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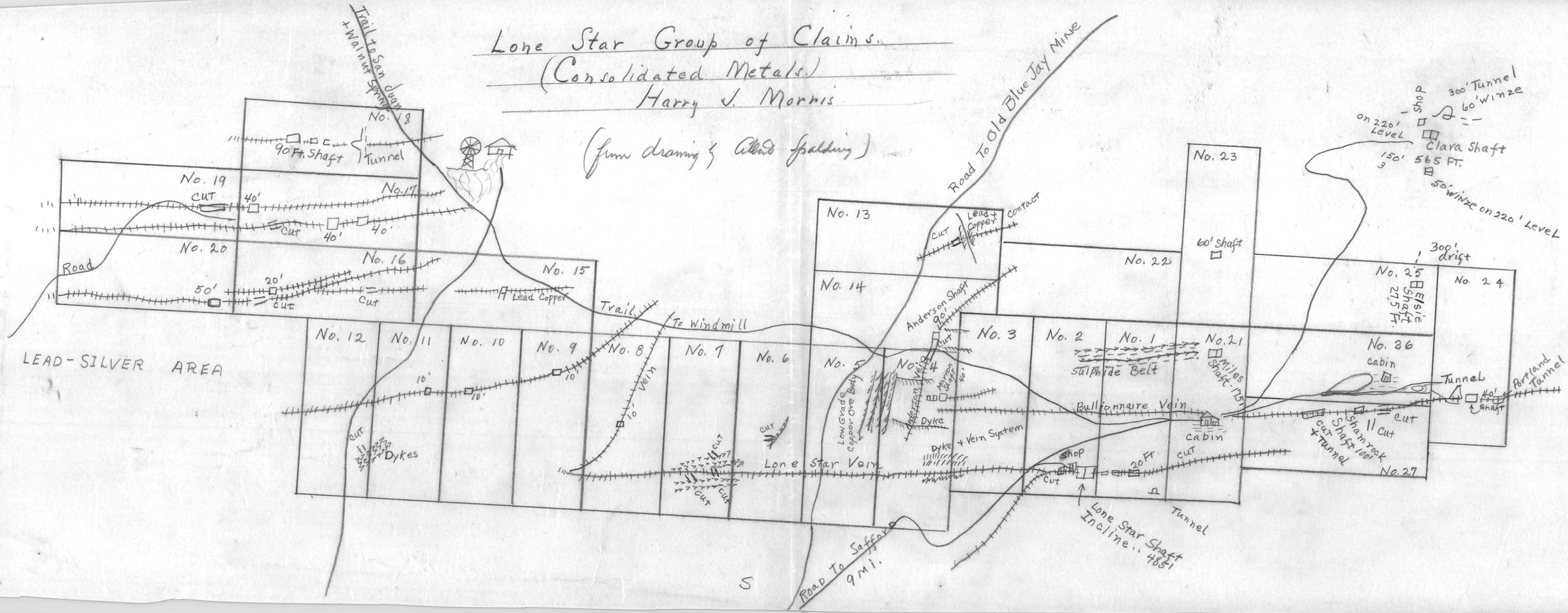
Lone Star Group of Claims.
(Consolidated Metals)
Harry J. Mornis

(from drawing by Allen Spalding)



Lone Star file

May 16th, 1941

Mr. Walter S. Larssen
King Solomon Mine
Forks of Salmon
Siskiyou County, California

Dear Larssen:

I believe you owe me a letter in reply to one that I wrote you on August 13th, 1940, but I hope that your silence merely indicates that you have been very busy and I sincerely trust that you are in the best of health and well occupied with congenial work.

I am going to ask you for some information which will be very interesting to one of my clients for whom I have just made an examination of the Lone Star and Clara Mines in the Gila Mountains a short distance north of Safford.

The Clara shaft is at present inaccessible but I was informed that about four years ago you had examined this shaft and the 200' level for a man named N. L. Brown. You will probably recall the occasion since I was told that you were let down on a rope and that the air was very bad and through some delay in hoisting you to the surface you were brought up in a nearly suffocated condition.

The local people say that you told them that on the 220' level you found a 40' width of low grade ore which you did not sample but which you thought would run from 2% to 3% in copper. I understand that this showing was found in a crosscut and that you were not able to enter the winze which went down below this level and in which the owners claim that there was not only low grade ore but several stringers of high grade material namely tetrahedrite, which ran from 40% to 60% copper and which was supposed to sweeten up the average grade to a substantial extent.

Of course a wide body of low grade ore would only be interesting if it appeared likely to represent a very substantial tonnage and judging by surface conditions this seems very problematical but my client is considering cleaning out the shaft and equipping it with ladders, etc. and I would like very much to be able to confirm the statement in respect to your opinion or to have your version of the situation before advising him to make this expenditure.

You probably know that we had an exceptionally wet winter and spring but now the summer heat is again with us and I trust that you will be able to miss it by remaining in northern California.

Very best regards to Mrs. Larssen and to you and please let me hear from you even if you cannot recall anything concerning the Clara shaft.

Sincerely,

GMC:at

C O P Y

W. S. Larssen
176 Fifteenth St.
Oakland, Calif.

May 23, 1941

Mr. G. M. Colvocoresses
Luhrs Tower
Phoenix, Arizona

Dear Mr. Colvocoresses:

I have your letter of the 16th, forwarded from Forks of Salmon. We wound up the King Solomon and sold off the surface equipment. Mr. Grant still has the direction of the O.A. Smith properties in Colorado and Montana.

Concerning the Clara Mine in the Gila mountains, I am sorry I can not refer to notes which are packed away in storage, but will have to depend on a somewhat faulty memory for any information I may give.

At this time I had charge of the New Moon mine east of Florence, Arizona, and copper being a good price, we were on the lookout for something of a shipping grade. We were told that a winze on the 200 level of the Clara contained two or three feet of 40% copper glance. I bought 250 feet of Manila rope in Safford and rigged a windlass on the vertical shaft, which, I was told, was 500 ft. deep with a bulkhead on the 200 level. Before going below I looked over the surface and particularly examined the shaft dump for evidence of what might be expected below. Had I been on my own, I would have concluded my examination at this point and returned home. However, I was lowered to the 200 level where I made a Brunton survey and cut a number of samples at five foot intervals. Referring to memory, there was a N-S drift about fifty feet of which showed a feeble copper mineralization. South of the shaft a short crosscut had been run easterly, and a winze of unknown depth, (incline about 30 deg.). This winze was sunk in a mass of iron sulphide with no apparent copper content, and was full of water to the drift level. Altogether, the showing on the 200 level was very disappointing compared to representation. I remember that my sample results were not at all interesting.

Now my unforgettable experience: Due to lack of ventilation oxygenization of the sulphides had created considerable heat and gas and the air was very bad. I sent my samples up and the windlass men lowered the rope for me, but the end caught on a timber about thirty feet above me and the men could not hear me call. After waiting an interminable time they would the rope up and lowered it again; I tied myself on and gave the signal. When I hit the fresh air I passed out completely. Coming up O lost a new ten dollar Stetson hat, and if I was called on to reopen the mine, that is the only thing of value I would expect to find.

Mrs. Larssen askes to be remembered and to extend thanks for advice and assistance rendered by you in time of need. She has been

under Doctors care for about a year but is now O.K. I get over to S.F. frequently where I have a number of friends among the old time engineers, among whom you stand very high in the profession.

Very truly,

W. S. Larssen

May 25th, 1941

Mr. George M. Colvocoresses
Luhrs Tower, Phoenix, Arizona

Dear Sir:

I have dug up sufficient data to make up this rather sloppy plan of the 220 level of the Clara. In my time it was called the Red Mountain. Am sorry I can't find the sampling results, but I distinctly remember that they were N.G. Consideration should be given to the fact that the shaft was open and accessible to the 220 level at the time that copper was selling at 25 to 30¢ a pound. Now, with copper at 11¢, low labor efficiency, collar to collar law, taxes, Ins. etc. copper mining doesn't look so good to me. Overhead, taxes, and insurance do not recognize the 40 hour week.

Very truly,

W. S. Larssen

No. 92 CO

Phoenix, Arizona,

May 16, 1941.

CHAS. A. DIEHL

ARIZONA ASSAY OFFICE

Phone 3-4001 — 315 North First Street — P. O. Box 1148

This Certifies *That samples submitted for assay by* Mr. G. M. Colvocoresses. *contain as follows per ton of 2000 lbs. Avoir.*

MARKS	SILVER Ounces	SILVER Tenths	VALUE (Oz.)	GOLD Ounces	GOLD Hundths	VALUE (Oz.)	TOTAL VALUE Of Gold and Silver	PERCENTAGE % COPPER	% LEAD	% ZINC	% Vanadium	REMARKS
L.S.												
1								2.05				
2								2.46				
3	1	0						2.78				
4A B		2							.15			
4B A		1							.11			
5		1							.10			
Compo-4A-4B-5				Trace						None		

Charges $ 10.00

Assayer Arizona Assay Office

C. A. D

May 17th, 1941

REPORT ON LONE STAR GROUP OF MINING CLAIMS
GRAHAM COUNTY, ARIZONA

Mr. Harry J. Morris
Safford, Arizona

Dear Sir:

Pursuant to our arrangement of May 10th I have just completed a brief examination of portions of the Lone Star Group of 36 unpatented lode mining claims which you now hold under lease and option, also four claims which you have located yourself. I now beg to submit the following report.

Location:

This property lies from 9 to 12 miles nearly due north of Safford, with which it is connected by dirt roads, the last portions of which are rough as the claims are approached. The claims lie on the south slopes or foothills of the Gila Mountains and the elevation of different workings vary from about 3700 feet above sea level on the Kirkland Claims to 4550 feet at the Clara Shaft, while some of the so-called "gold claims" are at higher elevations. (Elevation of Safford on the Gila River is 2922 feet). The surface of these claims is rough and rocky with very scant vegetation. Water is found in some of the nearby gulches in sufficient quantity for domestic purposes or possibly for a small mill. The climate is suitable for all year operations although quite warm during the summer.

Geology:

This section of the lower southern slopes of the Gila Mountains is mostly composed of Tertiary igneous intrusive rocks including andesite, rhyolite and diorite porphyries and some flow brecchia and agglomerate. On the higher elevations more recent flows of basalt and other lavas are noted and in places there are limestones and dolomites with a capping of caliche. The veins appear to have filled fissures formed during the cooling of the eruptive flows and dikes and in the main they strike northeast-southwest and are filled with silicified wall rock and quartz impregnated with iron, copper and manganese oxides while the lead is associated with the limestone. Apparently the metallic minerals were deposited from solutions, the origin of which has not been determined, - since no thorough geologic reconnaisance of the district has ever been made, - but the iron and manganese oxides appear to be associated with the copper and the veins are often marked by a gossan along the outcrops. The impossibility of examining any of the lower workings on these veins limited my investigation to the surface and shallow openings but the mixture of secondary sulphides and oxides suggests a partially leached zone near the surface succeeded in depth by a zone of secondary enrichment in which were found the pockets and seams of high grade copper ore reported to have been mined from the upper workings of the Lone Star and Clara and still remaining in the latter mine at and below the 220' level.

While time did not permit me to make an extended study of the possibility of finding any disseminated body of copper ore

(porphyry copper deposit) I was unable to note any traces or colors of copper excepting in or near the fissures or gash veins and I do not consider the conditions favorable or promising to any large deposit of that nature nor do I believe that they justify the very heavy expenditure that would be required to positively prove or disprove the existence of disseminated ore in commercial quantity, although a reference to this will be made further on in my report.

Ore Showings:

I shall briefly discuss the showings on the various sections of the claims which I examined:

(1) Gold Claims (Tolley Section). On the claims known as the Hornblende Groups and located at the west end of the property are found several outcrops of iron oxide with small veins in the andesite or along the contact between the andesite and diorite or hornblende dikes. None of these veins has been traced for any distance along the outcrop and in several shafts from 10' to 40' in depth they appear to be nearly vertical and to strike north-south with a width of from one to three feet. Tolley has made no shipments from these veins, does not claim that any of his samples from below the surface ran better than $8.00 per ton and admits that in most cases the values and width of the veins decreased with depth. He showed me one old shaft which was said to be over 100' deep and to have produced some 10% copper ore but no material of this character was to be seen on the dump and the vein was evidently very narrow. While my investigation was very superficial I could not see indications of any commercial ore on these claims. The showings

have the appearance of gash veins, rapidly pinching out in length and depth and I do not consider them of any present or future value and would not advise any further exploration or development. I doubt if these claims are worth holding for any purpose except for the water supply found in a little creek which crosses through them.

(2) Silver Lead Veins. This section of the property known as the Kirkland Group lies south and east of the Tolley Claims and here the country is mainly limestone and rhyolite porphyry overlain in places with caliche and marked at intervals by prominent outcrops of quartzite. Across a low ridge three or more veins strike northeast-southwest and dip steeply to the northwest. The filling in these veins is quartz, lime and crushed wall rock, much kaolinized containing lime and iron oxide with some showings of lead and copper carbonates.

Several shafts have been sunk on these veins, all of which are now inaccessible but from the dump at the surface of a 90' shaft I took my sample #3, which assayed one ounce in silver and 2.78% copper; - gross value $7.48 per ton.

Near the base of the southwest slope of this ridge at elevation of 3840' an open cut has been advanced about 30' and the face now has a height of seven feet in which there is a fairly well defined vein some three feet wide. My two samples, 4A and 4B, were taken from cuts across the vein at this point respectively at depths of four and six feet below the surface and the assays were as follows:

	4A	4B
Lead	0.11%	0.15%
Silver	0.10 oz.	0.20 oz.

At a point 10' back from the breast of this cut my sample #5 was taken across two feet width of vein and assayed - Lead 0.10% and Silver - 0.10 oz.

A composite of these last three samples was found to assay only a trace of gold and it was also tested for vanadium and molybdenum of which only traces were found. The aggregate of all of the values noted above is too low to be paid for by any smelter. Other shafts in these veins were not sampled but no ore was seen on the dumps.

(3) Lone Star and Clara Section: This area, lying about a mile to the east of the Kirkland Claims and at a much higher elevation, was the scene of quite extensive development and mining during the 1890's up until 1907. Only a few of the numerous workings appear to have produced any ore and although the total value of the shipments has not been recorded it certainly represented only a small fraction of the expenditure. The country is mainly a series of rhyolite and diorite porphyry dikes and in one area it is said that monzonite porphyry was found. The vertical, or almost vertical, veins strike northeast-southwest and are mostly in fissures in the rhyolite, the filling being largely quartz and silicified wall rock with copper carbonates, silicates and sulphides.

On the Lone Star Vein, which dips to the northwest, a shaft was sunk to a reported depth of 485' on the incline. This is now caved and filled with debris just below the concrete collar and its reopening would certainly involve a very heavy expense that does not appear to be justified either by the surface indications, which are by no means promising, or by any reliable information concerning the

underground conditions.

It may well be true as reported that small pockets and stringers of high grade copper carbonates and secondary sulphides were mined above the 100' level (which was probably in the zone of secondary enrichment) but it appears highly improbable that the mine would have remained idle and abandoned for over 30 years if any pay ore or definite indications of pay ore had been found in the lower workings and the logical conclusion is that the ore either petered out in depth or became so low grade in the primary zone (if this was actually reached) as to make mining unprofitable.

At the Marion workings I could only note a very unpromising vein giving no evidence of pay ore nor any encouragement for development and the same comment will apply to the Elsie, where the shaft is said to be 275' deep but is now caved at the collar.

At the Norquay workings, elevation 4400 ft., the surface conditions appeared more promising as a narrow vein carrying copper carbonates could be seen on the surface and for a short distance in a cut and 25' shaft and some fair looking copper ore had recently been mined and was being shipped. Here I cut my sample #1 across the shaft for a width of six feet and this was found to contain copper - 2.05%.

The value of the small shipment which you have made from the ore recently mined at that point will give a clue as to the advisability of continuing your work at this point, which I can only recommend in the unlikely event that you should find it possible to continue on a basis which will permit the work to be paid for from

the returns from shipments which could doubtless be sorted up to a grade of six or even ten percent, but only at an expense that would probably prove prohibitive.

The Clara vein (elevation 4550 ft.) appeared to me to be the most attractive showing on the entire property. Although the vein in the face of the opencut and as far in the adit drift as the locked door was narrow, yet the values appeared to be persistent and the mixture of chalcocite with carbonates suggested that good values due to secondary enrichment might be likely to continue downward from this point and very probably to persist as reported as far down as the 220' level and in the winze below but the 80' winze which was sunk near the portal of the adit appears to have produced but little ore and may be off the shoot or in low grade material.

The character and strength of the gossan outcrop, the showing on the dump at the shaft and the mineralization of the porphyry wall rock all appeared to indicate a more intensive and wider spread mineralization than at any other point and tended to confirm the reports that on the 200' level there was a wide body of low grade ore with stringers of high grade that might perhaps make it possible to hand sort and ship some ore with a fair margin of profit.

It was most unfortunate that the condition of the 8' x 4½' vertical shaft made its descent and examination impossible at the time of our visit but from all appearances the timbers are in good condition to a depth of at least 50' or more and through the replacement of the ladders only, it should be easy to get down at least 60' below which point it was stated that the shaft walls were very firm and thus by setting in a few stulls, clearing out the bad air and

continuing the ladders it may be feasible to reach and examine the 220' level at a comparatively small expense.

An investigation of such conditions as actually exist on this 220' level and around the collar of the winze should then enable one to determine the advisability of cleaning out this winze with a chance that at this point pay ore might be mined from the high grade stringers and sorted for shipment.

The outcrop of the Clara vein can be traced for several hundred feet and shallow pits have been sunk at intervals from one of which some 600' south of the main shaft I cut my sample #2 across a vein width of two feet and this assayed 2.46% copper, all of which occurred in the form of carbonate.

We were informed that Walter Larssen, a very reliable engineer, had examined the 220' level at the Clara shaft in about 1937 and had reported finding a 40' width of two to three percent copper ore, which he probably considered too low grade to be commercial. I have written to Larssen to check this report and will advise you as soon as I receive his reply.

We were also informed that engineers of the United Verde Copper Company had made a very thorough examination of all this property, especially the Clara workings and vicinity about 1928 and on my return trip I obtained from a reliable source the following statement in this regard:

In 1927 or 1928 Tom Sparks of Prescott, - perhaps associated with Tom Campbell, - looked over this district and thought that there was an area of monzonite porphyry in which there was a chance for a

disseminated copper deposit. He is supposed to have done some drilling and other exploration work and presented the property to the United Verde Copper Company, at whose request Fred Searls made a brief visit and evidently thought that there were fair possibilities since subsequently Benedict and Reber of the United Verde staff were sent to make a more detailed investigation. The United Verde Company took no further action but my informant could not say whether this was due to an unfavorable report by the engineers and geologists or because the terms on which the claims were offered were unsatisfactory but in the latter event I am very certain that they would have later taken steps to acquire the claims when they were abandoned by their former owners and according to reports could have been secured at a very small cost.

Lone Star Notes

In connection with the operation of this property for the production of ore, which must be shipped to a smelter, the following economic conditions should be born in mind:

Assuming that you were to mine and ship a 6% copper ore of which the gross value would be reported by an assayer as $14.40 per ton (at 12¢ newspaper quotation for copper).

The smelter would actually credit you with 110# at 9.295 = $10.225 per ton, less a treatment charge of probably $3.00 per ton equal to $7.22. From this payment you would have to meet the freight and trucking cost, which I understand would be about $2.38 to Miami (allowing for moisture content) and the royalty of 0.72 to the owner, leaving only $4.12 to cover mining and overhead, which under present

conditions would be sure to mean an operating loss, especially if the ore had to be mined from a narrow vein or sorted to bring it up to grade.

In my opinion you could not hope to make any reasonable profit from mining and shipping any copper ore from the Lone Star Group with a lower average content than 10% and no body of ore that even approaches such a grade is visible or indicated on the property.

Similar calculations in respect to lead-silver ore should be made with due allowance for a higher moisture content and freight to El Paso Smelter, but none of my samples indicated any ore with appreciable values in either of these metals and I could see no evidence that it was likely to be found anywhere on the claims.

Conclusion and Recommendations:

It is my carefully considered opinion that all of the showings which I visited can best be described as most unpromising prospects or mines which have been abandoned because they were judged to be worthless by their operators and other qualified persons. While many rich specimens and samples may have been taken from pockets and stringers, I could find no evidence leading to a conclusion that any of the veins had ever contained a substantial quantity of gold, silver or lead ore. The past production of copper was unquestionably made at a heavy loss to the producers, who seem to have spent upwards of $200,000 prior to 1907 in their unsuccessful attempt to make even one producing mine and it is inconceivable to me that persons familiar with these showings should not have seriously attempted to resume work during the several years when copper sold at better than

20¢ per pound unless they had recognized the hopelessness of such an attempt.

Without questioning the sincerity and veracity of the parties who tell of the high grade ore which is left in these mines, it must be recognized that they are men without training or experience in this particular industry and therefore might easily draw unwarranted conclusions from very trivial showings of spectacular ore or a few high assays of picked samples.

We have a record, as noted in this report, that this property was thoroughly examined and sampled by the United Verde Copper Co. in 1927 or 1928 when the price of copper was high and when I personally know that the very wealthy concern was extremely anxious to secure either high grade vein mines or low grade disseminated copper deposits and again it is unbelievable that the United Verde or their successor, the Phelps Dodge Corporation, would not have found the ways and means to acquire these claims if they had felt that they were really worth acquiring and developing.

My own judgment would be against the spending of any money, even to meet the requirements of annual assessment work and still less to meet the payments which are provided in your contracts with the owners, involving altogether a minimum annual outlay of some $7,000.00 and more in later years. Therefore, my best advice to you, and it is given with sincere regret, is to cancel these contracts without further delay and expend no additional funds on what I believe will surely prove a losing venture.

But if you should feel that you are under any legal or moral

obligation to continue for a time, I should advise you to largely confine your future work and expense to the reopening of the Clara Shaft as far as the 220' level so that the true ore conditions can be positively known and positive information obtained which can serve as a further guide to your future policy. There is always a chance that such a procedure might serve to entirely alter the picture, but I am frankly unable to feel that this is anything more than a remote possibility.

Further work at the Norquay shaft might lead to the discovery of some pockets of richer ore in the zone of secondary enrichment but again I do not believe that the returns from shipments would ever cover the expense.

As to the open cut in the lead-silver vein, in which both lead and silver values are so far negligible, a further advance into the hillside slope or deepening the cut would serve to furnish information regarding the character of the vein below the surface leaching but unless the change for the better should be very marked and take place very rapidly I can see no reason to expect that pay ore will be found in any of these lead silver veins where the old shafts were evidently abandoned because they failed to find any ore shoots in which stoping could be carried on with profit.

Yours very truly,

REPORT ON THE LONE STAR MINES, INC., WITH PROPERTIES AT SAFFORD, GRAHAM COUNTY, ARIZONA

PROPERTY

The property consists of fifty-five mining claims grouped around the original Lindsey and Anderson Claims, later known as the Lone Star Mine. The very recent acquisition of two claims that were centrally located, now consolidates the entire group making an unrestricted area of one thousand and eighty acres.

This block of claims extend Easterly, Southerly, Westerly and Northerly from the ground that was the original Lone Star Mine, and which was operated during the late eighties and nineties.

The above claims are held by deeds duly recorded or by location and annual representation, the owner in either case being the Lone Star Mines, Inc. The exception to the above being the two claims but just recently acquired and the title to which is now in process of being obtained.

HISTORY

The early working of the Lone Star Claims was started about 1886 by Lindsey.

The rich oxide and carbonate copper ores, containing small amounts of silver and gold are said to have been exposed on the surface of the Lindsey Claims as bold outcrops. The copper content was from 15 to 60 percent.

Lindsey built a small smelter on the Gila River eight miles from the mine and proceeded to reduce these oxidized ores to metallic copper. His operations attended with some degree of success, continued until 1898, when Lindsey and Anderson sold the property to I. L. Qualey.

Qualey in turn organized a stock company with headquarters in Boston, Massachusetts. He at once caused to be mined the rich black sulphide ore body which had been encountered near the Lone Star shaft on the 100' level. Five tons of this ore was selected and shipped to Boston and placed on exhibition there, resulting in the sale of considerable stock. "Gutting" the Lone Star shaft of all available orettonnage was carried on. The superintendent of the mine was told that, "this concentrating of work to taking out ore was solely for the purpose of stimulating investment in the property", and that very shortly an extensive development program would be inaugurated."

The development program was not started until after Qualey had been removed from the Company for gross mis-appropriation of funds. Thus the working capital for development purposes started off in a very limited fashion. For a period of years no further work was done in the Lone Star shaft and mine workings.

On the adjacent ground the Miles shaft, also the Clara, Elsie and other shafts were sunk to depths of 200 to 500 feet. Finding that they would have to sink still deeper and having equipment with limited capacity for depths of operations, the final development work was carried on in the Lone Star shaft. Superintendent C. B. Spalding describes the work briefly as follows:-

"After doing some repair work in the shaft, we started sinking at 117 feet. From this point on down as far as we went - 485 feet - the vein is continuous without a break. Assays taken all the way down show copper from a trace to 7 and 8 percent but not much of the latter. Returns generally gave from a trace to 5 and 5 percent. The 4 and 5 percent returns were coming in greater frequency during the last 25 to 30 feet of sinking and it was at that time, my firm conviction that another 50 to 100 feet of depth would put us into commercial ore -- that is shipping ores. But there was no money to go on with."

PRODUCTION

The Lone Star production is stated to be about 1200 tons of 15 to 60 percent copper ore for the period of active mining operations by Qualey. During the late war-period of high priced copper, some considerable production was made by the then owners and leasers, probably ten car loads or more were shipped.

Thus it appears that the Lone Star and immediately adjacent properties have produced from 50 to 75 carloads of oxide carbonate copper ores, averaging from 15 to 25 percent copper and with small values per ton in both gold and silver.

Whereas the sulphide ores have been developed at some points, none of the above production can be credited to sulphide ores.

The Lone Star Mines, Inc., during some of the work of testing out the surface ores, made two small lot test shipments. The results of these shipments are of interest and copies of the settlement sheets are given as follows: (These reports were attached to the original report."

During the former operations of the Lone Star under the Qualey corporation there was a profit accumulating to the company from the scale of work then carried on. A conservative statement made by the then superintendent was to the effect that during the time that the ore body was being mined above the 100' level of the Lone Star shaft, the returns from the shipments made, paid a considerable profit above the cost of operation. There is no way of getting any record of

the amount of production or profit made at that time.

ECONOMIC GEOLOGY OF LONE STAR MINES

The country rocks of the immediate vicinity of the Lone Star are acid intrusive volcanics. The prevailing strike is E.15 to 40 N., with a dip of nearly vertical. The entire formation has the appearance of large dykes that have varying widths up to many hundreds of feet. These dykes can be followed on the surface for great distances, and are finally obscured by the capping of younger volcanic rocks. This capping of volcanics forms the mountains of this part of the Gila Range. In contrast, to the southwest are the Pinaleno Mountains, where the uplift has been much greater. The granites form the entire mass of these mountains. The capping volcanics have been entirely eroded away.

The rocks identified are as follows: - Porphyritic schist containing disseminated iron pyrite now altered to iron oxides; Andesite porphyry; Quartz porphyry; Diabase and diorite at the north end of the district. The younger volcanics are made up of basalt, rhyolites, tuff and agglomorate. Of the main rock area there was also quartzsite, secondary lime and large bodies of silica, as of hot water deposition.

Development workings to date show numerous veins ranging in width from two feet to as much as 20 feet. The general strike of these veins is Northeast and Southwest. There are probably ten or more such veins crossing the property and easily traceable because of the heavy gossan cap.

Of very great importance are the zones of quartz porphyry dikes in which are found frequent stringers of copper minerals. These stringers are rich in copper content and increase both in size and in copper content as they are developed in depth. The porphyry for extensive widths is highly kaolinized. This then appears to be the reason for the finding of the sulphides and the copper minerals at a much less depth below the surface in the quartz porphyry mass than in crushed, shattered and oxidized veins. At some favored points within the veins, the walls may be impervious and the vein contents therefore protected from leaching by this or other means. Here the copper values with always a small gold and silver value is found as rich ore within the vein. More generally the open crushed vein matter is leached of the copper values for several hundred feet of depth.

The following sulphide minerals were recognized: pyrite, possibly marcesite, chalcopyrite and chalcocite. Also galena occurs in area to the northwest and southeast. The only sulphide mineral observed within the veins was chalcocite as all primary sulphides are oxidized within the vein walls. In depth at permanent water level --the enriched secondary copper ores are unquestionably in these main veins to be opened by the deeper development of the veins. The rich oxides and copper glance probably will form the greater part of the mineralization of the enrichment zone.

TOPOGRAPHY AND VEGETATION

The general country of the mines is just above the base of the south end of the Gila Mountain range. A gradual and unbroken mountain slope ranges from the Gila River at an elevation of 3200 ft. to the mine at an elevation of 4400 feet. About 800 feet covers the difference in elevation of the high and low ground of the mining property.

Being the southerly exposure of the Gila Mountains the country is entirely devoid of timber or even small trees. Small mesquite, yucca, cacti and grasses constitute the vegetation of the mine area. In general the above grow throughout the area, with the exception of one or two spots where the heavy mineral content of the soil or rock prevented all growth.

CLIMATE AND TRANSPORTATION

The general climatic conditions are the most favorable possible to obtain, for all year round operations.

The road and hauling conditions from the mine to rail at Safford are most favorable, being an all down hill haul. Ores should be hauled from mine to rail for $1.50 per ton, or less, on large contracts. At such times as the handling of very large tonnages may be necessary a branch line of the railroad can be run directly to the mining property without excessive costs of construction.

During short periods of the rainy season one or two spots of the road may need attention, and the crossing of the Gila River without a bridge will occasion delays several days at a time. It is contemplated that the county will construct a bridge over the Gila in the near future.

ASSURED MINERAL

With the number of shafts on the property of depths up to 500 feet, we would expect to find an important tonnage of assured or blocked out ore. But, because of the occurence in the veins at shallow depths, of shipping value of ores, practically all of the available tonnage has been mined and shipped to the smelters. There are several car loads of shipping ores still available in the Lone Star workings above the 100' level. Also to the east of the Lone Star No. 2 claim and to the west of the Marion claim. Shipping grade of ore can be mined after doing a very small amount of development work. This is not ore blocked out and no estimate of tonnage will be made.

PROSPECTIVE AND PROBABLE ORES

At the points above mentioned on the Lone Star and Marion Claims, good grade of shipping ore can be mined continuously in moderate tonnage after carrying on of about sixty days of development work. There are several other points on the surface offering nearly as attractive assurance of ore tonnage from reasonable amounts of development work.

The development of the richer ore horizons of the veins has not yet been accomplished. The Lone Star shaft is at 485 feet depth. It has a dip to the north under the porphyry formations. Without doubt the level of sulphide ores will be encountered within the next one or two hundred feet. While at the depth of 50 to 100 feet 15 to 60% copper content shipments of ore were made, it is reasonable to expect that the richer ore as shipped from the veins in depth will carry from 15 to 40% copper. With the opening of the sulphide ore horizon an important tonnage of shipments of excellent grade of copper ore can be maintained.

The cost of marketing the copper ores to smelters is attractively low, as there are six or more plants located at distances up to about 100 miles rail haul from Safford and shipping point.

The development of a large tonnage of copper ores disseminated in the quartz porphyry or in the large shear zone that diagonals across the porphyry, is the ultimate to accomplish for the making of a very large copper mine. There are two or more areas on the property that amply justify a detailed study and development work to determine such ore bodies. The proving of the lower grade ores will entail a large milling plant and therefore a large investment of capital.

Large outlay of capital for such development is not to be attempted too rapidly. The tonnage of ore contained in an ore body of three hundred feet vertical extend and of a real extend equal to half of the mining claim, would amount to over ten million tons of ore.

As mentioned above, the shear zone in the porphyry and also the area that now shows almost a stock work of veinlets, both contain small values at the surface. The geological conditions are in every way favorable for the large tonnage bodies of the lower grade ores. A study of the geology of the entire surrounding areas, a survey of all the developments as work progresses at the Lone Star, and a complete record kept of all data obtained during operations, will all assist greatly towards developing the probable large tonnage of lower grade ores.

GENERAL MINE SUPPLIES

LABOR

The supply of labor at present is easily obtainable at the Arizona scale of wages. Transient and Mexican help are easily available for the general inexperienced work. Proximity to the larger copper mining camps and the nearness to rail and highway are beneficial as to labor conditions and the obtaining of all other mine supplies.

WATER

There is no supply of surface or running water over the properties. Excellent supply of well water is available at from one to two miles distance and at 150 to 350 feet lower elevation than the mine. For larger supply the Gila River will always afford unlimited supply at eight miles distance from the mine.

POWER

At present power will be supplied by means of internal combustion fuel oil engines. Later it may be economical to bring in an electric line and power from a plant located on the railroad at Safford.

Explosives are obtainable from the Apache Power Company, at prices less than is generally paid by mining companies. Local timber is available from saw-mills about 30 miles distance from the mine.

MARKET ECONOMICS

The recent lowered price of copper has been a necessary economic adjustment, brought about by the heavy production of copper with an attempt to sustain higher price levels, and the competitions of other metals. The present price levels of twelve to fourteen cents per pound, appear to be conservatively low.

There will no doubt be adjusted scale of wages also possibly a shorter number of days per week worked out in the very near future, the same prevailing in Arizona and other parts of the West.

The slump of copper price is not affecting the programs of expansion now being carried on by the British, Frood and Copper Cliff of the Internation Nickel Co. of Canada are going forward with their expansions. The same is true of Rhodesian Copper mines.

The above mentioned price of metal permits a very safe margin of profit to be made by the well established and going copper companies. Moderate production and a well-balanced development will make a successful copper mining enterprise at this time.

RECOMMENDATIONS

The major development operation to be carried under the present conditions is the sinking of the Lone Star main shaft to a depth of at least 200 feet deeper on the vein. This work should develop the vein below the sulphide level of ore.

Conditioning, retimbering and benefiting the present shaft must be carried on first in order to obtain safe and more economical working conditions for shaft sinking. A station must be cut at the 500 foot level of the shaft and cross cut drifts should be driven at this level to the foot and hanging walls to determine definitely the position of the vein. The shaft from the 500 foot level down should follow as closely as possible the same angle of dip as the bottom 200 feet of the present shaft.

Two or more secondary developments should be carried on co-incident with the Lone Star shaft sinking. It is reasonable to expect that a considerable amount of good ore can be produced and marketed as a result of these secondary developments.

Firstly, the large vein on the Marion claim near the west sideline should be opened by sinking a shaft at the point of intersecting

veins as shown on the surface. Because of the surface conditions it is likely that work should be carried on a little to the east of the above point mentioned.

Secondly, the extending of the Lykins adit tunnel until it cuts the Lone Star vein and from this point open the vein by driving a drift easterly to the east side line of the Lindsey No. 2 claim. Showing some of the best ore observed on the property occur at this point as well as the fact that some of the richest shipments of ore were mined near the surface at this point.

Thirdly, or, opening of the Lone Star vein on the Silver Star claim at the point of intersection of the vein with the northwest fault. The opening of the last two points named will be productive of marketable ores as the work proceeds.

The installation of air compressor, power drills, and equippage as well as a hoist capable of sinking to a 1000' depth, will be necessary.

Respectully submitted

A. E. Almind, Mining Engineer

May 20th, 1930.

SUMMARY AND CONCLUSION

In summarizing this report, I would wish to emphasize the following pertinent facts:

(1) Definitely a production of shipping copper ores has been made from the Lone Star Mine.

(2) Profits have been made from individual ore shipments and over time periods by making production from the veins.

(3) For a period of 25 years the property was held in small parcels making for but small and individual operations.

(4) No coordinated development work has ever been carried on, and the vein ores from below the water level have never been reached

(5) The character of the sulphide ores thus far encountered is such that great enrichment in the value of the ore may be expected in the deeper levels of the veins.

(6) The average value of the vein ores thus far produced are sufficiently high to assure good profits with even the marketing of but small tonnages.

In view of the above, my conclusion is that a reasonable amount of capital is necessary to develop the mine. That is, with

specific reference to the vein system and the shipping ores down to and below water level. And also, that additional capital be allotted to make a geophysical survey with the veiw of proving and later developing the areas of large tonnage and lower grade, milling copper ores. The cost of the above survey should range from five to ten thousand dollars. Exceptional care as to obtaining competent and experienced operatives, should be exercised in this connection.

A study of the development work to be done and probable cost of same would cause us to recommend that the company provide a working fund amounting to forty to fifty thousand dollars for the development work and operation of the mine.

January 14th, 1942

Mr. Harry J. Morris
Box 263
Safford, Arizona

Re: Lone Star *File*

Dear Mr. Morris:

Your last communication dated in October of 1941 stated that you hoped to have your financial situation straightened out by the first of the year, and I am therefore hoping that I may hear from you before long and actually receive the money which you have owed me for several months and which was represented by the worthless check that you gave me on that occasion.

Yours very truly,

GMC:DF

Check of $196.10 turned over to Phoenix detective bureau. (Arnhold)

Mine reopened by Further in 43 with ~~indifferent~~ poor results according to my information

May 17th, 1941

REPORT ON LONE STAR GROUP OF MINING CLAIMS
GRAHAM COUNTY, ARIZONA

Mr. Harry J. Morris
Safford, Arizona

Dear Sir:

Pursuant to our arrangement of May 10th I have just completed a brief examination of portions of the Lone Star Group of 36 unpatented lode mining claims which you now hold under lease and option, also four claims which you have located yourself. I now beg to submit the following report.

Location:

This property lies from 9 to 12 miles nearly due north of Safford, with which it is connected by dirt roads, the last portions of which are rough as the claims are approached. The claims lie on the south slopes or foothills of the Gila Mountains and the elevation of different workings vary from about 5700 feet above sea level on the Kirkland Claims to 4550 feet at the Clara Shaft, while some of the so-called "gold claims" are at higher elevations. (Elevation of Safford on the Gila River is 2932 feet). The surface of these claims is rough and rocky with very scant vegetation. Water is found in some of the nearby gulches in sufficient quantity for domestic purposes or possibly for a small mill. The climate is suitable for all year operations although quite warm during the summer.

Geology:

This section of the lower southern slopes of the Gila Mountains is mostly composed of Tertiary igneous intrusive rocks including andesite, rhyolite and diorite porphyries and some flow breccias and agglomerate. On the higher elevations more recent flows of basalt and other lavas are noted and in places there are limestones and dolomites with a capping of caliche. The veins appear to have filled fissures formed during the cooling of the eruptive flows and dikes and in the main they strike northeast-southwest and are filled with silicified wall rock and quartz impregnated with iron, copper and manganese oxides while the lead is associated with the limestone. Apparently the metallic minerals were deposited from solutions, the origin of which has not been determined, - since no thorough geologic reconnaisance of the district has ever been made, - but the iron and manganese oxides appear to be associated with the copper and the veins are often marked by a gossan along the outcrops. The impossibility of examining any of the lower workings on these veins limited my investigation to the surface and shallow openings but the mixture of secondary sulphides and oxides suggests a partially leached zone near the surface succeeded in depth by a zone of secondary enrichment in which were found the pockets and seams of high grade copper ore reported to have been mined from the upper workings of the Lone Star and Clara and still remaining in the latter mine at and below the 220' level.

While time did not permit me to make an extended study of the possibility of finding any disseminated body of copper ore

(porphyry copper deposit) I was unable to note any traces or colors of copper excepting in or near the fissures or gash veins and I do not consider the conditions favorable or promising to any large deposit of that nature nor do I believe that they justify the very heavy expenditure that would be required to positively prove or disprove the existence of disseminated ore in commercial quantity, although a reference to this will be made further on in my report.

Ore Showings:

I shall briefly discuss the showings on the various sections of the claims which I examined:

(1) Gold Claims (Tolley Section). On the claims known as the Hornblende Group and located at the west end of the property are found several outcrops of iron oxide with small veins in the andesite or along the contact between the andesite and diorite or hornblende dikes. None of these veins has been traced for any distance along the outcrop and in several shafts from 10' to 40' in depth they appear to be nearly vertical and to strike north-south with a width of from one to three feet. Tolley has made no shipments from these veins, does not claim that any of his samples from below the surface ran better than $8.00 per ton and admits that in most cases the values and width of the veins decreased with depth. He showed me one old shaft which was said to be over 100' deep and to have produced some 10% copper ore but no material of this character was to be seen on the dump and the vein was evidently very narrow. While my investigation was very superficial I could not see indications of any commercial ore on these claims. The showings

have the appearance of gash veins, rapidly pinching out in length and depth and I do not consider them of any present or future value and would not advise any further exploration or development. I doubt if these claims are worth holding for any purpose except for the water supply found in a little creek which crosses through them.

(2) Silver Lead Veins. This section of the property known as the Kirkland Group lies south and east of the Tolley Claims and here the country is mainly limestone and rhyolite porphyry overlain in places with caliche and marked at intervals by prominent outcrops of quartzite. Across a low ridge three or more veins strike northeast-southwest and dip steeply to the northwest. The filling in these veins is quartz, lime and crushed wall rock, much kaolinized; containing lime and iron oxide with some showings of lead and copper carbonates.

Several shafts have been sunk on these veins, all of which are now inaccessible but from the dump at the surface of a 90' shaft I took my sample #3, which assayed one ounce in silver and 2.78% copper; - gross value $7.48 per ton.

Near the base of the southwest slope of this ridge at elevation of 3040' an open cut has been advanced about 30' and the face now has a height of seven feet in which there is a fairly well defined vein some three feet wide. My two samples, 4A and 4B, were taken from cuts across the vein at this point respectively at depths of four and six feet below the surface and the assays were as follows:

	4A	4B
Lead	0.11%	0.15%
Silver	0.10 oz.	0.30 oz.

At a point 10' back from the breast of this cut my sample #6 was taken across two feet width of vein and assayed - Lead 0.10% and Silver - 0.10 oz.

A composite of these last three samples was found to assay only a trace of gold and it was also tested for vanadium and molybdenum of which only traces were found. The aggregate of all of the values noted above is too low to be paid for by any smelter. Other shafts in these veins were not sampled but no ore was seen on the dumps.

(3) Lone Star and Clara Section: This area, lying about a mile to the east of the Kirkland Claims and at a much higher elevation, was the scene of quite extensive development and mining during the 1890's up until 1907. Only a few of the numerous workings appear to have produced any ore and although the total value of the shipments has not been recorded it certainly represented only a small fraction of the expenditure. The country is mainly a series of rhyolite and diorite porphyry dikes and in one area it is said that monzonite porphyry was found. The vertical, or almost vertical, veins strike northeast-southwest and are mostly in fissures in the rhyolite, the filling being largely quartz and silicified wall rock with copper carbonates, silicates and sulphides.

On the Lone Star Vein, which dips to the northwest, a shaft was sunk to a reported depth of 435' on the incline. This is now caved and filled with debris just below the concrete collar and its reopening would certainly involve a very heavy expense that does not appear to be justified either by the surface indications, which are by no means promising, or by any reliable information concerning the

underground conditions.

It may well be true as reported that small pockets and stringers of high grade copper carbonates and secondary sulphides were mined above the 100' level (which was probably in the zone of secondary enrichment) but it appears highly improbable that the mine would have remained idle and abandoned for over 30 years if any pay ore or definite indications of pay ore had been found in the lower workings and the logical conclusion is that the ore either petered out in depth or became so low grade in the primary zone (if this was actually reached) as to make mining unprofitable.

At the Marion workings I could only note a very unpromising vein giving no evidence of pay ore nor any encouragement for development and the same comment will apply to the Blaic, where the shaft is said to be 275' deep but is now caved at the collar.

At the Norquay workings, elevation 4400 ft., the surface conditions appeared more promising as a narrow vein carrying copper carbonates could be seen on the surface and for a short distance in a cut and 25' shaft and some fair looking copper ore had recently been mined and was being shipped. Here I cut my sample #1 across the shaft for a width of six feet and this was found to contain copper - 2.05%.

The value of the small shipment which you have made from the ore recently mined at that point will give a clue as to the advisability of continuing your work at this point, which I can only recommend in the unlikely event that you should find it possible to continue on a basis which will permit the work to be paid for from

the returns from shipments which could doubtless be sorted up to a grade of six or even ten percent, but only at an expense that would probably prove prohibitive.

The Clara vein (elevation 4550 ft.) appeared to me to be the most attractive showing on the entire property. Although the vein in the face of the opencut and as far in the adit drift as the locked door was narrow, yet the values appeared to be persistent and the mixture of chalcocite with carbonates suggested that good values due to secondary enrichment might be likely to continue downward from this point and very probably to persist as reported as far down as the 220' level and in the winze below but the 60' winze which was sunk near the portal of the adit appears to have produced but little ore and may be off the shoot or in low grade material.

The character and strength of the gossan outcrop, the showing on the dump at the shaft and the mineralization of the porphyry wall rock all appeared to indicate a more intensive and wider spread mineralization than at any other point and tended to confirm the reports that on the 220' level there was a wide body of low grade ore with stringers of high grade that might perhaps make it possible to hand sort and ship some ore with a fair margin of profit.

It was most unfortunate that the condition of the 8' x 4½' vertical shaft made its descent and examination impossible at the time of our visit but from all appearances the timbers are in good condition to a depth of at least 50' or more and through the replacement of the ladders only it should be easy to get down at least 60' below which point it was stated that the shaft walls were very firm and thus by setting in a few stulls, clearing out the bad air and

continuing the ladders it may be feasible to reach and examine the 220' level at a comparatively small expense.

An investigation of such conditions as actually exist on this 220' level and around the collar of the winze should then enable one to determine the advisability of cleaning out this winze with a chance that at this point pay ore might be mined from the high grade stringers and sorted for shipment.

The outcrop of the Clara vein can be traced for several hundred feet and shallow pits have been sunk at intervals from one of which some 600' south of the main shaft I cut my sample #2 across a vein width of two feet and this assayed 2.46% copper, all of which occurred in the form of carbonate.

We were informed that Walter Larssen, a very reliable engineer, had examined the 220' level at the Clara shaft in about 1937 and had reported finding a 40' width of two to three percent copper ore, which he probably considered too low grade to be commercial. I have written to Larssen to check this report and will advise you as soon as I receive his reply.

We were also informed that engineers of the United Verde Copper Company had made a very thorough examination of all this property, especially the Clara workings and vicinity about 1928 and on my return trip I obtained from a reliable source the following statement in this regard:

In 1927 or 1928 Tom Sparks of Prescott, - perhaps associated with Tom Campbell, - looked over this district and thought that there was an area of monzonite porphyry in which there was a chance for a

disseminated copper deposit. He is supposed to have done some drilling and other exploration work and presented the property to the United Verde Copper Company, at whose request Fred Searls made a brief visit and evidently thought that there were fair possibilities since subsequently Benedict and Reber of the United Verde staff were sent to make a more detailed investigation. The United Verde Company took no further action but my informant could not say whether this was due to an unfavorable report by the engineers and geologists or because the terms on which the claims were offered were unsatisfactory but in the latter event I am very certain that they would have later taken steps to acquire the claims when they were abandoned by their former owners and according to reports could have been secured at a very small cost.

Lone Star Notes

In connection with the operation of this property for the production of ore, which must be shipped to a smelter, the following economic conditions should be born in mind:

Assuming that you were to mine and ship a 6% copper ore of which the gross value would be reported by an assayer as $14.40 per ton (at 12¢ newspaper quotation for copper).

The smelter would actually credit you with 110# at 9.295 = $10.225 per ton, less a treatment charge of probably $3.00 per ton equal to $7.22. From this payment you would have to meet the freight and trucking cost, which I understand would be about $2.38 to Miami (allowing for moisture content) and the royalty of 0.72 to the owner, leaving only $4.12 to cover mining and overhead, which under present

conditions would be sure to mean an operating loss, especially if the ore had to be mined from a narrow vein or sorted to bring it up to grade.

In my opinion you could not hope to make any reasonable profit from mining and shipping any copper ore from the Lone Star Group with a lower average content than 10% and no body of ore that even approaches such a grade is visible or indicated on the property.

Similar calculations in respect to lead-silver ore should be made with due allowance for a higher moisture content and freight to El Paso Smelter, but none of my samples indicated any ore with appreciable values in either of these metals and I could see no evidence that it was likely to be found anywhere on the claims.

Conclusion and Recommendations:

It is my carefully considered opinion that all of the showings which I visited can best be described as most unpromising prospects or mines which have been abandoned because they were judged to be worthless by their operators and other qualified persons. While many rich specimens and samples may have been taken from pockets and stringers, I could find no evidence leading to a conclusion that any of the veins had ever contained a substantial quantity of gold, silver or lead ore. The past production of copper was unquestionably made at a heavy loss to the producers, who seem to have spent upwards of $200,000 prior to 1907 in their unsuccessful attempt to make even one producing mine and it is inconceivable to me that persons familiar with these showings should not have seriously attempted to resume work during the several years when copper sold at better than

20¢ per pound unless they had recognized the hopelessness of such an attempt.

Without questioning the sincerity and veracity of the parties who tell of the high grade ore which is left in these mines, it must be recognized that they are men without training or experience in this particular industry and therefore might easily draw unwarranted conclusions from very trivial showings of spectacular ore or a few high assays of picked samples.

We have a record, as noted in this report, that this property was thoroughly examined and sampled by the United Verde Copper Co. in 1927 or 1928 when the price of copper was high and when I personally know that very wealthy concern was extremely anxious to secure either high grade vein mines or low grade disseminated copper deposits and again it is unbelievable that the United Verde or their successor, the Phelps Dodge Corporation, would not have found the ways and means to acquire these claims if they had felt that they were really worth acquiring and developing.

My own judgment would be against the spending of any money, even to meet the requirements of annual assessment work and still less to meet the payments which are provided in your contracts with the owners, involving altogether a minimum annual outlay of some $7,000.00 and more in later years. Therefore, my best advice to you, and it is given with sincere regret, is to cancel these contracts without further delay and expend no additional funds on what I believe will surely prove a losing venture.

But if you should feel that you are under any legal or moral

obligation to continue for a time, I should advise you to largely confine your future work and expense to the reopening of the Clara shaft as far as the 320' level so that the true ore conditions can be positively known and positive information obtained which can serve as a further guide to your future policy. There is always a chance that such a procedure might serve to entirely alter the picture, but I am frankly unable to feel that this is anything more than a remote possibility.

Further work at the Norquay shaft might lead to the discovery of some pockets of richer ore in the zone of secondary enrichment but again I do not believe that the returns from shipments would ever cover the expense.

As to the open cut in the lead-silver vein, in which both lead and silver values are so far negligible, a further advance into the hillside slope or deepening the cut would serve to furnish information regarding the character of the vein below the surface leaching but unless the change for the better should be very marked and take place very rapidly I can see no reason to expect that pay ore will be found in any of these lead silver veins where the old shafts were evidently abandoned because they failed to find any ore shoots in which stoping could be carried on with profit.

Yours very truly,

L. H. Collins

REPORT ON THE LONE STAR MINES, INC., WITH PROPERTIES

AT SAFFORD, GRAHAM COUNTY, ARIZONA

PROPERTY

The property consists of fifty-five mining claims grouped around the original Lindsey and Anderson Claims, later known as the Lone Star Mine. The very recent acquisition of two claims that were centrally located, now consolidates the entire group making an unrestricted area of one thousand and eighty acres.

This block of claims extend Easterly, Southerly, Westerly and Northerly from the ground that was the original Lone Star Mine, and which was operated during the late eighties and nineties.

The above claims are held by deeds duly recorded or by location and annual representation, the owner in either case being the Lone Star Mines, Inc. The exception to the above being the two claims but just recently acquired and the title to which is now in process of being obtained.

HISTORY

The early working of the Lone Star Claims was started about 1886 by Lindsey.

The rich oxide and carbonate copper ores, containing small amounts of silver and gold are said to have been exposed on the surface of the Lindsey Claims as bold outcrops. The copper content was from 15 to 60 percent.

Lindsey built a small smelter on the Gila River eight miles from the mine and proceeded to reduce these oxidized ores to metallic copper. His operations attended with some degree of success, continued until 1898, when Lindsey and Anderson sold the property to I. L. Qualey.

Qualey in turn organized a stock company with headquarters in Boston, Massachusetts. He at once caused to be mined the rich black sulphide ore body which had been encountered near the Lone Star shaft on the 100' level. Five tons of this ore was selected and shipped to Boston and placed on exhibition there, resulting in the sale of considerable stock. "Gutting" the Lone Star shaft of all available orettonnage was carried on. The superintendent of the mine was told that, "this concentrating of work to taking out ore was solely for the purpose of stimulating investment in the property", and that very shortly an extensive development program would be inaugurated."

The development program was not started until after Qualey had been removed from the Company for gross mis-appropriation of funds. Thus the working capital for development purposes started off in a very limited fashion. For a period of years no further work was done in the Lone Star shaft and mine workings.

On the adjacent ground the Miles shaft, also the Clara, Elsie and other shafts were sunk to depths of 200 to 500 feet. Finding that they would have to sink still deeper and having equipment with limited capacity for depths of operations, the final development work was carried on in the Lone Star shaft. Superintendent C. B. Spalding describes the work briefly as follows:-

"After doing some repair work in the shaft, we started sinking at 117 feet. From this point on down as far as we went - 485 feet - the vein is continuous without a break. Assays taken all the way down show copper from a trace to 7 and 8 percent but not much of the latter. Returns generally gave from a trace to 4 and 5 percent. The 4 and 5 percent returns were coming in greater frequency during the last 25 to 30 feet of sinking and it was at that time, my firm conviction that another 50 to 100 feet of depth would put us into commercial ore -- that is shipping ores. But there was no money to go on with."

PRODUCTION

The Lone Star production is stated to be about 1200 tons of 15 to 60 percent copper ore for the period of active mining operations by Qualey. During the late war-period of high priced copper, some considerable production was made by the then owners and leasers, probably ten car loads or more were shipped.

Thus it appears that the Lone Star and immediately adjacent properties have produced from 50 to 75 carloads of oxide carbonate copper ores, averaging from 15 to 25 percent copper and with small values per ton in both gold and silver.

Whereas the sulphide ores have been developed at some points, none of the above production can be credited to sulphide ores.

The Lone Star Mines, Inc., during some of the work of testing out the surface ores, made two small lot test shipments. The results of these shipments are of interest and copies of the settlement sheets are given as follows: (These reports were attached to the original report."

During the former operations of the Lone Star under the Qualey corporation there was a profit accumulating to the company from the scale of work then carried on. A conservative statement made by the then superintendent was to the effect that during the time that the ore body was being mined above the 100' level of the Lone Star shaft, the returns from the shipments made, paid a considerable profit above the cost of operation. There is no way of getting any record of

the amount of production or profit made at that time.

ECONOMIC GEOLOGY OF LONE STAR MINES

The country rocks of the immediate vicinity of the Lone Star are acid intrusive volcanics. The prevailing strike is E.15 to 40 N., with a dip of nearly vertical. The entire formation has the appearance of large dykes that have varying widths up to many hundreds of feet. These dykes can be followed on the surface for great distances, and are finally obscured by the capping of younger volcanic rocks. This capping of volcanics forms the mountains of this part of the Gila Range. In contrast, to the southwest are the Pinaleno Mountains, where the uplift has been much greater. The granites form the entire mass of these mountains. The capping volcanics have been entirely eroded away.

The rocks identified are as follows: - Porphyritic schist containing disseminated iron pyrite now altered to iron oxides; Andesite porphyry; Quartz porphyry; Diabase and diorite at the north end of the district. The younger volcanics are made up of basalt, rhyolites, tuff and agglomorate. Of the main rock area there was also quartzsite, secondary lime and large bodies of silica, as of hot water deposition.

Development workings to date show numerous veins ranging in width from two feet to as much as 20 feet. The general strike of these veins is Northeast and Southwest. There are probably ten or more such veins crossing the property and easily traceable because of the heavy gossan cap.

Of very great importance are the zones of quartz porphyry dikes in which are found frequent stringers of copper minerals. These stringers are rich in copper content and increase both in size and in copper content as they are developed in depth. The porphyry for extensive widths is highly kaolinized. This then appears to be the reason for the finding of the sulphides and the copper minerals at a much less depth below the surface in the quartz porphyry mass than in crushed, shattered and oxidized veins. At some favored points within the veins, the walls may be impervious and the vein contents therefore protected from leaching by this or other means. Here the copper values with always a small gold and silver value is found as rich ore within the vein. More generally the open crushed vein matter is leached of the copper values for several hundred feet of depth.

The following sulphide minerals were recognized: pyrite, possibly marcesite, chalcopyrite and chalcocite. Also galena occurs in area to the northwest and southeast. The only sulphide mineral observed within the veins was chalcocite as all primary sulphides are oxidized within the vein walls. In depth at permanent water level --the enriched secondary copper ores are unquestionably in these main veins to be opened by the deeper development of the veins. The rich oxides and copper glance probably will form the greater part of the mineralization of the enrichment zone.

TOPOGRAPHY AND VEGETATION

The general country of the mines is just above the base of the south end of the Gila Mountain range. A gradual and unbroken mountain slope ranges from the Gila River at an elevation of 3200 ft. to the mine at an elevation of 4400 feet. About 800 feet covers the difference in elevation of the high and low ground of the mining property.

Being the southerly exposure of the Gila Mountains the country is entirely devoid of timber or even small trees. Small mesquite, yucca, cacti and grasses constitute the vegetation of the mine area. In general the above grow throughout the area, with the exception of one or two spots where the heavy mineral content of the soil or rock prevented all growth.

CLIMATE AND TRANSPORTATION

The general climatic conditions are the most favorable possible to obtain, for all year round operations.

The road and hauling conditions from the mine to rail at Safford are most favorable, being an all down hill haul. Ores should be hauled from mine to rail for $1.50 per ton, or less, on large contracts. At such times as the handling of very large tonnages may be necessary a branch line of the railroad can be run directly to the mining property without excessive costs of construction.

During short periods of the rainy season one or two spots of the road may need attention, and the crossing of the Gila River without a bridge will occasion delays several days at a time. It is contemplated that the county will construct a bridge over the Gila in the near future.

ASSURED MINERAL

With the number of shafts on the property of depths up to 500 feet, we would expect to find an important tonnage of assured or blocked out ore. But, because of the occurence in the veins at shallow depths, of shipping value of ores, practically all of the available tonnage has been mined and shipped to the smelters. There are several car loads of shipping ores still available in the Lone Star workings above the 100' level. Also to the east of the Lone Star No. 2 claim and to the west of the Marion claim. Shipping grade of ore can be mined after doing a very small amount of development work. This is not ore blocked out and no estimate of tonnage will be made.

PROSPECTIVE AND PROBABLE ORES

At the points above mentioned on the Lone Star and Marion Claims, good grade of shipping ore can be mined continuously in moderate tonnage after carrying on of about sixty days of development work. There are several other points on the surface offering nearly as attractive assurance of ore tonnage from reasonable amounts of development work.

The development of the richer ore horizons of the veins has not yet been accomplished. The Lone Star shaft is at 485 feet depth. It has a dip to the north under the porphyry formations. Without doubt the level of sulphide ores will be encountered within the next one or two hundred feet. While at the depth of 50 to 100 feet 15 to 60% copper content shipments of ore were made, it is reasonable to expect that the richer ore as shipped from the veins in depth will carry from 15 to 40% copper. With the opening of the sulphide ore horizon an important tonnage of shipments of excellent grade of copper ore can be maintained.

The cost of marketing the copper ores to smelters is attractively low, as there are six or more plants located at distances up to about 100 miles rail haul from Safford and shipping point.

The development of a large tonnage of copper ores disseminated in the quartz porphyry or in the large shear zone that diagonals across the porphyry, is the ultimate to accomplish for the making of a very large copper mine. There are two or more areas on the property that amply justify a detailed study and development work to determine such ore bodies. The proving of the lower grade ores will entail a large milling plant and therefore a large investment of capital.

Large outlay of capital for such development is not to be attempted too rapidly. The tonnage of ore contained in an ore body of three hundred feet vertical extend and of a real extend equal to half of the mining claim, would amount to over ten million tons of ore.

As mentioned above, the shear zone in the porphyry and also the area that now shows almost a stock work of veinlets, both contain small values at the surface. The geological conditions are in every way favorable for the large tonnage bodies of the lower grade ores. A study of the geology of the entire surrounding areas, a survey of all the developments as work progresses at the Lone Star, and a complete record kept of all data obtained during operations, will all assist greatly towards developing the probable large tonnage of lower grade ores.

GENERAL MINE SUPPLIES

LABOR

The supply of labor at present is easily obtainable at the Arizona scale of wages. Transient and Mexican help are easily available for the general inexperienced work. Proximity to the larger copper mining camps and the nearness to rail and highway are beneficial as to labor conditions and the obtaining of all other mine supplies.

WATER

There is no supply of surface or running water over the properties. Excellent supply of well water is available at from one to two miles distance and at 150 to 350 feet lower elevation than the mine. For larger supply the Gila River will always afford unlimited supply at eight miles distance from the mine.

POWER

At present power will be supplied by means of internal combustion fuel oil engines. Later it may be economical to bring in an electric line and power from a plant located on the railroad at Safford.

Explosives are obtainable from the Apache Power Company, at prices less than is generally paid by mining companies. Local timber is available from saw-mills about 30 miles distance from the mine.

MARKET ECONOMICS

The recent lowered price of copper has been a necessary economic adjustment, brought about by the heavy production of copper with an attempt to sustain higher price levels, and the competitions of other metals. The present price levels of twelve to fourteen cents per pound, appear to be conservatively low.

There will no doubt be adjusted scale of wages also possibly a shorter number of days per week worked out in the very near future, the same prevailing in Arizona and other parts of the West.

The slump of copper price is not affecting the programs of expansion now being carried on by the British, Frood and Copper Cliff of the Internation Nickel Co. of Canada are going forward with their expansions. The same is true of Rhodesian Copper mines.

The above mentioned price of metal permits a very safe margin of profit to be made by the well established and going copper companies. Moderate production and a well-balanced development will make a successful copper mining enterprise at this time.

RECOMMENDATIONS

The major development operation to be carried under the present conditions is the sinking of the Lone Star main shaft to a depth of at least 200 feet deeper on the vein. This work should develop the vein below the sulphide level of ore.

Conditioning, retimbering and benefiting the present shaft must be carried on first in order to obtain safe and more economical working conditions for shaft sinking. A station must be cut at the 500 foot level of the shaft and cross cut drifts should be driven at this level to the foot and hanging walls to determine definitely the position of the vein. The shaft from the 500 foot level down should follow as closely as possible the same angle of dip as the bottom 200 feet of the present shaft.

Two or more secondary developments should be carried on co-incident with the Lone Star shaft sinking. It is reasonable to expect that a considerable amount of good ore can be produced and marketed as a result of these secondary developments.

Firstly, the large vein on the Marion claim near the west sideline should be opened by sinking a shaft at the point of intersecting

veins as shown on the surface. Because of the surface conditions it is likely that work should be carried on a little to the east of the above point mentioned.

Secondly, the extending of the Lykins adit tunnel until it cuts the Lone Star vein and from this point open the vein by driving a drift easterly to the east side line of the Lindsey No. 2 claim. Showing some of the best ore observed on the property occur at this point as well as the fact that some of the richest shipments of ore were mined near the surface at this point.

Thirdly, or, opening of the Lone Star vein on the Silver Star claim at the point of intersection of the vein with the northwest fault. The opening of the last two points named will be productive of marketable ores as the work proceeds.

The installation of air compressor, power drills, and equippage as well as a hoist capable of sinking to a 1000' depth, will be necessary.

Respectully submitted

A. E. Almind, Mining Engineer

May 20th, 1930.

SUMMARY AND CONCLUSION

In summarizing this report, I would wish to emphasize the following pertinent facts:

(1) Definitely a production of shipping copper ores has been made from the Lone Star Mine.

(2) Profits have been made from individual ore shipments and over time periods by making production from the veins.

(3) For a period of 25 years the property was held in small parcels making for but small and individual operations.

(4) No coordinated development work has ever been carried on, and the vein ores from below the water level have never been reached

(5) The character of the sulphide ores thus far encountered is such that great enrichment in the value of the ore may be expected in the deeper levels of the veins.

(6) The average value of the vein ores thus far produced are sufficiently high to assure good profits with even the marketing of but small tonnages.

In view of the above, my conclusion is that a reasonable amount of capital is necessary to develop the mine. That is, with

specific reference to the vein system and the shipping ores down to and below water level. And also, that additional capital be allotted to make a geophysical survey with the veiw of proving and later developing the areas of large tonnage and lower grade, milling copper ores. The cost of the above survey should range from five to ten thousand dollars. Exceptional care as to obtaining competent and experienced operatives, should be exercised in this connection.

A study of the development work to be done and probable cost of same would cause us to recommend that the company provide a working fund amounting to forty to fifty thousand dollars for the development work and operation of the mine.

Lone Star Mine file

The Mines Handbook 1920

COPPER MINING AND CONCENTRATING CO. ARIZONA

Address: J. D. Murphy, Bisbee, Arizona

Officers: W. H. Remington, pres.-treas.; J. D. Murphy, sec.-mgr., with John C. Stewart, directors.

Inc. 1921 in Arizona. Cap. $75,000; par $5; 703 shares outstanding. Annual meeting, Nov. 12.

Property: The Lone Star Mine, 12 claims, 240 acres, in Graham County, 10 miles N. of Safford, formerly controlled by Mineral Mtn. Copper Co., a subsidiary of Lone Star Cons. Copper Co. Ore carrying copper and silver occurs in a lime-porphyry contact, assaying from 2 to 25% copper.

Development: Consists of two shafts, 400 and 550'. Past production about 5,000 tons. Mine has been idle since 1916, lacks equipment of any kind, and is not operating today (1923)

LONE STAR CONSOLIDATED COPPER CO. ARIZONA

Idle several years and probably dead. Officers refuse to reply to letters. Part of holdings were in 1921 controlled apparently by Copper Mng & Conc. Co., which see. Company's charter suspended in 1917 by Maine authorities.

Officers: Wm. H. Powers, pres., 209 Washington St., Boston, Mass; Henry H. Folson, sec.; A. G. Smith, treas. Chas. B. Spaulding, supt., at last accounts.

Inc. Aug. 6, 1905 in Maine, practically as successor of Maravilla Copper Co., listed in Vol. VI. Cap. $5,000,000; $10 par.

Company controls the Mineral Mountain Copper Co., through ownership of a two-thirds share interest, and, through majority stock ownership, the Chase Creek Copper Co. (Vol. XIV)

Property: 32 claims, includes the Little Clara mine, developed by tunnel and shaft, and the Lone Star Mine, in the Gila range, Lone Star district, Graham county, 10 miles N. of Solomonville. The 900' shaft is said to show a 5' vein of sulphide ore carrying 8 to 10% copper, with fair silver values and a little gold; and also shows stringers of ore giving assays of 5 to 20% copper. Equipped with compressor and drills. Regarded with suspicion.

Notes of Lone Star Trip

Mt Graham in gneiss & syenite

Gila Mts Show trachyte & dolerite

Granite & schist & igneous rocks of [illegible]

Vol rhyolites, andesites, obsidian & yellow tuff

near [illegible] is quartzite, & limestone

Contact hills & dikes of igneous

Production

San Juan Mine in Lone Star

[illegible] 1907 – [illegible] 110,000# copper

THE ARIZONA TAX RESEARCH ASSOCIATION

706 HEARD BUILDING
PHOENIX, ARIZONA

March 31, 1941

TO ALL MEMBERS:

Now that our Association has passed its first birthday, I want to send to each of you members a brief personal message.

When the 15th Legislature adjourned, The Arizona Tax Research Association had completed its first big job. A year ago the directors of the Association decided that the first work to be undertaken should be the auditing of state departments and presentation of those audits to the 15th Legislature for their use in preparing the appropriations for the next biennium.

Audits were made of 33 departments and legislation which these audits indicated as being necessary and desirable was prepared. All of this material was very ably and effectively presented to the Legislature by our Managing Director, Mr. Spear. The result was highly satisfactory as indicated by the fact that the total appropriations for the next biennium are $1,379,290.40 less than those made by the 14th Legislature for the biennium ending June 30th of this year, old age assistance and school apportionment being excluded for both bienniums. The credit for this substantial saving rests squarely upon the members of the Legislature to whom we owe our deep appreciation for their fine cooperation in promoting a more economical use of state funds. Mr. Spear's report, which you will receive, will show the results of our efforts for remedial legislation.

The directors of the Association have now adopted a program for the coming year which will be carried out under the direction of Mr. Spear and will be largely devoted to the auditing of the various counties and school districts.

Your loyal and enthusiastic support during the last year has been very helpful in carrying out our program and has been very much appreciated by the officers and directors. I hope that you will continue to give the Association the same support in the future.

Very truly yours,

Henry G. Boice, President

HGB:ms

RMG-8

RMG-7

RMG-6

RMG-1

RMG-2

Elsie S

-10

-11

BATTLE AXE

O.V.

SILVER STAR - 1

SILVER STAR - 2

SILVER STAR - 3

KEYSTONE

LINDSEY - 3

LINDSEY - 1

LINDSEY - 2

NORQUAY

CARLTON

MARION

GOLDEN GLOW

PACK SADDLE - 1

NANCY

BLUE BIRD

PACK SADDLE - 2

-18

-6

-7

PACK SADDLE - 3

-17

-5

-8

-11

-16

-4

Part of Lone Star Group near Safford