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12/6/71

Property No. 11: HUMBOLDT-STARLIGHT GROUP  
Pershing County, Nevada

The property is located in the Humboldt Mining District about 38 miles via road northeasterly from Lovelock, Pershing County, Nevada. The first 33 miles is on paved U.S. Highway 40 and Interstate 80 to the Humboldt Station Turnoff; thence, 5 miles easterly on an unpaved road through the old town of Humboldt to the north end of the property. Snow may block the last mile of the road for several weeks during the winter.

Siskon Corporation owns a contiguous group of 19 patented lode mining claims, about 359 acres, and 10 unpatented lode mining claims, about 160 acres. Nine of the Starlight claims are subject to a 5% royalty, until payments total \$25,000, to an optionee who assigned the option to Siskon.

The unpatented claims are held by completing at least \$100.00 per claim of assessment work totaling at least \$1,000.00 and the assessment work is current to date. The patented claims and land are held by the payment of taxes which are current to date.

Siskon Corporation acquired one patented claim by a deed from Sue Magee Gamble, dated February 10, 1967, and the other 18 patented claims by a deed from H. B. & Betty Sprenger and H. C. & Luella Schwabrow, dated January 18, 1967. Siskon Corporation acquired 4 of the unpatented claims by a deed from Sue Magee Gamble, dated February 10, 1967, and the other 6 unpatented claims by right of location.

No information is available pertaining to early exploration or mining activity on the property. The only known record of previous production are the shipments by D. & D. Minerals Co., Inc. and W. S. Peterson which show that during 1954 and 1955 a total of 407+ tons of ore assaying 0.688%  $WO_3$  was mined from the Starlight open pit and shipped to the Getchell Mine, Red House, Nevada.



The open pit which produced the 407+ tons of ore, mentioned above, is about 100 feet long, 50 feet wide and with a maximum depth of about 60 feet. In this pit there are 4 adits (one is covered by later workings) with about 250 feet of workings. There are numerous shallow open cuts over the balance of the property and a shaft about 50 feet deep and several other adits totaling several hundreds of feet of underground workings. There are no improvements, plants or equipment on the premises.

Tungsten mineralization occurs erratically distributed in a tactite zone in limestone and shale along a rhyolite contact. This contact extends from the north end of the property some 10,000 feet southerly thru the claim group, but is not mineralized along most of this extent. Minor gold, silver and lead values occur in quartz veins in the rhyolite and in the sediments. Beryllium mineralization sometimes occurs in the tactite zone.

Open cuts, underground workings and a small amount of diamond drilling has been performed by Siskon in an attempt to discover commercial ores. No reserves of economic mineral deposition are known to exist on the property. Geological studies should be performed to determine the advisability of additional exploration.



CONTRACT

THIS AGREEMENT, Made and executed in triplicate this  
20th day of SEPTEMBER, 1973, by and  
between FRANK W. ROBERTS of Caldwell, Idaho 83605, P.O. Box 754,  
party of the first part, hereinafter referred to as Seller, and  
NOBLE RESOURCES, INC., a Nevada Corporation  
of 320 KIETZKE LANE, RENO, NEVADA, 89502  
party of the second part, hereinafter referred to as Buyer,

WITNESSETH, That:

1. For and in consideration of the mutual covenants and agreements of the parties hereto, and the payment of the purchase price herein provided to be paid to the Seller by the Buyer, the Seller hereby agrees to sell and convey and the Buyer agrees to purchase the following described Mining Claims, all of which are located and situated in the Cove Meadow Columbia Mining District or Territory, Humboldt County, Northwestern Nevada, Township 42 North, Range 28 East, Mount Diablo Meridian, and are particularly described as follows, to-wit:

MATCH BOX, Patented Mining Claim, Survey No. 37,  
Vol. 161, Page 73, No. 14039, situated in NE 1/4  
of Sec. 18 and SE 1/4 of Section 18.

NE PLUS ULTRA, Patented Mining Claim, Survey No. 38  
Vol. 148, Page 296, No. 12895, situated in NE 1/4  
of Sec. 18.

CHANCERY, Patented Mining Claim, Survey No. 39,  
Vol. 148, Page 299, No. 12896, situated in NE 1/4  
of Sec. 18 and SE 1/4 of Sec. 7.

VULCAN, Patented Mining Claim, Survey No. 40, Vol.  
148, Page 310, No. 12905, situated in SE 1/4 of  
Sec. 7.

NE PLUS ULTRA NO. 4, Unpatented Mining Claim, Record-  
ed Page 492, Book 11, Humboldt County, Nevada, situ-  
ated in the NE 1/4 of Sec. 18

MATCH BOX NO. 4, Unpatented Mining Claim, Recorded  
Page 492, Book 11, Humboldt County, Nevada, situat-  
ed in the NE 1/4 of Sec. 18 and NE 1/4 of Sec. 17  
and SW 1/4 Sec. 17.

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NE PLUS ULTRA NO. 2, Unpatented Mining Claim, Recorded Page 26, Book 24, Humboldt County, Nevada, situated in NE 1/4 of Section 18, Document No. 128401.

MATCH BOX NO. 2, Unpatented Mining Claim, Recorded Page 25, Book 24, Humboldt County, Nevada, situated in NE 1/4 of Section 18, and SE 1/4 of Section 17, Document No. 128400.

IRON HAT, Unpatented Mining Claim, Recorded Page 472, Book 31, Humboldt County, Nevada, situated in SE 1/4 of Section 18, and SW 1/4 of Section 17, Document No. 133219.

MILL-SITES, Original Locations as Recorded and Amended, Each consists of 5 acres and join each other. EMCO MILL SITE, Recorded Book 59, Page 443, No. Deed 150738, Amended Recorded Book 67, Page 217, No. 156262.

NE PLUS ULTRA #2, Recorded Book 42, Page 500, No. 139670. Amended Recorded Book 67, Page 218, No. 156263.

MATCH BOX #3, Recorded Book 42, Page 501, No. 139669. Amended Recorded Book 67, Page 219, No. 156264.

Emco is joined on its west side by Ne Plus Ultra #2. Ne Plus Ultra No. 2 is joined on its west side by Match Box #3. All of these Mill-Sites are situated in Cove Meadow Columbia Mining District or Territory in Humboldt County, Nevada, Township 42 North, Range 27 East, of Mount Diablo Meridian, in Section 25, South East 1/4. Surveyed and mapped, Recorded August 21, 1972.

COVE MEADOW COPPER, Unpatented Mining Claim, Recorded Page 105, Book A3, Humboldt County, Nevada, situated in SE 1/4 of Sec. 18 and SE 1/4 of Sec. 17.

VULCAN NO. 2, Unpatented Mining Claim, Recorded Page 119, Book A4, Humboldt County, Nevada, situated in SE 1/4 of Sec. 7.

NE PLUS ULTRA NO.3, Unpatented Mining Claim, Recorded Page 525, Book 6, Humboldt County, Nevada, situated in NE 1/4 of Sec. 18 and NW 1/4 of Sec. 17.

MATCH BOX NO. 3, Unpatented Mining Claim, Recorded Page 525, Book 6, Humboldt County, Nevada, situated in NE 1/4 of Sec. 18 and NW 1/4 of Sec. 17 and SW 1/4 of Sec. 17

CIRCLE BAR, Unpatented Mining Claim, Recorded Page 526, Book 6, Humboldt County, Nevada, situated in SW 1/4 of Sec. 8 and NW 1/4 of Sec. 17.

CHANCERY NO. 2, Unpatented Mining Claim, Recorded Page 53, Book 9, Humboldt County, Nevada, situated in SW 1/4 of Sec. 7 and SE 1/4 of Sec. 7, and NE 1/4 of Sec. 18 and NW 1/4 of Sec. 18.

Five Mill Sites, all located in Township 42 North, Range 28 East, Sections 17 and 18, Mt. Diablo Meridian Humboldt County, Nevada and on record as follows:



MATCH BOX MILL SITE, Recorded Book A-3, Page 113,  
Number 72889

COVE MEADOW MILL SITE, Recorded Book A-3, Page 115,  
Number 72893

NE PLUS ULTRA MILL SITE, Recorded, Book A-3, Page 114,  
Number 72890

VULCAN MILL SITE, Recorded Book A-3, Page 114,  
Number 72891

CHANCERY MILL SITE, Recorded A-3 Page 115, Number  
72892

The Mining Claims and Mill Site Claims as described in the above paragraphs of this Contract are hereinafter referred to as said Mining Claims or Property.

2. It is mutually agreed and understood by and between the parties hereto, and the Seller hereby represents, that he is the sole and exclusive Owner of the above-described Mining Claims and Property, and each and all of them, by virtue of titles and deeds to said Property from the County of Humboldt, State of Nevada, and that he has full right and lawful authority to sell and convey said Mining Claims and property.

3. It is further mutually understood and agreed by and between the parties hereto as follows, to-wit: That the purchase price of the whole of said Property shall be the sum of Two Hundred Ten Thousand-- Dollars (\$210,000.00), payable as hereinafter provided in Paragraphs 3-A, 3-B and 3-C, in which is stated the required payments to be paid and to be applied on the purchase price for the said Mining Claims or Property.

The property is offered for the first sixty days (60) from the signing of the Contract free time of no property payments for the Buyer to have time to positively remove the dumped waste rock from over the ore in ore pit and from the gulch below the ore pit to the original gulch dirt floor and then down the gulch six hundred



feet (600) from the ore pit. Waste rock material can be used to widen road down the mountain to the valley. The Contract deal after this work is completed and said sixty days (60) time has passed is as follows:

3-A. Coincidental after sixty days (60) from date of the execution of this Contract and the removal of the gulch dump waste rock from gulch the Buyer shall pay to the credit of the Seller, in escrow with the Bank of Idaho, Caldwell Office, Caldwell, Idaho, for which provision is hereinafter made, the first cash sum in the amount of One Thousand Dollars (\$1,000.00) as the first earnest money down payment to further bind this Contract and from there on -

3-B. The buyer shall pay to the credit of the Seller in escrow in the Bank of Idaho, Caldwell Office, Caldwell, Idaho, for which provision is hereinafter made, additional cash installments payments in sums equal to ten percent (10%) of the entire gross dollar value of all Mine-products which are marketed, sold, transported or transferred from said Mining Claims or Property by the Buyer, or anyone lawfully claiming through it. Mine-products are hereby defined as being all of the refinable or recovered marketable products within ores, concentrates, or recoverable metals, compound of metals, non-metallic content of ores, or any product recovered through mining operations and moved or transported outside the boundaries of the said Mining Claims or Property.

The above stated ten percent (10%) of Mine-products payments shall be paid on or before the 25th day of each and every contract month following the month of said transfer of Mine-products from the said Mining Claims or Property until the total purchase price is paid in full.

It is agreed that along with each ten percent (10%) of Mine-products payments made to the Seller, that the Buyer shall fur-



nish the Seller a full and complete written report of each and every sale, shipment or transfer of Mine-products from said Mining Claims or Property, and said report shall include a complete listing of Mine-products, quantities, and the method of determining of quantities.

3-C. The Buyer agrees after the first sixty days (60) of signing this Contract, that if the ten percent (10%) of Mine-products payments from said Mining Claims or the property production do not equal a minimum sum of One Thousand Dollars (\$1,000.00) or over for each and every contract month then said Buyers shall pay a cash payment of money sufficient to make up the monthly One Thousand Dollars (\$1,000.00) minimum of Mine-products installment payments. These payments shall be made on or before the 25<sup>th</sup> day of each succeeding contract month the said One Thousand Dollar (\$1,000.00) minimum payments are due, and shall be paid to the credit of the Seller, in escrow with the **Bank of Idaho, Caldwell Office, Caldwell, Idaho,** for which provision is hereinafter made.

4. That it is mutually agreed and understood that the time limit within which all of said payments must be paid or completed for said Mining Claims or Property, shall be on or before Sept 20, 1977 or four years which is the total length of time this Contract is to run.

5. Each and every year of Contract the Buyer shall perform the annual labor required on the unpatented Mining Claims during the fiscal year ending August 31, 1974 and during each year thereafter, upon the Cove Meadow Copper, the Iron Hat, the Ne Plus Ultra 2, the Match Box 2, the Ne Plus Ultra 3, the Match Box 3, the Ne Plus Ultra 4, the Match Box 4, the Chancery 2, the Circle Bar, the Vulcan 2, all of which are of the Roberts Copper Mine Group, which are located in Township 42 North, Range 28 East, Mount Diablo Meridian in Sections 7, 17 and 18 being the unpatented Mining



claim included in the property. Such annual labor shall be completed and the affidavits filed and recorded not later than the First day of July of each Contract years beginning July 1, 1974 and continuing so long as this agreement remains in effect and the Buyer shall provide the Seller each year ending July 1st with a copy of Affidavit of annual Assessment work which the Buyer had filed with the Humboldt County Nevada Recorder.

6. The Buyer shall pay when due and before the same becomes delinquent all property taxes and all other taxes levied by Humboldt County, the State of Nevada and the United States Government or any other taxes upon or against said Mining Claims or Property and the improvements thereon, which hereafter become due or payable for the fiscal year ending July 1, 1974, and thereafter, during the period of this Contract. Any taxes whatsoever allowed to become delinquent shall be deemed a violation of this Contract and such as to permit the Seller to terminate this Contract.

7. It is positively to be understood that the Buyer will do the property maintenance work for the Mine Property upkeep such as Mine Claim Location and Corner stakes, Mine roads over the property, water pipe lines, Mine timbering and buildings and keeping the Camp-site clean. This work to be started sixty days (60) after signing this Contract and to continue for the life of this Contract.

8. The Buyer, its Agents or Employees shall enter at once into possessing of the whole of said property, thereof and perform work as stated in Paragraph 3 and other work deemed as advisable to the development and mining operations of said mining claims, however it is understood that in development and mining work diligence must be maintained in the care of handling ore so as not to cause excessive waste of commercial value copper ore which is the vital commodity of said Mining Claims, and it is posi-



tively to be understood that in any mining excavations or exploratory work in said ground that the Buyer shall conduct such operations in such a way that ore of commercial value will not be lost by being dumped into waste dumps; that the commercial ore be stock-piled, processed or marketed. It is also understood that any over-hanging ore which is under-cut by exploration or mining operations and is not mined, stock-piled or marketed then the ore which is left in place in the ground must be supported by timbers or other such supports so that the ore will not cave and be of a loss. It is also understood that in excavating or uncovering any ore, if such ore is left in place, that it be left in such a manner it can be kept exposed or ready for future mining operations.

9. All operations conducted by the Buyer upon the said Mining Claims shall be performed by it in accordance with the laws and regulations of the State of Nevada and the United States pertaining thereto, and shall be conducted in accordance with good mining practice, mine-timbering where necessary, all safety measures at all times to be carried out and enforced, and all operations shall be fully paid for by the Buyer. The Buyer shall assume all responsibility for any operations on said Mining Claims or Property and shall maintain such insurance as will protect it and the Seller against claims for damage to property of others or for compensations for bodily injuries or death of any person, whether or not employed by the Buyer, which may arise from any operation of the Buyer, or its employees or sub-contractors on said Mining Claims or Property. Certificates from insurance companies showing coverage are to be furnished the Seller by the Buyer. The Buyer shall pay promptly for all labor performed upon said Mining Claims or Property, and for all materials and supplies furnished for such operation, and shall keep the said Mining Claims and Property free and clear from all liens for labor, materials, and supplies, and shall post and keep posted upon said premises in the manner provided by law, notices to the



effect that the work is being performed by the Buyer and that the Seller will not, nor will the property, be liable for any liens, and to the further effect that the Buyer is the Optionee-Lessee of the property and not the agent of the Seller in the performance of any work upon said Mining Claims or Property. Also, the Buyer shall hold the Seller harmless and fully indemnify him against all claims and demands of every kind and nature which may be made upon the Seller or against the said Mining Claims or Property for or on account of any debts or expenses contracted or incurred by the Buyer, its agents or employees.

10. It is agreed that the Buyer will operate and develop said Mining Claims at its own expense, and it will, at its own expense, furnish all machinery and equipment it deems necessary. It is understood that removable machinery and equipment shall remain the property of the Buyer and in the event of termination of this contract for any reason whatsoever the Buyer shall have sixty days (60) from and after said date of termination to remove said machinery and equipment, provided all due accounts have been paid in full to the Seller, and it is understood that any improvements or equipment which shall be and remain a part thereof, and the property of the Seller and that title thereto shall vest in the Buyer only upon the completion of this contract, and in this regard it is expressly understood that the following improvements and equipment shall be deemed to become permanently attached to and part of said Mining Claims, to-wit: All buildings, mine-timbers, shaft-head-frames, ore-bins, main-mining rails, main power transmission lines, main air and water pipe lines, main water supply tanks. Any removable machinery and equipment of the Buyer which is not moved from the Mining Claims within the said sixty days (60) of the date of a forfeiture termination of this Contract shall automatically become the attached property of the mining claim which it is thereon.

11. It is agreed that in the event the Buyer shall deter-



mine that said Mining Claims cannot be operated at a profit, then and in that event the Buyer, upon thirty days (30) written notice to the Seller may terminate this Contract, and in this regard the buyer shall be the judge as to whether said Mining Claims can be operated at a profit.

12. It is agreed that the Seller shall have the right of unrestricted access, at all reasonable times, to enter said premises to inspect the same and the work being performed thereon, and shall have the right to examine maps, assay records and have a copy of same, ore tonnage and sales records of the property, or the Buyer's records showing results of operation upon said Mining Claims or Property. The Buyer shall provide the Seller with a written statement following the end of each contract month's mining operation, reporting results of exploration and development work conducted, the ore tonnage mined, milled and sold during the month or any facts in connection with the operations of said Mining Claims or Property. The Buyer shall keep records of ore tonnage mined, ore tonnage run through the mill or mine-products extraction plant, ore tonnage or concentrates shipped to smelter or reduction plant, the amount of recovered metals, compound of metals, non-metallic content of ores which are produced, marketed, sold or put in storage from said Mining Claims or Property, and the assay analysis values of all thereof.

13. It is understood that title to the above-described Mining Claims is reserved to the Seller until the full purchase price herein agreed upon shall have been paid in full; that time is the essence of this contract, and in the event the Buyer shall fail to pay the purchase price as stated in Paragraph 3, also the earnest money down payment as stated in Paragraph 3-A, also any of the payments as stated in Paragraph 3-B, also any of the payments as stated in Paragraph 3-C, and all thereof, at the time and in the manner herein provided, or if the Buyer shall fail to keep and perform any and all of the covenants herein required to be kept and performed by it, then and in that event this contract shall, at the option of the Seller, become null and void, and all payments made by the Buyer shall



be forfeited to the Seller as liquidated damages to reimburse him for any loss or damage which he may sustain by reason of failure of the Buyer to perform the conditions of this contract, and upon the forfeiture of this contract the Seller shall be released from all liability, in law and in equity, to convey said Mining Claims; provided, however, in the event the Seller shall elect to declare this contract forfeited for failure of the Buyer to keep and perform the covenants herein contained, the Seller shall give the Buyer a written notice of the particular covenants which he contends have not been kept or performed, which said notice shall require the performance of said covenants within a period of thirty days (30); and should the Buyer fail to perform said covenants within said thirty days (30) as required by said notice, then and in that event the Seller may declare this contract forfeited and the escrow holder shall be and hereby is authorized to return this contract, and all cash amounts which have been paid in escrow, to the Seller.

15. Should any of the above-described unpatented Mining Claims of the above group of Mining Claims be eligible for a United States Patent, the Buyer shall furnish the Seller proof and data on the claims so that the Seller can apply for the patent to the said property.

16. Any and all additional mining locations made by the Buyer or Seller contiguous to the property hereinabove described, must be located so as to be made a part of the said group of Mining described Mining Claims, shall at the time and without further consideration be conveyed by the Buyer to the Seller in the event the Buyer should surrender this contract.

17. The locating, filing or recording for any water for mining and domestic use for the above-described Mining Claims or Property with the State of Nevada must be made in the name of the above-described Mining Claims or Property and the water to become a



part of said Mining Claims or Property.

18. The Seller, upon request of the Buyer, and after the sum of One Thousand Dollars (\$1,000.00) shall have been paid upon the purchase price, and at his own expense, will deliver to the escrow holder a good and sufficient deed to said Mining Claims, and each and all of them, to the Buyer. Said deeds shall be held by said escrow holder until the purchase price shall have been paid to the Seller in full; provided, however, that in the event said Buyer shall fail to keep or perform the promises and covenants herein required to be kept and performed by it, said escrow holder, upon demand by the Seller and after due and reasonable proof thereof, shall be, and hereby is, authorized and directed to return said title and deeds to the Seller. It is further understood that in the event the Buyer shall terminate this Contract in the manner herein permitted and shall give written notice of termination to said escrow holder, said escrow holder shall be and is hereby authorized to return said title and deeds to the Seller.

19. The escrow holder is authorized and directed, upon completion of all payments, and on the final payment for said Mining Claims and Property, and at the expense of the Seller, to provide documentary stamps in the amount required by law, which stamps the escrow holder shall affix to the deeds and cancel.

20. That immediately upon the execution of this Contract, the Buyer shall take full and complete possession of said Mining Claims and shall continue in full and complete possession of said Mining Claims during the continuance of this Contract.

21. Any notice required hereunder shall be deemed to be complete when made in writing and mailed by registered United States mail, with return cards requested, postage therein prepaid, addressed to Seller or to the Buyer, as required for said notice, to their headquarters address, and at all times all parties so concerned shall and must keep each other informed of any change in their addresses should such a change be made.



22. This Contract is to become operative and effective on the date it is placed in the hands of the escrow holder and the first cash down payment of ONE THOUSAND DOLLARS 9\$1,000.00) as earnest money is paid to the credit of the Seller in escrow in the Bank of Idaho, Caldwell, Idaho.

23. ESCROW HOLDER, upon execution of this Contract one (1) executed copy thereof shall be placed in escrow with the Bank of Idaho, Caldwell, Idaho, a Corporation, as escrow holder, who shall hold said Contract in escrow until the completion or termination thereof. Said escrow holder shall accept all money payments as set out in the above paragraphs 3, 3-A, 3-B, and 3-C, and apply the same upon the purchase price herein agreed to be paid by the Buyer to the Seller. All such money payments applied on the purchase price so received by said escrow holder shall immediately upon receipt thereof be placed to the credit of the personal account of the Seller, to be kept by the Seller for his own sole use and benefit.

24. This Contract shall be binding upon the heirs, executors, administrators and assigns of all parties hereto; provided, however that no assignment hereof by the Buyer shall be valid without the written consent of the Seller and the written agreement of the assignees agreeing to carry out and perform all the terms hereof; but in no event shall the Buyer be relieved of any liability hereunder in the event of a default in any of the terms of this agreement on the part of said assignees.

25. This Contract has no connection with any previous agreement or contract which has been made and forfeited; however, its construction and terms in some paragraphs may coincide in the continuous operation of the said Mining Claims or Property.

26. The parties agree to divide equally between them the initial escrow fees at the Bank of Idaho, Caldwell, Idaho.



27. The Buyers acknowledge receipt of copies of certain letters dated August 3, 1973 and August 31, 1973, from Daniel J. Olguin, Attorney at Law, 243 South Sierra Street, Reno, Nevada, who represents Jesse R. Wilson, a former contract purchaser, and acknowledge that Jesse R. Wilson is asserting some claim in reference to the mining property being sold by this agreement.

IN WITNESS WHEREOF, The parties hereto have executed this Contract in triplicate, and signed their names and affixed their seals hereto, the day and date aforesaid.

SELLER: Frank W. Roberts (SEAL)

BUYER: James R. Knight (SEAL)  
Its President

BUYER: \_\_\_\_\_ (SEAL)  
Its Secretary

Address of Seller:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Address of Buyer:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

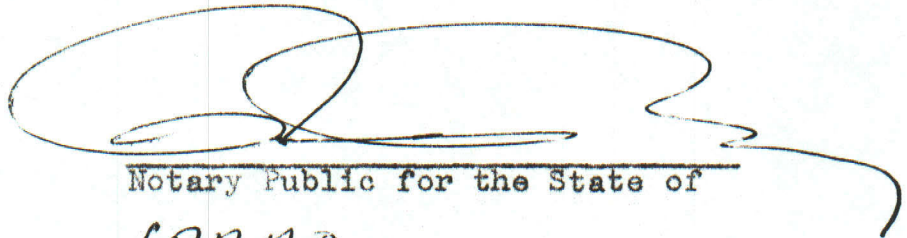


STATE OF IDAHO }  
COUNTY OF CANON } ss.

ON THIS 20 day of September, in the  
year 1973, before me, the undersigned, a Notary Public in and  
for said State, personally appeared James R. Keighley

Vice  
known to me to be the ~~President and Secretary~~, respectively  
whose names are subscribed to the within instrument, or contract  
and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have set my hand and affixed  
my official seal, the day and year in this certificate first  
above written.



Notary Public for the State of

(SEAL)

IDAHO

Residing at Caldwell, IDAHO

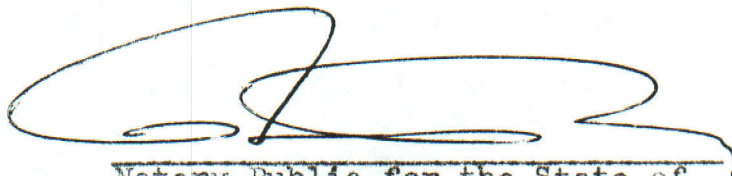


STATE OF IDAHO )  
COUNTY OF Canyon ) ss.

ON THIS 20 day of September, in the year  
1973, before me, the undersigned, a Notary Public in and for  
said State, personally appeared FRANK ROBERTS

known to me to be the person whose name is subscribed to the  
within instrument, or contract, and acknowledged to me that  
he executed the same.

IN WITNESS WHEREOF, I have set my hand and affixed  
my official seal, the day and year in this certificate first  
above written.



Notary Public for the State of

IDAHO,

Residing at Caldwell Idaho

(SEAL)



COLUMBIA MINE

The territory known as Varyville (in Bartlett Creek Gulch) and the Columbia (in Pearl Gulch) and the Roberts Copper Mine (in Cove Meadow), which are in the Northwest of Humboldt County, Nevada. Gold, silver and copper minerals were discovered there in the 1870's. The prospectors found many places of high-grade gold-silver ore and short tunnels were put into the sides of the gulches following the high-grade ore, but always the mineral veins were lost in fault slips which are along the mountain sides.

There are no reports about the district or the camp of Varyville, only stories that have been told by the old timers, all of them are now gone. The Ne Plus Ultra, now a part of the Roberts Copper Mine property was patented in July, 1883. At that time an attempt was made to get a wagon load of rich silver-copper ore through the Black Rock Desert to California, but the wagon bogged down in the mud at the South end of the desert and was lost. This seemed to have put an end to the mining operations at that time.

In 1936-37, from the Columbia Mine, 2,350 tons of high-grade gold ore was transported 500 miles to a smelter with net returns of \$85,616.00. The lessee, Mr. Devine, to get to the high-grade shipping ore in the mountain on the South side of the ore body, had to make a 50-foot open cut, then 155 feet of tunnel. The low-grade ore was put in a milling ore dump. Samples of the top of this dump averaged 0.320 ounces of gold per ton. About 120 feet of tunnel is open, but the roof is caved from there on. This tunnel is so near the surface, the ground may be explored by open pit work.

The lessee when operating the property, sunk a 200-foot shaft. In 1946, I met him in Golconda, Nevada, he told me that at the bottom of the shaft there is a wide gold arsenopyrite ore body which he could not process. I met one of his miners, Mr. Cope, who lived in Bartlett Canyon and he told me the same story about the Columbia Mine. Several times I have talked to the people who live at the Leonard Creek Ranch, four miles from the mine and they also say there is a large ore body at the shaft bottom. The lessee, Mr. Devine, being unable to continue with his lease, had to drop it and the owners were never able to operate the property. All of the buildings and mine timbers have been taken from the property.

Samples of the top of the shaft dump average 0.190.

Samples of West side gulch, tunnel dump average 0.320.

It is possible that under the surface of the dump the values will be greater.

All high-grade ore picked up from around the dumps

averaged-----	1½ ounces gold
One sample silver-----	8.13 ounces silver



## COLUMBIA MINE (cont'd)

We took a large amount of samples from the Columbia shaft waste dump then mixed them for an average, the assay return was 0.190 ounces of gold per ton. If we had shovelled out the holes a couple of feet into the dump, the average may have been higher, as two other samples from the West end of the shaft dump averaged 0.220. At the side of the shaft someone had taken away a large truck load of dump material for ore processing test. We picked up several high-grade chunks of ore from around the dumps and assay returns from these chunks of ore were 1.50 to 1.52 ounces of gold per ton. One sample assayed 8.13 ounces in silver per ton.

It is really difficult to evaluate the Columbia property from what one can find to sample, as the old mine workings are caved and the East to West strike of the ore body has never had any prospecting work done along the three thousand foot mineral vein strike. The only reason for this lack of work is that in 1936 there was no heavy power equipment in the territory and what work that was done was by pick and shovel.

It is interesting to stand at the Columbia Mine, elevation 4,200 feet and look up the gulch two and one half miles to the Roberts Copper Mine, elevation 6,000 feet. This gulch line is with the strike of the copper shear zone. All along the gulch small out-crops of copper minerals are found. Some copper shows in the Columbia ore. Look westerly up the Pearl Gulch two miles to the Roberts Mine Mill-Site which is at the foot of Bartlett Mountain, elevation 5,000 feet, all along the South hillside of Pearl Gulch gold ore out-crops have been found and gold production; but, always these ore veins were lost in slip faults. The Columbia Mine being at the junction of the two gulches, one being a gold zone and the other a copper zone, so there should be a combination of gold and copper at the Columbia Mine. In the Pearl Gulch about a thousand feet Northeast of the Columbia Mine, a well was drilled for camp water, but the water contained so much mineral that it could not be used. This drill hole may have tapped into another ore body or this is water coming from the Columbia ore body; two ore veins out-crop up the mountain South of the water well, one 200 feet and the other 400 feet.

It is estimated that 15 million years ago, the age of the North to South block uplift of Steens and Bartlett Mountains, slip faults occurred in both the West to East strike of the Bartlett and Pearl Gulches, of which show fault scars on the mountain sides.

The Columbia Mine being out of the high mountains and just off the Black Rock Desert floor has good weather for year-around mining and ore processing. At the Mine, plenty of water can be had by drilling a well in Pearl Gulch above the Mine or drilling a well in the Black Rock Desert East below the Mine. Crossing the Mine property is a



COLUMBIA MINE (cont'd)

good County road, an electric power and telephone line, which were made possible by the development of the Roberts Copper Mine.

GOLDTALL MINE

The Goldtall Mine is 2½ miles Southwest from the Columbia Mine on the ridge between Pearl Gulch and Bartlett Creek and is one mile from electric power. This property and the Columbia Mine should go into one operation, as both ores may be similar. Such will make a good-size mining operation. The out-crop ore body on the surface appears to be wide, but with more uncovering of the surface rocks it may prove to be a much wider zone. Samples of ore examined show gold, silver and copper.

The Columbia and the Goldtall Mines being out of the high mountains and just off the Black Rock Desert floor have good weather for year-around mining and ore processing. At the mine, plenty of water can be obtained in Pearl Gulch or in the Black Rock Desert East below the mine. Crossing the mine property is a good County road, an electric power and telephone lines, which were made possible by the development of the Roberts Copper Mine.

Both of these properties are offered on a Purchase Contract for Two Hundred Twenty Thousand (\$220,000.00) Dollars payable within four (4) years on a Purchase Installment Plan of a minimum of One Thousand (\$1,000.00) Dollars per month or a Ten Per Cent (10%) of the gross sales of minerals whichever is the greater.

Owners:

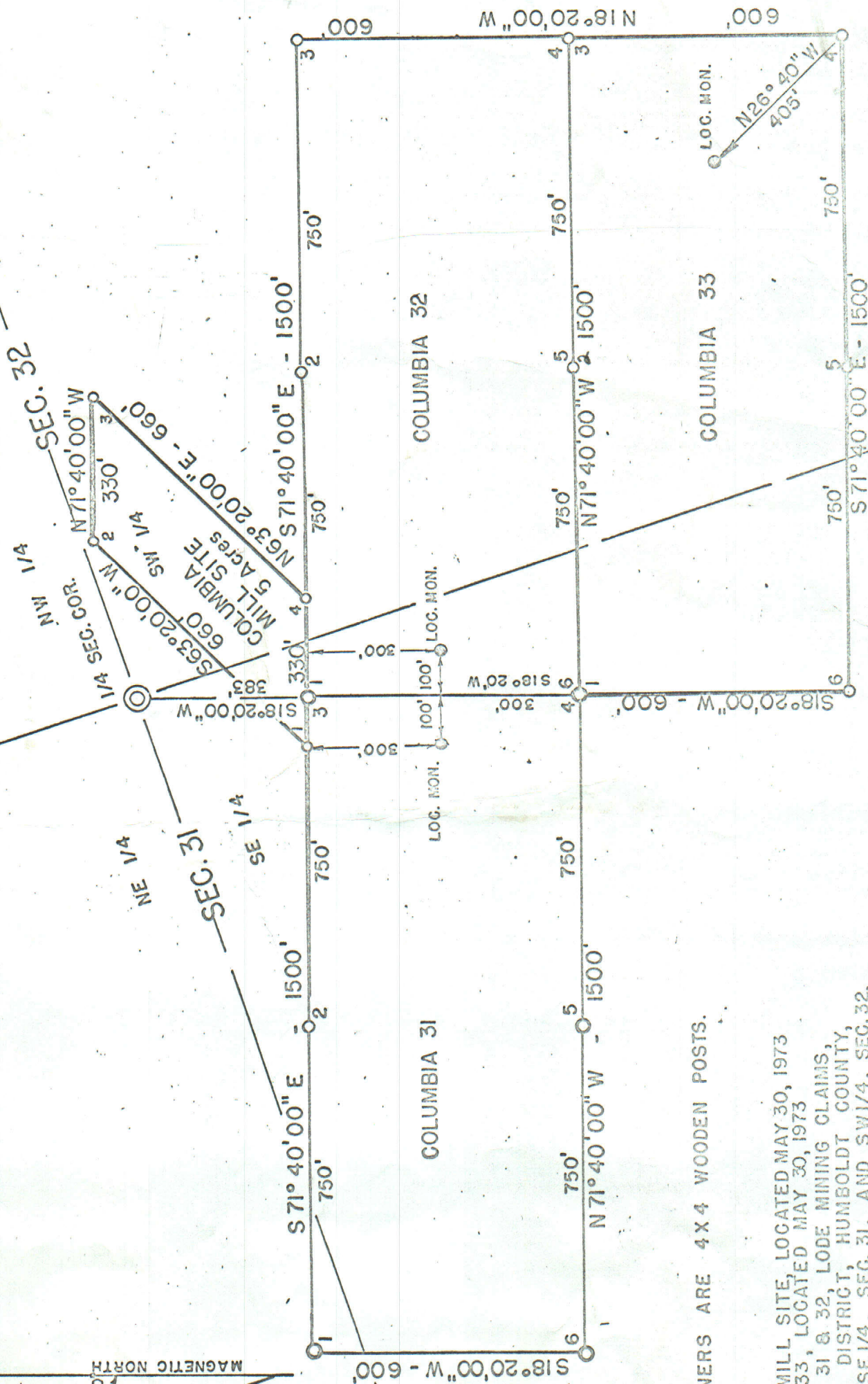
Frank W. Roberts -  
Frank W. Roberts

Walter T. Smith  
Walter T. Smith

P.O. Box 754  
Caldwell, Idaho 83605



BASIS OF BEARINGS  
 TRUE NORTH  
 MAGNETIC NORTH  
 18°20'



NOTE: ALL CORNERS ARE 4X4 WOODEN POSTS.

MAP OF COLUMBIA MILL SITE, LOCATED MAY 30, 1973  
 MAP OF COLUMBIA 33, LOCATED MAY 30, 1973  
 MAP OF COLUMBIA 31 & 32, LODE MINING CLAIMS,  
 COLUMBIA MINING DISTRICT, HUMBOLDT COUNTY,  
 NEVADA, IN THE SE 1/4, SEC. 31, AND SW 1/4, SEC. 32,  
 TOWNSHIP 42N, RANGE 28E, OF MOUNT DIABLO MERIDIAN.

SCALE 1" = 300'



# THE GALIGHIER COMPANY

ESTABLISHED 1901



CABLE ADDRESS  
GALSAL  
TELEX 038-536

440 WEST EIGHTH SOUTH STREET

P. O. BOX 209

SALT LAKE CITY, UTAH 84110

TELEPHONE  
359 8731  
AREA CODE 801

March 6, 1973

## REPORT OF TESTING ON YOUR SAMPLE OF COPPER ORE DESIGNATED AS OUR LOT NO. 2075

Dear Mr. Wilson:

In accordance with arrangements made with you we are pleased to submit the results of our leaching and magnetic separation testing on your sample of copper ore designated as our Lot No. 2075.

### I. Sample Preparation

Initially approximately 400 pounds of the sample was crushed through 35 mesh using a laboratory rolls crusher in closed circuit with a screen. This sample was taken for testing in another laboratory. Then after crushing the remainder of the sample to minus one inch, one fourth of it was cut out and crushed to minus 20 mesh as above. Samples of the minus 20 mesh were cut out for assaying and testing. The portions of the samples remaining will be retained for six months unless you inform us otherwise.

The sample, Lot No. 2075 assayed 1.499% copper.

### II. Leaching Tests

Three dilute sulfuric acid leach tests were conducted. Each leach was for four hours. In the first test a pH of 2.0 was maintained throughout the leach and on the second and third the pH was maintained at 1.5 and 1.0 respectively. These were agitation leaches at room temperature. The results of the leach tests are summarized in the following table.



THE GALIGHER COMPANY

- 2 -

March 6, 1973

Test	pH Leach	% Copper		Sulfuric Acid		
		Residue Assay	Extraction	lb/Ton Ore		Consumed lb/lb Cu leached
				Added	Remaining	
1	2.0	0.583	61.1	39.0	.6	2.08
2	1.5	0.129	91.7	87.5	19.2	2.49
3	1.0	0.097	93.7	135.4	52.0	2.97

These leaches were conducted on a minus 20 mesh ore with the following screen analyses:

Mesh	+28	+35	+48	+65	+100	+150	+200	+325	-325
% Wt	14.6	15.0	11.8	9.0	6.3	5.2	4.5	8.4	25.2

Ore as represented by this sample can be readily leached and as you indicated probably the leach can be made on a coarser feed. Based on the agitation leach capacity which you indicated was over four hours, four hour leaches were conducted. However, additional testing would be required to optimize the leach time and pH of leach.

Where a 0.097% copper residue was obtained only 2.97 pounds sulfuric acid was consumed per pound copper leached.

### III. Magnetic Separation

A magnetic separation test on the minus 20 mesh ore has shown that a majority of the copper is concentrated in the non-magnetic fraction but the non-magnetics still contain 12.1% iron and only 54.0% silica. Results are summarized in the following table:

Product	Zwt	Assay %			Distribution %	
		Cu	Fe	SiO <sub>2</sub>	Cu	Fe
Magnetics	23.2	0.315	44.1		3.0	52.4
Non-Magnetics	76.8	1.814	12.1	54.0	95.0	47.6
Feed (Calc)	100.0	1.466	19.5		100.0	100.0

Individual test sheets are appended to the report.

We appreciated the opportunity of conducting this investigation for you. If there are any questions or we can be of further service, please contact us.

Very truly yours,

THE GALIGHER COMPANY

H. A. Dawson  
H. A. Dawson, Manager  
Metallurgical Laboratory

HAD/mlh

B. J. Bullen  
B. J. Bullen  
Metallurgist







**METALLURGICAL RESEARCH DEPT.**

CABLE  
"GALVESTON"

**THE GALIGHER COMPANY**  
P. O. BOX 209 - 440 WEST 8TH SOUTH STREET  
SALT LAKE CITY, UTAH 84110 - U.S.A.

TELEPHONE  
250-8731

OUR LOT NO. 2075  
DATE 1/31/73  
BY BJB

TEST NO. 2

NAME \_\_\_\_\_

[illegible]

REMARKS:

2.49 lb H<sub>2</sub>SO<sub>4</sub> consumed/lb Cu leached.







CABLE  
"GALVAL"

**THE GALIGHER COMPANY**  
P. O. BOX 209 - 440 WEST 8TH SOUTH STREET  
SALT LAKE CITY, UTAH 84110 - U.S.A.

TELEPHONE  
353-8731

OUR LOT NO. 2075  
DATE 2/22/73  
BY EJB

TEST NO. 4

NAME

[illegible]



Mine

2075

RESULTS PER TON OF 2000 POUNDS February 5, 1973

W. C. WANLASS, President  
L. G. HALL, Vice President  
G. P. WILLIAMS, Treasurer  
GERALDINE A. WANLASS, Secretary  
P. O. Box 1528  
Salt Lake City, Utah 84110

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. per Ton	LEAD Per Cent	COPPER Per Cent	INSOL. Per Cent	ZINC Per Cent	SULPHUR Per Cent	IRON Per Cent	LIME Per Cent	Per Cent	Per Cent
Head Sample Original				1.499						Ox Cu	1.430

Remarks

Charges \$

*E. P. Williams*

Telephone 363-3302

Hand Sample Serial 201-203

ASSAY REPORT  
UNION ASSAY OFFICE, Inc.

W. C. WANLASS, President  
L. G. HALL, Vice President  
G. P. WILLIAMS, Treasurer  
GERALDINE A. WANLASS, Secretary  
P. O. Box 1528  
Salt Lake City, Utah 84110

Mine Jesse R. Wilson

2075

RESULTS PER TON OF 2000 POUNDS February 12, 1973

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. per Ton	LEAD Per Cent	COPPER Per Cent	INSOL. Per Cent	ZINC Per Cent	SULPHUR Per Cent	IRON Per Cent	LIME Per Cent	Per Cent	Per Cent
Test 1 Leach Residue				0.583							
Test 2 Leach Residue				0.129							
Test 3 Leach Residue				0.097							

Remarks

Charges \$

*E. P. Williams*



Telephone 353-3302

Hand Sample Serial 32920

## UNION ASSAY OFFICE, Inc.

W. C. WANLASS, President

L. G. HALL, Vice President

G. P. WILLIAMS, Treasurer

GERALDINE A. WANLASS, Secretary

P. O. Box 1528

Salt Lake City, Utah 84110

Mine Frank W. Roberts

P.O. Box 754

Caldwell, Idaho 83605

RESULTS PER TON OF 2000 POUNDS

Sept. 15, 1970

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. per Ton	LEAD Wet on Ore	COPPER Per Cent	INSOL. Per Cent	ZINC Per Cent	SULPHUR Per Cent	IRON Per Cent	LIME Per Cent	Per Cent	Per Cent
										Al <sub>2</sub> O <sub>3</sub>	1.00
B.C.P.										19.75	3.76
<p>SAMPLE, Hanging wall rock from N.E. side of copper ore. Zone, a very large body of crushed quartz. Appears as a collapsed section of the Mountain, F.W.R.</p> <p>Sample was crushed to 60-80 mesh, then washed or separated from the quartz.</p>											

Remarks

Charges \$ 12.00 Paid

*Glen Williams*



# Of Copper Ore

GREAT FALLS • MISSOULA • BILLINGS MONTANA • BOISE IDAHO

Report of Spectrographic Assay of Ore from Roberts  
Copper Mine, Shear-zone Schistose.

Date October 7, 1968  
Job Number 68-443  
Sheet 1 of 1  
Lab No. 1790

Report to: Frank Roberts (3)  
P.O. Box 754  
Caldwell, Idaho 83605

## RESULTS, PERCENT

Element	Range	Element	Range	Element	Range	Element	Range
Aluminum	3-30	Copper	.03-.3	Molybdenum		Sodium	1-10
Antimony		Galium		Nickel		Strontium	
Barium		Germanium		Osmium		Tantalum	
Beryllium		Gold		Palladium		Thallium	
Bismuth		Hafnium		Platinum		Thorium	
Boron		Indium		Potassium		Tin	
Cadmium		Iridium		Rhodium		Titanium	.001-.01
Calcium		Iron		Rhenium		Tungsten	
Cerium		Lead	.001-.01	Rubidium		Vanadium	
Chromium		Magnesium	3-30	Ruthenium		Zinc	
Cobalt		Manganese	.001-.01	Silicon	10-100	Zirconium	
Columbium		Mercury		Silver			

Remarks: No evidence of Gold, Silver or Arsenic in spectrographically detectable quantities (.0001% or more)

This sample was taken about 40 feet east of the copper vein in the pit, I tried to pick a sample that showed no copper to the eye or any other metal, Just the white broken up rock from the shear zone. I crushed this rock to go through a window screen, then washed out the slimes from the sample untill the water appeared clear.

Date Received: October 7, 1968

Frank W. Roberts

Certified:

Richard T. Kanemasu  
Richard T. Kanemasu, P.E.



COVE MEADOW COPPER PROPERTY  
HUMBOLDT COUNTY, NEVADA

APRIL 20, 1974

RENO, NEVADA

*D. Allen Penick, Jr.*

---

D. Allen Penick, Jr., B.S.  
Petro-Mineral Projects, Inc.  
Consulting Geologists & Engineers



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COVE MEADOW PROPERTY  
HUMBOLDT COUNTY, NEVADA

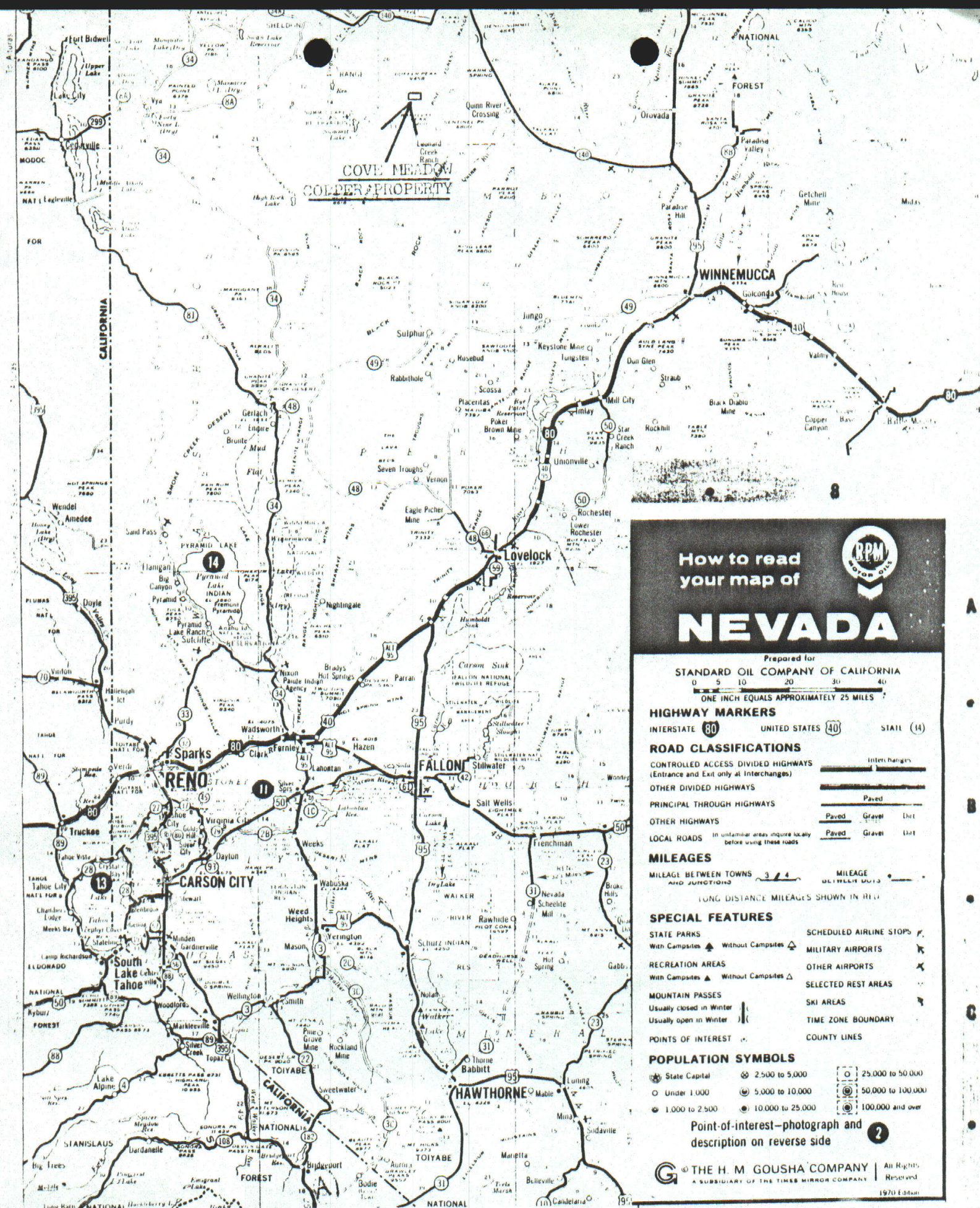
INTRODUCTION

Location and Physical Features: The Cove Meadow Copper Property is located in the Cove Meadow Mining District, in T 42 N, R 32 E, Section 18, in northwestern Humboldt County, Nevada, 102 miles northwest of Winnemucca, Nevada. The property is reached by travelling north from Winnemucca on U.S. highway 95 for 32 miles to the Denio Junction, turning west on 8A (Denio Road) for 38 miles, then turning west on the Leonard Creek Ranch Road and proceeding by excellent dirt road to the claim area. The property can easily be reached by conventional automobile. The subject claims are located along the west slope of the Pine Forest Range at about elevation 5800 feet. Topography in the claim area is moderate on the west side to fairly steep on the east portion with elevations varying several hundred feet.

Living quarters are available at Pearl Camp, three miles south of the claim area. The camp is named for Josie Pearl, famous woman gold miner and prospector, who lived at the present camp site for many years. Mr. Frank Roberts, the owner, maintains excellent field living quarters at the camp. A large three room cabin complete with cooking and bathing facilities is available. In addition, two liveable trailers are located at the camp. Electrical power has been supplied to the camp and fresh water is plentiful from springs. Apple and Pear trees provide fruit during the Fall season. Two watchmen, Mr. Paul Paxton and Mr. Jess Miller, have been employed to watch over the mine and camp site. At least one of the men is present on the property at all times. Water for drilling may be obtained by constructing a sump and damming perennial seepage from a fault which traverses the claim area near the adit.

The nearest telephone is located at Leonard Creek Ranch, 7 miles to the east. It is Mr. Roberts intent to eventually extend the telephone line into Pearl Camp from Leonard Creek. The closest landing field for small airplanes is also located at the Leonard Creek Ranch. The nearest supply point of any consequence is located at Winnemucca where rail services and medium sized airplane service is available. The nearest source for recruiting labor is also Winnemucca. The nearest major supply point is Reno, Nevada, 272 miles to the southwest. Maps available on the Cove Meadow area include Geologic Map of Humboldt County, by Willden, and USGS 15 minute topographic map, Idaho Canyon Quadrangle.





How to read  
your map of



# NEVADA

Prepared for  
STANDARD OIL COMPANY OF CALIFORNIA  
0 5 10 20 30 40  
ONE INCH EQUALS APPROXIMATELY 25 MILES

## HIGHWAY MARKERS

INTERSTATE (80) UNITED STATES (40) STATE (14)

## ROAD CLASSIFICATIONS

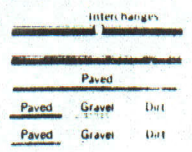
CONTROLLED ACCESS DIVIDED HIGHWAYS  
(Entrance and Exit only at Interchanges)

OTHER DIVIDED HIGHWAYS

PRINCIPAL THROUGH HIGHWAYS

OTHER HIGHWAYS

LOCAL ROADS In unfamiliar areas inquire locally  
before using these roads



## MILEAGES

MILEAGE BETWEEN TOWNS AND JUNCTIONS 3 4

MILEAGE BETWEEN TOWNS

LONG DISTANCE MILEAGES SHOWN IN RED

## SPECIAL FEATURES

STATE PARKS

With Campsites Without Campsites

RECREATION AREAS

With Campsites Without Campsites

MOUNTAIN PASSES

Usually closed in Winter

Usually open in Winter

POINTS OF INTEREST

SCHEDULED AIRLINE STOPS

MILITARY AIRPORTS

OTHER AIRPORTS

SELECTED REST AREAS

SKI AREAS

TIME ZONE BOUNDARY

COUNTY LINES

## POPULATION SYMBOLS

State Capital 2500 to 5000 25,000 to 50,000  
Under 1,000 5,000 to 10,000 50,000 to 100,000  
1,000 to 2,500 10,000 to 25,000 100,000 and over

Point-of-interest—photograph and  
description on reverse side

2

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A SUBSIDIARY OF THE TIMES MIRROR COMPANY  
1970 Edition







Climate and Vegetation: The climate at Cove Meadow can be considered semi-arid and typical of that found in the Basin and Range in Nevada. Summers are dry with occasional thunderstorms. Winters are usually mild and infrequent snows melt off quickly. Year round working conditions should be good except for occasional high winds. Vegetation is scarce with sagebrush and desert grass being about the only plant life in the immediate area. Aspen and Pine timber are available from higher elevations on the Pine Forest Range.

#### SUMMARY

The Cove Meadow Copper Property presents an excellent target for a copper and silver secondary enrichment zone between 300' and 500' depth. U.S. Bureau of Mines core drilling data and a recent geophysical survey by consulting geologists support this probability. Additional drilling will have to be done to accurately delineate the ore body but on the basis of present information, 1,300,000 tons of 3% Copper and 2.5 oz. of Silver per ton can be estimated.

The first 250,000 tons will be oxide ore most of which can be mined by open pit methods to approximately 200' depth. A report on a leach test run on a sample of the Cove Meadow oxide is attached. The test was run by the Galigher Company of Salt Lake. The original bulk sample, weighing 400 pounds, was crushed to a minus 20 mesh. Samples of the minus 20 mesh were assayed at 1.499% copper.

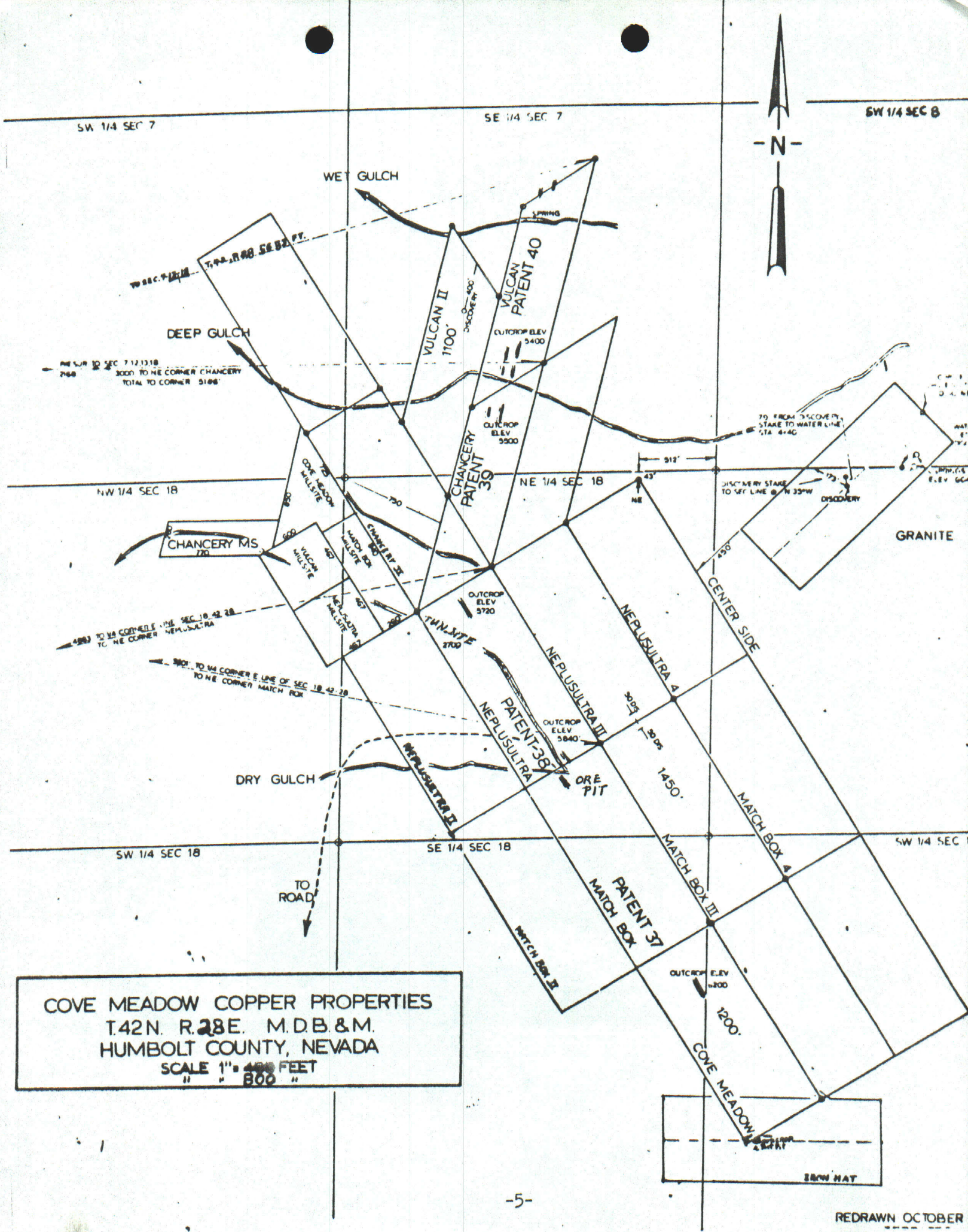
In the Fall of 1973, a bulldozer was brought to the property and excavations were completed in the area of the cross fault between the shaft and adit. Material had been piled up at this point by the previous lessors and water seeping from the fault could not drain. This tractor work done at the expense of James R. Keighley, was done to provide drainage as well as to expose the vein at this point. This excavation work exposed a vein width of between 30 and 40 feet, and copper oxides were in evidence.

In addition to further drilling, more geophysical work should be done to determine if the ore body continues NW or SE or if the parallel vein detected by the survey has continuity.

#### OWNERSHIP

The property consists of 4 patented lode mining claims, 12 unpatented lode mining claims and 5 mill site claims. The claims are owned by Frank W. and Helen K. Roberts of Caldwell, Idaho, and are under option to James R. Keighley of Reno, Nevada.

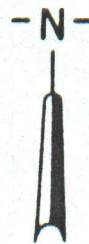




SW 1/4 SEC 7

SE 1/4 SEC 7

SW 1/4 SEC 8



WET GULCH

DEEP GULCH

NE 1/4 SEC 7 12.13.18  
3000 TO NE CORNER CHANCERY  
TOTAL TO CORNER 5100

NW 1/4 SEC 18

NE 1/4 SEC 18

GRANITE

CHANCERY MS.

4000 TO NE CORNER E. LINE SEC 18 42.28  
TO NE CORNER NEPLUSULTRA

SW 1/4 SEC 18

SE 1/4 SEC 18

SW 1/4 SEC 18

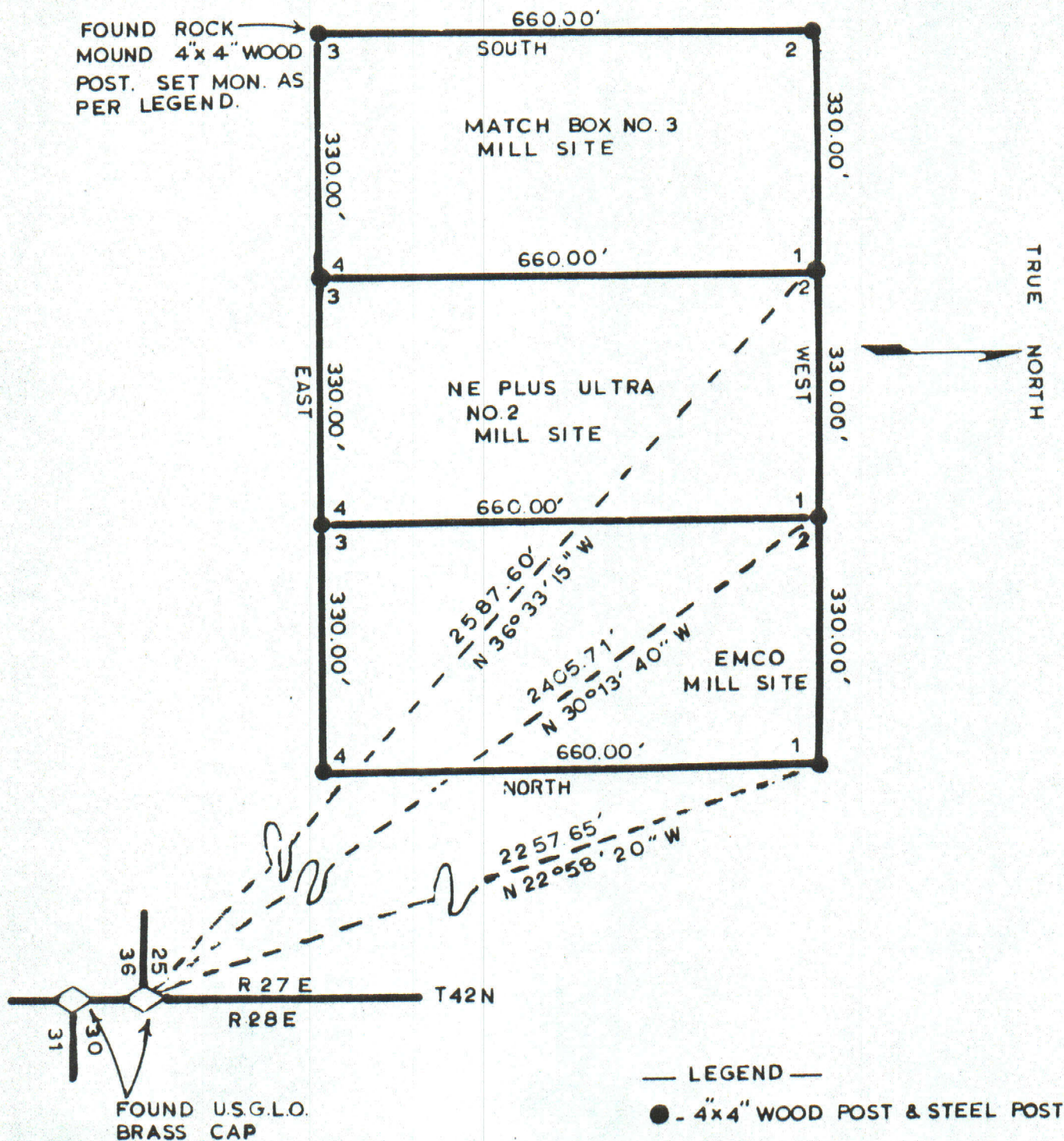
DRY GULCH

TO ROAD

COVE MEADOW COPPER PROPERTIES  
T.42N. R.28E. M.D.B.&M.  
HUMBOLT COUNTY, NEVADA  
SCALE 1" = 400 FEET  
" " 800 "



FOUND ROCK  
MOUND 4"x4" WOOD  
POST. SET MON. AS  
PER LEGEND.



MAP OF EMCO, NE PLUS ULTRA NO. 2, &  
MATCH BOX NO. 3 MILL SITES

COLUMBIA-COVE MEADOWS MINING DIST.  
OR TERRITORY  
HUMBOLDT COUNTY, NEVADA

LOCATED JULY 7, 1972 by FRANK ROBERTS  
BOX 754 CALDWELL, IDAHO



The terms of the agreement require minimum payments of \$1,000 per month to the Roberts on an end price of \$210,000 due prior to September 20, 1977. A production royalty of 10% applies towards the end price. In addition, a payment of \$20,000 must be made to Scott Smith and partners who also will receive \$110,000 in stock.

#### HISTORY

No authentic information can be obtained as to the early history of the property. It was probably discovered in the late 70's. The plats of the patented claims are dated July 10, 1883. From a comparison of the size of the dumps and the excavations, it is doubtful if shipments of any consequence were made.

In September 1948, the Wisby brothers constructed a road to the deposit. They hand-sorted the ore from various dumps and made their first shipment in November 1948. This shipment of 46 tons assayed 2.83 percent copper, 0.005 ounce of gold, and 1.875 ounces silver. Ore from three places along the outcrop was mined, and a second shipment of 42 tons of hand-sorted ore was made July 27, 1949; this shipment assayed 7.5 percent copper, 0.01 ounce gold, and 3.30 ounces silver.

In recent years Smith and Kramer, mentioned above, mined 1500 tons of the oxide ore from an open-pit and piled the rock for acid-leaching. This pile averages 3.2% copper and 2.5 ounces silver per ton.

#### REGIONAL GEOLOGY

The Cove Meadow area lies in a regional topographic setting typical of that found in the Nevada Basin and Range Province. The province, in general is composed of a series of narrow, rather short mountain ranges of moderate to high relief separated by broad alluvium filled valleys or basins. The area lies just south of a transition zone separating the Columbia River plateau province and the Basin and Range. Some effects of the plateau topography can be seen just northeast of Cove Meadow in the Black Rock Range where mesa basalt forms flat table-like topography in sharp contrast with the more irregular rugged volcanic rocks in the surrounding areas.

The Cove area lies just northeast of the Black Rock Desert, a large down faulted block of desert country marked by occasional outliers of dark andesite and basalt which gave the desert its name. The desert trends northeast and abuts against the Kings River Range northwest of Cove Meadow.

The Cove Meadow property is situated along the lower west slope of the Pine Forest Range near Craine Creek which marks the boundary between the



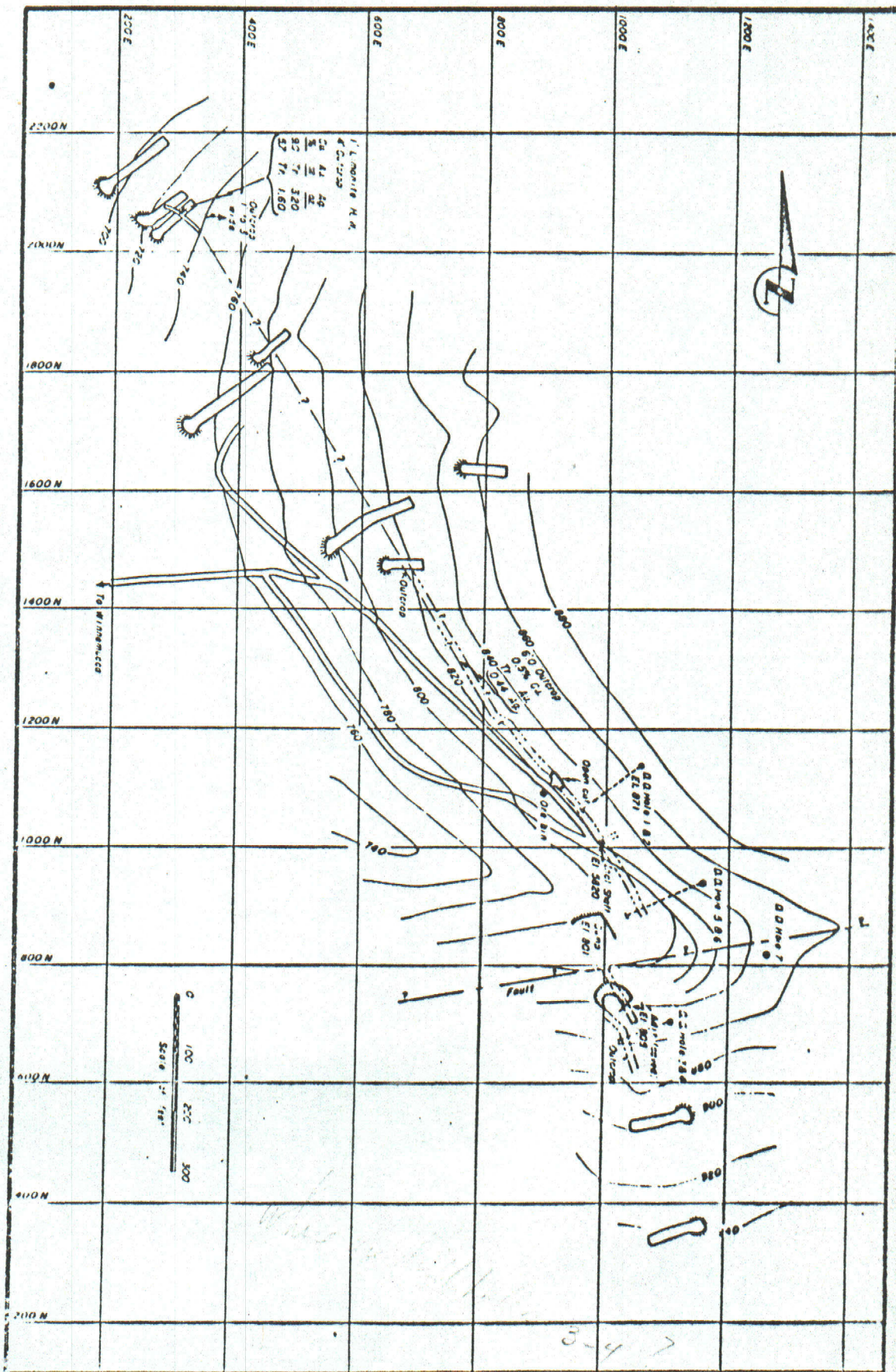


Figure 2. - Topographic map showing locations of workings and diamond drill holes.



Pine Forest and the Black Rock Range. The Black Rock Range is made up principally of Tertiary Volcanic rocks, but older rocks are present in the northeastern part. Faults are easily recognized along the east front of the range, south of Bartlett Peak, where volcanic rocks have been faulted against granodiorite. Bartlett Peak lies just 1 mile west of Pearl Camp at 7,333 feet, and is the principal topographic feature in the area.

The Pine Forest Range, where the subject property is located, is a prominent range in northwestern Humboldt County with a steep eastern front and a relief of between 3,000 and 5,000 feet. The highest point is Duffer Peak which rises to 9,458 feet. The range is well watered with Leonard Creek which flows south and Alder Creek which flows north being the principal perennial streams. Several glacial lakes are located in the range.

Most of the range is underlain by granodiorite and diorite which has intruded volcanic rocks of the Permian or older Happy Creek Group and an overlying limestone of Triassic and Jurassic Age. The intrusive rocks have extensively metamorphosed the sedimentary and volcanic rocks in some cases converting them into hornfels, schists, gneiss and marble. On the Cove property schistose structures have developed in andesites as a result of shearing along a fault.

Structurally, the Cove Meadow area occurs on the west limb of a north-westward plunging anticline. As can be seen on the geologic maps, the Happy Creek Group, along with younger units, is exposed along the southeast front of the range, the younger rocks on the east side. The Happy Creek Group is also exposed in the southwestern part of the range and metasediment units of Triassic and Jurassic Age are exposed to the west of the Happy Creek Group in the vicinity of Bartlett Peak. All faults shown on the map, that cut Tertiary rocks, are high angle faults with essentially dip-slip displacement. One such northwest trending fault forms the shear zone along which mineralization has occurred at Cove Meadow.

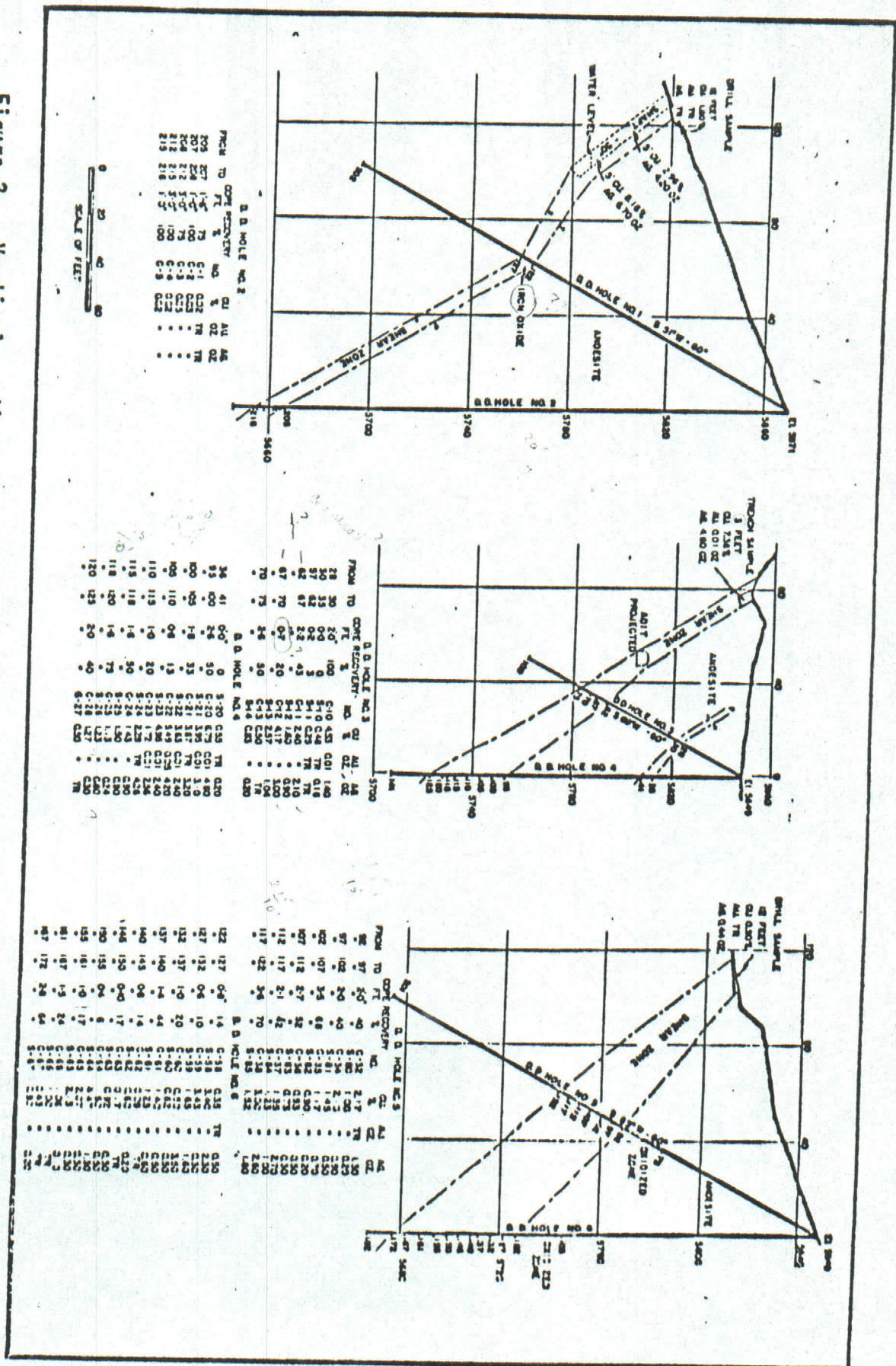
#### LOCAL GEOLOGY AND MINERALIZATION

The principal rock type occurring in the Cove Meadow claim area is a massive gray-green brecciated andesite assigned to the Happy Creek Group of Permian Age. In some areas on the property the Happy Creek Group contains porphyritic zones. The andesite in the central part of the property is intruded by a dense, fine grained diorite while some exposures of granodiorite occur along the northeastern edge of the claim area.

The mineralization at Cove Meadow occurs along a shear zone in brecciated andesite which varies in thickness from 3 to 35 feet. The general strike



Figure 3. - Vertical sections through drill holes (1-2), (3-4), and (5-6), and sample analyses.





Hole 1

Coordinates: 1142 N., 1057 E.  
 Elevation of collar: 5,871 ft.  
 Bearing: S. 51° W.

Inclination: -60°  
 Completed length: 202 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	69	69	10.0	14	1-5/8	Andesite.
69	122	53	17.0	32	1-1/8	Do.
122	127	5	2.7	54	1-1/8	Andesite and iron oxide.
127	132	5	1.2	24	1-1/8	Andesite, malachite stain, one piece.
132	202	70	35.0	50	1-1/8	Andesite.

Hole 2

Coordinates: 1142 N., 1057 E.  
 Elevation of collar: 5,871 ft.  
 Bearing: -

Inclination: Vertical  
 Completed length: 224 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	3	3	0	0	2-1/8	Surface.
3	25	22	10.7	49	2-1/8	Andesite.
25	77	52	19.0	37	1-5/8	Do.
77	153	76	33.0	43	1-1/8	Do.
153	224	71	46.0	65	7/8	Do.

Hole 3

Coordinates: 707 N., 1104 E.  
 Elevation of collar: 5,849 ft.  
 Bearing: S. 69° W.

Inclination: -60°  
 Completed length: 100 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	20	20	0	0	1-5/8	Surface, sand and boulders.
20	28	8	0.8	10	1-5/8	Andesite.
28	35	7	2.0	29	1-5/8	Mineralized, copper carbonate.
35	57	22	7.0	32	1-5/8	Andesite.
57	75	18	5.4	30	1-5/8	Mineralized, iron oxide and copper carbonate.
75	100	25	4.3	17	1-1/8	Andesite.



### Hole 4

Coordinates: 707 N., 1104 E.  
 Elevation of collar: 5,849 ft.  
 Bearing: -

Inclination: Vertical  
 Completed length: 141 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From	To		Ft.	Percent		
0	15	15	0	0	2-1/8	Overburden.
15	23	8	2.6	33	2-1/8	Andesite.
23	36	13	9.2	71	1-5/8	Do.
36	41	5	0	0	1-5/8	Mineralized, malachite.
41	45	4	1.2	30	1-5/8	Andesite.
45	80	35	3.6	10	1-1/8	Do.
80	95	15	5.0	33	7/8	Do.
95	125	30	9.2	31	7/8	Mineralized, malachite.
125	130	5	2.0	40	7/8	Limonite.
130	135	5	2.5	50	7/8	Limonite and andesite.
135	141	6	1.7	28	7/8	Andesite.

### Hole 5

Coordinates: 942 N., 1157 E.  
 Elevation of collar: 5,849 ft.  
 Bearing: S. 65° W.

Inclination: -60°  
 Completed length: 201 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From	To		Ft.	Percent		
0	3	3	1.5	50	2-1/8	Overburden.
3	17	14	7.3	52	2-1/8	Andesite.
17	50	33	17.6	53	1-5/8	Do.
50	65	15	2.6	17	1-1/8	Do.
65	67	2	0.8	40	1-1/8	Altered andesite.
67	102	35	8.0	23	1-1/8	Copper-stained andesite.
102	127	25	14.0	56	1-1/8	Copper-stained limonite.
127	132	5	2.9	58	1-1/8	Altered andesite - copper and iron stringers.
132	139	7	2.3	33	1-1/8	Altered andesite.
139	142	3	2.5	83	7/8	Do.
142	201	59	38.0	64	7/8	Oxidized zone. Very hard andesite with disseminated magnetite; occasional sulfide particle not visible to the unaided eye.



Hole 6

Coordinates: 942 N., 1157 E.  
 Elevation of collar: 5,849 ft.  
 Bearing: -

Inclination: Vertical  
 Completed length: 182 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	10	10	7.0	70	2-1/8	Andesite with altered rib and seams of iron.
10	43	33	26.3	80	1-5/8	Do.
43	102	59	19.9	34	1-1/8	Do.
102	112	10	1.5	15	1-1/8	Schist, andesite, and quartz, with iron and copper stains.
112	119	7	1.6	23	7/8	Do.
119	140	21	3.8	18	7/8	Altered andesite stained with copper and iron, with occasional sulfide particle not visible to the unaided eye.
140	145	5	0.7	14	7/8	Cuprite and disseminated native copper.
145	150	5	0.8	16	7/8	Altered andesite, disseminated cuprite, and copper.
150	155	5	0.3	6	7/8	Magnetite, copper-stained.
155	161	6	1.0	16	7/8	Heavy magnetite stained with copper carbonates.
161	172	11	2.0	18	7/8	Altered andesite. Slight copper mineralization.
172	182	10	3.0	30	7/8	Andesite.

Hole 7

Coordinates: 819 N., 1262 E.  
 Elevation of collar: 5,848 ft.  
 Bearing: -

Inclination: Vertical  
 Completed length: 196 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	6	6	2.3	38	2-1/8	Boulders and andesite.
6	13	7	2.2	31	2-1/8	Andesite.
13	50	37	11.5	31	1-5/8	Do.
50	113	63	25.0	40	1-1/8	Do.
113	196	83	15.0	18	7/8	Do.



of the shear zone is N 45° W with dips between 50 and 60° to the north-east. The strike distance is roughly 2500 feet. The shear zone is composed of silicified schistose andesite and andesites which have been altered to chlorite. Generally, the andesites in the claim area are unaltered except adjacent to the shear zone.

In addition to the NW trending shear zone which contains the principal mineralization, a NE-SW cross fault intersects this zone in the central part of the claim area. This fault creates a depression in the area between the shaft and the adit which is constantly wet from drainage along the fault. As stated previously, this seepage could be dammed and the water used for drilling purposes.

The property has been developed by a 50 foot shaft, an adit and a series of shallow cuts and trenches along the strike of the vein. In addition, the U.S. Bureau of Mines initiated a drilling program in 1949 to further develop the property. The Bureau drilled 7 holes totaling 1246 feet (drill logs cross-sectioned and assay maps are attached). All holes except No. 7 intersect the shear zone. No. 7 probably missed because it was drilled in a slump area along a cross-fault. Drilling was difficult in the brecciated andesite causing poor recovery. Considerable cementing was required because of constant caving of the holes. Core recovery per hole ranged from 19.5 to 48.9% and averaged 35.8%. This poor core recovery has probably accounted for low assays in some of the samples.

#### MINERALIZATION

Oxide minerals found associated with the shear zone on the Cove Meadow Copper Property include limonite, cuprite, malachite, azurite, chrysocolla, and minor turquoise. These minerals occur in a highly silicified gangue of schist and andesite. Traces of native copper have been found in the drill cores 150" below the surface. Copper stained magnetite has also been found in the core between 150 and 200' depth.

Small complementary fractures occur parallel to the direction of shearing. Adjacent to these fractures, small lenses have been developed where mineralization is more concentrated, forming a rib-type structure within the shear zone.

Exploration to date has produced no primary copper or silver minerals. Geophysical data has indicated that the primary zone of mineralization and zone of secondary enrichment could be as deep as 500'.

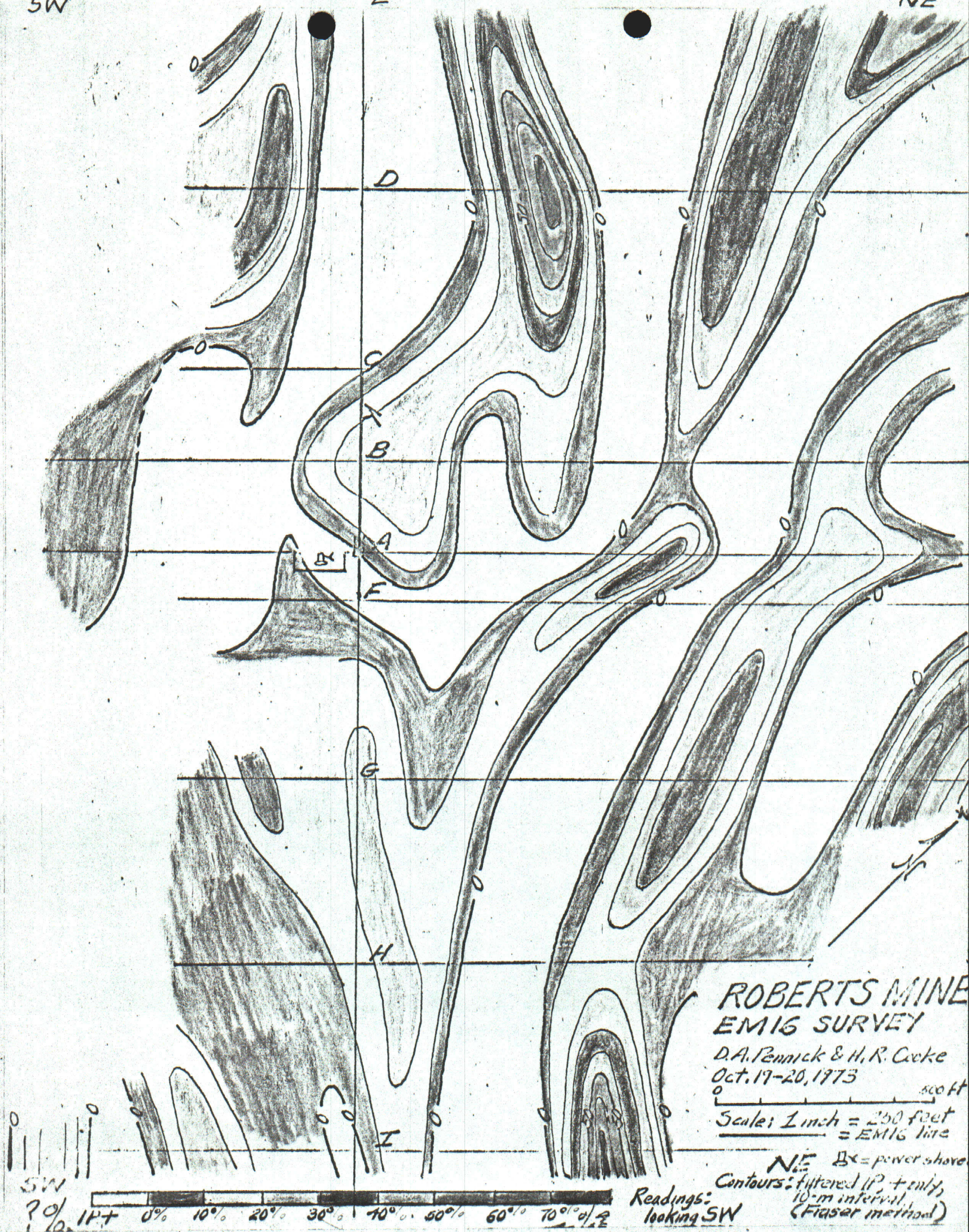
In October, 1973 a geophysical survey was conducted over the Cove Copper Mine area under the direction of Dr. H.R. Cooke, consulting geologist



SW

E

NE





from Reno, Nevada. The results of this survey are shown on an attached contour map. The survey has indicated an anomalous zone centered at approximately 500' of depth and possibly corresponding to the sulfide zone of mineralization. The presence of secondary enriched deposit between 300 and 500' is highly probable.

The survey has also detected a parallel vein or shear zone east of the main shear zone. This vein tends a little north and east of the main system and is apparent on the contour map (traverse D). Also interesting to note is the strong anomaly on line I which appears to continue southward beyond the limits of the present survey. Additional EM work is needed to trace these veins and to further examine the anomalies by drilling.

The geophysical instrument used was a VLF EM-16 unit which utilizes submarine communication signals to detect conductive ore bodies below the surface. The survey was set up on a grid system with a base line trend of N 45° W as this corresponds to the general strike of the shear zone. The shaft was used at the beginning station. The survey lines were run at right angles to the base line with the facing direction being S 45° W. The readings were taken at 50' intervals over or near the vein, and every 100' away from the vein. The transmitter at Jim's Creek Washington (NPG) was used because maximum signals are received when the survey lines are at right angles to the transmitting station.

#### PROPOSED DEVELOPMENT PROGRAM

The following proposal contains 3 phases consisting of an initial evaluation combined with 2 phases of development and mining. The initial phase will include detailed geologic mapping, geophysical surveying, dozing, sampling and limited drilling to guide the further development of the property.

The second phase involves drilling to complete development of the indicated 250,000 tons of open-pit, leachable copper ore. Included in the cost of this phase is the installation of an 800 ton leach plant.

The third phase could begin at any time during the program, depending on the availability of necessary capital. Contingent on favorable results from the first phase drilling, the indicated 1,050,000 tons of ore between 200 and 600 feet of depth would be blocked out by drilling. The third phase includes the cost of underground mine development and installation of a 300 ton Flotation mill and surface facilities.

All mining costs are based on contract arrangements. Values have been determined with prices of 70¢ per pound for copper and \$3.70 per ounce for silver.



CAPITAL REQUIREMENTS  
and  
OPERATING PROFIT PROJECTION

PHASE I: Additional evaluation, 0.3 years

Deatailed mapping of surface and underground and general supervision -	\$ 7,000
Completion of geophysical survey-	1,500
Mobilization of dozer and drill-	3,000
Surface trenching and drill pad prep-	4,000
Drilling, 2 holes, total 1200 ft. @ \$15-	18,000
Assaying, 80 samples @ \$8-	640
Payment to S. Smith and Partners-	20,000
Minimum royalty payments, 4 months-	4,000

Total Phase I     \$    58,140

PHASE II: Develop and mine, copper leach,

0.5 years development + 1.1 year mine life	
Completion of ore development, 250,000 tons - <i>70/ton?</i>	175,000
Leach plant installation, 800-ton -	200,000
Minimum royalty prior to production, 6 months -	6,000

Total Phase II     \$    381,000

Operating Profit Projection :

Gross value, 2% Cu, 82.2% recovery	23.00	<i>10 70/16</i>
Operating cost, open pit 3.5/1 <i>too low.</i>		
stripping	8.00	

Net per ton     \$15.00

Operating Profit, less \$200,000 remaining royalty -     \$3,550,000

PHASE III: Develop 2nd mine underground, assuming ore development done during Phase II, mine life - 11.7 years

Block out 1,050,000 tons -	\$ 350,000
Underground development:	
Shaft, 600 ft. @ \$150 -	90,000
Lateral development 800 ft. @ \$70 -	56,000
Surface Installations:	
300-ton Flotation Mill -	450,000
Hoisting set-up -	60,000

Total Phase III     \$1,006,000

Operating Profit Projections:

Gross value, 2% Cu, 2.5 oz. Ag	34.88
Operating Cost	15.00
Net per ton	\$19.88

Operating Profit -     \$20,874,000

SUMMARY OF TOTAL OPERATING PROFIT PROJECTION

Total Investment	1,445,140
Total Operating Profit	24,424,000
Return on Intial Capital	16.90/1

Annualized Return on Capital, 13.6 years -----124%



# EXPLANATION

Qya

## Younger alluvium

*Includes playa, dune, and stream deposits, and deposits of Lake Lahontan*

Qoa

## Older alluvium

*Includes alluvial-fan and some upland alluvial deposits*

Qg

## Gravel deposits

*Includes bench gravels and landslide deposits*

Tmb

## Mesa basalt of Merriam (1910)

Ttc

## Thousand Creek beds of Merriam (1910)

*Tuff, tuffaceous shale, sandstone, mudstone, and conglomerate*

Iba

## Basaltic and andesitic volcanic rocks

*Locally includes more siliceous rock types and sedimentary rocks*

Tvv

## Virgin Valley beds of Merriam (1907)

*Volcanic ash, tuff, shale, mudstone, and sandstone regarded by Merriam as in part equivalent to Thousand Creek beds and in part older*

Trd

## Rhyolitic and dacitic volcanic rocks

*Locally includes some more basic rocks and some interbedded sedimentary rocks*

Tu

## Volcanic and sedimentary rocks, undivided

Is

## Sedimentary rock

*Includes shale, sandstone, conglomerate, tuff, and tuffaceous shale*

## Granodiorite

*Used for all quartz-bearing pre-late Tertiary intrusive rocks. Principally granodiorite with local compositional variations to quartz diorite and quartz monzonite; large stock in the Slumbering Hills is mainly quartz monzonite, and the small body in the low hills east of Black Rock Range is quartz monzonite. Includes dioritic intrusive rocks of the Jackson Mountains.*

## Intrusive rocks

*Includes dioritic intrusive rocks of the Jackson Mountains and Pine Forest Range, gabbro intrusives on Blue Mountain, and diorite intrusives on Winnemucca Mountain.*

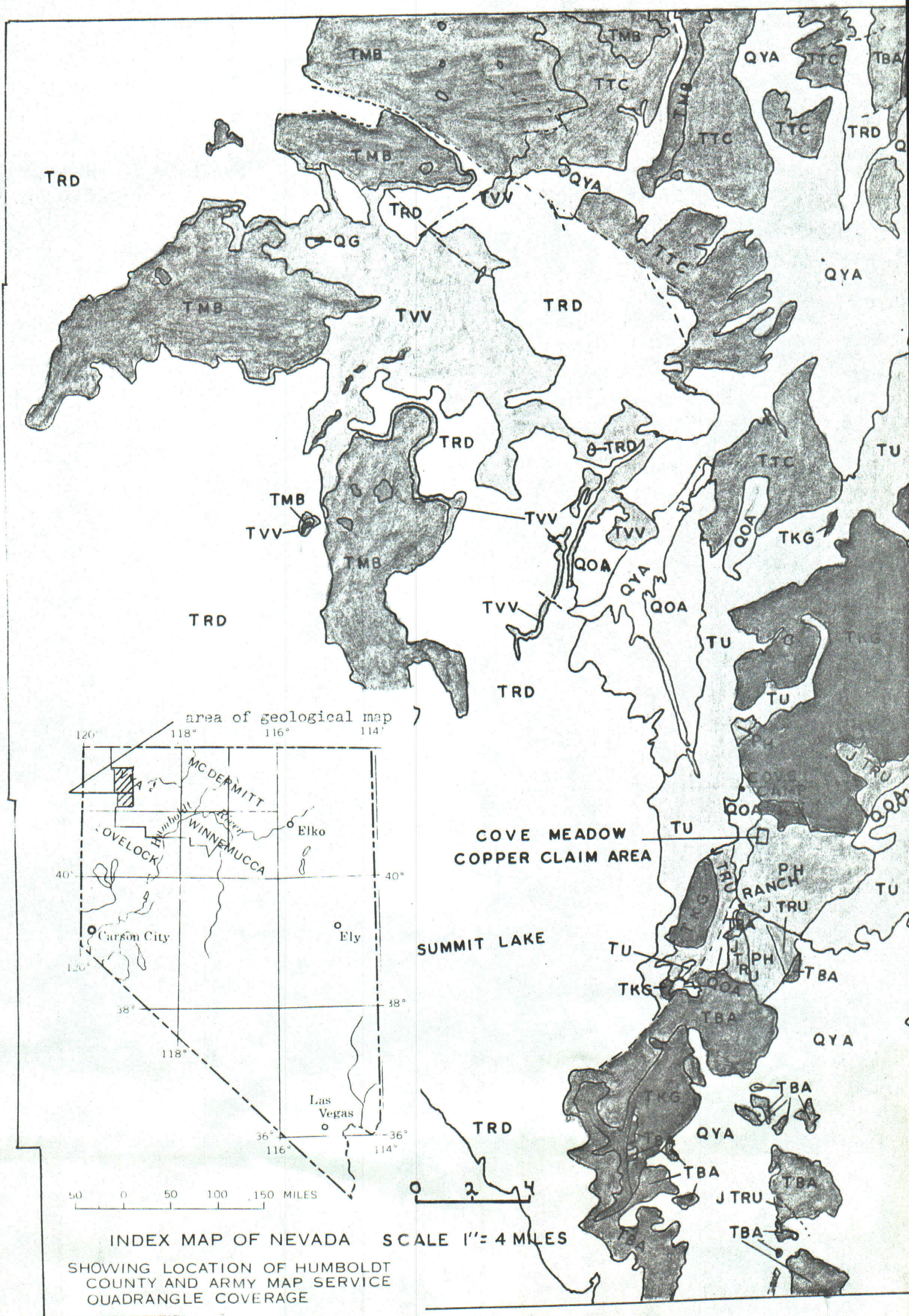
Ph

Phyllite, slate, and fine-grained quartzite

Ph

Happy Creek volcanic series







# THE GALIGHIER COMPANY

ESTABLISHED 1901



CABLE ADDRESS  
GALSAL  
TELEX 038-536

440 WEST EIGHTH SOUTH STREET  
P. O. BOX 209

SALT LAKE CITY, UTAH 84110

TELEPHONE  
359 8731  
AREA CODE 801

March 6, 1973

## REPORT OF TESTING ON YOUR SAMPLE OF COPPER ORE DESIGNATED AS OUR LOT NO. 2075

Dear Mr. Wilson:

In accordance with arrangements made with you we are pleased to submit the results of our leaching and magnetic separation testing on your sample of copper ore designated as our Lot No. 2075.

### I. Sample Preparation

Initially approximately 400 pounds of the sample was crushed through 35 mesh using a laboratory rolls crusher in closed circuit with a screen. This sample was taken for testing in another laboratory. Then after crushing the remainder of the sample to minus one inch, one fourth of it was cut out and crushed to minus 20 mesh as above. Samples of the minus 20 mesh were cut out for assaying and testing. The portions of the samples remaining will be retained for six months unless you inform us otherwise.

The sample, Lot No. 2075 assayed 1.499% copper.

### II. Leaching Tests

Three dilute sulfuric acid leach tests were conducted. Each leach was for four hours. In the first test a pH of 2.0 was maintained throughout the leach and on the second and third the pH was maintained at 1.5 and 1.0 respectively. These were agitation leaches at room temperature. The results of the leach tests are summarized in the following table.



March 6, 1973

Test	pH Leach	% Copper		Sulfuric Acid		
		Residue Assay	Extraction	lb/Ton Ore		Consumed lb/lb Cu leached
				Added	Remaining	
1	2.0	0.583	61.1	39.0	.6	2.08
2	1.5	0.129	91.7	87.5	19.2	2.49
3	1.0	0.097	93.7	135.4	52.0	2.97

These leaches were conducted on a minus 20 mesh ore with the following screen analyses:

Mesh	+28	+35	+48	+65	+100	+150	+200	+325	-325
% Wt	14.6	15.0	11.8	9.0	6.3	5.2	4.5	8.4	25.2

Ore as represented by this sample can be readily leached and as you indicated probably the leach can be made on a coarser feed. Based on the agitation leach capacity which you indicated was over four hours, four hour leaches were conducted. However, additional testing would be required to optimize the leach time and pH of leach.

Where a 0.097% copper residue was obtained only 2.97 pounds sulfuric acid was consumed per pound copper leached.

### III. Magnetic Separation

A magnetic separation test on the minus 20 mesh ore has shown that a majority of the copper is concentrated in the non-magnetic fraction but the non-magnetics still contain 12.1% iron and only 54.0% silica. Results are summarized in the following table:

Product	ZWt	Assay %			Distribution %	
		Cu	Fe	SiO <sub>2</sub>	Cu	Fe
Magnetics	23.2	0.315	44.1		3.0	52.4
Non-Magnetics	76.8	1.814	12.1	54.0	95.0	47.6
Feed (Calc)	100.0	1.466	19.5		100.0	100.0

Individual test sheets are appended to the report.

We appreciated the opportunity of conducting this investigation for you. If there are any questions or we can be of further service, please contact us.

Very truly yours,

THE GALIGHER COMPANY

H. A. Dawson  
H. A. Dawson, Manager  
Metallurgical Laboratory

HAD/mlh

B. J. Bullen  
B. J. Bullen  
Metallurgist



"TYSTED."  
ZTBVC

**THE GALIGHER COMPANY**  
P.O. BOX 209. — 440 WEST 8TH SOUTH STREET  
SALT LAKE CITY, UTAH 84110 — U.S.A.

TELEPHONE  
352-8731

OUR LOT NO 2075  
DATE 1/31/73  
BY BJB

TEST NO. 1 NAME 2S04.  
Leach at 2.0 pH with

[illegible]

2.08 lb  $H_2SO_4$  consumed/lb. Cu leached.

REMARKS: settles to 62.3% solids.



"TYPE"  
ZLBYC

THE GALLIGHER COMPANY

P. O. BOX 209. — 440 WEST 8TH SOUTH STREET  
SALT LAKE CITY, UTAH 84110 — U.S.A.

TELEPHONE  
289-8731

2075

OUR LOT NO.

DATE \_\_\_\_\_

人

TEST NO. 2.

NAME \_\_\_\_\_

[illegible]

2.49 lb H<sub>2</sub>SO<sub>4</sub> consumed/lb Cu leached.

REMARKS:



44-2740-1  
167-3731

THE GALLERIES  
P.O. BOX 209 - 1440 WEST 8TH SOUTH STREET  
SALT LAKE CITY, UTAH 84110 - U.S.A.

CABLE  
"GALGAL"

NAME \_\_\_\_\_

[illegible]



"TUTED."  
ZTBYZ

**THE GALIGHIER COMPANY**  
P. O. BOX 209. — 440 WEST 8TH SOUTH STREET  
SALT LAKE CITY, UTAH 84110 — U.S.A.

TELEPHONE  
352-5731

OUR LOT NO. 2075  
DATE 2/22/73  
BY EJB

TEST NO. \_\_\_\_\_ NAME \_\_\_\_\_

REC'D BY \_\_\_\_\_

[illegible]

REMARKS:



Mine

2075

W. C. WANLASS, President  
L. G. HALL, Vice President  
G. P. WILLIAMS, Treasurer  
GERALDINE A. WANLASS, Secretary  
P. O. Box 1528  
Salt Lake City, Utah 84110

RESULTS PER TON OF 2000 POUNDS February 5, 1973

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. per Ton	LEAD Per Cent	COPPER Per Cent	INSOL Per Cent	ZINC Per Cent	SULPHUR Per Cent	IRON Per Cent	LIME Per Cent	Per Cent	Per Cent
										Ox Cu	
Head Sample Original				1.499						1.430	

Remarks

Charges \$

Telephone 363-3302

Hand Sample Serial 201-203

Jesse R. Wilson

Mine

2075

ASSAY REPORT  
UNION ASSAY OFFICE, Inc.

W. C. WANLASS, President  
L. G. HALL, Vice President  
G. P. WILLIAMS, Treasurer  
GERALDINE A. WANLASS, Secretary  
P. O. Box 1528  
Salt Lake City, Utah 84110

RESULTS PER TON OF 2000 POUNDS February 12, 1973

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. per Ton	LEAD Per Cent	COPPER Per Cent	INSOL Per Cent	ZINC Per Cent	SULPHUR Per Cent	IRON Per Cent	LIME Per Cent	Per Cent	Per Cent
Test 1 Leach Residue				0.583							
Test 2 Leach Residue				0.129							
Test 3 Leach Residue				0.097							

Remarks

Charges \$



Telephone 353-3302

Land Sample Serial 32920

UNION ASSAY OFFICE, Inc.

W. C. WANLASS, President  
L. G. HALL, Vice President  
G. P. WILLIAMS, Treasurer  
GERALDINE A. WANLASS, Secretary  
P. O. Box 1528  
Salt Lake City, Utah 84110

Mine Frank W. Roberts  
P.O. Box 754  
Caldwell, Idaho 83605

RESULTS PER TON OF 2000 POUNDS

Sept. 15, 1970

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. per Ton	LEAD Wet on Ore	COPPER Per Cent	INSOL. Per Cent	ZINC Per Cent	SULPHUR Per Cent	IRON Per Cent	LIME Per Cent	Per Cent	Per Cent
										19.75	3.70
<p>R.C.P.</p> <p>SAMPLE, Hanging wall rock from N.E. side of copper ore. Zone, a very large body of crushed quartz. Appears as a collapsed section of the Mountain, F.W.R.</p> <p>Sample was crushed to 60-80 mesh. then washed or separated from the quartz.</p>											

Remarks

Charges \$ 12.00 Paid

*Glen P. Williams*



Of Copper Ore

GREAT FALLS

MISSOULA

BILLINGS

MONTANA

BOISE

IDAHO

Report of Spectrographic Assay of: Ore from Roberts  
Copper Mine, Shear-zone Schistose.

Date October 7, 1968  
Job Number 68-443  
Sheet 1 of 1  
Lab No. 1790

Report to: Frank Roberts (3)  
P.O. Box 754  
Caldwell, Idaho 83605

# RESULTS, PERCENT

Element	Range	Element	Range	Element	Range	Element	Range
Aluminum	3-30	Copper	.03-.3	Molybdenum		Sodium	1-10
Antimony		Galium		Nickel		Strontium	
Barium		Germanium		Osmium		Tantalum	
Beryllium		Gold		Palladium		Thallium	
Bismuth		Hafnium		Platinum		Thorium	
Boron		Indium		Potassium		Tin	
Cadmium		Iridium		Rhodium		Titanium	.001-.01
Calcium		Iron		Rhenium		Tungsten	
Cerium		Lead	.001-.01	Rubidium		Vanadium	
Chromium		Magnesium	3-30	Ruthenium		Zinc	
Cobalt		Manganese	.001-.01	Silicon	10-100	Zirconium	
Columbium		Mercury		Silver			

Remarks: No evidence of Gold, Silver or Arsenic in spectrographically detectable quantities (.0001% or more)

This sample was taken about 40 feet east of the copper vein in the pit, I tried to pick a sample that showed no copper to the eye or any other metal, Just the white broken up rock from the shear zone. I crushed this rock to go through a window screen, then washed out the slimes from the sample untill the water appeared clear.

Date Received: October 7, 1968

Frank W. Roberts

Certified:

Richard T. Kanemasu  
Richard T. Kanemasu, P.E.



COVE MEADOW PROPERTY  
HUMBOLDT COUNTY, NEVADA

Location

The Cove Meadow mine is in T.42N, R32E, M.D.B.M. The property lies in northwestern Humboldt County, Nevada, 102 miles northwest of Winnemucca, Nevada.

Ownership

The property consists of 4 patented lode mining claims, 12 unpatented lode mining claims and 5 mill site claims. The claims are owned by Frank W. and Helen K. Roberts of Caldwell, Idaho, and are under option to James R. Keighley of Reno, Nevada.

The terms of the agreement require minimum payments of \$1000 per month to the Roberts on an end price of \$210,000 due prior to Sept. 20, 1977. A production royalty of 10% applies towards the end price. In addition, 7 payments of \$20,000 must be made to Scot Smith and partners who also will receive \$170,000 ~~in stock~~ *and payment*.

History

No authentic information can be obtained as to the early history of the property. It was probably discovered in the late 70's. The plats of the patented claims are dated July 10, 1863. From a comparison of the size of the dumps and the excavations, it is doubtful if shipments of any consequence were made.

In September 1948, the Wisby brothers constructed a road to the deposit. They hand-sorted the ore from various dumps and made their first shipment in November 1948. This shipment of 46 tons assayed 2.63 percent copper, 0.005 ounce gold, and 1.875 ounces silver. Ore from three places along the outcrop was mined, and a second shipment of 42 tons of hand-sorted ore was made July 27, 1949; this shipment assayed 7.5 percent copper, 0.01 ounce gold, and 3.30 ounces silver.

In recent years Smith and Kramer, mentioned above, mined 1500 tons of the oxide ore from an open-pit and piled the rock for acid-leaching. This pile averages 3.2% copper and 2.5 ounces silver/ton.

Geology and Mineralization

The rocks of the area consist of massive andesite, which is in contact with granodiorite on the northeast. The andesite in



the central part of the property is intruded by a dense, fine-grained diorite. A schistose structure has been developed along a shear-zone in the andesite. This shear zone has a general strike N.45°W. and dips 50° to 60° northeast. The shear zone, ranging in thickness from 3 to 35 feet and to several thousands of feet in length, is comprised of silicified schistose andesite and andesite parts of which have been more or less altered to chlorite.

The oxidized minerals near the surface comprise limonite, cuprite, malachite, azurite, and chrysocolla in a highly silicified gangue of schists and andesite. Traces of native copper have been found in the drill cores 150 feet below the surface. Small complementary fractures occur parallel to the direction of shearing. Adjacent to these fractures, small lenses have been developed where mineralization is more concentrated; thus, a rib structure has been formed within the shear zone.

In 1949 the U.S. Bureau of Mines drilled 7 holes totaling 1246 feet. This work indicates 250,000 tons of oxide ore to a depth of 200 feet. An EM-16 survey conducted by consulting geologists indicates an anomalous zone centered at approximately 500 feet of depth and possibly corresponding to the sulfide zone of mineralization. The presence of a secondary enriched deposit between 300 and 500 feet of depth is highly possible.

Additional drilling could prove up about 1,300,000 tons averaging around 3% copper and 2.5 ounces silver per ton. Leach tests conducted by The Calisher Company, Salt Lake City, Utah, show an average recovery of 82.2% of the copper with an average acid consumption of 2.51 lb/lb of copper leached.

#### Proposed Development Program

The following proposal contains 3 phases consisting of an initial evaluation combined with 2 phases of development and mining. The initial phase will include detailed geologic mapping, geophysical surveying, dozing, sampling and limited drilling to guide the further development of the property.

The second phase involves drilling to complete development of the indicated 250,000 tons of open-pit, leachable copper ore. Included in the cost of this phase is the installation of an 800 ton leach plant.

The third phase could begin at any time during the program, depending on the availability of necessary capital. Contingent on favorable results from the first phase drilling, the indicated 1,050,000 tons of ore between 200 and 600 feet of depth would be blocked out by drilling. The third phase includes the cost of underground mine development and installation of a 300 ton Flotation mill and surface facilities.



All mining costs are based on contract arrangements. Values have been determined with prices of 70¢ per pound for copper and \$3.70 per ounce for silver.



CAPITAL REQUIREMENTS  
and  
OPERATING PROFIT PROJECTION

PHASE I: Additional evaluation, 0.3 years

Detailed mapping of surface and underground and general supervision -	\$ 7,000
Completion of geophysical survey -	1,500
Mobilization of dozer and drill -	3,000
Surface trenching and drill pad prep -	4,000
Drilling, 2 holes, total 1200 ft. @ \$15 -	18,000
Assaying, 80 samples @ \$8	640
Payment to S. Smith and Partners -	20,000
Minimum royalty payments, 4 months -	4,000
<i>Expenses incurred in acquisition</i>	<i>12,000</i>
Total Phase I	<del>\$ 50,140</del>

\$ 70,140

PHASE II: Develop and mine, copper leach,

0.5 years development + 1.1 year mine life	
Completion of ore development, 250,000 tons -	\$ 175,000
Leach plant installation, 800-ton -	200,000
Minimum royalty prior to production, 6 months -	6,000
Total Phase II	\$ 381,000

Operating Profit Projection:

Gross value, 2% Cu, 82.2% recovery	\$23.00
Operating cost, open pit 3.5/1 stripping	8.00
Net per ton	\$15.00
Operating profit, less \$200,000 remaining royalty -	\$3,550,000

PHASE III: Develop 2nd mine underground, assuring ore development done during Phase II, mine life - 11.7 years

Block out 1,050,000 tons -	\$ 350,000
Underground development:	
Shaft, 600 ft. @ \$150 -	90,000
Lateral development 800 ft. @ \$70 -	56,000
Surface installations:	
300-ton Flotation Mill -	450,000
Hoisting set-up -	60,000
Total Phase III	\$1,006,000

Operating Profit Projection:

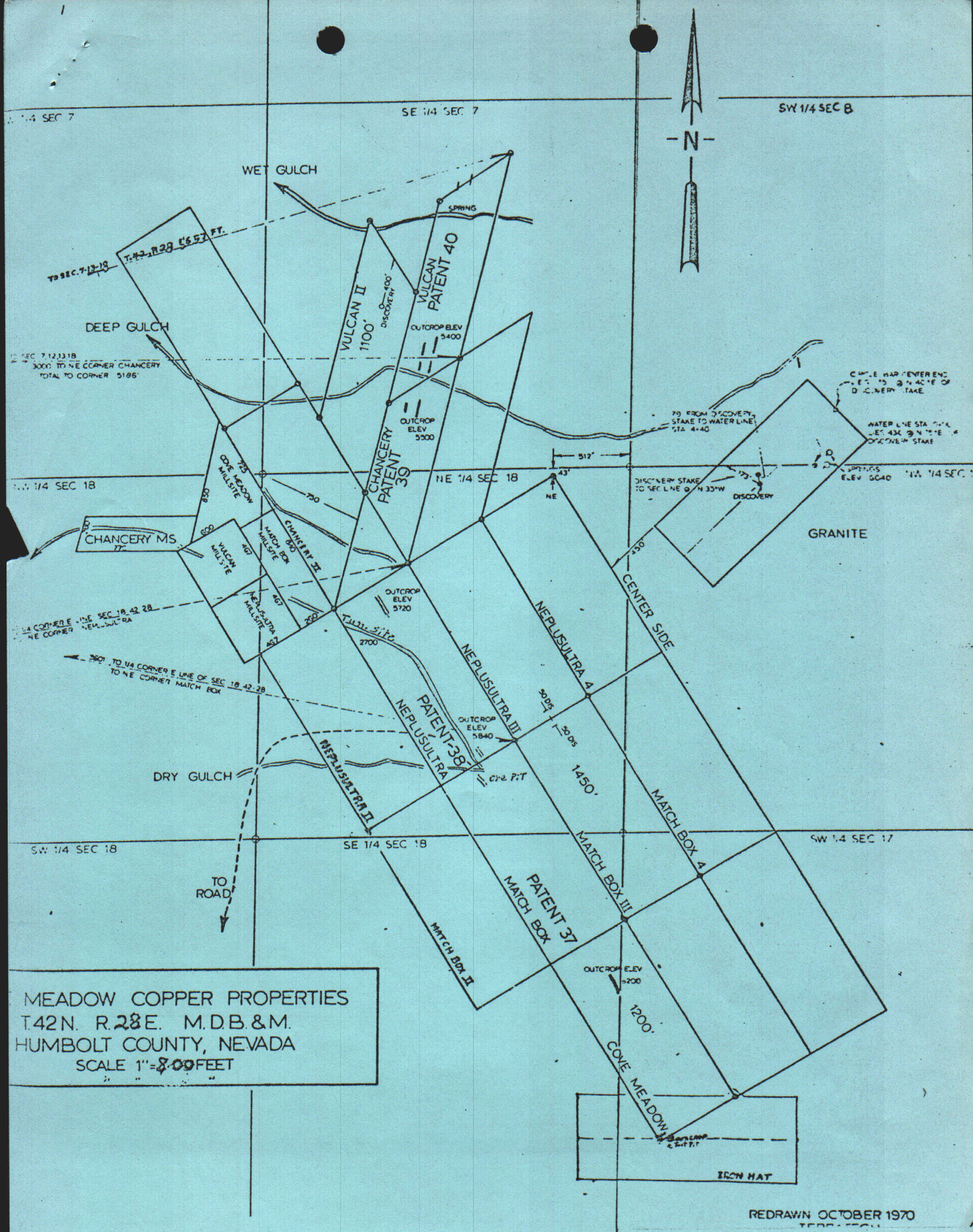
Gross value, 2% Cu, 2.5 oz. Ag	\$34.88
Operating cost	15.00
Net per ton	\$19.88
Operating profit -	\$20,874,000



SUMMARY OF TOTAL OPERATING PROFIT PROJECTION

Total Investment	\$ 1,445,140
Total Operating Profit	\$24,424,000
Return on <del>Fixed</del> Capital	16.90/1
Annualized Return on Capital, 13.6 years	- 124%







90  
98

# INVESTIGATION OF THE COVE MEADOW COPPER DEPOSIT, HUMBOLDT COUNTY, NEV.

BY RUSSELL R. TRENGOVE

• • • • • Report of Investigations 4694



UNITED STATES DEPARTMENT OF THE INTERIOR  
Oscar L. Chapman, Secretary  
BUREAU OF MINES  
James Boyd, Director

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Work on manuscript completed September 1949. The Bureau of Mines will welcome reprinting of this paper, provided the following footnote acknowledgment is made: "Reprinted from Bureau of Mines Report of Investigations 4694."

May 1950



INVESTIGATION OF THE COVE MEADOW COPPER DEPOSIT,  
HUMBOLDT COUNTY, NEV.

by

Russell R. Trengove<sup>1/</sup>

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<sup>1/</sup> Mining engineer, Reno Branch, Minerals Division, U. S. Bureau  
of Mines.



## INTRODUCTION AND SUMMARY

The Bureau of Mines developed by core drilling the Cove Meadow copper property, also known as the Patterson property, from May 6, 1949, to August 6, 1949. It is in the Cove Meadow mining district, northwestern Humboldt County, Nev., 102 miles northwest of Winnemucca. The purpose of the work was to determine possible reserves in a mineralized shear zone in andosite that has been partly explored by several surface cuts and two shallow underground workings. Production from this zone to August 1, 1949, was 98 tons of hand-sorted copper ore assaying 5.1 percent.

The development work performed by the Bureau of Mines comprised a study of the geology, mapping the area, sampling the outcrops, and exploring by diamond drilling the shear zone adjacent to the fault. Seven holes were drilled for a total of 1,246 feet. Mineral reserves indicated by the project are confined to a length of 500 feet along the strike.

## ACKNOWLEDGMENTS

The investigations undertaken at the Cove Meadow copper deposit were part of the work of the Reno Branch of the former Mining Division, A. C. Johnson, chief.

Chemical analyses were performed at the Rare and Precious Metals Experimental Station, Reno, Nev.

The cooperation and assistance given by O. W. Wisby, one of the purchasers of the property, was greatly appreciated. Wisby constructed a road to the drilling sites and hauled water for drilling.

## LOCATION AND PHYSICAL FEATURES

The Cove Meadow deposit (fig. 1) is in T. 42 N., R. 32 E., M. D. B. & M., northwestern Humboldt County, Nev., 102 miles northwest of Winnemucca, at an altitude of 5,800 feet. Winnemucca, the nearest supply point, is served by main lines of the Southern Pacific and Western Pacific Railroads and by bus and truck lines.

The property is reached by following U. S. Highway 95 north to the Denio Road junction, a distance of 32 miles, then along the Denio Road to Leonard Creek Junction, 38 miles distant. From this point a rough sand and gravel road is followed westward for 32 miles to the deposit. The deposit is in an isolated area. There are no telephone, telegraph, or mail services. The nearest telephone is at the Quinn River Crossing, 35 miles distant.



Drilling was difficult in the brecciated andesite and involved considerable cementing. Caving ground necessitated 554 feet of cementing, or 44 percent of the total footage drilled. Core recovery was poor; the core recovery per hole ranged from 19.5 to 48.9 percent and averaged 35.8 percent. Sample analyses are given in figure 3, and diamond drill-hole logs follow.

### DRILL-HOLE LOGS

#### Hole 1

Coordinates: 1142 N., 1057 E.  
Elevation of collar: 5,871 ft.  
Bearing: S. 51° W.

Inclination: -60°  
Completed length: 202 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	69	69	10.0	14	1-5/8	Andesite.
69	122	53	17.0	32	1-1/8	Do.
122	127	5	2.7	54	1-1/8	Andosito and iron oxide.
127	132	5	1.2	24	1-1/8	Andesite, malachite stain, one piece.
132	202	70	35.0	50	1-1/8	Andesite.

#### Hole 2

Coordinates: 1142 N., 1057 E.  
Elevation of collar: 5,871 ft.  
Bearing: -

Inclination: Vertical  
Completed length: 224 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	3	3	0	0	2-1/8	Surface.
3	25	22	10.7	49	2-1/8	Andosito.
25	77	52	19.0	37	1-5/8	Do.
77	153	76	33.0	43	1-1/8	Do.
153	224	71	46.0	65	7/8	Do.

#### Hole 3

Coordinates: 707 N., 1104 E.  
Elevation of collar: 5,849 ft.  
Bearing: S. 69° W.

Inclination: -60°  
Completed length: 100 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	20	20	0	0	1-5/8	Surface, sand and boulders.
20	28	8	0.8	10	1-5/8	Andosito.
28	35	7	2.0	29	1-5/8	Mineralized, copper carbonate.
35	57	22	7.0	32	1-5/8	Andosito.
57	75	18	5.4	30	1-5/8	Mineralized, iron oxide and copper carbonate.
75	100	25	4.3	17	1-1/8	Andosito.



# Hole 6

Coordinates: 942 N., 1157 E.  
Elevation of collar: 5,849 ft.  
Bearing: -

Inclination: Vertical  
Completed length: 182 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	10	10	7.0	70	2-1/8	Andesite with altered rib and seams of iron.
10	43	33	26.3	80	1-5/8	Do.
43	102	59	19.9	34	1-1/8	Do.
102	112	10	1.5	15	1-1/8	Schist, andesite, and quartz, with iron and copper stains.
112	119	7	1.6	23	7/8	Do.
119	140	21	3.8	18	7/8	Altered andesite stained with copper and iron, with occasional sulfide particle not visible to the unaided eye.
140	145	5	0.7	14	7/8	Cuprite and disseminated native copper.
145	150	5	0.8	16	7/8	Altered andesite, disseminated cuprite, and copper.
150	155	5	0.3	6	7/8	Magnetite, copper-stained.
155	161	6	1.0	16	7/8	Heavy magnetite stained with copper carbonates.
161	172	11	2.0	18	7/8	Altered andesite. Slight copper mineralization.
172	182	10	3.0	30	7/8	Andesite.

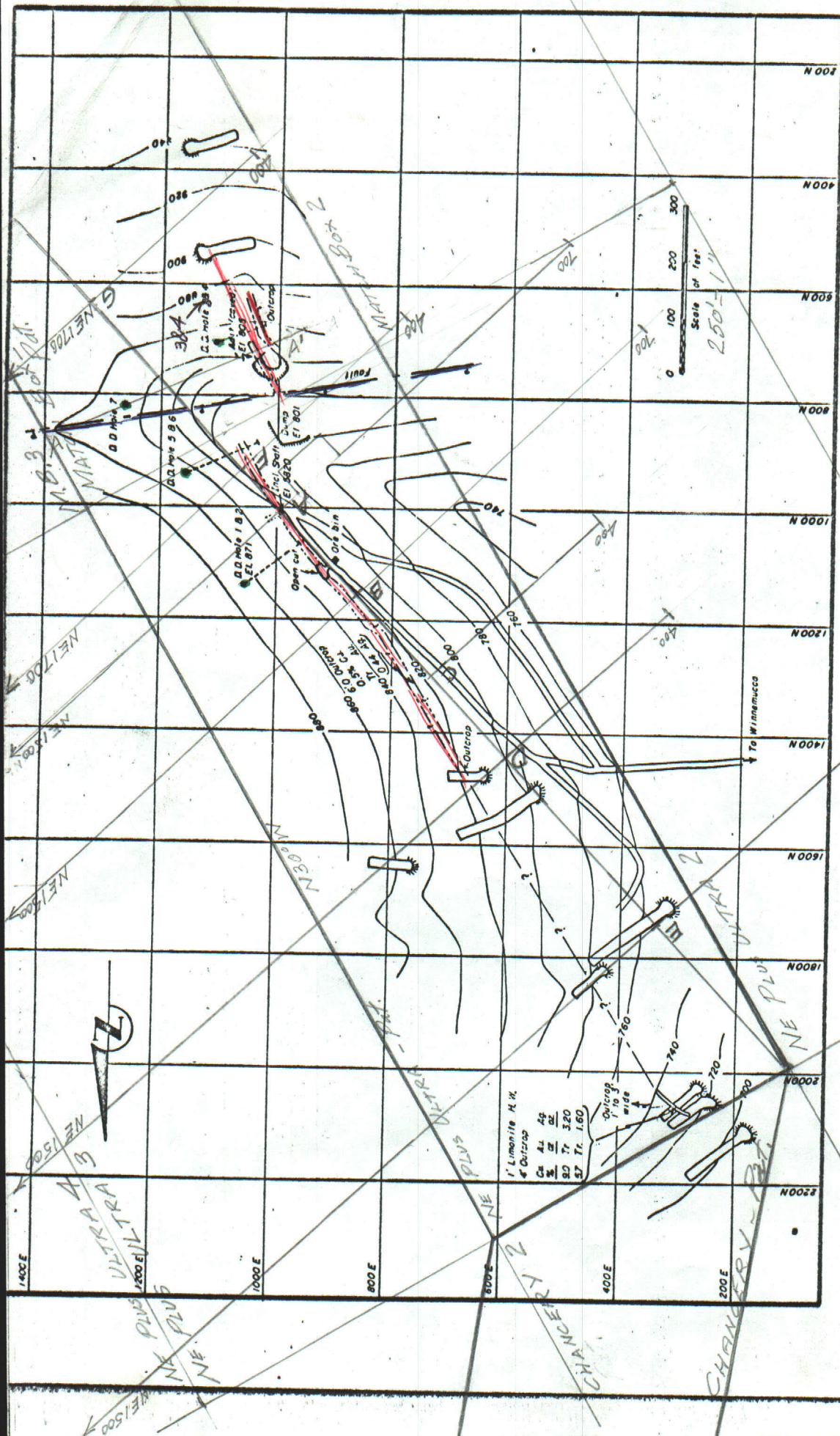
# Hole 7

Coordinates: 819 N., 1262 E.  
Elevation of collar: 5,848 ft.  
Bearing: -

Inclination: Vertical  
Completed length: 196 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From-	To-		Ft.	Percent		
0	6	6	2.3	38	2-1/8	Boulders and andesite.
6	13	7	2.2	31	2-1/8	Andesite.
13	50	37	11.5	31	1-5/8	Do.
50	113	63	25.0	40	1-1/8	Do.
113	196	83	15.0	18	7/8	Do.





**Figure 2. - Topographic map showing locations of workings and diamond drill holes.**



### Hole 4

Coordinates: 707 N., 1104 E.  
 Elevation of collar: 5,849 ft.  
 Drilling: -

Inclination: Vertical  
 Completed length: 141 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From	To		Ft.	Percent		
0	15	15	0	0	2-1/8	Overburden.
15	23	8	2.6	33	2-1/8	Andesite.
23	36	13	9.2	71	1-5/8	Do.
36	41	5	0	0	1-5/8	Mineralized, malachite.
41	45	4	1.2	30	1-5/8	Andesite.
45	80	35	3.6	10	1-1/8	Do.
80	95	15	5.0	33	7/8	Do.
95	125	30	9.2	31	7/8	Mineralized, malachite.
125	130	5	2.0	40	7/8	Limonite.
130	135	5	2.5	50	7/8	Limonite and andesite.
135	141	6	1.7	28	7/8	Andesite.

### Hole 5

Coordinates: 942 N., 1157 E.  
 Elevation of collar: 5,849 ft.  
 Drilling: S. 65° W.

Inclination: -60°  
 Completed length: 201 feet

Footage		Feet	Core recovery		Core diam., in.	Description
From	To		Ft.	Percent		
0	3	3	1.5	50	2-1/8	Overburden.
3	17	14	7.3	52	2-1/8	Andesite.
17	50	33	17.6	53	1-5/8	Do.
50	65	15	2.6	17	1-1/8	Do.
65	67	2	0.8	40	1-1/8	Altered andesite.
67	102	35	8.0	23	1-1/8	Copper-stained andesite.
102	127	25	14.0	56	1-1/8	Copper-stained limonite.
127	132	5	2.9	58	1-1/8	Altered andesite - copper and iron stringers.
132	139	7	2.3	33	1-1/8	Altered andesite.
139	142	3	2.5	83	7/8	Do.
142	201	59	38.0	64	7/8	Oxidized zone. Very hard andesite with disseminated magnetite; occasional sulfide particle not visible to the unaided eye.



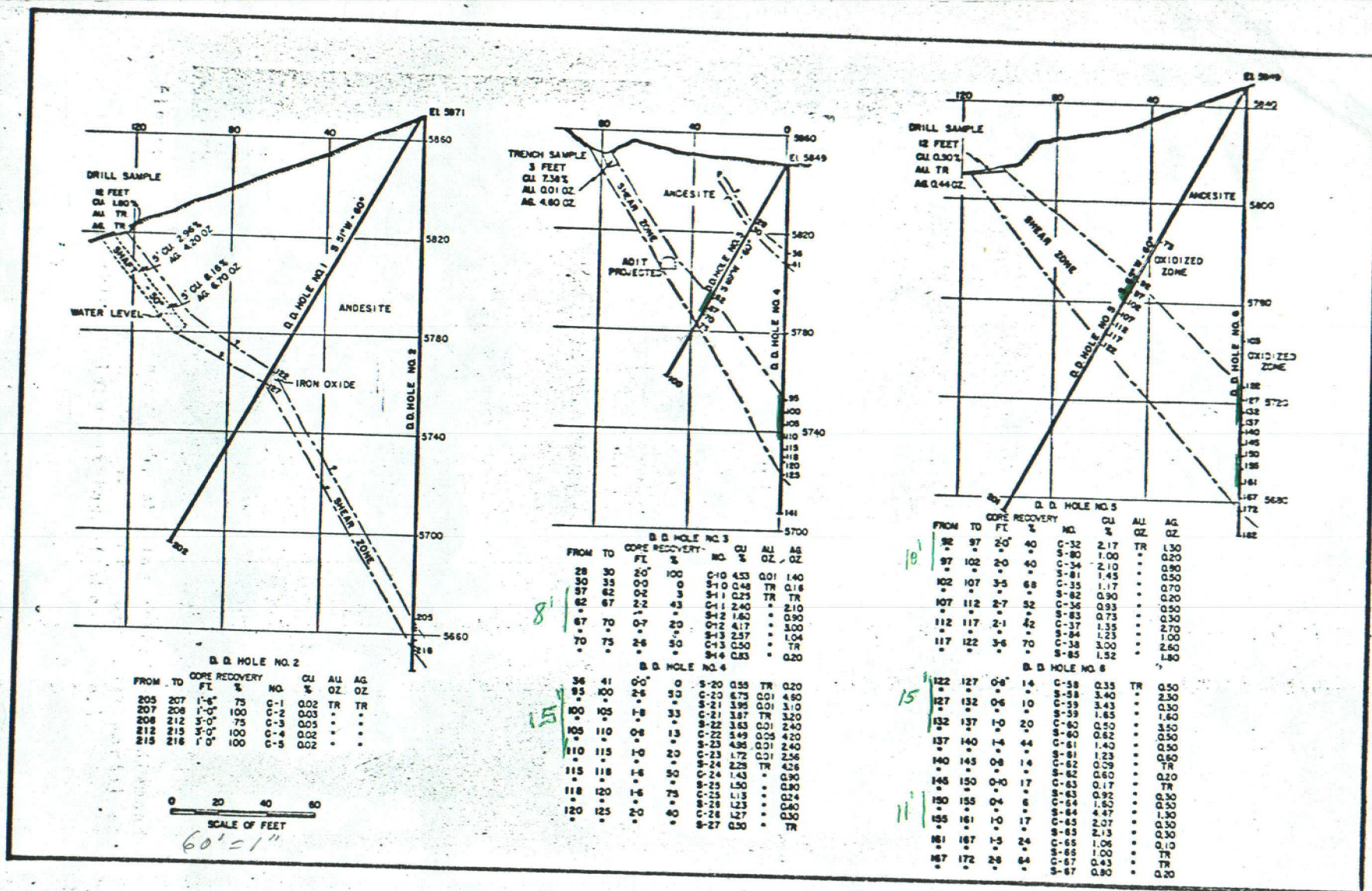


Figure 3. - Vertical sections through drill holes (1-2), (3-4), and (5-6), and sample analyses.



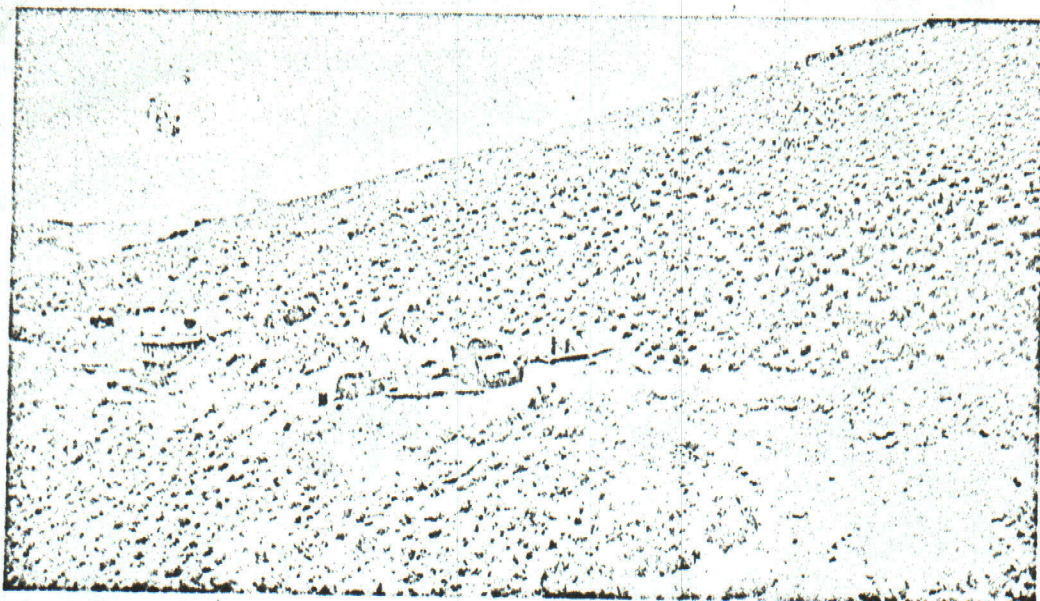


Figure 4. - View looking north, showing tripod over diamond-drill holes 1 and 2. (Note collar of inclined shaft near truck.)



Figure 5. - View looking south, showing tripod over diamond-drill holes 3 and 4. (Note old adit portal and workings along outcrop of shear zone.)