

Initials: HL

File Name: 41825

Commodity: Pb Zn Ag Cd

Country: USA

State/Province: NEVADA

County: EUREKA

Project: Mt. HOPE ZINC PROSPECT

Date: 12/10/1942

Title/Subject: MEMORANDUM brief report,
ORE RESERVES.

Notes: Geologic MAP & STOPE MAP

Oversize Doc(s)

 Assay Data

 Log(s)

Map Scale:

T: 22N

R: 51.5E

S: 13

MEMORANDUM - MR. R. N. HUNT

December 10, 1942.

Re: Mt. Hope Zinc Pros-
pect, Eureka Co., Nev.

Exploration work at the Mt. Hope property has disclosed a number of exposures of low-grade zinc ore. This work, however, is not sufficiently complete to permit a very comprehensive prediction as to the ultimate ore resource of the property, except that it is probably not extensive in terms of a permanent or long-lived producer. However, in the limits of the No. 1 adit workings several ore occurrences are noted which under existing conditions of zinc metal shortages might prove to be of importance.

At the outset it must be emphasized that all subsequent comments are based upon an assumption that the potential zinc metal at Mt. Hope is of sufficient interest and importance now to justify payment for that metal at a price above the present combined ceiling of 9-1/4¢ and premium of 2-3/4¢ a pound. Unless an additional 5¢ or more a pound may be obtained, production may not be undertaken. The principal condition justifying consideration of the project now is that it appears possible that a significant metal production may be obtained therefrom with a minimum requirement of new machinery and plant. The most logical plan of production entails shipping crude ore to existing concentrating plants (Midvale). Thus, from presently available information, the property may reasonably be expected to contribute 5,000,000 or more pounds of zinc and 100,000 pounds of cadmium to the war effort by late 1944 without drawing heavily upon the limited machinery reserves in the nation, and likewise with a limited man power requirement.

As stated above, the development and exploration work completed is too limited to permit calculation of ore reserves. At present, all that may be said is that the prospects and ore indications are such that an immediate beginning of a hand to mouth production is suggested with a very small preliminary preparation. There can be no absolute assurance that this preliminary production program may be self-liquidating at any arbitrary metal price which may be set out and agreed upon, as for example the 16¢ a pound price used arbitrarily in the accompanying estimates. The diamond drill and other sample information available to us is not entirely satisfactory, and unfortunately, it may not be conveniently checked or verified in the time available. In other words, the project considered herein is of a strictly out and try nature, and its recommendation, in terms of interest to the United States Smelting Company rests in the following:

1. An opportunity to contribute new zinc metal to the war effort presumably on a self-liquidating basis.
2. An opportunity to provide a modest flow of crude ore (50 tons a day or more) to the Midvale concentrating plant. (It is presumed that a normal departmental profit will accrue there.)

3. An opportunity to exhaustively explore and develop possibly on a self-liquidating basis a well-mineralized area within which moderate tonnages of ore of better value may be disclosed.

Before any decision may be reached it is necessary to consider the cost of materials and nature of work required to prepare the Mt. Hope mine for crude ore production of not less than 50 tons a day.

For reasons mentioned above, it will be advisable to proceed with any program on a step by step basis. At the outset, only barest essential tools and machinery should be placed on the job. Construction of housing for the small crew (20 men at least) might be postponed for a few months if any means of transporting men from Eureka (30 miles) could be arranged.

The first work to be undertaken underground is outlined on the accompanying sketch map. There are three exposures of marginal ore, respectively in 105, 107 and 108 cross-cuts. Actual breaking of this material will be required to determine whether or not it may be held to grade. There are no walls or other physical limits which will favor clean mining. If results are at all satisfactory and if the dimensions of these ore zones may be important, it will not be difficult to recover up to 20 or more tons a day from this area with no preparatory development.

At the point indicated upon the sketch it will be necessary to sink a two-compartment shaft 100 feet, establishing levels at 50 and 100 feet, with short development cross-cuts before production may be obtained from this area. This limited work will almost certainly make available 10,000 tons of shipping ore, and with successful enlargements upon presently indicated ore areas, could develop a much greater tonnage.

It would require perhaps three months to bring this west area into full production of perhaps 30 tons or more a day, but in six weeks' time, some ore (10-15 tons) could be drawn from the 50 Level. Thus, it may be anticipated that five cars of ore a week might be produced within six weeks after beginning work.

Later, sub-level work in the 105, 107, and 108 cross-cut area may be required, and also raising and drifting upon the Hope fissure may develop additional stopes. A copper bearing vein parallel to and west of the Hope fissure warrants exploration as does a possible blanket body above the tunnel level overlying the "A" blanket area. If reasonable success accompanies these progressive developments it is not difficult to visualize expansion of the output from the property to 12 or 14 railroad cars a week. X

For preliminary consideration, the probable production costs and return to the mine is analyzed with reference to the three potential productive units most readily available.

Assume 12% zinc ore, received and paid for f.o.b. Midvale on a basis of zinc @ 16¢ a pound	\$16.00
Less freight and hauling charges	<u>6.00</u>
Net value of crude ore per ton at the mine	\$10.00

	"A" <u>Blanket Ore</u>	"B" <u>Fissure Vein</u>	"C" <u>Side Sets</u>
Probable Tons	5,000	5,000	1,000+
Development Cost/Ton	\$1.25	\$1.50	\$0.00
Stoping Cost/Ton	4.00	4.00	5.00
*Miscellaneous Cost	1.00	1.00	1.00
Royalty/Ton	<u>0.60</u>	<u>0.60</u>	<u>0.60</u>
	\$6.80	\$7.10	\$6.60
Margin before amortiza- tion and taxes	\$3.20	\$2.90	\$3.40
Total Cash for amortiza- tion and taxes	\$16,000	\$14,500	\$3,400 or <u>\$33,900.</u>

* - Miscellaneous item to provide for tramming, sorting, stockpiling, hoisting, etc.

From this analysis it is indicated that approximately \$33,900 less taxes may be available from shipping the "probable" orebodies listed above and under the conditions defined to amortize the plant and materials required to bring the property into production. In other words, this amount constitutes the top limit of expenditures for plant and mining equipment that may be advanced on this project (until additional ore is demonstrated) with any reasonable assurance that the investment will be returned. It will be noted that a total of \$13,750 has been charged against development, and this combined with \$33,900 is \$47,650 which is about the maximum capital advance which may be justified by progressive favorable results at the property. A commitment to expend up to \$50,000 could not be made before the following conditions are clarified:

1. That broken ore may be held to a 12% grade (To be determined by trial shipment).
2. That the ores yield to the metallurgical practices at Midvale.

(Labor available without robbing U.S. + Lark) gmm

3. That proper agents of the U. S. Government may guarantee purchase of a minimum of 5,000,000 pounds of zinc at not less than 16¢ a pound for ores of 12% or better grade and possibly 21¢ a pound on ores with a grade of 9% to 12%. There should be no top limit on pounds of zinc from this source, but if required may be set at not less than 25,000,000 pounds.

Producer must retain the right to terminate production at any time.

The most difficult part of this project is to set it up to begin small production with a minimum of plant and materials. Power requirements may be met by renting a portable Diesel unit with a capacity of about 500 cu. ft. It might be possible to borrow or arrange a temporary rental of some tools and machines from our operating or non-operating units. This might apply at least in part to mine cars (10), three drills, one or two small pumps, receivers, one or two small blowers, one or two Tuggers, 1000 feet of ventilation tubing, pipe: 1500 feet of 3"; 1500 feet of 2"; 3000 feet of 1"; 2,000 to 3,000 feet of 16# rails, etc. A small ore loading bin (50 ton capacity) should be built on the dump, but excepting for a blacksmith shop and a small warehouse all other surface buildings construction could be postponed. It may be possible to arrange for men to be housed in Eureka and transported by contract to and from work by one of the employees owning a suitable truck. If demountable bits are used, same might be sharpened either at Eureka or Ely until more permanent arrangements are justified.

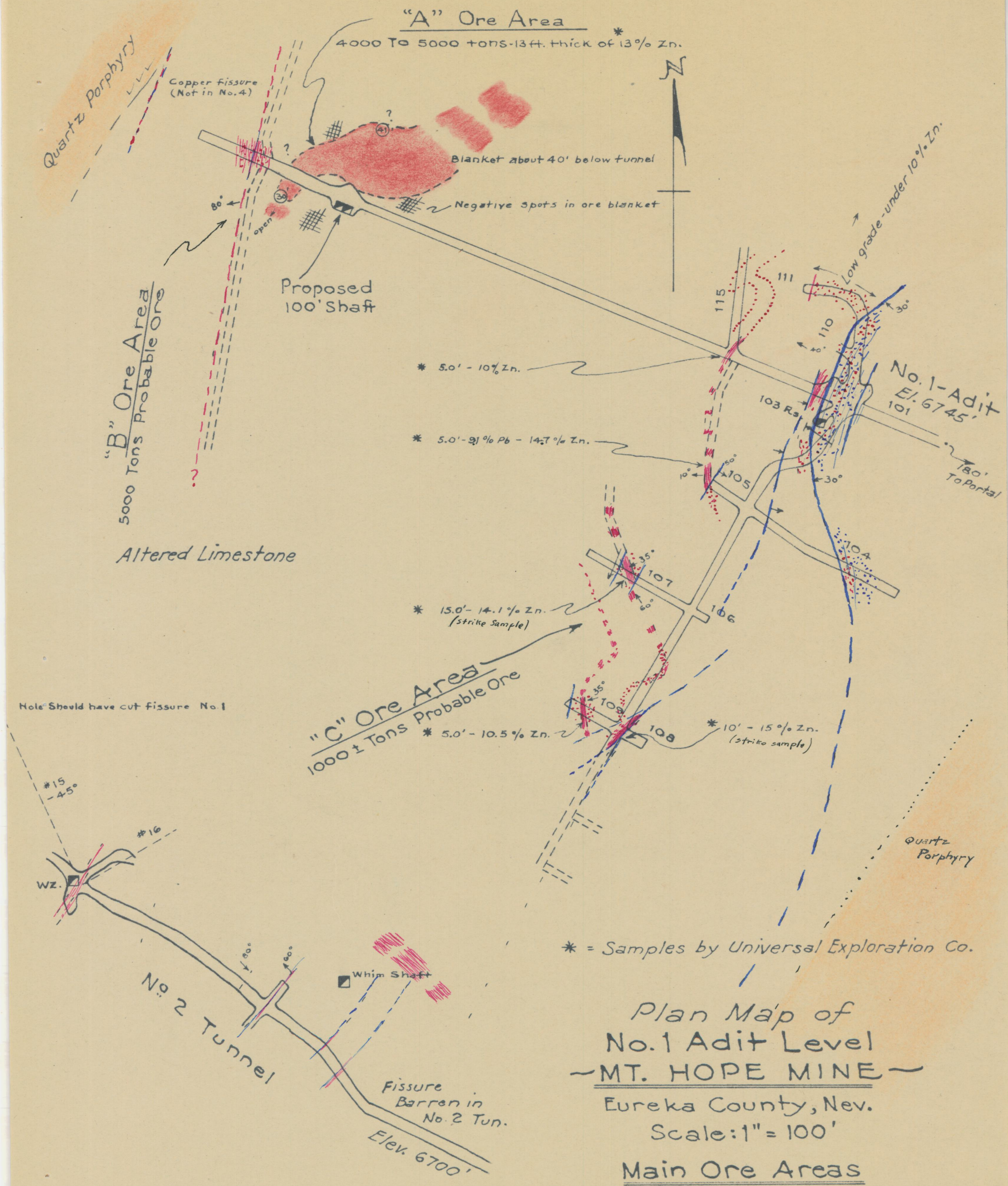
CONCLUSIONS:

If the national emergency justifies special price inducements to permit production of zinc from new or marginal sources then it is possible that an important quantity of this metal may be secured from the Mt. Hope mine. We, with our existing concentrating facilities, and other facilities which might permit us to bring this property into production at a minimum call for machinery and supplies, are perhaps in a position to undertake production at a reasonably low metal price. In view of this condition, if it be established that the need for the metal which may be obtainable from this source is sufficiently great, we might undertake the work on a basis designed primarily to protect us from any serious loss. On the other hand, any profit accruing to us would lie (1) largely in the speculative chance that some now unknown bodies of better grade ore might be disclosed tributary to the conduct of the work outlined above, and (2) secondly in the departmental profit which might accrue at our concentrating and refining plants.

L. H. Hart
L. H. Hart,
Field Engineer.

LHH/G
Encls.

cc - Mr. M. H. Kuryla,
- Mr. O. J. Egleston,
- Mr. F. S. Mulock,
- Mr. J. D. Harlan
- Mr. R. N. Hunt, (Silver City, N.M.)



March 15, 1942

MEMORANDUM: RE BIRMINGHAM DISCUSSION OF MT. HOPE OF
March 10, 1942.

I think the day in Birmingham advanced the Mt. Hope business. I met Mr. Arthur Blair, geologist for Tennessee Iron, Coal and Railroad Co. at ten in the morning and spent the day until six with him. During the morning and lunch, Mr. Abbott sat with us. Mr. Abbott is a vice president. He seems to have to do with engineering matters incident to production and exploration. My impression is that they are both substantial fellows and able. Abbott in the sixties, Blair about fifty. We will have more to do with Blair, I gather, - also a Mr. Weed - manager of their Jefferson City operation in eastern Tennessee.

Abbott and Blair state very definitely and convincingly that they would like to lease the property and that they will consider placing a price upon. Before the afternoon was over, Blair threw out the figure of \$200,000 which he said was just thinking out loud and no commitment. That compares with my figure of \$50,000 in an early letter to Blair.

The day enabled me to explain Western practice in marketing products, royalties upon net smelter returns, and usual relations and right leases to lessor; and to point out that Blair's suggestion of royalties on metal unit basis, Tennessee practice, would result in too low a return to move any but highgrade ores. They are not, admittedly, at least, aware of what appears to be a lower return on zinc to the mines in the West than to the Eastern mines. (Here again I wish we had the economic picture for eastern zinc mines - which I have wished would come as part of Rove's work or as the culmination of his work).

My proposal of royalties as follows:

0 -	\$ 9	4%
9 -	12	6%
12 -	15	8%
1r plus		10%

Blair thought low, but he reserved judgment.

All discussion by agreement was exploratory.

The outcome I think of what was a very pleasant meeting is a general agreement that any contract will be in the form of a long lease with bond attached. Nevada weather permitting, Mr. Blair and Mr. Weed will come West at the first week in April to visit the property which neither has seen, when we will see them in Salt Lake City.

Yours very truly

R.N.H.

cc: Mr. Egleston

RNH:BRC

NOTED
MON.

Copy

August 10, 1942

Memorandum for Mr. Egleston

Mt. Hope Mine

-by-

L. F. Paddison

I have reviewed Mr. Hunt's letters to you dated July 24 and August 1; also Mr. E. B. Jennings' report dated February 1939, all of which pertain to the Mt. Hope property.

Mr. Hunt's information is of a preliminary nature with conclusions as to the tonnage and grade based upon information contained in Mr. Jennings' report. The business as set up by Mr. Hunt is a relatively small operation, ⁱⁿ which the treatment of 300,000 tons of selective ore assaying -

Ag	.75 oz/per ton
Pb	.75%
Zn	13%
Cd	.208%

shows a profit over the cost of development, equipment, royalties, mining and milling.

Mr. Jennings states- "approximately 1,000,000 tons of zinc sulfide ores with metallic zinc content in excess of 8% is indicated."

Mr. Hunt states- "that within an extensive spread of lower grade mineralization may be bodies of better grade ore possibly capable of sustaining an operation of the magnitude of 200-300 tons per day of 12-15% zinc ----- .2% cadmium."

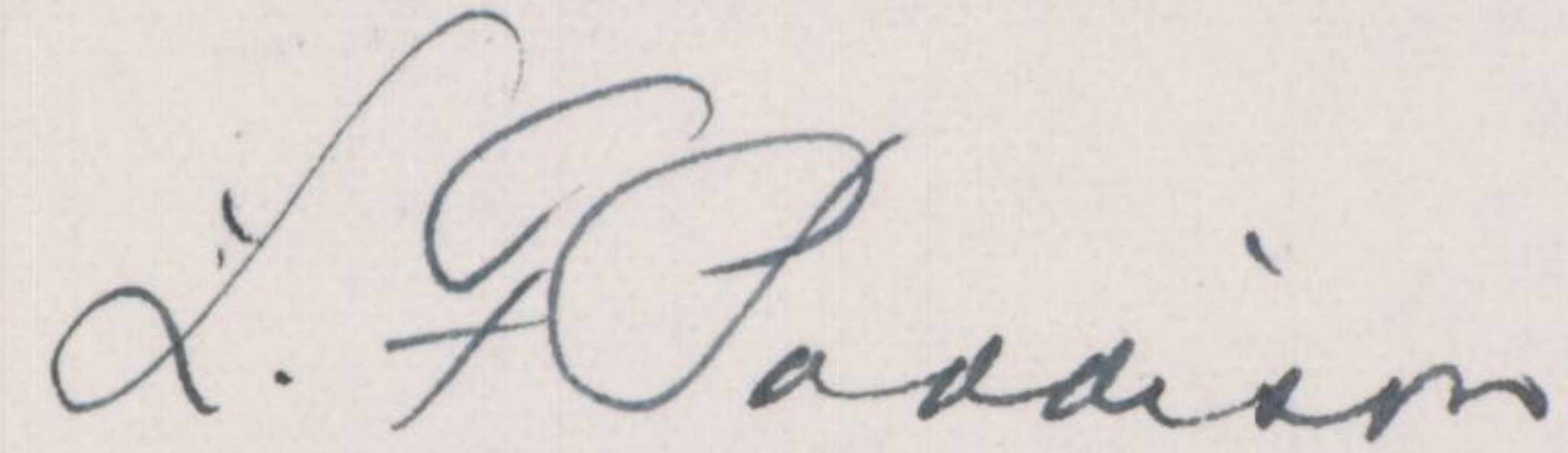
Mr. Hunt's letter to Mr. Blair dated June 20, 1942 which outlines in a general way terms of a lease and bond have according to Mr. Hunt's letter to you dated August 5, 1942 been approved by Mr. Blair. These terms provide among others "lessee to have one year

free time----provided he be in possession and engage in exploration work on the property."

Conclusions by L.F.P.

I have, as best I could from Mr. Jennings' report, attempted to check or determine tonnage and grade of the higher grade zinc ore. My figures, based upon Mr. Jennings' report, show a possibility of 225,000 tons of ore assaying Zn 13.7%. Other figures assumed and used by Mr. Hunt I am unable to check.

It seems to me that the business as set up by Mr. Hunt justifies obtaining the lease and option followed by work during the one year of free time to determine whether or not we wish to carry on.


L. F. Paddison.

LFP:AGT

Three copies of Mr. Jennings' report have been made.

COPY ✓

UNITED STATES SMELTING REFINING AND MINING CO.
75 FEDERAL STREET
BOSTON, MASSACHUSETTS

For Mr. J. D. Harlan

November 5, 1940

Mr. R. N. Hunt, Chief Geologist
United States Smelting Refining and Mining Company
P. O. Box 1980
Salt Lake City, Utah

Dear Hunt:

*Mount Hope Mine, Eureka, Nev.
(Universal Exploration Co.)*

On my recent visit to Gouverneur, N. Y. I had a couple visits with Ed Jennings of Universal Exploration, who expressed regrets that you had been unable to take time to come and see his mines and mill. I found him in an affable mood during which he turned over to me for perusal a copy of a report of his on the Mt. Hope prospect in Eureka Co., Nevada. The report (dated Feb. 1939) was a summary of his earlier and more complete reports prepared at the time he made the examination in 1929 and 1930.

I note here, from memory, such phases of the report as I can recall, and which may interest you. The accompanying diagrammatic sketches are memory pictures of his maps, and may help to convey his interpretation, and my description.

Universal Exploration owns by patent 13 lode claims and fractions, totaling about 250 acres, and Jennings recommends acquisition of adjoining claims to south and southwest.

Rocks consist of series of interbedded lavas and sediments: at base dacite, then quartzites and argillites, overlain by several hundred feet of limestones. These formations form a northwest pitching trough about a half mile wide, and exposed for about a quarter mile along the synclinal axis. To the northwest the structure butts up against a series of acid igneous rocks, rhyolites, quartz porphyries, etc, whose relationship to the sediments apparently was not clear, but a fault contact seemed inferred. Minor west dipping thrust faulting was recognized in the argillites in the northeast part of the structure, but significance or relationship of this to ore control was not known. The possibilities of the ore horizons extending under the acid igneous rocks to the northwest were considered as being very problematical.

Three separate ore horizons were recognized; A) near the base of the limestones, B) about 75 feet (?) above A; C) about 275 feet (?) above B. Ore is localized in the beds at their intersection with minor fault zones that strike roughly normal to the trough axis.

Jennings did about 1000 ft. of drifting, crosscutting, shaft-sinking, etc.; about 3500 feet of diamond drilling, and 1050 feet of churn drilling. The latter were stated to be unsatisfactory for exploration in the district.

Drifting, etc. was done in two places as shown on the sketch, most of it in Adit A, (mainly A horizon) which was deepened, and from which drifts and crosscuts were run to the southwest; no work was done in Adit B (mainly B horizon) Shaft C was sunk to + 125 feet and here some minor x-cutting and drifting undertook in C horizon. Short diamond drill holes were fanned out from the breast of Adit A, from near the middle, and from the southeast drift and crosscuts. I think some drilling was done from adit B.

Reserves estimated as being reasonably probably totaled 1,000,000 tons with a zinc content of 8% plus. 575,000 tons of 7% zinc ore were estimated in the lowest horizon, with 425,000 tons of 10% zinc ore in the middle horizon. The average of about 16 samples taken in the workings at shaft C was about 4½% zinc and 4½% lead; all of this ore was oxidized. No reserves were estimated in shaft C, or horizon C as a whole, because of the oxidized character of the mineralization encountered and the limited exploration. Lead values were considered unimportant (too high temperature according to Jennings), but copper-silver might be a significant by-product ore. Values and data were too limited to estimate any reserves.

Note that most of the exploration work was done in the northeast third of the structure in the two lower horizons. Jennings was favorably impressed with the ore possibilities in the middle and southwestern parts of the structure, and also the C horizon. He estimated that 4000 feet of shaft sinking, drifting, x-cutting, etc., at a cost of \$15 per foot, supported by 10,000 feet of diamond drilling at \$3 per foot would be necessary to explore the rest of the structure. Jennings' plan was to sink (or drive an adit) to the deeper part of the trough structure and drift, crosscut and drill out from there in order to avoid the difficult problem of drilling thru the heavy surface scree. Total new exploration cost estimated at \$90,000.

Because of the relatively uniform gently dipping ore beds ($\pm 20^\circ$?); and their thickness of 20 to 40 feet (?), Jennings anticipated a relatively easy mining problem using scrapers. The ore drilled easily and broke well, he said. The alleged estimate

Mr. R. N. Hunt

-3-

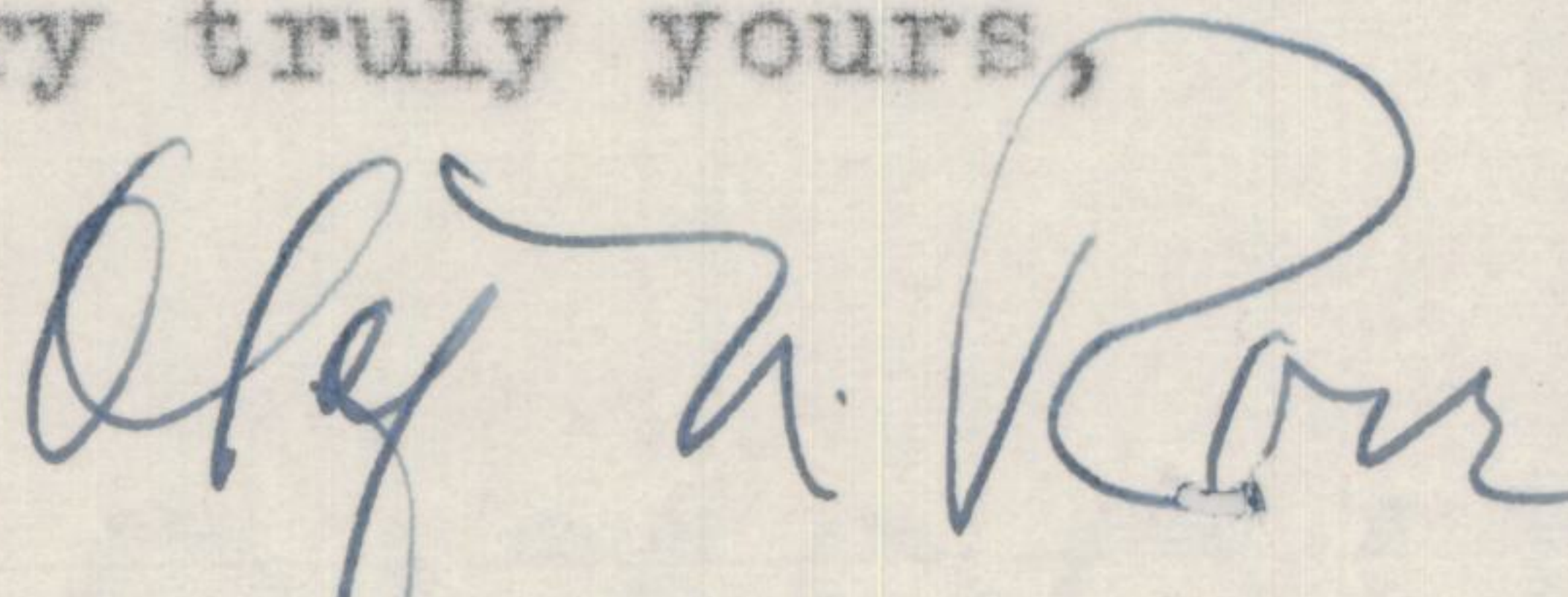
November 5, 1940

of \$2,000,000 to develop the property was, I think, just conversation, rather than anything authentic. Jennings said he thought the total investment the company had *in* the prospect was about \$100,000, including cost of property and his exploration work.

Jennings told me that the last he heard about the prospect (at the time of his report?), the company was considering disposing of the property. While Jennings was ready to receive any inquiry regarding the prospect, he mentioned that it was entirely outside of his jurisdiction and that he would merely pass the inquiry on to Arthur J. Blair, Geologist, Tennessee Coal, Iron & Railroad Co., Birmingham, Ala. Hence he felt we might as well correspond direct with Blair in case it was decided to pursue the matter farther.

If I can cooperate with you any further in this matter I shall be please to hear from you.

Very truly yours,



Olaf M. Rove
Geologist

ONR:MHS

CC: Mr. J. D. Harlan

