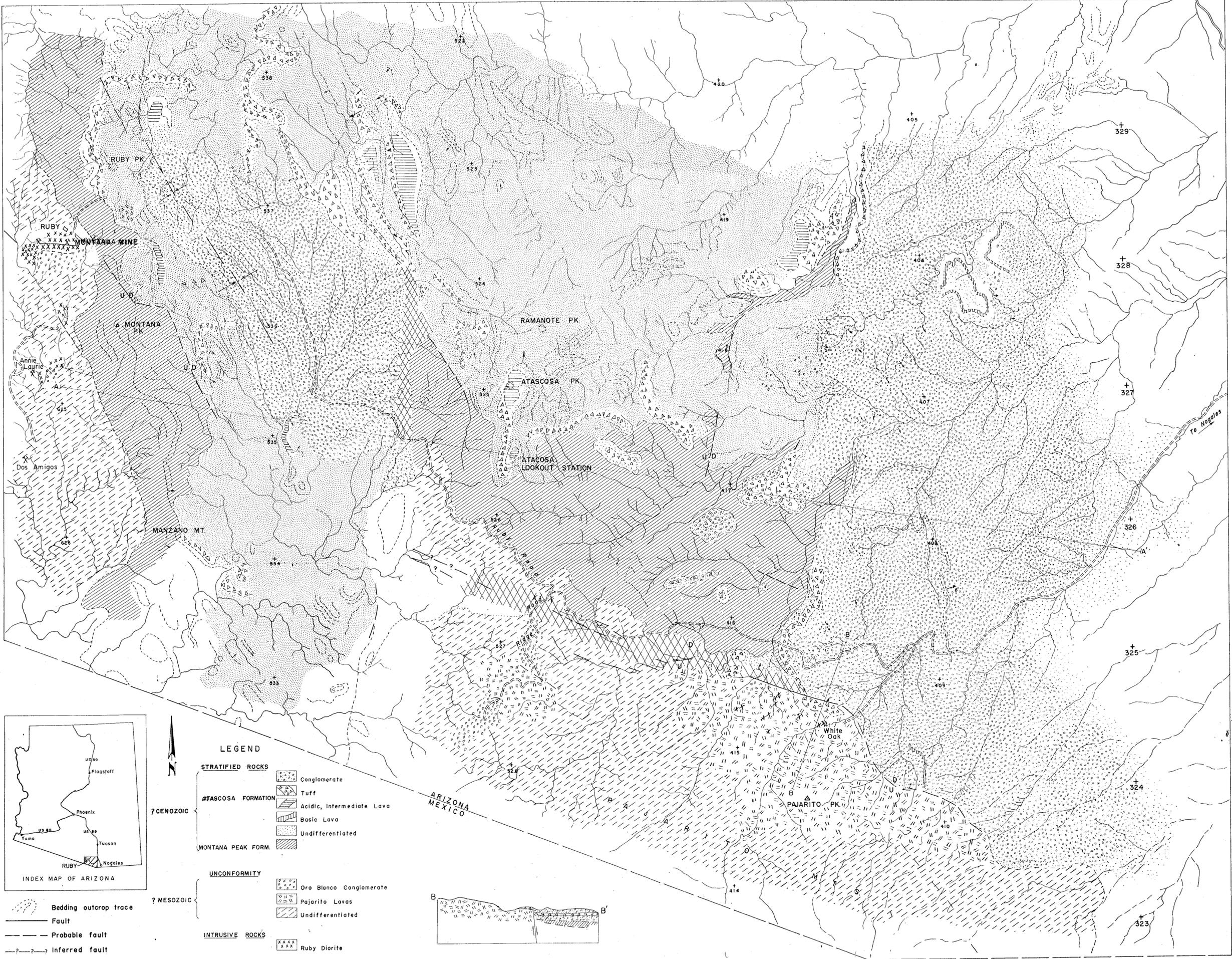
3. The entire Paleozoic section, or parts thereof, may have been removed by intrusive rocks.

4. Unknown faults that could occur anywhere beneath the unconformity may duplicate the Cretaceous section in the Red Mountain Area.

5. There is no guarantee that the Paleozoic limestones would have been more receptive to copper mineralization in the Red Mountain Area. Many tactite deposits are spotty and low-grade. Our Mission and Imperial ore bodies are exceptions.


John E. Kinnison 

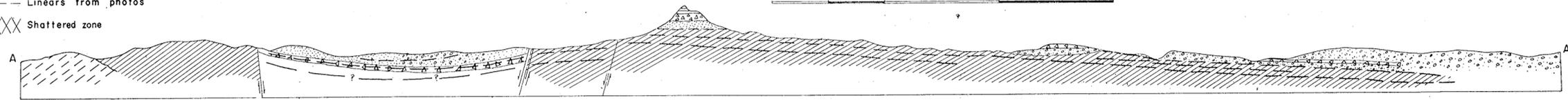
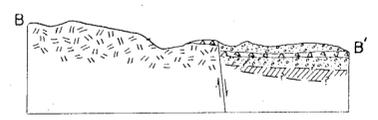
JEK:lab
Attachment
cc: JHCourtright
WESaegart (2) extra



? CENOZOIC
 ? MESOZOIC

- LEGEND**
- STRATIFIED ROCKS**
- Conglomerate
 - Tuff
 - ATASCOSA FORMATION**
 - Acidic, Intermediate Lava
 - Basic Lava
 - Undifferentiated
 - MONTANA PEAK FORM.**
 - Undifferentiated
- UNCONFORMITY**
- Oro Blanco Conglomerate
 - Pajarito Lavas
 - Undifferentiated
- INTRUSIVE ROCKS**
- Ruby Diorite

- Bedding outcrop trace
- Fault
- Probable fault
- Inferred fault
- Linears from photos
- Shattered zone



RECONNAISSANCE GEOLOGIC MAP
RUBY QUADRANGLE, ARIZONA

PLATE I

Prepared by the U.S.A.E.C.
Division of Raw Materials
1953, By BPW and KCC

*John B. Stewart
Tucson, Ariz*

extra

JEKinnison

Aa-19.18.0A

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 30, 1968

J. E. K.

Mr. John J. Collins, Chief Geologist
ASARCO - New York Office

AUG 06 1968

Red Mountain - Kerr-McGee Mng. Co.
Santa Cruz County, Arizona

Dear Sir:

The local exploration staff of Kerr-McGee have proposed a joint exploration program for a deep drilling test of their Red Mountain property near Patagonia in Santa Cruz County, Arizona. Kerr-McGee has been drilling in this area for a number of years in an effort to develop copper reserves in the siliceous rocks which are locally exposed. This exploration has defined large tonnages of 0.2% copper (primary). In addition, they have developed a thin enriched chalcocite blanket underlying a rather thick leached zone. The net result is a relatively small tonnage of ore in the enriched zone and a large waste to ore ratio which inhibits exploitation.

The Kerr-McGee geologists have provided us complete data covering their Red Mountain exploration to date. This information has been evaluated and summarized in the attached memorandum from J. E. Kinnison. The exploration objective for a joint exploration program, as suggested by Kerr-McGee, would be to test for better mineralization in the paleozoic carbonate sequence which may underlie the area.

The Flux Mine is located a little more than a mile southwest of the area containing Kerr-McGee's extensive drilling. Cretaceous sediments in the Flux Mine area dip steeply to the southwest and are unconformably overlain by tertiary volcanics which dip gently to the northeast. As shown on the diagrammatic section accompanying Mr. Kinnison's memo, this unconformity dips beneath Kerr-McGee Red Mountain prospect area. Paleozoic limestones should therefore exist beneath the unconformity within the large area of hydrothermal alteration in the exposed siliceous volcanic and intrusive rocks.

The depth to the unconformity surface in the Red Mountain area cannot be accurately predicted. We would hope that these underlying rocks could be intersected at depths between 2500' and 3500' in drill holes located between Red Mountain and Alua Gulch.

This proposal represents exploration in the "long shot" category because the proposed target is only inferred to exist through geological projection and because of the depth involved. On the positive side, the Red Mountain area exhibits a very large zone of pervasive alteration and mineralization. If the carbonate rocks underlie this zone within reasonable depths they would constitute a favorable environment for ore grade concentrations of chalcopyrite.

Mr. Collins,
Red Mtn. - Kerr-McGee

-2-

7-30-68

The Kerr-McGee Red Mountain property consists of 130 Kerr-McGee locations and 215 claims on which they hold lease-options. The leases carry 5% net mine value royalties and annual rentals totalling approximately \$30,000. These leases contain 10 and 20-year options to purchase (until 1975 and 1985). The total upset price on all 215 claims is approximately \$1,500,000.

The offer which has been proposed by Kerr-McGee would permit ASARCO to obtain up to a 50% equity interest or more, depending upon the extent of exploration monies expended. To date, Kerr-McGee has spent between \$200,000 and \$300,000 exploring this property. By matching this total, ASARCO could obtain a 50% interest. The initial commitment by ASARCO could be for a lesser amount with provisions for additional subsequent expenditures until the Kerr-McGee's total is matched.

In addition to an exploration commitment, ASARCO would also be obligated to share the annual rental payments on the leased claims. The assessment work for 1968 has already been completed.

Mr. J. H. Courtright was present during our initial discussions with the local Kerr-McGee staff. He and I both feel that although the risk is high the exploration objective offers the possibilities of large rewards. We believe that two deep holes would constitute a bare minimum test for the objectives which have been described above. Mr. Kinnison has plotted locations (in red) for two holes to test for mineralized sediments beneath the unconformity. The cost of these holes is estimated at \$110,000. One-half of the 1968 rental payments amounts to approximately \$15,000. The total initial commitment then for one year would be \$125,000.

If ASARCO is interested in a joint venture with this general framework and if you agree that this exploration objective is valid, we will proceed to draft an agreement with Kerr-McGee. The basic underlying data including Kerr-McGee drilling results, surface geochemical sampling, mapping, property maps and individual lease option agreements are available and can be transmitted in the event ASARCO wishes to become involved in this exploration program.

Yours very truly,

WES:Iml
encl.

W. E. Saegert

cc: JHCourtright, w/encls
JEKinnison

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 30, 1968

J. E. K.

AUG 06 1968

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ASARCO - New York OfficeRed Mountain - Kerr-McGee Mng. Co.
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Yours very truly,

WES:lm
encl.

W. E. Saegart

cc: JHCourtright, w/encls
JEKinnison

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

August 5, 1968

J. E. K.

AUG 06 1968

Mr. C.P. Pollock
American Smelting and Refining Co.
120 Broadway
New York, New York 10005

PROPOSED KERR-McGEE JOINT VENTURE,
SANTA CRUZ COUNTY, ARIZONA

Dear Sir:

This is in reference to my letter to Mr. J.J. Collins dated July 30 and our telephone conversation of August 1st concerning the subject Joint Venture. The possibilities of an Asarco Kerr-McGee Joint Venture at Red Mountain have been further explored with Messrs. Zeb Jones and Russel Korn, local representatives of Kerr-McGee.

A Joint Venture incorporating the terms as prescribed below, has been verbally authorized by Kerr-McGee's principal office in Oklahoma City.

PROPOSED RED MOUNTAIN JOINT VENTURE TERMS:

Kerr-McGee's exploration expenditures to date total \$300,000. With an expenditure of \$450,000 Asarco would earn a 60% equity in the property, with Kerr-McGee retaining a minority 40% equity. Asarco could earn this equity over a three year exploration period by making the following expenditures:

1st year.....	\$100,000 or more
2nd year.....	\$100,000 or more
3rd year.....	Balance of \$450,000 total expenditure.

We would have the right to terminate the agreement any time during the three year exploration period with a 30 day written notice providing that the minimum exploration commitment for that year had been satisfied.

The annual rentals for the 215 claims under lease-option to Kerr-McGee total approximately \$30,000. Asarco would be obligated to pay 60% of these rentals during each year that the Joint Venture is in effect.

During the three year exploration period, Asarco would be responsible for the performance and recordation of assessment work on all of the claims included in the Joint Venture agreement. These would include 130 Kerr-McGee locations, 215 claims on which Kerr-McGee holds valid lease-options and 12 Asarco locations which comprise the balance of our Flux property. Prior to this

August 5, 1968

Joint Venture proposal by Kerr-McGee, the Southwestern Mining Department and the Southwestern Exploration Department had jointly decided to abandon the remaining Flux claims. Since they are contiguous with the Kerr-McGee property and since the Joint Venture minimum exploration commitments are more than adequate to complete the assessment work requirements, we have incorporated the Flux claims into the Joint Venture property.

Following the \$450,000 expenditure by Asarco during the exploration period, expenditures for exploration, property or development would be shared by Asarco and Kerr-McGee on a 60-40 basis. Profits of course would also be divided with the same percentages.

The agreement would include a provision whereby property acquired or located by either company within the immediate vicinity of the existing claim groups would automatically be subject to the terms of the Joint Venture agreement. The area which would be affected by this provision would include all of sections 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33 and 34 in T22S, R16E and all of sections 12, 13, 24, 25, and 36 in T22S, R15E. If the Joint Venture continues beyond the three year exploration phase, the two companys by mutual agreement could reduce the acreage included in this provision.

A draft agreement incorporating the Joint Venture provisions described herein is to be prepared by Kerr-McGee for Asarco's preliminary examination. This draft will be forwarded to you together with our comments and recommendations.

Very truly yours,



W.E. Saegart

WES:lzb

cc: JHCourtright
SIBowditch
JEKinnison 