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August 29, 1974

*Get data on Property*

Mr. Siegfried Muessig  
Getty Oil Company  
3810 Wilshire Blvd.  
Los Angeles, California 90010

Dear Mr. Muessig:

Thank you for your letter of August 26, 1974 regarding the Boss-Bixby copper-iron deposit.

This is to advise you that we shall review your proposal with the intent of replying to you within a few weeks.

As to the business relationship in the development of the ore body, I would prefer deferring any comments until we have first established our interest in the property.

Thank you for submitting this proposal. I can assure you I shall reply after we have had an opportunity to review the merits of the project.

Very truly yours,

Howard Lanier  
Vice President & General Manager  
Metallurgical & Mining Division

HL:cb

cc: Bob Holt  
Don Bellum



Getty Oil Company | 3810 Wilshire Boulevard, Los Angeles, California 90010 • Telephone: (213) 381-7151

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Minerals Exploration Department Siegfried Muessig, Manager

August 26, 1974

Mr. Howard Lanier, Vice President  
Metallurgical and Mining Division  
Essex International, Inc.  
1501 Wall Street  
Fort Wayne, Indiana 46804

Dear Mr. Lanier:

Some months ago your Mr. Eimon was in our office to review data pertaining to the Boss-Bixby, Missouri, copper-iron deposit and to discuss the possibility of your company entering into an arrangement whereby Essex would have the right to purchase all the copper production from the ore body.

The ore body is owned through a joint venture comprising Getty Oil Company (51% and operator), AZCON Corporation (24-1/2%), and Granite City Steel (24-1/2%). Total reserve is approximately 40 million tons @ 0.83% copper and 18% iron, mostly as magnetite. An engineering study by Consolidated Gold Fields indicates that about 31.7 million tons of ore is recoverable from underground at an average grade of about 0.76% Cu.

Additional exploration, development, metallurgical work, and mining tests should be conducted underground. Funding of \$3,000,000 to \$4,000,000 is needed for a 3000 foot shaft, underground workings, core drilling, and other work. Preliminary studies show 87.8% copper recovery with a concentrate grade of 25% copper, a separate magnetite concentrate containing 70% Fe that probably would be sold to Granite City Steel, and a 9000 ton per day plant. This would produce 117,000 pounds of copper per day or about 20,500 tons of copper per year. A 1973 study, which estimated a copper price of 66 cents in 1973 increasing to 90 cents in 1989, resulted in a discounted rate of return of 13.7%.

If Essex is interested in the possibility of securing a copper supply from the Boss-Bixby deposit, we would be willing to discuss an arrangement with you and suggest the following general outline as the basis for such arrangement:

1. Essex would provide approximately \$4 million needed to complete the underground exploration and feasibility studies.
2. Essex would commit to purchase all copper produced at a price to be negotiated. Essex would recoup its investment through a discount from the copper price.



Mr. Howard Lanier

-2-

August 26, 1974

3. Essex would guarantee a floor price for copper; if such floor price is lower than the market price at time of delivery, the benefits would be divided between Essex and the owners.

We would be pleased to have your reaction to our proposal.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Smunig".

SM:jj

cc: Messrs. Paul Eimon  
A. E. S. Schmid  
N. P. Veeder

*Sent City, mo.*

November 1, 1974

Dr. Siegfried Muessig  
Manager of Exploration Dept.  
Getty Oil Co.  
3810 Wilshire Blvd.  
Los Angeles, Calif. 90010

Re: Boss-Bixby Deposit

Dear Sieg,

As you may know, Essex recently cut back on its exploration efforts and only a few of the staff remain. Paul Eimon, who left Essex on Aug. 20, 1974, has rejoined us as a consultant.

In reviewing the correspondence file between you and Howard Lanier, it seems to me that an explanation of the present Essex situation is in order, particularly regarding your Boss-Bixby deposit.

At the present Essex is marking time and not getting involved in any new projects. The Safford project is our only major continuing effort and we have been discussing with others the possibilities of joint venturing this. In view of all this we cannot for the immediate future continue serious discussions regarding a possible participation and financing arrangement on your deposit. We do not want to irrevocably slam the door forever, however, we do want you to feel free to negotiate with others as you see fit.

When our situation here changes, we may be calling on you again. Thank you for the courtesies extended, and I hope to see you if you make it to the Arizona AIME meeting in December.

Very truly yours,

E. Grover Heinrichs  
Assistant Mgr. of Exploration

EGH:td

cc: P.W. O'Malley

# ESSEX

ESSEX INTERNATIONAL, INC.  
METALLURGICAL & MINING DIVISION  
1550 WALL STREET, FORT WAYNE, INDIANA 46804 • PHONE: (219) 743-0311

August 29, 1974

*9/6/74  
to  
Remind me to  
ask Bob Holt about  
this next week  
RH*

**SXM**

**SEP 3 1974**

**RECEIVED**

Mr. Siegfried Muessig  
Getty Oil Company  
3810 Wilshire Blvd.  
Los Angeles, California 90010

Dear Mr. Muessig:

Thank you for your letter of August 26, 1974 regarding the Boss-Bixby copper-iron deposit.

This is to advise you that we shall review your proposal with the intent of replying to you within a few weeks.

As to the business relationship in the development of the ore body, I would prefer deferring any comments until we have first established our interest in the property.

Thank you for submitting this proposal. I can assure you I shall reply after we have had an opportunity to review the merits of the project.

Very truly yours,

Howard Lanier  
Vice President & General Manager  
Metallurgical & Mining Division

HL:cb

cc: Bob Holt  
Don Bellum

NOTES ON THE  
BOSS-BIXBY COPPER DEPOSIT  
Dent County, Missouri

Owners:

Getty Oil Company            51%  
Azcon Corporation            24½%  
(American Zinc Company - Consolidated Goldfields of London.)  
Granite Cities Steel Division of National Steel Company - 24½%

Ore Reserve:

Total reserve approximately 40,000,000 tons @ 0.83% copper, 18% Fe mostly as magnetite, 0.035% cobalt that may not be recoverable, and about 10¢ in gold and silver. Consolidated Goldfields' engineering staff estimates 31,700,000 tons available to underground mining methods would average with dilution included 0.76% Cu.

History:

American Zinc Company made discovery, and spent about \$600,000 in exploration on basis of magnetic anomaly in 1956(?). National Steel has also spent similar amount. Newmont was involved briefly then dropped out after contributing some drilling. Getty entered in November 1969 and conducted drilling program until October 1973. Expenditure to date totals approximately \$4,000,000. Cerro recently made a proposal to finance continued development but wanted equity in the property which none of the owners are willing to give up.

Plans:

Additional exploration, development, metallurgical samples, and mining tests should be conducted underground. Funding of \$3,000,000 to \$4,000,000 is needed for a 3000 foot shaft, underground workings, core drilling, and other work. Owners at this time are unwilling to provide this funding. Preliminary studies show 87.8% copper recovery with a concentrate grade of 25% copper, a separate magnetite concentrate containing 70% Fe that probably would be sold to National Steel, and a 9000 ton per day plant. This would produce 117,000 pounds of copper per day or 4680 tons of copper per year. A 1973 study which estimated copper price of 66 cents in 1973 increasing to 90 cents in 1979 resulted in a discounted rate of return of 13.7%.

Geology:

Mineralization occurs in steeply dipping pre-Cambrian volcanic rocks which are cut by gently dipping granite dikes. Strongest mineralization occurs in a tabular breccia which is adjacent to a contact with unmineralized volcanics. Mineralization gradually weakens toward the hanging wall or away from the breccia and sharp contact. The granite dikes are coarse grained, lack chilled edges, and are unaltered and unmineralized except for rare included blebs of mineral thought to have been picked up from the enclosing rocks. Mineralization falls beneath or at least near a granite dome or ancient topographic high which is covered by Paleozoic sedimentary rocks. Base metal mineralization is known in the Paleozoics but has not been developed. Getty geologists are reluctant to classify the deposit but tend toward calling it a pre-Cambrian variety of porphyry copper. However, some of the features present such as the sharp limit to mineralization on one side, the tabular breccia and its occurrence in volcanics could easily fit the concept of a volcanogenic massive sulfide deposit. Magnetite is not common in these types of deposits so some means of converting what must have originally been pyrite to magnetite is necessary to support a volcanogenic thesis of origin. The bottom of the deposit has not been determined and additional reserves probably could be developed below a depth of 4000 feet.

Possible deal:

Sig Muessig, Exploration Manager for the Getty Oil Company Minerals Division, made the following proposal as a possible basis for Essex participation.

1. Essex will provide \$3 to \$4 million needed to complete the exploration and feasibility studies.
2. Essex will be able to purchase all copper produced at a discount to be negotiated. When the Essex investment is paid off the discount will be discontinued, but Essex will continue to receive the copper production.
3. Essex will guarantee a floor price for copper and will divide any increase above this price with the owners.
4. If mine has not been put into production in a time interval to be specified Essex money will be refunded.
5. Owners may want to restrict participation by Essex to the pre-Cambrian copper-magnetite occurrence and retain the right to explore and develop separately a possible bedded orebody in overlying Paleozoic sediments.

Such a proposal would have to be discussed and approved by other owners.

J.K. Jones

March 27, 1974

JKJ:td



Getty Oil Company | 3810 Wilshire Boulevard, Los Angeles, California 90010 • Telephone: (213) 381-7151

Minerals Exploration Department Siegfried Muessig, Manager

*SM*

August 26, 1974

**EXM**

Mr. Howard Lanier, Vice President  
Metallurgical and Mining Division  
Essex International, Inc.  
1501 Wall Street  
Fort Wayne, Indiana 46804

**AUG 28 1974**

**RECEIVED**

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If Essex is interested in the possibility of securing a copper supply from the Boss-Bixby deposit, we would be willing to discuss an arrangement with you and suggest the following general outline as the basis for such arrangement:

1. Essex would provide approximately \$4 million needed to complete the underground exploration and feasibility studies.
2. Essex would commit to purchase all copper produced at a price to be negotiated. Essex would recoup its investment through a discount from the copper price.



Mr. Howard Lanier

-2-

August 26, 1974

3. Essex would guarantee a floor price for copper; if such floor price is lower than the market price at time of delivery, the benefits would be divided between Essex and the owners.

We would be pleased to have your reaction to our proposal.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Smunig".

SM:jj

cc: Messrs. Paul Eimon ✓  
A. E. S. Schmid  
N. P. Veeder



coarse grained, lack chilled edges, and are unaltered and unmineralized except for rare included blebs of mineral thought to have been picked up from the enclosing rocks. Mineralization falls beneath or at least near a granite dome or ancient topographic high which is covered by Paleozoic sedimentary rocks. Base metal mineralization is known in the Paleozoics but has not been developed. Getty geologists are reluctant to classify the deposit but tend toward calling it a pre-Cambrian variety of porphyry copper. However, some of the features present such as the sharp limit to mineralization on one side, the tabular breccia and its occurrence in volcanics could easily fit the concept of a volcanogenic massive sulfide deposit. Magnetite is not common in these types of deposits so some means of converting what must have originally been pyrite to magnetite is necessary to support a volcanogenic thesis of origin. The bottom of the deposit has not been determined and additional reserves probably could be developed below a depth of 4000 feet.

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4. If mine has not been put into production in a time interval, a consideration to Essex will be made.
5. Owners may want to restrict participation by Essex to the pre-Cambrian copper-magnetite occurrence and retain the right to explore and develop separately a possible bedded orebody in overlying Paleozoic sediments.

Such a proposal would have to be discussed and approved by the other owners.

J.K. Jones  
April 11, 1974



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