DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE Idm-E NO._____ DMEA NO. 4869

Application
- [x] Denied
- [ ] Withdrawn

Contract
- [ ] Terminated - Not Certified
- [ ] Terminated - Certified
- [ ] Cancelled
- [ ] Royalty Agreement

The records contained in this file are marked (x) and arranged in this order:

Folder No. 1:

Left Side

- [ ] Royalty Audits
- [ ] Certification of Discovery
- [ ] Closing Letter
- [ ] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [ ] Contract with all exhibits and annexes
- [ ] Owner's Consent to Lien and Subordination Agreement
- [x] Application and attachments

Right Side

- [ ] Project summary (final)
- [ ] Work Completed analysis (final)

All other material filed in chronological order including the following reports if checked:

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Final Field Team Report (Tab)
- [ ] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [x] On-site Exam Report (Tab) 3-11-58
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No._____: Reports
- [ ] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with transmittal, narrative and maps.

Folders No. 2 : Maps (Use pocket folder or envelope)

Folders No._____: Settlement Sheets

Folders No._____: Drill Logs

Folders No._____: Royalty material

17963

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
1605 Evans Avenue
Reno, Nevada

November 6, 1957

Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application (Copper)
Umont Mining, Inc.
Monte Cristo Claim Group Project
White Pine County, Nevada

Enclosed are three sets of MF-103, Application for Aid forms, relative to above subject. The fourth set has been retained in our files.

/for/ S. Ricker

Enclosures

November 2, 1957

Mr. Roscoe M. Smith
Acting Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

Re: Monte Cristo DMEA Application

Dear Mr. Smith:

Attached please find our DMEA application concerning our Monte Cristo Claim Group, White Pine mining district, White Pine County, Nevada.

In addition to the maps and sections referred to in the text of this application, I am enclosing a geologic section showing Anaconda drill holes 2 and 5A, and another showing their drill holes 2, 4 and 3. Also, enclosed, please find a claim map used in the quiet title suit. The map shows my claims and the Farnsworth claims involved in the suit.

Longyear's bill for the diamond drill hole 3, drilled for Anaconda and shown in one of the above-mentioned sections, was $4,691.43. The hole was 241 feet deep, giving a cost per foot of $19.47 not including supervision, sampling, assaying and mobilization. Such a high cost per foot is not anticipated for holes ~~coll~~ collared in limestone, although drill costs will not be low in the garnet-actinolite rock and underlying formations.

I plan to be at Monte Cristo all day November 6, 1957, but before leaving for Monte Cristo on the fifth, I shall telephone you in Reno.

Yours very truly,

Dooley P. Wheeler, Jr.

Dooley P. Wheeler, Jr.
General Manager

DPW:lh

Form MF–103
Revised Feb. 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42–R1035.3
Approval expires June 30, 1958

APPLICATION FOR AID IN AN EXPLORATION PROJECT

PURSUANT TO DMEA ORDER I, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

NAME OF APPLICANT (Full legal name and mailing address as it should appear on contract if one is executed)

UMONT MINING, INC.
KING STREET DOCK
BURLINGTON, VERMONT

APPLICANT NOT TO USE THIS BLOCK

Docket Number	4869
Date Received	11-12-57
Government Participation %	
Region	II
Division Code	500

BUSINESS ORGANIZATION *(Check one)*

- Individual [ ]
- Corporation [X]
- Partnership [ ]
- Other *(Specify)* [ ]

State in which firm is organized

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

Name	Address	Title
Umont Mining, Inc.	King Street Dock Burlington, Vermont	
L. P. Evans, Jr.	" "	President
R. H. Wadhams	" "	Vice-President
D. P. Wheeler, Jr.	912 Kearns Building Salt Lake City, Utah	General Manager

Mineral(s) for which you wish to explore: Copper

Estimated Cost of Project $: $ 300,000 maximum

LOCATION OF PROPERTY

Name	County	State
Monte Cristo	White Pine	Nevada

GENERAL INSTRUCTIONS

Before filling out this application, please read DMEA Order–I, Amended, "Government Aid in Defense Exploration Projects." To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 1, existing mine workings and geology in item 2, and the proposed exploration project in item 4. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 2(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest DMEA Field Office.*

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

November 2, 1957
Dated

Dooley P. Wheeler Jr.
BY *(Signature)*

General Manager and Vice-President
Title

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. *Applicant's Property Rights:*

(a) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all land adjacent to the proposed project area which you own or control. Describe any part of the project land or workings which should not be subject to Government lien for royalty payments. If the land consists of unpatented claims, state the book and page number for each recorded location notice, including amended locations, and the place where recorded (courthouse, recorder's office, county, and state).

(b) State all the names by which you know the property.

(c) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise. If you are not the owner, submit with this application one exact copy of the lease, contract, or other document (with address of owner) under which you control the property.

(d) Describe all liens, mortgages, or other encumbrances on the property.

2. *Physical Description:*

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the lands, including existing mine workings. Describe all production facilities.

(b) State your interest, if any, in operations stated in 2*(a)*.

(c) State, as far as your know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves on the property giving quantities and grades and sampling methods used, supporting your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you may have, indicating on each whether you require its return to you.

3. *Accessibility of Project:*

(a) To aid DMEA representatives who may be required to examine the property, state the name and address of the person who will meet the DMEA representative; give directions for reaching the property; and describe accessibility of the property including the mine workings.

(b) Name the shipping and supply points and places where employees reside and state the distances between them and the property.

4. *The Exploration Project:*

(a) Describe fully the proposed exploration project giving individual footages and sizes of openings *for each item of work*. Use narrative, maps, plans, and longitudinal and cross sections as necessary. Show the location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *property boundaries* or to the closest identifiable corner.

(b) If an access road to the project must be built, show the location on the property map and state the length, type, and construction methods proposed.

(c) In the event that an exploration contract with DMEA is executed, how soon will the work start and how many months will be required to complete it? State your anticipated average daily or monthly rate of progress for each type of work.

5. *Experience:*

State your operating experience and background with relation to your ability to carry out this exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of Costs:*

Furnish detailed estimates of the costs *for each item of the work proposed in 4(a)* under the headings listed below with a total for each heading and the estimated total cost of the project. Costs for any work to be performed by an independent contractor should be shown separately under category *(a)* below. Costs for any work that is not to be performed by an independent contractor should be given in detail under categories *(b)* through *(g)*.

(a) Independent contracts. State the cost of any proposed independent contract for the performance of all or any part of the work, expressed in units of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. *(Note* – If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. For necessary supervision, engineering and geological services, and labor, include an itemized schedule of numbers, classes, rates of wages, salaries or fees, and periods of employment. State whether these technicians and employees are available.

(c) Operating materials and supplies. List items of material and supplies with their cost. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of operating equipment to be used giving specifications and indicating how each item is to be acquired – i.e., rented, purchased, or provided by the applicant. If it is rented or purchased, state the estimated rental or purchase price. If it is to be furnished by the applicant, give its present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of necessary *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant, which will be used on the exploration project.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration project stating specifications and cost including labor, materials and supervision.

(g) Miscellaneous. For the operating equipment listed in 6*(d)*, describe the type and estimate the cost of repairs and maintenance expected during project operations. Do not repeat initial repairs listed in 6*(e)*. Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories.

Note – No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. *(a)* State whether you are prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation stated in Sec. 7 of DMEA Order–I, Amended.

(b) Explain to what extent you propose to furnish your share of the costs by providing money, by use of equipment owned by you, or otherwise.

* * * * *

INT.-DUP. SEC., WASH., D.C. 15539

Umont Mining, Inc.
King Street Dock
Burlington, Vermont

I. Applicant's Property Rights

1. (a) The first drill hole (#6 in the area) will be collared approximately 400 feet east of the southeast corner of Minerva claim and will be on the mutual side lines of the Venus and May claims. The hole will be near the southwest corner of Section 21, T16N, R57E, Mount Diablo Base and Meridian.

The second hole will be near the mutual corners of the Ada Fraction, Ada, Minerva, Virginia and Venus claims in the SW corner of the NW quarter of the SW quarter of the above-described Section 21.

The above drill holes, which are proposed as stage one drilling, are shown on the enclosed 1" = 1500' plan of the Monte Cristo Claim Group, which consists of 96 claims which are in good standing until July 1, 1958. The names, dates of location, book number and page number of the claims as recorded at the Recorder's office in the White Pine County courthouse at Ely, Nevada, are given in the enclosed Lease and Option pertaining to 1 (c) below.

1. (b) The property is known as the Monte Cristo Claim Group.

1. (c) Umont has the property under a Lease and Option Agreement with Dooley P. Wheeler, Jr. and his wife, Virginia D. Wheeler. An exact photostatic duplicate of the agreement is enclosed. Umont is being granted the right to encumber the Monte Cristo Claim Group with a DMEA lien.

1. (d) There are no liens or mortgages on the property. A quiet title suit was brought by Dooley P. Wheeler, Jr. against Fred Farnsworth and Frederick A. Farnsworth, Jr. in order to settle a dispute involving the Kathryn and 14 other claims belonging to Dooley P. Wheeler, Jr. A copy of the decree quieting title in favor of Dooley P. Wheeler, Jr., dated June 7, 1956, is attached.

Mr. Ed Halstead owns the surface and, presumably, water rights to the southeast quarter of Section 20, T16N, R57E, according to the enclosed Contract No. 17353, Patent No. 12610, dated February 15, 1951. On legal advice, that lode claims could be staked over such ground, Dooley P. Wheeler, Jr. staked the ground which is shown in the Monte Cristo Claim Group map as Halstead Contract Land.

New Jersey Zinc Company staked placer ground in the alluvial fan and basin area west of the Monte Cristo Claim Group* as shown on the 1" = 1500' claim map. The validity of both the placer claims and the lode claims in the gravel is subject to court interpretation inasmuch as neither have discoveries on them. Wheeler claims that it is wrong to stake placer claims in order to hold potential lode ground and that the only right thing to do is to stake lode claims and attempt to maintain them in good standing until a discovery can be made. Umont is aware of the conflict, but feels that regardless of the final disposition of the overlapping ground, they have sufficient ground covering

*overlapping the group in places.

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King Street Dock
Burlington, Vermont

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the heart of the potential district to justify exploration.

The Murphy Brothers own the Cabin Gulch group of about 12 claims north of the Clara, Margaret, Lorna and Martha claims. There is some overlap in that area and the Murphy Brothers' claims, being older than Wheeler's, take precedence. Here again the conflict zone is not large or serious insofar as the major target area is concerned. Wheeler attempted to survey the Murphy overlap area, but even with Murphy's help, could not find the Murphy Claim corners with certainty. The corners that were found indicated that the greatest overlap was in the Clara area where most of the Clara may be on Murphy ground.

2. Physical Description

2. (a) There are no operating mines or prospects on the property and no production facilities.

The only prospect that apparently produced more than 100 tons of silver ore was the Martha mine shown at coordinates N23300, W39500 on 200 feet to the inch surface geologic map, Plate 4. This mine is said to have yielded about $80,000 from small stopes on a gentle dipping rolling narrow quartz-tetrahedrite-galena-sphalerite-pyrite vein. Other such silver producers, but smaller, are shown at coordinates N22000, W38000 and at coordinates N20100 W38000 on Plate 4. Copper prospects that could have yielded 10 to 100 tons of 2.5 to 5.0 copper ore are at the following coordinates on Plate 4:

N 19600	W 38600	(Ada Adit)
N 20400	W 37900	
N 20850	W 37480	
N 20950	W 37520	

The copper ore from such prospects would have had little more than a trace of silver per unit of oxidized copper ore. Tungsten ore not exceeding 1000 tons of low-grade (0.4%WO_3) powelitic scheelite was produced from the Murphy Brothers' mine in the vicinity of coordinate 38000 west in vertical Section 6, enclosed. This mine is 800 to 1000 feet north of Umont ground, as shown on Plate 4.

East of the Monte Cristo quartz monzonite stock, of the order of 3,000 feet up on Mount Hamilton, there is at least one small inactive, quartz-tetrahedrite mine or prospect, and farther east up on the mountainside, of the order of one mile, inactive copper and gold prospects and small mines exist. The gold ore is high-grade, but the veins are normally only a few inches wide; consequently the gold veins are difficult to work profitably, and are not exploited extensively.

2. (b) Umont has all the mines and prospects referred to by north and west coordinates under lease and option. The Murphy tungsten mine and the prospects and mines 3000 feet or more east of Monte Cristo stock are outside Umont property.

2. (c) Umont estimates that production within its property is of the order of $100,000 or less. There are no known records to support this estimate. Size of workings and nature of ore are the primary bases for this estimate.

2. (d) There are no estimated ore reserves on the property. The ore in the prospects and small mines is too narrow or low-grade or erratic to justify any estimation of reserves.

The Anaconda drill holes 2, 3 and 4 were in mineralized porphyry. The logs of the holes are enclosed and they show that the porphyry does not approach ore grade where tested, even though the copper content is high enough to be of interest.

2. (e) Geologic Setting ((Narrative)

The Monte Cristo area is on the west edge of the White Pine Mining District approximately at the apex of a district-wide domical fold structure which is called the Pogonip dome. Many north-trending folds occur on the dome and the Monte Cristo anticline is approximately the crestal anticline of the domical structure. This anticline plunges north gently from near the center of the area and was longitudinally reverse faulted and tightly folded in and near the crestal area during the time of fold development. The complexity of folding and faulting in the anticline increases stratigraphically downward and southward.

Following fold development there was widespread transverse faulting followed by intrusion of the Monte Cristo quartz monzonite porphyry stock into the Monte Cristo anticline just north of the point where the anticline starts its plunge to the north. The stock tended to follow the transverse and longitudinal faults and its southern half, in particular, appears to occupy a strong structural crossroad. The stock was later highly shattered, sericitized, silicified, and weakly pyritized and mineralized with copper, evidently along the old transverse and longitudinal fracture pattern. This alteration extended out as far as 350 feet into the silicified sediments around the stock. The sediments and quartz veins in the sediments had an increase in pyrite of the order of 100 fold, and in addition chalcopyrite became a megascopically minor associate of the pyrite in the sediments. Relatively high-grade but small, bedded and transverse veins of quartz-pyrite-chalcopyrite are found in the contact altered sediments as far as 900

feet south of the stock. Much later, generally rolling flat-dipping narrow quartz-tetrahedrite-sphalerite-galena pyrite veins developed in the area.

Upper Secret Canyon shale and argillaceous limestone outcrop around the northern half of the stock but lower Secret Canyon and probably Geddes formations are exposed at the south side of the stock. Thus the Eldorado dolomitic formation, which is the outstanding ore producer at Eureka, Nevada, is closest to the surface south of Monte Cristo stock. The south edge of the stock is also the best structurally prepared and mineralized part of the area evidently having a zone about 2300 feet long which is 80 feet wide at the east end and 350 feet wide at the west end that is now a limonitic siliceous zone with minor boxwork after chalcopyrite. The above mineralized zone parallels and approximately overlies a major magnetic anomaly. The mineralized zone was drilled by The Anaconda Company sufficiently to determine that it is underlain by quartz monzonite porphyry, which where drilled has a contact dipping moderately south.

Anaconda's interest in the area was stimulated by the strong overall structural setting of Monte Cristo stock and the texture and strong alteration of the Monte Cristo quartz monzonite porphyry stock in association with copper mineralization, all of which seemed favorable for a porphyry copper deposit. Their drilling eliminated the chance of a porphyry copper deposit in a limited area for a limited depth, but it did not check the possibility of manto or pipe copper ore bodies in The Eldorado dolomite, and it did not, in the opinion of Pennebaker or Wheeler, check the sulfide zone in the porphyry. Pennebaker and Wheeler, however, believe that there is very little chance for a zone of secondarily enriched copper ore at the top of the sulfides under the Anaconda drill holes. They believe, however, that the chances are considerably better for important replacement ore bodies in the Eldorado dolomite buried around Monte Cristo stock.

The Secret Canyon and Geddes combined have a measured outcropping thickness of approximately 2000 feet which is about 500 feet thicker than their combined thickness at Eureka, Nevada. Therefore, it is felt that the Eldorado cannot be buried far below the surface.

The White Pine basin and range fault cuts the west edge of the Monte Cristo stock and area and curves south-southeast from the west edge of the stock, thereby dropping the western and part of the southern extension of potential mineralization out of range of exploration. There remains, however, a situation wherein much of the crest and the east flank of the dome is a reasonably accessible stratigraphic target--the

target being the productive Eldorado dolomite near the south edge of Monte Cristo stock underneath structural settings which at their outcrops have minor concentration of copper in spite of the fact that the outcropping metamorphosed sediments are known to be unfavorable for ore.

Conclusions

There is no way of knowing, short of drilling, whether the Eldorado formation will be as favorable for ore in the Monte Cristo area as it is at Eureka, but the writer believes that major ore deposits could very well exist in the Monte Cristo area if the Eldorado formation is present at Monte Cristo and remains as favorable at Monte Cristo as it is at Eureka.

The forceful and pervasive hydrothermal alteration of the Monte Cristo stock and fringe sediments far exceed any alteration at Eureka, Nevada, and causes one to look towards the 500 million dollar Robinson Mining District 36 miles east of Monte Cristo for a yardstick. The writer believes, however, that Eureka Mining District should be the principal yardstick for preliminary tests of Monte Cristo. If successfully used, such a yardstick may pave the way for successful search for porphyry copper deposits in the Monte Cristo area.

General Geologic Setting (Illustrated)

Plate 3 shows the Monte Cristo Claim Group in relation to the Monte Cristo Stock, other properties, magnetic anomalies, legal subdivisions, etc.

The crest of the high air-borne magnetic anomaly was later adjusted for vertical and horizontal components of the earth's magnetic field making the anomaly shaft about 1500 feet north. The new position is not shown on Plate 3. This anomaly is steep-sided on its north side and has a very gentle drop southward. It is thought to be caused by a deeply buried faulted magnetic basement rock wherein the basement rock is dropped on the north side of the fault. This feature is probably complicated or accentuated by magnetic intrusions of granitic type.

The conical anomalies 16A and 16B represent two very near-surface magnetic masses which probably are glassy magnetic volcanic rocks. The ground is retained around the anomalies pending more positive information.

Plate 4 is a 1" = 200' scale geologic map of the heart of the Monte Cristo Claim Group Area. The map is the result of six months' work by two geologists and one helper. Rock types, fold structures, fault structures, thermal and hydrothermal metamorphic effects, mines, prospects, mineralization, boundaries, lines of cross sections, etc., are shown.

Vertical Section 1 is a 1" = 200' scale section drawn primarily for the purpose of determining stratigraphic unit thicknesses in the most deeply eroded part of The Claim Group. Unit J, in Section 1, yields Elrathia and Agnostus fossils which are of Middle Cambrian age. Unit J is thought to be the basal member of the Secret Canyon formation.

Vertical Section 2 is a 1" = 200' scale section showing a cross section of the Pogonip dome where it is cut by the White Pine Fault on the west near the Monte Cristo Stock and where the dome starts to assume a uniform and increasing dip east on its east flank at the east end of Section 2.

Vertical Section 3 is a 1" = 200' section through rotary drill hole 1 drawn normal to the strike of White Pine Fault.

Vertical Section 4 is a 1" = 200' section through Monte Cristo Stock showing the nature of the east and west flank of the stock.

Vertical Section 6 is a 1" = 200' section through the Monte Cristo anticline in the vicinity of the Murphy tungsten mine. The section shows the west, central and east reverse faults cutting and flanking the Monte Cristo anticline and shows the relation of the stratigraphic units to the surface north of the Monte Cristo stock.

Vertical Section 7 is a 1" = 200' section further north on the Monte Cristo anticline showing again the mutual relations of the reverse faults, mineralization, and complications in folding. This section shows the youngest Cambrian sedimentary unit (Unit N) mapped in the Monte Cristo area. Unit N is the Dunderberg formation which is Upper or Late Cambrian in age. The Hamburg dolomite, which should be in the position of Unit M, is missing in The Monte Cristo Area. Unit M is assumed to be upper Secret Canyon on a lithologic basis.

Vertical Section 8A is a 1" = 200' section drawn along the east flank of the Monte Cristo Anticline east of the zone of complicated folding in the vicinity of the central reverse fault. The section has the south dip of the Monte Cristo stock plotted on the basis of Anaconda drilling, and has the first two proposed drill holes (PDH 6 and PDH 7) projected into the plane of the section. This section is a revision of an original Section 8 which was drawn July 8, 1955.

Vertical Section 10A is a 1" = 200' section drawn near, but in the footwall block of, The White Pine fault. The section goes from the west flank of Monte Cristo Anticline at the section's north end, through Monte Cristo stock and the crest of the anticline, with its zone of complication, to the east flank of the anticline where bedding is uniform in altitude. The section passes through the proposed drill hole #6 (PDH 6) and 90 feet southwest of (PDH 7). The south dip of the Monte Cristo Stock and its thermal and hydrothermal alteration effects

are shown on the basis of Anaconda drill results. Section 10A is the original Section 10, drawn July 8, 1955, brought up to date on the basis of Anaconda drill results.

2. (f) The reasons we expect to find ore deposits in the Eldorado dolomite at Monte Cristo are as follows:

aa. The Monte Cristo quartz monzonite porphyry is textually almost identical with the common porphyry copper deposit porphyry. In thin section the Monte Cristo porphyry resembles the thin section shown in U.S.G.S. Professional Paper 209, Plate 13, Photo F, except that alteration at Monte Cristo is more intense, having plagioclase replaced by sericite and the rock cut by many more, finely crystalline, quartz veins. The above is interpreted to mean a pervasive, intense flood of hydrothermal alteration exceeding by far the intensity of such alteration at Ajo, Arizona.

bb. Sulfide mineralization increases almost infinitely in quantity in the sediments around the porphyry in spite of the fact that the sediments are an inherently unfavorable formation for ore and have been rendered even more unfavorable by thermal metamorphic effects of the porphyry before hydrothermal mineralization took place.

cc. The above bb. phenomenon is interpreted to mean that, for some physical and chemical reasons, sulfide mineralization favored the sediments around the Monte Cristo porphyry instead of the porphyry as exposed by erosion today. It reasonably might follow that an exceptionally favorable host rock for ore such as the Eldorado dolomite might have great ore deposits in it if the unfavorable sediments at the surface have disseminated copper and concentrations of copper wherever structurally prepared.

dd. The unfavorable sediments at the surface on the south side of Monte Cristo stock, where erosion is deepest, have disseminated copper and concentrations of copper wherever the thermally altered sediments have been structurally prepared at the time hydrothermal alteration and mineralization was taking place.

ee. Based upon careful geologic mapping and paleontologic evidence, the Eldorado dolomite must be within reasonable drilling depth below the surface south of Monte Cristo stock.

ff. In Secret Canyon, south of Eureka, Nevada, the closest known occurrence of Eldorado dolomite to Monte Cristo, the Eldorado

dolomite is massive, brittle and essentially the same physically and chemically as at Eureka, Nevada. Thus, it is reasonable to expect it to be approximately the same thirty miles east-southeast at Monte Cristo, barring thrust complications. Furthermore, at Secret Canyon south of Eureke, Nevada, the Eldorado dolomite is highly shattered and mineralized with jasperoid and locally with small silver-lead-zinc ore bodies whereas the overlying Geddes and Secret Canyon are unbroken, uniform bedded and barren. At the Geddes-Eldorado contact at Secret Canyon there is evidence of strong bedding plane adjustment forming an impervious gougy clay. Underneath the clay the shattered Eldorado dolomite, for a depth of about 30 feet, is completely replaced by jasperoid.

gg. Conditions ff., if they exist at Monte Cristo will make the Eldorado dolomite an extremely favorable host rock for ore in comparison with the outcropping sedimentary formations at Monte Cristo. Consequently major copper ore bodies can be expected in the Eldorado at Monte Cristo. Such ore bodies would be expected to be a combination of flat or gentle dipping mantos, pipes and chimneys.

hh. The thermal effect of the Monte Cristo stock would not be expected to change the physical-chemical-textural nature of a pure dolomite unit as far from the stock as it does impure limestones and shales. Therefore, the unchanged Eldorado dolomite would be expected to extend far north under thermally highly altered Geddes and Secret Canyon formations and be close to the stock where maximum shattering and hydrothermal alteration is known to center insofar as surface expressions are concerned. The closeness of the unaltered dolomite to the stock, plus the inherent susceptibility of the dolomite to ground preparation in its stratigraphic environment, as discussed under ff above, is expected to increase the ore potential of the Eldorado at Monte Cristo immeasurably.

ii. Except for the narrow Pioche shale with its CM beds, the Eldorado dolomite is underlain, presumably, by the Prospect Mountain quartzite. This thick, brittle, stratified quartzite unit would be expected to have pervasive permiability leading from depth to the first major replaceable dolomite, the Eldorado, which is capped by relatively incompetent and/or inert formations which outcrop. Therefore, the ore-producing potential of the Monte Cristo area can be, and probably is, essentially hidden to the casual or superficial observer. The hidden potential of the Monte Cristo area is further accentuated by the White Pine Fault, a post-ore basin and range fault which is known to have dropped Ely limestone of

Pennsylvanian age west of the fault down to the level of Cambrian sediments east of the fault and caused deep gravel to cover most of the graben side of the fault. Thus, surface expression of strength of mineralization west of the fault would probably be nil after ore-forming solution passed through 12,000 to 14,000 feet of limestones and shales and then were capped in all places near Monte Cristo by more than 1000 feet of recent gravel. Even silver mineralization such as occurred under shale at the top of the Devonian, Nevada, limestone at Treasure Peak near Hamilton, Nevada, would be capped by about 3000 feet of shale and sandstone even if the 1000 feet of gravel did not exist.

The enclosed Anaconda drill sections, logs, and assays of Holes 2, 3, and 4 give the picture of mineralization in and near the Monte Cristo stock for a limited depth in porphyry and unfavorable rocks of sedimentary origin. Holes 2 and 4 were churn drill holes wherein cutting samples were carefully taken by Anaconda geologists. Hole 3 was a diamond drill hole wherein equal care was exercised by Anaconda. Holes 5 and 5A were collared in obviously barren garnet-actinolite rock in an attempt to get through to porphyry or the Eldorado formation. The holes were drilled by churn drill and were too expensive to push to their objective.

The low-grade copper mineralization south of Monte Cristo stock is oxidized at the surface. Character samples were taken to establish copper content similar to that indicated by Anaconda drill samples, but both Wheeler and Pennebaker have recorded boxwork after chalcopyrite at the surface in the area drilled by Anaconda, except for the area represented by Holes 5 and 5A.

The more confined but higher grade copper-stained mineralization farther south of the stock is also oxidized. There abundant boxwork after chalcopyrite and minor eyes of copper pitch and chalcopyrite are to be found. Assays of this higher grade oxidized material will yield 0.5 to 3 per cent copper and up to one ounce of silver per ton. These higher-grade occurrences of copper ore found under bedded jasperoid reefs or associated with steep dipping transverse faults along the contact between garnet-actinolite rock and marmarized argillaceous limestone.

Samples have been taken of the quartz-tetraledrite veins to establish their high silver content (15-100 ounces per ton) but this type of mineralization is not expected to have had much effect on the ore of our major objective.

2.(g)The drill logs, drill sections and assays by The Anaconda Company are enclosed. A report made by E. N. Pennebaker on the Monte Cristo area for the Burlington office may be made available later on a loan basis, if necessary. The Salt Lake Office of Umont does not at present have a copy of the report, but a copy of Mr. Pennebaker's letter of transmittal of the report is attached to this sheet. None of the material now enclosed in this report needs be returned.

3. Accessibility of Project

3. (a) Dooley P. Wheeler, Jr., 912 Kearns Building, Salt Lake City, Utah, will meet the DMEA representative in the field in order to go over the proposed project in the field.

The property can be reached by driving 32 miles east out of Eureka, Nevada, on U. S. Highway 50 to the Hamilton turn-off. From the turn-off follow the county dirt road southward bearing to the west of Mount Hamilton on the Green Springs-Monte Cristo road until the Seligman Canyon road is reached. Drive south on the Seligman Canyon road (after turning left off the Green Springs road) until the road comes to a draw leading out of Seligman Canyon. The Monte Cristo road at that point goes on across the draw and the Seligman Canyon road bears left up the left edge of the draw. From the Seligman turn-off, follow the Monte Cristo road along the west base of Mount Hamilton until the red brick ruins of the Monte Cristo mill or smelter is reached. (This plant never operated.) The south edge of Monte Cristo stock is eastward from the ruins about 200 yards. The distance from U. S. Highway 50 to the ruins is about fifteen miles.

It is suggested that Mr. Wheeler meet the DMEA representative at the Hamilton turn-off 32 miles east of Eureka at 8:00 A. M. of a predetermined date.

The proposed Monte Cristo Project Area is easily accessible by fair dirt road and all the canyons leading into the area from the west base of Mount Hamilton have jeep or pick-up roads. Short walking distances of fifty to one-thousand feet will be necessary for examinations of mines and prospects.

3. (b) Ely, Nevada, is the shipping and supply point for the project. The project is sixty miles by road westward from Ely (45 miles on U. S. Highway 50 and fifteen miles by dirt road).

Employees may stay in Ely, Eureka, Eldorado, or the property where there is a spring and campsite. The distance from Ely is sixty miles, the distance from Eureka forty-seven miles, the distance from Eldorado thirty-two miles and campsite no miles. Eldorado is fifteen miles east of Eureka on U. S. Highway 50. There has been in the past a couple of rooms available and a restaurant. Also, there are facilities for house trailers at Eldorado.

4. The Exploration Project

4. (a) It is proposed that the exploration project consist of vertical diamond drill holes authorized to go to a depth not to exceed 1500 feet, without special authorization because of extenuating circumstances. It is further proposed that the project be done in stages, as follows:

Stage 1 -- Drill two holes, PDH 6 and PDH 7, as plotted on Plates 3 and 4 and illustrated in vertical Sections 8A and 10A.

Start the holes NX and bottom them no smaller than AX.

Hole PDH 6 to be drilled first in an uncomplicated stratigraphic environment in order to check stratigraphy and explore for bedded, manto-like copper ore bodies--assumed depth to Eldorado 500 to 1000 feet.

Hole PDH 7 to be drilled second to check the zone of complication near or in the crest of the Monte Cristo anticline. This hole should not require such depth to reach the Eldorado dolomite, but the complexity of folding and faulting could make the drilling depth greater than in PDH 6.

Stage One drilling is fully illustrated in maps and sections and the reasons for expecting important ore bodies are given in text under 2 (e) and 2 (f).

Stage 2 -- Be prepared to drill up to twice the number of holes drilled in Stage 1, provided Stage 1 gives sufficient encouragement to justify continued exploration, in the opinion of both the Government and Umont.

Stage 3 -- Be prepared to drill up to twice the number of holes drilled in Stage 2, provided Stage 2 drilling gives sufficient encouragement to justify continued exploration in the opinion of both the Government and Umont.

Stage 4 -- Provided the preceding stages are successful in finding commercial ore deposits, allow a fourth stage of drilling to explore the Monte Cristo stock with two 1000-foot churn drill holes located at the following coordinates on Plate 4:

aa. N 22250 W 39700
bb. N 20610 W 39350

Hole aa is designed to explore the stock where the maximum penetration can be obtained in the search for accessory disseminated copper increase in depth in the quartz monzonite porphyry.

Hole bb is designed to search for both accessory disseminated copper increase in the quartz monzonite porphyry and primary and secondarily enriched copper mineralization at depth along a transverse fault zone, bounding the south edge of Monte Cristo stock as shown on Plate 4 and Vertical Section 10A. This fault zone is known to be one of exceptionally intense hydrothermal alteration containing more than average boxwork after chalcopyrite at the surface.

4. (b) Stage 1 drilling will require adequate access roads from the present ends of improved roads. These extensions are shown in black, in dashed lines. These represent 1700 feet of road work, including drill base preparation.

Stages 2 and 3 road work would depend upon the results of Stage 1 or 1 and 2 drilling and cannot be estimated at present.

Stage 4 drill roads and bases are already in, but some repair work would be needed.

All of the road and drill base preparation would be done by heavy bulldozer of D7 or D8 class. Preparation for drilling in Stage 1 would require about twenty hours of bulldozer work. Explosives and drills would not be needed.

4. (c) The work on Stage 1 would start about April 15, 1958, and terminate, if everything went as expected, in four months if one drill were employed on a two-shift-per-day basis. This assumes that a drill will average fifteen feet of drilling per shift for fifty shifts per month.

5. Experience

Umont has been engaged in exploration, development and mining operations in the Butte district since April, 1956. The work involves most of the routine mining problems confronting a small mine operation in the Butte district. We have had experience in diamond drill and churn drill operation in that district.

Umont's General Manager has had approximately seventeen year of experience in mining geology and mine operation. His experience and interests have been largely in the field of exploration and development in South America and North America, where he worked principally for Cerro de Pasco Corporation, Eagle Picher Company, The American Metal Company, Ltd. and the Anaconda Company. Umont's General Manager joined Umont in November of 1955.

The Monte Cristo Project will be supervised directly by Umont's general manager.

6. Estimate of Costs

Stage 1

6. (a) Independent Contractors

Build 1700 feet of road

Bulldozer mobilization at one dollar per mile for sixty miles from Ely	$ 60.00
Bulldozer work -- 20 hours at $15.00 per hour	300.00
	$ 360.00

Drill 3000 feet with diamond drill in Holes PDH 6 and PDH 7. Estimated cost per foot including average of NX--AX drilling sizes, reaming, cement, casing	36,000.00
Drill mobilization	500.00
Core boxes supplied by contractor (300 at $1.25)	375.00
	$ 37,235.00

6. (b) Personal Services

Umont management, twenty days on job per month, at $50.00 per day for 80 days	4,000.00
Per diem expenses of management, 80 x 7.0	560.00
Travel expenses for 80 days at 120 miles per day paying eight cents per mile	768.00
Resident Engineer twenty dollars per day for 80 days	1,600.00
Resident Engineer daily expenses (80 days) . . .	560.00
Resident Engineer, 120 miles per day, 8 cents per mile for 40 days	384.00
	$7,872.00

6. (c) Operating Materials and Supplies -- none

6. (d) Operating Equipment -- none

6. (e) Initial rehabilitation and repairs -- none

6. (f) New Buildings, Fixtures, Installations -- none.

6. (g) Miscellaneous

300 assays for copper-silver-lead-zinc-gold or copper-tungsten at $5.50 per sample analyzed, including cost of sample sacks	$ 1,650.00
Freight on samples, 1500 lbs., Ely to Salt Lake, at $2.00 per 100 lbs.	30.00
	$ 1,680.00

TOTAL STAGE 1 $ 46,787.00

Stage 2

Stage 2 costs do not lend themselves to estimation because the depth and nature of the drill target will first need be determined in Stage 1. At present, it can be assumed that Stage 2 will require twice as much drilling as Stage 1 and cost twice as much as Stage 1, or $93,574.00.

Stage 3

Inasmuch as Stage 3 drilling contemplates twice the drilling of Stage 2, the costs of Stage 3 can be assumed to be close to double those of Stage 2, or $159,639.00.

Stage 4

Stage 4 is considered too far behind the first three stages to justify including its costs in this application. Stage 4 work, if needed, perhaps better be included in a new application involving a different type of exploration objective.

7. Means of Participation

7. (a) Umont is prepared to furnish 50% of the cost of this proposed project in accordance with regulations on Government participation stated in Section 7, part (a) of DMEA Order-I, Amended.

7. (b) Umont expects to provide money.

Form
-58)

OFFICIAL FILE COPY

Date	Surname	Code
	Griswold	500
4/5	Selfridge	130
4/5	Lopes	130
4/5	Kirkemo	130
"	Johnson	110
"		~~245~~
4-5	gad	220
		225

APR 5 1960

Mr. Dooley P. Wheeler, Jr.
General Manager
Umont Mining, Inc.
912 Kearns Building
Salt Lake City 1, Utah

Re: Docket No. DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo Claims
White Pine County, Nevada

Dear Mr. Wheeler:

We have your letter of March 20, with enclosures, relative to the above-cited property. Referring to the last paragraph of your letter, you state "...we hope that you can give us a fairly reliable preliminary answer regarding the chances for help from OME." The information submitted with your letter does not materially decrease the speculative nature of your proposal. The lack of more specific targets for exploration would preclude our acting favorably on your proposal at this time.

As requested, we are returning the material which you enclosed, consisting of:

Drill hole log
Plate 4, surface geology
Section 10A.

Sincerely yours,

Frank E. Johnson

Acting Director

WRGriswold/kb/fw-4/4/60
cc: Docket
Dir.Reading File
Mr. McMahon, USBM
Mr.Kirkemo, USGS
Reg. II (2) w/2 cys
incoming lts w/o attachmts
Chron.

Enclosures

43683

The information submitted with your letter does not materially change the speculative nature of your proposal. The lack of more specific targets for exploration would preclude our acting favorably on your proposal at this time.

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
	Griswold	500
		120
		110
		220
		225

Mr. Dooley P. Wheeler, General Manager
Umont Mining, Inc.
912 Kearns Building
Salt Lake City 1, Utah

Re: Docket No. DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo Claims
White Pine County, Nevada

Dear Mr. Wheeler:

We have your letter of March 20, with enclosures, relative to the above-cited property. Referring to the last paragraph of your letter, you state "we hope that you can give us a fairly reliable preliminary answer regarding the chances for help from O M E", it is quite out of the question for us to make advance commitments, even of a tentative or provisional nature. The only assurance we can give is, that an application would receive our full consideration.

We are not in accord with your contention as to the "considerable expense of formal application" especially in view of the material which you already have available. We are enclosing five copies of the application form, in the event that you decide to apply for Government assistance.

As requested, we are returning the material which you enclosed, consisting of:

Drill hole log.
Plate 4, surface geology.
Section 19A.

Sincerely yours,

Acting Director

WRGriswold:kb - 4/1/60
cc to: Docket
Director's reading file
Mr. McMahon, USBM
Mr. Kirkemo, USGS
Region II (2) w/2 cys incoming ltr w/o attachments
Chron.

Enclosures

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

OFFICIAL FILE COPY
IN REPLY REFER TO:
O. M. E.
RECEIVED MAR 31 1960

DATE	INITIALS	CODE
3-31	gad	rro
		✓oo

March 31, 1960

Memorandum

To: W. R. Griswold, Office of Minerals Exploration

From: Harold Kirkemo, U. S. Geological Survey

Subject: Comments on proposal by Mr. Dooley P. Wheeler, Jr., General Manager, Umont Mining, Inc., to explore the Monte Cristo Claims, White Pine County, Nevada

I recommend that an affirmative reply be prepared in response to Mr. Wheeler's proposal to submit an OME application for exploration assistance at the Monte Cristo prospect. Some of the speculative uncertainty that led to denial of an application for DMEA assistance in 1958 has been removed with the drilling of D.D.H. No. 6, south of the Monte Cristo stock. This hole may have proved the existence of a favorable formation (equivalent of the Eldorado dolomite at Eureka and the Lyndon limestone at Pioche) at a depth, (1,455 feet), that can be tested again at reasonable cost by drilling. Interesting occurrences of molybdenite and minor amounts of other unoxidized sulfide minerals were found in the drill core from D.D.H. No. 6.

The results obtained from D.D.H. No. 6 compel favorable consideration of plans to continue the hole through the dolomite formation and into the underlying rocks. Serious consideration should be given to drilling other holes on the "limestone side" of the contact as described by Mr. Pennebaker in his report dated September 11, 1957, on the Monte Cristo prospect (see DMEA Docket 4869).

It might be economically feasible to drill through the oxidized zone in the Monte Cristo stock and test the sulfide content of underlying, fresh, unoxidized rock. Previous tests into the stock were made within 600 feet of the White Pine Fault. If the water table is influenced by the fault, i.e. greater depth in the vicinity of the fault, relatively shallow holes located on the eastern margin of the stock some 1,800 feet east of the fault (Wheeler map coordinates W.37,800 - N.21,500) may penetrate the oxidized zone.

Harold Kirkemo

Harold Kirkemo

Form 7
0-58)

OFFICIAL FILE COPY

Date	Surname	Code
3/28		225

March 28, 1960

Memorandum

To: Harold Kirkemo, U. S. Geological Survey

From: W. R. Griswold, Chief, Division of Minerals, OME

Subject: Umont Mining Inc.

I call your attention to the attached March 20 letter, with enclosures.

Since we are dealing with geologic probabilities or possibilities, it would be helpful to have your comments before we attempt to answer the letter. Would you kindly review the old docket (DMEA-4869) and let us have your ideas?

W. R. Griswold

Attachments

WRGriswold/gla
3-28-60
(with docket D MEA-4869)

43683

Umont Mining Inc.

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 24 1960

DATE	INITIALS	CODE
3/24		225
P. O. Box 182		
Challis, Idaho		500
March 20, 1960		
3/24 Forwarded		
		225

Mr. Frank E. Johnson, Administrator
Office of Mineral Exploration
U. S. Department of the Interior
Washington 25, D. C.

Dear Mr. Johnson:

Thanks for sending me the information regarding the Mineral Exploration Program as a result of our telephone conversation at the time of my visit in New York during the AIME convention.

The property on which we wish assistance was described in our D M E A loan application Docket No. D M E A - 4869 (copper) Umont Mining, Inc., Monte Cristo Claims, White Pine County, Nevada.

The application for exploration assistance was denied by Mr. Mittendorf in a letter to me dated March 31, 1958.

In 1958 Umont drilled diamond drill hole #6 to depth of 1502 feet finding an erratic increase of molybdenite, pyrite and silica with depth. Copper is present but in subordinate amounts compared to molybdenum.

The dolomite (Eldorado?) that we expected at a depth of the order of 500 feet, see original sections 8A and 10A, was we think intersected at a depth of 1455 feet where it was over 95 per cent changed to a pyritized silica-breccia with a few unsilicified fragments and streaks of dolomite and a few vugs lined with dolomite crystals. The silica-breccia at the bottom 47 feet of the hole, which I call jasperoid, has the same color range as a similar but unpyritized bedded jasperoid south of Monte Cristo stock wherein the upper part is nearly black but it grades downward to nearly white and the bottom of the jasperoid at the surface has copper-pyrite-sphalerite mineralization in a white quartz containing a quartzitic (allotriomorphic) texture and crystal size of 1 - 5 mm instead of the dense fine crystal size (.01 - .05 mm) found above in the jasperoid. We were in the pale gray and white quartz phase when we had used up our funds for this project, but had not gotten to the base of the jasperoid where it appeared that we would be in dolomite, a relatively favorable host rock for ore when compared to the garnet-actinolite rock under the jasperoid which contained the copper mineralization at the surface.

I am enclosing a revised section 10A which is revised to conform to the results of D D hole #6 and am also enclosing a written log plus an oil well type log of hole #6. (In order to clarify the sections I am also sending Plate 4 of the surface geology.) You will note that our first molybdenite showed up at 824.6 feet and narrow bedded quartz-molybdenite veinlets were common from there on down with one 5 foot thickness of 1.1% molybdenum from 1425 - 1430 feet. Molybdenite occurs in bedded quartz veinlets, as dissemination in the garnet-actinolite rock and in narrow shear zones parallel to bedding, and as combinations of the above.

Returned to Umont

I am sending the above mentioned material in order to give you an idea of the nature of this exploration gamble. It is now primarily a molybdenite project although the association of copper and molybdenite is well known and again demonstrated at Monte Cristo. Therefore, we may still expect that copper mineralization of importance may be found.

In your D M E A file you have our application for aid in the above exploration project which gives most of the data that I think you need. I might emphasize that the flooding of quartz in Monte Cristo stock is about 95 per cent of the quartzitic or aplitic texture type which is the texture described by Vanderwilt for Climax.

We plan to apply for O M E assistance provided that you think the O M E would undertake a project of this nature after it was rejected by D M E A. We propose to deepen D D hole #6 to approximately 2000 feet which will check, we think, the uncomplicated zone down through dolomite and into Monte Cristo Stock, as first stage. As a second stage we propose to drill a similar hole in the complicated zone to the west or northwest and as a third stage we propose to allow two similar depth holes for further testing of mineralization dependant upon stages 1 and 2.

Stage 1 will cost approximately $10,000. Stage 2 will cost approximately $35,000 and stage 3 will cost approximately $70,000 if our experience to date may be used as a guide. (We are not talking about drilling soft rock such as you find in Southeast Missouri lead exploration or zinc exploration in Virginia and Tennessee.)

The enclosed material is for a preliminary appraisal by you or your assistants. We will need to have the material back when you are through with it.

If O M E is genuinely interested in a major target project of this type we will go to the considerable expense of formal application, but because we have already supplied your office with considerable data now and in the form of Docket No. D M E A - 4869, we hope that you can give us a fairly reliable preliminary answer regarding the chances for help from O M E.

Yours very truly,

Dooley P. Wheeler Jr.

Dooley P. Wheeler, Jr.
General Manager
Umont Mining, Inc.

DPW:vw
cc: L. P. Evans, Jr.
Burlington, Vermont

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
1605 Evans Avenue
Reno, Nevada

April 1, 1958

Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo Claims
White Pine County, Nevada

Enclosed are two copies of a memorandum from Roscoe Smith relative to claims to be included in application for exploration aid on subject property.

S. Ricker

Attachments

Mineral Deposits Branch

March 26, 1958

Memorandum

To: S. Ricker, Executive Officer, DMEA Field Team, Region II

From: Roscoe M. Smith

Subject: DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo claims
White Pine County, Nevada

In our application report on the subject property we indicated that 16 claims should be included in the contract. The recording data are listed in the application for all of the claims except one, the Mack Fraction. I have asked Mr. Wheeler to send us the book and page numbers for this claim.

He had requested in his application that only seven claims be included because he thought that DMEA would require him to keep up the assessment work on them for 10 years even if no discovery is made. I explained our requirements and he is agreeable to including the 16 claims we recommend.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
4/15	Griswold	500
"	Johnson	110
"	Stockton	100
		225

APR 16 1958

Mr. Dooley P. Wheeler, General Manager
Umont Mining, Inc.
912 Kearns Building
Salt Lake City 1, Utah

Re: Docket No. DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo Claims
White Pine County, Nevada

Dear Mr. Wheeler:

With reference to your letter of April 7, 1958, we are enclosing the following material:

1 - Copy of Lease and Option Agreement

2 - Copies of material pertaining to titles

1 - Copy of Pennebaker letter

3 - Copies of logs

12 - Maps

Sincerely yours,

(for)

Administrator
WRGriswold/er 4/15/58
Copy to: Docket
Admr R File
Mr. McMahon, USBM
~~Mr. Riilsgaard,~~ USGS
Region II (2)
Chron.

Enclosures

8623

Umont Mining Inc.

THIS LETTER FROM ☐
KING STREET DOCK
BURLINGTON, VERMONT

April 7, 1958

THIS LETTER FROM ☒
912 KEARNS BUILDING
SALT LAKE CITY 1, UTAH

DMEA
RECEIVED
#9 C 226
4/9 WRS. 500

Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4869
(Copper)

Dear Mr. Mittendorf:

This will acknowledge your letter of March 31, 1958, in which you reject the Monte Cristo project.

Please return all loan application data that properly should be returned to this office.

Yours very truly,

Dooley P. Wheeler, Jr.

Dooley P. Wheeler, Jr.
General Manager

DPW:lh

cc: Burlington, Vermont

OFFICIAL FILE COPY

Date	Surname	Code
3/28	[illegible]	500
3/31	[illegible]	130
3/31	[illegible]	130
3/3	[illegible]	130
"	[illegible]	110
"	[illegible]	100
4/3	[illegible]	225

MAR 31 1958

Mr. Dooley P. Wheeler, General Manager
Umont Mining, Inc.
912 Keenan Building
Salt Lake City, Utah

Re: Docket No. DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo Claims
White Pine County, Nevada

Dear Mr. Wheeler:

Your application for aid for an exploration project and other data available to us in Washington concerning your application have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information, although noting copper mineralization on your property, indicates to us that the probability of disclosing significant ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Mineral Program and for bringing your property to our attention.

Sincerely yours,

(for)

Administrator

WRGriswold/er 3/28/58
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Region II (2)
Chron.

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code

March 28, 1958

Memorandum for the Files

From: Director, Division of Base Metals

Subject: Justification for Denial of Application, Docket No. DMEA-4869, Umont Mining Inc., Monte Cristo Claims, White Pine County, Arizona, Copper.

The application deals with pure theory, with little in the way of corroborative evidence. A stock of quartz monzinite intrudes a sedimentary series (shales, limestones and dolomites). The Anaconda Company put down five drill holes, in the intrusive and the bordering metamorphosed sediments: only insignificant copper mineralization was found, the best was 0.23% Cu in the monzonite.

The Applicant now has a theory that the Eldorado dolomite, the host rock for the Eureka lead-zinc ores (48 miles distant) should exist in the area of the application, at depths of from 500 to 1,000 feet. Furthermore, since the Eldorado was a favorable horizon at Eureka, it should be the same here and should contain replacement type copper ore bodies in the rim areas around the quartz monzonite.

It seems reasonable to believe that the Eldorado dolomite is present at some depth but it takes more than a dolomite-monzonite contact, even when accompanied by sparse mineralization, to make a copper manto. Actually copper replacement deposits are not very common though, at times, impressive mines have been founded on such deposits, such as Bisbee, and Morococha, in Peru.

If mineralization should exist, as anticipated by the Applicant, we would be more inclined to expect something more along the lines of a contact - metamorphic, rather than replacement mantos. The intense garnetization of the marginal areas seems to warrant such a conclusion.

In general the argument is too tenuous to warrant Government participation. There exists some difference of opinion; the examiners reported favorably, Roscoe Smith concurs with reservations but Ricker is opposed. Likewise, both commodity members in Washington are opposed; we concur with them. If there was some relatively inexpensive manner of obtaining initial significant information it might be worth a small hazard; however, even a couple of wildcat probing drill holes would cost upward of $30.000.00.

W. R. Griswold

WRG/er
Docket
Chron.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

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March 26, 1958

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: Commodity Specialist, Branch of Base Metals

Subject: Review of Report of Examination, Docket No. DMEA 4869 (copper), Umont Mining, Inc., Monte Cristo claims, White Pine County, Nevada

The examiners recommend a two stage drilling program consisting of six diamond and two churn drill holes totaling 10,000 feet and costing $123,907.00. They indicate that a preliminary testing of the most favorable area of the Monte Cristo claims is justified because of the overall geologic setting but qualify the proposed project as being highly speculative. The principal target of the proposed exploration is a bed of dolomite known as the Eldorado, which is inferred to lie 400 feet and deeper under the surface of the Monte Cristo claims.

The Executive Officer of the Field Team believes that an exploration project cannot be justified by data now available. He implies that the applicant should do additional prospecting, such as that outlined for Stage I of the proposed project to identify a suitable target or objective, before Government participation is considered for an exploration program.

It appears that the proposed exploration project would be a probing operation in search for an exploration target and I concur in the Executive Officer's reasoning that consideration of the proposed drilling for an exploration contract is not warranted. It is suggested that the application be denied without prejudice to the property.

A. D. McMahon

A. D. McMahon

cc: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Branch of Base Metals
F I L E S

IN REPLY REFER TO:

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

DATE		
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March 21, 1958
Re: DMEA 4869
Umont Mining, Inc.
White Pine County, Nevada
Appl. Est. $300,000
Rec'd Est. $123,907 (Examiners')
Copper

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team Report

The applicant requested assistance in prospecting, by drilling, for the Eldorado dolomite on the southeast flank of the Monte Cristo Dome. The core of the dome is quartz monzonite porphyry, in part at least highly fractured. If the buried dolomite beds are found in hole #1, further drilling is proposed. If not found within 1,200 feet and copper is not found in other formations, work would cease.

The Eldorado formation is the host rock of large lead-zinc-silver ore bodies at Eureka, Nevada, much of which ore long since has been mined. In the applicant's ground the dolomite does not crop out but overlying and less favorably regarded beds are mineralized by copper and are highly altered locally in the monzonite-sedimentary rock contact zone. The mineralization and alteration are taken to indicate alteration and comparatively high grade and mineable mineralization in the more favorably regarded Eldorado dolomite, if the dolomite is where it is assumed to be.

The Anaconda Copper Co. drilled four or five holes which were collared near and in the calc-silicate contact zone, without success. The deepest hole shown on sections, C. D. 4, is 775 feet deep, 600 feet of which is in the porphyry. The top assay for the hole is 0.23% copper at 330-335 feet well within the unaltered porphyry. The highest assay from hole C.D.2. is 0.21% and for hole DD3 0.24% copper. Admittedly the test was not extensive but appears to have satisfied ACM. No assays are given for hole 5A wholly in skarn and garnet of the contact zone.

The examiners and the Field Team consider the proposed work speculative. The Executive Officer thinks the application

should be denied. The consulting engineer of the applicant, Mr. E. N. Pennebaker, says....."I believe that further exploration of this ground is warranted, but I have tried to make clear the risks and the very speculative nature of the venture".

In the apparent opinion of Anaconda and the opinions of the consulting engineer, the examiners and Field Team, the proposed work is prospecting. If less expensive so a better test could be made at reasonable cost, such drilling for formation might be defensible.

As is, I recommend that the application be denied.

N. E. Nelson

N. E. Nelson

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
1605 Evans Avenue
Reno, Nevada

March 13, 1958

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Memorandum

To: Operating Committee, DMEA, Interior Building
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo Claims
White Pine County, Nevada

Enclosed are three copies of a report by G. G. Gentry, Bureau of Mines, and J. E. Carlson, Geological Survey, on subject property in which an exploration program by diamond drilling is recommended. Also enclosed are two copies each of three bids for diamond drilling and one copy of a report by E. H. Pennebaker.

Roscoe Smith concurs with the examiners but points out that this project is more speculative than any heretofore recommended because of scanty surface mineralization. The mineralization, however, is in shale and limestone known to be unfavorable for ore bodies and are several hundred feet above the favorable dolomite. He believes that the target is proportional to the risk and that the degree of speculation is in accordance with DMEA objectives.

I do not believe a project can be justified on the data available and do not think that more pertinent information can be obtained by further surface inspection. Unless some prospecting, such as proposed in Stage I, is done by the Applicant to better support the proposition that a target may exist, I doubt if exploration by DMEA is justified.

Reviewed by
DMEA OPERATING COMMITTEE
3-21-58
(date)

If the dolomite bed was intersected in the first hole under Stage I, an additional hole could hardly be expected to prove the absence of ore even though it showed no mineralization. The Applicant must be aware of this and would insist that additional holes under Stage II were required. As a result, we would have more of the same experience we had at Pioche and Mt. Wheeler. At those places, however, based on the history of the district, we had reasonable justification.

On the Monte Cristo Claims we do not have sufficient mineralization on the surface to assume that a significant body of copper ore is indicated or can be inferred in depth. Furthermore, the contact in depth could be frozen as at Mt. Wheeler; the dolomite may not be favorable as a host rock at the depth of expected intersection; it is doubtful if the mineralizing solutions were sufficiently fortified to cause a significant replacement, otherwise more mineralization could be expected in the surface exposures.

My experience has been that tactite zones very often show traces of copper minerals and that the adjacent formations to granitic stocks show sporadic mineralization in small quartz lenses but to prospect for an ore body of unknown, unpredictable size and grade is seldom in order without more favorable data. In addition, any deposit found at around 1,000 feet of depth would have to be of exceptionally high-copper content to be of commercial value.

S. Ricker

Attachments

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ON-SITE Report.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

APPLICATION REPORT

DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo claims
White Pine County, Nevada

G. G. Gentry
U. S. Bureau of Mines

J. E. Carlson
U. S. Geological Survey

March 11, 1958

Reviewed by
DMEA OPERATION DIVISION
3-21-58
(date)

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3 . . . . . Geologic map, Monte Cristo claim group

INTRODUCTION

Umont Mining, Inc., King Street Dock, Burlington, Vermont, represented by Mr. Dooley P. Wheeler, Jr., general manager and vice president, 912 Kearns Building, Salt Lake City 1, Utah, applied to the Defense Minerals Exploration Administration, docket DMEA-4869, for Government assistance in a $300,000.00 program to explore for copper on the Monte Cristo group of claims, White Pine County, Nevada.

A field examination was requested by the Operating Committee and was made on December 13 and 14, 1957 by Glenn G. Gentry, U. S. Bureau of Mines, and J. E. Carlson, U. S. Geological Survey, accompanied by Mr. Wheeler.

Detailed geologic maps submitted by the applicant are excellent, and it was not necessary to remap the property. Geologic data shown on the maps were examined on the ground and discussed with Mr. Wheeler. Twelve samples of mineralized exposures were taken.

CONCLUSIONS AND RECOMMENDATIONS

The Monte Cristo group contains a quartz-monzonite stock which is inferred to be the source of copper ore bodies in the Eldorado dolomite. This host rock is not exposed in the area, but analogous structural and stratigraphic occurrences in nearby

mining districts suggest that latent reserves of several million tons of copper sulfide ore may exist at Monte Cristo. A preliminary test, although highly speculative, of the most favorable area is justified by the overall geologic setting.

Following the examination, the applicant's proposal was discussed and revisions in the proposed work and costs were agreed upon:

Stage I--two vertical diamond drill holes totaling 3,000 feet to cut the Eldorado dolomite, and Stage II--four vertical diamond drill holes totaling 6,000 feet and two pilot churn drill holes totaling 1,000 feet, to further test any ore bodies found in Stage I. The revised program will require one year to complete and the Government's share of the estimated total cost of $123,907.00 will be $61,953.50. This program is well designed to explore the area, and the applicant is competent to supervise the work.

We recommend that the Government enter into a two-stage unit cost contract with Umont Mining, Inc. to explore for copper ore on the Monte Cristo claims.

LOCATION, ACCESSIBILITY, AND LOCAL FACILITIES

The Monte Cristo group is in secs. 17, 18, 19, 20, 21, 28, 29, 30, 31, and 32, T. 16 N., R. 57 E., M.D.B.&M., in the White Pine (Hamilton) mining district in the southwestern part of White Pine County, Nevada (fig. 1).

The claims are within the boundaries of the Nevada National Forest, on the south slopes of the White Pine Mountains at an altitude of 7,700 to 9,000 feet.

The property is 49.5 miles southeast of Eureka, Nevada, and is reached from Eureka by traveling easterly 33.6 miles on U. S. Highway 50, then turn right (southeast) on an unimproved road for 4.1 miles, then turn right (south) on an unimproved road for 7.7 miles, then turn left (northeast) on the unimproved access road for 4.1 miles. The unimproved road is maintained by White Pine County and the access road would be maintained by the operator. The property is accessible by passenger car except during winter months when heavy snow would close the access road.

Mine labor, mining supplies, and some machinery can be obtained in Eureka or Ely, Nevada, and in Salt Lake City, Utah. Telephone, mail, and trucking services are available in Eureka. The nearest telegraph service is in Ely.

The Southern Pacific Company supplies rail service at Palisade, Nevada, approximately 107 miles northwest of the property.

Water for all purposes can be obtained on the property and can be transported about one-half mile to the drilling sites. Mining machinery can be powered by gasoline and/or diesel engines. There are no improvements or equipment on the property.

HISTORY AND PRODUCTION

Rich silver ores were discovered on the west slope of White Pine Mountain in 1865 and mines were active until 1887. About twenty-two million dollars in silver was produced during this period. About 145,000 tons of lead-silver ore which had a gross value of six million dollars was produced from new discoveries around 1909.

From 1902 - 1921, 17,638 tons was produced which had a gross value in excess of one million dollars.

During the period 1867 - 1869, one hundred and ninety-five White Pine mining companies were incorporated and 13,000 mining claims were recorded. The above production came from the area north and east of the Monte Cristo claim group, which was prospected during the boom period.

The Martha mine (fig. 3) is said to have produced about $80,000.00 in silver ore, but the period in which the work was done is unknown. The Monte Cristo area was inactive from about 1921 to 1942 when the Murphy brothers discovered scheelite on the Cabin Gulch claim group adjacent to the north end of the Monte Cristo group. They produced about 1,000 tons of low-grade tungsten ore.

Umont Mining, Inc. estimates that the Monte Cristo group produced $100,000 or less, chiefly in silver.

PROPERTY AND OWNERSHIP

The Monte Cristo group consists of 105 unpatented mining claims owned by Dooley P. Wheeler, Jr. and his wife, Virginia D. Wheeler. On March 1, 1957 the owners granted a lease and option on the claims to Umont Mining, Inc. for a period of 12 years.

A quiet title suit was brought by Mr. Wheeler against Fred Farnsworth and Fredrick A. Farnsworth, Jr. in order to settle a dispute involving 24 of the claims. This suit was decided in favor of Mr. Wheeler under a decree signed by the District Judge on June 7, 1956.

Mr. Ed Halstead owns the surface and water rights of the SE 1/4 of sec. 20, T. 16 N., R. 57 E., according to contract No. 17353, patent No. 12610 dated February 15, 1951. Mr. Wheeler has staked lode claims on this ground which is shown on figure 2 as the Halstead contract land. The mineral rights are reserved by the Government.

Mr. Wheeler staked lode claims and the New Jersey Zinc Company staked placer claims on the alluvial fan and in the basin area west of the Monte Cristo claim group (fig. 2). The validity of both lode and placer claims in this area is subject to interpretation by the courts because neither has discoveries on them.

The Murphy brothers own the Cabin Gulch group of 12 claims north of the Clara, Margaret, Lorna, and Martha claims. There is some overlap in that area and the Murphy claims take precedence. The claim corners which were found indicate that the greatest overlap is on the Clara claim and that most of the Clara may be Murphy ground.

The Anaconda Copper Mining Company drilled some of the Monte Cristo claims but we have no record of their interest in the property or their relinquishment of rights. However, the applicant reports that there are no liens or mortgages on the property and that Consent to Lien and Subordination Agreement will be furnished upon request.

The applicant requests that the following seven claims be included in the contract area: Virginia, Ada Fraction, Minerva, Venus, May, Ada, and Emily. Although Wheeler hopes to drop most of the other claims to avoid assessment work, we recommend that the 16 claims outlined in red on Fig. 2 be included in the contract.

DEVELOPMENT

Prospecting, probably done many years ago, consists of the Martha mine which has about 600 feet of drift, numerous shallow pits and trenches, and several short adits. No development work has been done by the applicant.

Exploration during 1956 by the Anaconda Copper Mining Company north of the area which the applicant proposes to explore consists of five drill holes totaling 2,896 feet.

GEOLOGIC SETTING

The formations at Monte Cristo are not positively correlated with known formations near Eureka, but their identity and age are reasonably certain. The oldest rock in the claim area with which this report is concerned is the Eldorado dolomite of Middle Cambrian age, and although not exposed, it is inferred to be present at moderate depth. The Eldorado is overlain conformably by the Geddes(?) limestone which is overlain by the Secret Canyon shale, both of Middle Cambrian age. The Dunderburg shale of Upper Cambrian age is apparently conformable on the Secret Canyon, and the lower part of the unit has been mapped in the north and east parts of the area. These rocks are folded into a district-wide dome and the Monte Cristo anticline is the approximate crest of this dome. The

anticline was then faulted, intruded and thermally altered by a quartz-monzonite porphyry body called the Monte Cristo stock. The intrusive is fractured and hydrothermally altered by mineralizing solutions which also penetrate the metamorphic belt around the stock.

The Eldorado dolomite is the principal target of the proposed exploration and in one area is inferred to lie 400 to 500 feet below the surface, but elsewhere on the claims it would occur at greater depths. The nearest exposures are at Eureka where this unit consists of blue-gray to dark blue and black, medium- to coarsely-crystalline, unfossiliferous limestone and dolomite in beds 1 foot to more than 5 feet thick. It is the main host rock in the Eureka district and is extensively sheared, brecciated, faulted, and hydrothermally altered. Nolan[1/] reports

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1/ Nolan, T. B., Merriam, C. W., and Williams, J. S., 1956, the Stratigraphic section in the vicinity of Eureka, Nevada: U.S. Geol. Survey Prof. Paper 276, p. 11.

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that at Eureka the unit is probably about 2,500 feet thick, but owing to thrust faulting and brecciation, the true thickness is not known.

The areal extent of the Eldorado is probably great enough to insure its existence at Monte Cristo.

A limestone, mapped as Geddes(?) on figure 3, is exposed south of the Monte Cristo stock. It is at least 300 feet thick and consists of light gray, sugary limestone beds a quarter of an inch to 2 inches thick which separate light gray, light green, and brown hornfels beds a quarter of an inch to 3 inches thick with irregular edges. This rock is close to the stock and is altered; however, it is dark gray or brown argillaceous limestone where unaltered. At Eureka the Geddes is about 330 feet thick, is loosely bedded, fossiliferous with no shale beds or shale partings. At Monte Cristo this limestone is unfossiliferous, contains shale beds and partings, and the beds are tightly cemented. The lithologic difference may have resulted from a facies change between these two points; this exposure may be lower Secret Canyon; or these rocks may represent younger formations over which the Secret Canyon has been thrust. If either of the first two conditions hold, the Eldorado can be drilled, but if thrust faulting is involved, the target will not be within the scope of the proposed work.

The Secret Canyon shale is 1,665 feet thick (plus or minus 10 percent) as mapped by D. P. Wheeler at Monte Cristo. It consists

of dark gray- to black argillaceous limestone beds intercalated with gray- to black, laminated, calcareous shale beds which average one inch thick, and contains a Middle Cambrian fauna. Wheeler has divided the formation into three units based on lithologic characteristics. These are J, K, and M, from oldest to youngest. The basal part of unit J contains a jasperoid zone about 100 feet thick which possibly represents a thrust fault unconformity where Secret Canyon has been thrust over Dunderburg or younger beds; however, examination failed to disclose a strong or persistent brecciated zone. The Secret Canyon is at least 500 feet thicker than at Eureka, and it does contain an increase of shale downward as at Eureka. The correlation of these beds with the Secret Canyon at Eureka is considered to be valid.

The Dunderburg shale, while exposed on the north edge of the claim area, is not present in the area to be explored. It is about 350 feet thick at Monte Cristo and consists of thin, interbedded shale, limestone, and mudstone. Although the Dunderburg is apparently conformable on the Secret Canyon, 1,000 feet of massive dolomite (Hamburg) which lies between these two units at Eureka, is not present at Monte Cristo. The correlation of the Dunderburg at Monte Cristo with the same formation at Eureka is also valid.

The exposed part of the Monte Cristo stock is roughly circular, dips outward at 45 degrees, and is about 2,400 feet long, and 2,100 feet wide. The stock consists of shattered quartz-monzonite porphyry which is largely sericitized and silicified by intense hydrothermal action. Detailed mapping by Wheeler disclosed only one exposure, 70 feet long and 20 feet wide, of unaltered quartz-monzonite. Sparse amounts of pyrite, chalcopyrite, and quartz stockwork ranging from 1 to 75 percent of the rock, occur throughout the intrusive.

Metamorphic rocks, derived from the Geddes(?) and Secret Canyon by thermal and hydrothermal alteration, consist of dense calc-silicate rock, epidote-bearing rock, and a thick outer shell of garnet-actinolite rock. Hornfels occurs in the garnet-actinolite rock where the limestone is shaly. Hydrothermal alteration is not confined to the stock, but penetrates the metamorphic rocks as much as 350 feet from the contact. These rocks and the quartz veins in them contain about 100 times as much pyrite as the stock, and small veins of quartz-pyrite-chalcopyrite occur as much as 900 feet south of the stock. A second stage of mineralization deposited tetrahedrite, sphalerite, galena, and pyrite in relatively flat-dipping quartz veins in the metamorphic rocks.

The north-trending Monte Cristo anticline plunges gently north, and the flanks dip between 30 and 50 degrees. Both sedimentary rocks and the stock are cut on the west by the north-trending White Pine fault (fig. 3) which dips about 75 degrees W. This basin and range normal fault has dropped Pennsylvanian beds on the hanging wall against Cambrian beds on the footwall, a displacement of more than 10,000 feet. Three smaller north-trending reverse faults, referred to by Wheeler as the east, central, and west reverse faults, are generally parallel to the anticlinal axis and to the White Pine fault north of the stock (fig. 3). The east and west reverse faults are not found south of the stock, but the central fault is continuous and follows the anticlinal axis until it intersects the White Pine fault about 1,500 feet south of the stock. The west and central faults probably dip west at high angles and the east fault dips east. An area, called the "complicated zone" by Wheeler, occurs along the central fault and anticlinal axis south of the stock where the rocks are intensely sheared and folded. It is expected that increased shearing, folding, and therefore, more intense shattering, will localize ore deposits in the Eldorado dolomite in this zone.

ORE DEPOSITS

Small mines and prospects at Monte Cristo have produced small amounts of silver ore from narrow, gently dipping quartz-tetrahedrite-galena-sphalerite-pyrite veins, and about 1,000 tons of low-grade tungsten ore was produced from a small mine 1,000 feet north of the claim area. Numerous gold prospects also occur east of the Monte Cristo stock, and consist of narrow quartz-gold veins which are not of economic importance. Copper prospects occur within the claim area, but no copper was produced.

Surface exposures containing copper minerals are chiefly near the south and east sides of the stock in a belt 2,300 feet long, 300 feet wide at the west end and 80 feet wide at the east end. These exposures consist of garnet-actinolite rock which contains disseminated chalcopyrite and quartz-chalcopyrite-pyrite veins; and siliceous limonite gossans which contain copper oxides and boxwork after chalcopyrite. The stock, although highly altered, contains only trace specks of disseminated copper minerals. This observation is supported by recent drilling of the stock by the Anaconda Copper Mining Company. The central reverse fault and its subsidiary faults along the crest of the Monte Cristo anticline probably control these deposits as well as the inferred replacement deposits at depth.

The presence of these small copper deposits in generally unfavorable host rocks indicates that larger deposits possibly occur in a favorable host rock near the stock. The Eldorado is the first major replaceable dolomite which occurs above the Precambrian in the area. This thick, brittle dolomite is cut at depth by a highly altered and fractured stock, and the dolomite should also be fractured. It is known to be chemically receptive to ore fluids. Therefore, replacement deposits which consist of mantos and pipes in the Eldorado dolomite as much as 1,000 feet below the surface can be inferred from the geologic setting.

SAMPLING

BM Sample No.	Width, feet	Description	Percent Cu	Percent Pb	Percent Zn
2389	14.0	Chip sample surface exposure of quartz-monzonite, Iron Fraction claim.	0.03		
2390	3.0	Oxidized gossan outcrop, west end line on Margery claim.	0.08		
2391	4.0	Quartz stringers in quartz-monzonite outcrop, southeast face of 30 ft. adit.	0.10		
2392	4.0	Jasperoid outcrop, shows some copper mineralization, at location monument on Rachel claim.	1.95		
2393	-	Specimen pieces from small dump at location of BM-2392.	3.38 also: trace Au, 0.70 Ag.	0.1	0.2
2394	4.0	Northeast side of 6 ft. adit, above No. 2392.	2.22		

BM Sample No.	Width, feet	Description	Percent Cu	Pb	Zn
2395	5.0	Jasperoid outcrop, west side, at portal of 12 ft. drift.	0.27		
2396	3.0	Jasperoid outcrop, north side, at portal of shallow cut.	0.33		
2397	4.0	Portal of 20 ft. adit, 180 ft. northwest of DH No. 2.	2.33		
2398	grab	Not from Umont claims--from same type of Eldorado dolomite as expected to be found on Umont claims. From 5-ton stockpile of sorted ore, mine at head of Secret Canyon. (this sample not shown on map)	0.10 also: 0.01 Au, 9.45 Ag.	0.8	10.7
2399	3.0	Oxidized-leached limestone, portal of short drift south 70 degrees west, 20 ft. from 2397, shows some copper mineralization.	0.67		
2400	5.0	Garnet-tactite zone, north 30 degrees east of 2399.	0.10 and <0.01 WO_3		
composite sample of BM-2389, 2390, 2391, 2392, 2394, 2395, 2396, 2397, 2399, and 2400			0.80 also: trace Au, 0.20 Ag.	<0.1	0.2
		weighted average:	0.6512 percent Cu		

ORE RESERVES

The ore reserves are summarized as follows:

Class	Tons	Grade
Measured	---	---
Indicated	---	---
Inferred	---	---
Latent	several million ?	3.0 percent(?)

There are no measured, indicated, or inferred reserves on the Monte Cristo claims. However, we estimate that latent reserves of several million tons of minable copper ore occur in the Eldorado dolomite near its contact with the south part of the quartz-monzonite stock where tectonism has produced maximum shattering in the dolomite. No reserves of porphyry copper ore in the stock can be inferred.

EXPLORATION

The applicant proposed a program of vertical diamond drilling and churn drilling in four stages estimated to cost $300,000:

Stage I Two diamond drill holes not to exceed 1,500 feet each. The first hole will be drilled in relatively flat-lying limestone and dolomite to verify the existence of the Eldorado dolomite within the limits of depth set up by the program. The second hole will test for copper replacement deposits in the Eldorado in a zone of faulting and folding near the crest of the Monte Cristo anticline.

Stage II Four diamond drill holes not to exceed 1,500 feet each. These holes will be drilled near Stage I holes (fig. 3) provided both the Government and the applicant agree that further drilling to test any ore bodies found in Stage I is justified. If Stage I is not successful, the remainder of the program will be cancelled.

Stage III Eight, or fewer, diamond drill holes, not exceeding 1,500 feet each, to delineate the mineralized zone disclosed by Stage II.

Stage IV Two churn drill holes of 1,000 feet each in the Monte Cristo stock at specified coordinates. The first hole will test for disseminated copper increase in depth in the quartz-monzonite porphyry. The second hole will test for primary enrichment along an altered fault zone and limonite gossan that show effects of leaching.

This program is too extensive and costly with respect to the risk involved and hence only the most critical stages of the applicant's program are retained. A modified program acceptable to the applicant consists of the applicant's Stages I and II (fig. 3), with the provision that if Stage I is not successful Stage II will be cancelled. This program is estimated to cost $123,907.00.

Stage I will be considered successful if the target formation lies at less than 1,200 feet below the collar of hole No. 1, and if copper minerals in significant amounts are disclosed by hole No. 2 regardless of the beds which contain them. However, if the first hole fails to reach the target or fails to cut copper-bearing rock in other formations, the second hole should not be authorized.

Stage II holes were tentatively laid out with Brunton and tape but these holes are almost certain to be relocated after Stage I is underway. Such changes will be on the order of a few hundred feet and will not affect the program.

The Eldorado is the only thick shale-free dolomite underlying the claim area and could be easily recognized by the core.

EXPLORATION COSTS

Drilling costs have been estimated from bids submitted by three drilling contractors. These costs are about double those of comparable drilling conducted in other areas of Region II, however they are not unreasonable at Monte Cristo. The small size of the drilling program, the distance from supplies, and faulted, contorted rock are responsible for the high cost of drilling. The actual cost of Anaconda's churn drill holes in this area exceeded $19.00 per foot.

Cost details

Stage I--size of drill hole: "BX", vertical

Progress 30 feet per day, period: 4 months.

	Cost	Cost per ft.
3,000 ft. diamond drilling	$37,680.00	$12.56
1 Supervising geologist @ $700.00/mo.	2,800.00	0.93
1 Bookkeeper, part-time, @ $100.00/mo.	400.00	0.13
Insurance, taxes, etc., @ 12.5 percent	400.00	0.13
Transportation costs for geologist, 10,400 miles @ $0.08/mi.	832.00	0.28
Core boxes	300.00	0.10
50 samples, to be analyzed for copper, lead, zinc, silver, and gold, @ $5.50/ea. (incl. sample sacks).	275.00	0.09
Drill mobilization	300.00	0.10
Rental of sludge containers, sample splitter, core splitter @ $15.00/mo.	60.00	
Rehabilitation--Operating materials & supplies	none	
Buildings and Installations	none	
Total estimated cost, Stage I	$43,047.00	$14.34

Government participation at 50 percent. . . $21,523.50

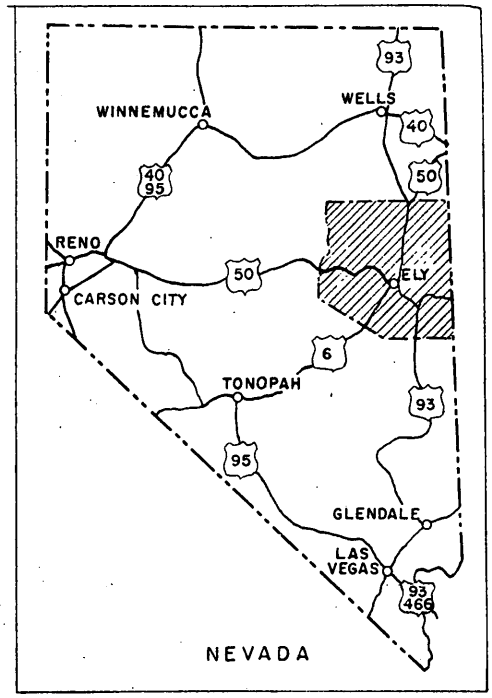
Stage II--size of drill hole: "BX", vertical
Progress: 30 feet per day, period: 8 months.

1,000 ft. churn drilling	$7,300.00	$1.22
5,000 ft. diamond drilling	62,800.00	10.46
1 Supervising geologist @ $700.00/mo.	5,600.00	0.93
1 Bookkeeper, part-time, @ $100.00/mo.	800.00	0.13
Insurance, taxes, etc., @ 12.5 percent	800.00	0.13
Transportation for geologist, 20,000 miles @ $0.08/mi.	1,600.00	0.27
Core boxes	600.00	0.10
150 samples, to be analyzed for copper, lead, zinc, silver, and gold, @ $5.50/ea. (incl. sample sacks)	825.00	0.14
Freight on samples, 750 lbs. @ $2.00/cwt.	15.00	0.0025
Rental of sludge containers, sample splitter, core splitter, @ $15.00/mo.	120.00	0.02
Drill mobilization	100.00	0.0017
Operating Materials & Supplies	none	
Buildings and Installations	none	
Rehabilitation: construction, new roads to drill sites, 20 hrs. @ $15.00/hr.	300.00	0.05
Total estimated cost, Stage II	$80,860.00	$13.45

Government participation at 50 percent. . .$40,430.00

Total estimated cost, Stages I and II $123,907.00

Government participation at 50 percent. . . $ 61,953.50



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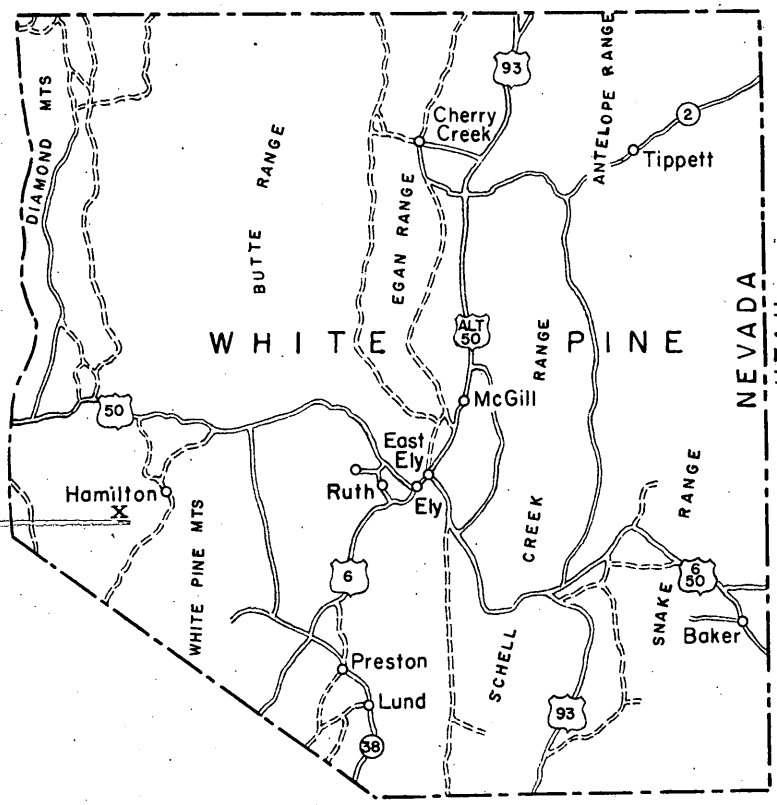

Monte Cristo claims

Figure 1. INDEX MAP OF WHITE PINE COUNTY, NEVADA

0 25 50 75 Miles

Field Team.
Maps of On Site
Report. 3/11/58.

DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS
EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

March 11, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 13 1958
3/13 C 220

Mr. John Hope
Phelps Dodge Corporation
300 Park Avenue
New York City, New York

Dear John:

The project in Nevada that I discussed with you and Mr. Stewart in New York February 28th is the subject of a DMEA loan application. Inasmuch as we have only one copy of the DMEA applications for the Burlington and Salt Lake offices, we do not like to let them out.

We would be glad to let you study our DMEA application date, which as you know is fairly complete, at our Salt Lake office, the address of which is on the letterhead.

You, exclusively, are hereby authorized by me to study the data in the office of the DMEA in Washington, D. C. If DMEA requires more formal authorization than a copy of this letter, I am requesting herein that they so advise me and at the same time send you a copy of their letter on this subject.

If you study the material in Washington, D. C., I request that you do not make prints or photo copies of the maps and application and that you do not take the material for study out of the office of DMEA in Washington, D. C.

Umont Mining, Inc's. application is Docket No. DMEA -- 4869 (Copper).

Very best regards.

Yours very truly,

Dooley P. Wheeler

Dooley P. Wheeler, Jr.
Vice President and
General Manager

DPW:lh

cc: Umont Mining, Inc.
King Street Dock
Burlington, Vermont

Monont Mining Inc.
912 KEARNS BUILDING
SALT LAKE CITY 1, UTAH

SALT LAKE CITY
MAR 11
6 PM
1958
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AIR MAIL
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U.S. POSTAGE

AIR MAIL

Mr. C. O. Mittendorf, Administrator
Department of Defense Minerals Exploration Admin.
U. S. Department of the Interior
Washington 25, D. C.

AIR MAIL

Telefax WESTERN UNION Telefax

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OPERATING COMMITTEE DEFENSE MINERALS EXPLORATION ADMIN=
INTERIOR BLDG WASHDC=

REUOURTEL DOCKET DMEA-4869 UMONT MINING INC MONTE CRISTO CLAIMS, FIELD TEAM REPORT WILL BE FORWARDED FIRST WEEK IN MARCH= ORIGINAL FILE COPY

S RICKER= DMEA

RECEIVED FEB 26 1958 1958 FEB 26 PM 2 31

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DMEA Form 7
(12-56)

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Date	Surname	Code
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"	[signature]	100
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		500

FEB 25 1958

WRGriswold/er Rm 4442, Ext. 3669

DMEA - Division of Base Metals

14X4401(01) Revolving Fund,
Defense Production Act, Interior,
(Transfer to Office of Secy.)

T E L E G R A M

CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Date:

To: Mr. Spangler Ricker
Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

Re Docket DMEA-4869, Umont Mining, Inc., Monte Cristo Claims, White Pine County, Nevada, Mr. Dooley P. Wheeler, Jr., has phoned us regarding this application. Can you advise us when Field Team report will be forwarded?

George C. Selfridge

Chairman, Operating Committee (GHB)

WRGriswold/er 2/25/58
Copy to: Docket ✓
Admr R File
Mr. McMahon, USBM
Op. Committee
Mr. Kiilsgaard, USGS
Chron.
Confirmation Copy

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code

February 25, 1958

Memorandum for the Files

From: Director, Division of Base Metals

Subject: Phone Conversation on Docket No. DMEA-4869, Umont Mining, Inc., Monte Cristo Claims, White Pine County, Nevada (Copper).

Mr. Dooley P. Wheeler, Jr. General Manager, phoned us today, as to the status of this application. He was advised we were waiting for the Field Team's recommendations.

W. R. Griswold

WRG/er
Copy to: Docket
Chron.

8623

[illegible] Core Drilling

[illegible]

[illegible] Boxes to be [illegible]

[illegible] containers [illegible] will [illegible]
by us for $15.00 [illegible]

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS
DL=Day Letter
NL=Night Letter
LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

(45).

WT022 PD VIA DLY= BURLINGTON VT 24 125PME= 1958 FEB 24 PM 2 47

C O MITTENDORF, DEFENSE MINERAL EXPLORATIONS ADMN DLR=
BU OF MINES DEPT OF INTERIOR=

WILL TELEPHONE YOU TOMORROW MORNING AT TEN REGARDING PRESENT STATUS OF DOCKET HDMEA4869 COPPER, MONTE CIRSTO NEVADAM I AM PREPARED GO WASHINGTON IF ADVISEABLE=

DOOLEY P WHEELER, JR., UMONT MINING CO=

OFFICIAL FILE
DMEA
RECEIVED FEB 24
DATE
INITIALS

= #DMEA4869=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE.

It would be necessary to have two weeks notice before the date of expected mobilization and if we could have a month or so notice we could probably arrange to have a man you have worked with before.

Thank you for calling on us.

Yours very truly,

A. F. Goldsworthy
Manager, Drilling Division

AFG/bm

Longyear

E. J. LONGYEAR COMPANY
General Offices, 76 South 8th St.
Minneapolis 2, Minnesota, U. S. A.
TELEPHONE: FEDERAL 9-7631 • CABLE LONGCO

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 17 1958
DATE | CODE

January 7, 1958

Umont Mining, Incorporated
912 Kearns Building
Salt Lake City, Utah

Attention: Mr. D. P. Wheeler, Jr.

EXPLORATORY DRILLING PROGRAM - VICINITY OF EUREKA, NEVADA

Gentlemen:

1. Based on the information furnished by our Mr. E. G. Tucker, who recently examined your drilling site, we are pleased to submit below proposal for your contemplated diamond core drilling project which is to be carried out in the above-mentioned district.

2. We understand that the work as now planned will consist of a minimum of two vertical holes, drilled to a maximum depth of 1,500 feet; that the formations to be penetrated will consist of altered limestone and shales; and that the water required for drilling purposes will be available within 2,000 feet of the proposed drill sites. We further understand that you will prepare and maintain access roads and level drill sites when necessary to permit access by truck-mounted drilling equipment, all free of charge to the Longyear Company.

3. For this work we propose to furnish one Longyear truck-mounted drill rig, and all accessory equipment required to accomplish the work. We further propose to operate the drill on a two shift basis, six days per week -- each shift to consist of one driller and one drill helper.

4. We will carry public liability insurance covering personal injury and property damage, and Workmen's Compensation insurance, and also, all-risk insurance on the drilling equipment protecting against loss by theft, fire, flood, land-slides and other similar hazards.

We will also assume and pay any and all Old Age Benefit, Unemployment and Social Security taxes and contributions imposed by federal or state authorities.

Certificates showing the coverage referred to will be furnished upon request.

5. Based upon the conditions as outlined above, and upon an approximate footage of 3,000 feet to be drilled in two holes, we are pleased to quote as follows:

a) Diamond Drilling

	NX Wire Line	BX Wire Line and/or AX Standard
Top of Ledge to 500' in depth....	$ 7.50 per ft.	$ 6.75 per ft.
500 to 1000' in depth.....	$ 8.25 per ft.	$ 7.50 per ft.
1000 to 1500' in depth.....	$ 9.25 per ft.	$ 8.50 per ft.

b) Reaming and Casing

0 to 500 feet in depth -
NX-size hole to receive NX casing.....$3.00 per ft.
BX-size hole to receive BX casing.....$2.50 per ft.
AX-size hole to receive AX casing.....$2.00 per ft.

500 to 1000 feet in depth -
BX-size hole to receive BX casing.....$3.00 per ft.
AX-size hole to receive AX casing.....$2.50 per ft.

1000 to 1500 feet in depth -
AX-size hole to receive AX casing.....$3.00 per ft.

c) Overburden Drilling

1) 0 to 100 feet in depth.....$10.00 per ft.
100 to 200 feet in depth.....$12.00 per ft.

2) Mr. Tucker has advised us that on the deep overburden anticipated in your second phase of drilling, you plan to employ churn drilling to extend 4" pipe through the overburden. We further understand that you plan to have the core drilling contractor extract this pipe at the completion of the hole. We propose to carry out this work on a rig-time basis at the rate of $12.00 per hour with two man crew.

d) Cementing, waiting for cement to set, and drilling out cement.....$12.00 per hour, with two man crew, plus cost of materials used.

e) Delays for your convenience or for which you are responsible.....$12.00 per hour, with two man crew.

f) Mobilization and demobilization of personnel and drilling equipment.....$800.00 Lump Sum

g) Reimbursement of our direct costs in providing suitable camp buildings or trailers.

h) Drill hole survey tests using Maas Compass and acid etch tubes.....$12.00 per hour, with two man crew.

6. It is understood and agreed that the hourly charges specified in paragraph 5, cover all operating expenses during the time such work is in progress. Such expenses include overhead, depreciation, labor, telephone and telegraph charges, Federal Old Age Benefits, Workmen's Compensation, Public Liability and Property Damage insurance as required by law, and other miscellaneous expenses.

7. OTHER PROVISIONS

a) The above-quoted drilling rates are based on wages currently being paid in southwestern United States. If during the life of this project, it becomes necessary for us to adjust the

wages being paid our workmen because of demands of labor union or otherwise, it is understood and agreed that the Longyear Company reserves the right to increase drilling rates to cover resultant additional operating expenses.

b) After the minimum footage has been completed, it is agreed that we would review our progress and operating costs, and would either make a downward adjustment in the rates for additional work or submit for your approval revised quotation which would include an upward adjustment in certain, or possibly all, of the drilling rates.

8. Drill cores and sludge samples will be turned over to your representative at the drill site in receptacles furnished by you. As part of our equipment, we will furnish suitable sludge sampling and sludge splitting apparatus along with a suitable core splitter.

9. Statements covering the work performed will be rendered as promptly as possible after the first of each month, and payment will be due within twenty days after date of invoice.

10. We are pleased to have the opportunity to consider this work. If awarded the contract, and in the event that satisfactory arrangements can be made to finance the program, we estimate that we would be prepared to commence the drilling operations within two weeks after receipt of offial notice to proceed. It is our understanding that you plan to start this program not later than June 1, 1958.

Sincerely,

E. J. LONGYEAR COMPANY

M. J. Gleason

Manager, Contract Drilling Division

M.J.Gleason:bal

ACCEPTED:

UMONT MINING, INCORPORATED

By: _____

Date: _____

2 Copies Geo Washington

CORE DRILLING AGREEMENT

(PER DIEM RENTAL)

Page No.

THIS AGREEMENT, made and entered into this 23rd day of January 19 58 by and between Umont Mining Company, Inc. of King Street Dock, Burlington, Vermont the party of the first part and the JOY MANUFACTURING COMPANY, of Pittsburgh, Pennsylvania, party of the second part, WITNESSETH:

1. In consideration of the agreements herein contained and the payments to be made by the first party, the second party agrees to provide one diamond core drill outfit, in good working order, to be used subject to the provisions hereof by the first party to drill or test such locations as may be designated by the first party or its duly authorized agent in or near Ely, Nevada, the sites to be selected by the first party, to a depth not to exceed 2,000 feet in any one hole, the size of the core to be approximately 2 1/8" - 1 5/8 or 1 1/8" inches in diameter.

2. The second party further agrees as agent and on behalf of the first party, to secure a crew to operate the outfit, said crew to consist of one foreman-runner one drill runner, and such other helpers as may be necessary to carry on the work. The first party authorizes the second party to engage said foreman-runner and drill runner at a compensation of Two and 65/100 Dollars per hour for the foreman-runner and Two and 40/100 Dollars per hour for such drill runner. The compensation of additional helpers shall be covered by the prevailing local rates. ~~It is clearly understood and agreed, however, that in engaging the crew the second party is acting as the agent of the first party, and that throughout the term of this agreement the crew shall be the employees of the first party and subject to its orders. In consideration of the services of the second party in securing such crew, the first party hereby agrees to assume any and all responsibility for accidents or injuries to or caused by any of such crew in the course of such employment, and hereby agrees to indemify the second party for any claim or damage arising out of or based upon any such action.~~

3. For the use of said diamond drilling outfit, with necessary diamond bits, the first party agrees to pay to the second party, a rental for each drill included therein equivalent to One Hundred and no/100 (Dollars) ($ 100.00) for each day of ~~twenty-four~~ sixteen hours (Sundays and legal holidays excepted, unless drills are worked on these days), elapsing between the date of shipment of said drill from Tucson, Arizona to the date of delivery of said drill to the railway station or truck carrier nearest to said drilling operations for return shipment. In any event it is agreed that the minimum rental which shall be payable by the first party, under the terms hereof, shall be $ 3,500.00 dollars.

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JOY MANUFACTURING COMPANY

Form 6583-1

CORE DRILLING AGREEMENT

(PER DIEM RENTAL)

4. In addition to the rental specified in paragraph 3, the first party agrees to reimburse the second party for any and all expenditures that it may incur in the carrying out of this contract, including therein all loss, breakage, and/or depreciation of diamonds included in the outfit, freight express or truck charges from and to Tucson, Arizona and Michigan City, Indiana ;

wages of drill crew, traveling expenses and time while traveling of drill crew from and to their starting points, insurance premiums, expenditures for labor, teaming, supplies, repairs and renewal of drilling outfit and equipment; cost of all articles included in said outfit lost, stolen or destroyed on the job; and the cost of all special equipment peculiar to the work to which this outfit shall be put by the first party that is not generally used in connection with a regular diamond drilling outfit; and all other expenditures that may be incurred by the second party in connection with the carrying out of this contract.

5. The first party agrees to furnish water for drilling purposes at the location of each drill hole. The first party also agrees to absorb the water on a pick-up truck which will be used by the foreman-operator to service the drilling operations.

6. The compensation herein provided for the use of the drilling equipment and reimbursement of all expenses made by the second party during the term of this contract shall be due and payable on the first of each month for all invoices rendered up to the 25th day of the previous month.

7. The second party agrees to ship the outfit within fifteen days after the contract has been accepted and approved by an officer of the Joy Manufacturing Company, at its main office in Pittsburgh, Pennsylvania.

8. The first party may terminate the work under this agreement at any time subject to the minimum compensation required by clause 3 hereof, upon giving five (5) days' notice in writing to the Michigan City office of the second party.

9. This proposition is for immediate acceptance but although accepted shall not constitute a contract until approved by an executive officer of the Joy Manufacturing Company at its main office in Pittsburgh, Pennsylvania and is subject to change or withdrawal until so approved.

10. It is expressly agreed that there are no promises, agreements or understandings outside of this contract, and that no agent or salesman has any authority to obligate the Joy Manufacturing Company by any terms, stipulations, or conditions not herein expressed. This contract may be altered only by written consent of both parties hereto.

JOY MANUFACTURING COMPANY

By _____

JOY MANUFACTURING COMPANY

CORE DRILLING AGREEMENT

(PER DIEM RENTAL)

No.
Page

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals.

Customer's Signature

.....

.....

Title .....

Approved by JOY MANUFACTURING CO.

By .....

Title .....

Date Approved .....

JOY MANUFACTURING COMPANY

Form 6583-3

Copy: F.N. Pennebaker Report

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EXPLORATION POSSIBILITIES IN THE MONTE CRISTO AREA

WHITE PINE COUNTY, NEVADA

INTRODUCTION AND CONCLUSIONS

During the week of August 25-31, 1957, the writer gave serious attention to the mineral-bearing possibilities of the Monte Cristo area of the White Pine Mining district in eastern Nevada. This was accomplished by studying reports and other data in Umont's office in Salt Lake City, by inspecting the ground in Nevada in company with Mr. Wheeler, and by a brief visit to the Eureka district for the purpose of comparison.

A detailed description of the property and its geology is set forth in Mr. Wheeler's comprehensive report of August 15, 1955, and much of this information will not be repeated here. Nevertheless it should be noted that the property consists of about 100 unpatented mining claims that have been shrewdly located to give a commanding position in this area, should it prove to be ore-bearing.

The Monte Cristo area is of exceptional interest because it presents many of the earmarks of an ore-bearing mining district, although today it remains inadequately tested to prove or disprove the presence of ore. This, in conjunction with its proximity to the great productive centers at Ely, Eureka and Hamilton, makes it an area worthy of considerable attention.

To date Mr. Wheeler has made a careful geological study of the property, and certain geophysical investigations have been carried out. Exploration by a few churn drill holes in a restricted geological situation has been accomplished by Anaconda Copper Mining Company without success. It now remains to evaluate the risks of further exploration.

The following report will set forth a brief description of the principal features of Monte Cristo geology, based on Mr. Wheeler's study. Then will come a discussion of the major characteristics of certain productive districts in the West and Southwest in order to bring out the similarities and differences of Monte Cristo to these ore-bearing centers. The geological risks assumed in further drilling will be considered, and the most promising area, in the writer's opinion, will be selected.

All of the above will lead to the conclusion that the expense of further exploration at Monte Cristo is believed to be warranted, but its outcome is very speculative. Therefore it should only be undertaken if the loss due to possible unsuccessful results be not burdensome. The reward being sought is the discovery of a new mining district -- not a single ore body -- in which the property now being considered would have a dominant position.

SUMMARY OF GEOLOGICAL FEATURES IN THE MONTE CRISTO AREA

Bedrock in the Monte Cristo area consists of a thick series of sediments cut by two plug-like bodies of rock related to the granites.

The sedimentary series is composed of various arrangements of quartzite, shale, limestone and dolomite, with considerable thin interbedding of shale and carbonate layers. These formations have been compressed and folded to give a dome-like structure whose roof is corrugated by small folds that trend northerly. Its flanks are cut by north-trending faults, and along these breaks the formations have been crowded upward toward the crest of the major fold. Between certain of these faults the sedimentary beds are confusedly contorted to produce a "complicated zone" that is particularly complex toward the south, and deformation appears to be more intense with added depth. A subordinate trend of folding and faulting runs east-west.

Into this domical, or anticlinal, structure has been intruded the Monte Cristo igneous stock, or plug-like body, with associated dikes and sills. These are composed of a granitic-like rock technically termed "quartz monzonite porphyry" that invades the lower sedimentary formations. A second intrusive body, the so-called Seligman stock, is found about a mile northeast of the Monte Cristo body. A third intrusive zone, not exposed by erosion, is suggested by thermal metamorphism occurring about three-quarters of a mile southeast of the Monte Cristo stock.

The Monte Cristo stock is of particular interest because, in addition to having metamorposed the flanking sediments by heat accompanying its intrusion, the stock and the surrounding country rock have been impregnated by quartz, small amounts of metals, and other material as evidence of mineralization.

away from the Monte Cristo stock, are the more favorable host for the deposition of metal-bearing sulfide minerals.

The most widely occurring metal of economic interest is copper. This appears to be generally distributed in the Monte Cristo stock in very small amounts, 0.02 to 0.20% in the zones already tested by drilling. In the sediments it is less evenly distributed but locally is richer. Copper was deposited as chalcopyrite, but in the near-surface rocks it has mostly been oxidized to green and blue minerals and iron oxide relicts. It generally occurs with pyrite and various kinds of quartz along thin veinlets and in very small pods.

The best showing of copper occurs in a flat ledge of granular quartz, 1 to 5 feet thick, immediately beneath a flat "bed" of dense silica and silica breccia ("jasperoid"). The jasperoid can be followed through sedimentary terrane for a strike length of about 2,000 feet with a maximum thickness up to 100 feet, and locally the copper showing beneath it is impressive. Although the productive ledge has been oxidized and severely leached of copper, oxidation products show that it was well mineralized, with, in certain places, a former tenor of several percent of copper. It is surprising that this showing was not more adequately explored by the old timers.

Other metals, such as tungsten, silver, gold, lead, and zinc are sparingly present, and their occurrences are described by Mr. Wheeler. Nevertheless, study of the district leads to the view that if ore bodies are discovered at depth, the principal metal contained is likely to be copper. It is also evident that copper is most abundant south of the Monte Cristo stock

and in the deeper sedimentary horizons.

Another geologic feature of importance must be pointed out: The westerly margin of the Monte Cristo stock is defined by a fault, or plane of rupture and movement. This is a relatively recent feature, younger than the emplacement of the stock and attendant mineralization. This fault has cut the original stock in two, leaving in view an easterly portion about a half-mile in diameter. The westerly part, of unknown size, has been dropped down an undetermined distance, where it is now concealed by a thick covering of young gravel. Therefore it appears that the outline of the Monte Cristo stock was originally elongated in an east-west direction, and there are other evidences of east-west structure in the flanking sediments, as well as by embayments of sediments in the stock. This is a trend that is dominant in the Ely (Robinson) mining district to the east, with which Monte Cristo and Hamilton are in direct alignment although detached in position.

It is evident that if substantial ore bodies are to be found in the Monte Cristo area, a radical improvement must take place at depth and within reach of mining exploration. It is judged unlikely that this can occur in the stock itself, but our western mining districts are replete with examples of rich ore bodies confined to certain "favorable" sedimentary beds that are capped and concealed by barren or lightly mineralized "unfavorable" beds. Furthermore such "favorable" beds are ore-bearing at Eureka, Nevada, about 30 miles northeast of Monte Cristo, and at Pioche, Nevada, about 110 miles to the south. Beds of the same age and character are expected to occur at moderate depth below the lowermost horizons identified south of

As a result of so-called thermal metamorphism plus the addition of silica, the flanking carbonate-bearing sediments have been converted into successive zones of irregular and varying width of quartz rock, epidote rock, garnet-actinolite rock, and marble. The shales have been baked to give a rock called hornfels.

Mineralization is evidenced by material believed to have been introduced by hot solutions related to and following shortly after the emplacement of the Monte Cristo stock. In the stock itself this material is largely in the form of very abundant quartz veinlets and veins that fill several sets of joints, or fractures. This was accompanied by the deposition of lesser amounts of orthoclase feldspar, fine-textured sericite mica, chlorite and other minerals in minor amounts plus a very small amount of the iron sulfide, pyrite. These are the results of so-called "hydrothermal alteration" and they extend outward for variable distances into the surrounding sedimentary rocks, this being particularly evidenced by the several kinds of quartz veinlets developed in the district.

"Metallization" is scarce within the Monte Cristo stock, either as a constituent of the quartz veinlets or in the rock itself, although a very little copper is generally present. Veinlets that pass directly from the quartz-monzonite stock into surrounding metamorphosed sediments show a striking increase in their content of pyrite. Copper-bearing chalcopyrite is erratically distributed in these veinlets, although the actual amount of copper deposited still remains quite small. Nevertheless it is clear that the sedimentary rocks, up to a considerable distance

the Monte Cristo stock. This has been brought out by Mr. Wheeler's detailed geologic study, and his conclusions in this respect are sound.

The problem now before us is whether the testing of these deeper sedimentary horizons is a good gamble. The following consideration of ore occurrences in the West will contribute to the answer.

CHARACTERISTICS OF PRODUCTIVE DISTRICTS AND COMPARISONS WITH MONTE CRISTO

Several of the following geologic features commonly appear in a substantial number of our Western mining districts of major importance:

1. Intrusive Stocks. Stocks of intrusive igneous rocks with porphyritic or granitic texture are commonly an essential feature of mining districts, and it is generally believed that the mineralizing solutions that deposited the ore came from the same deep source as these rocks. The stock itself may be the host to ore, with additional ore deposits in the flanking limestone (Bisbee, Arizona; Bingham, Utah; Ely, Nevada). Or the stock may be hydrothermally altered but lacking in ore deposits, with ore bodies only in the flanking rocks (Courtland-Gleeson, Arizona; Patagonia, Arizona). Or again the stock may be essentially unaltered, with ore in the flanking sediments (Park City, Utah; Tombstone, Arizona). The stock may or may not have effected thermal metamorphism in the surrounding rocks, but such is commonly the case and this occurs at Monte Cristo. As we have seen, Monte Cristo has a stock of altered porphyry.

2. Master Fault. Some western mining districts are associated with deeply knifing "master faults" that have been

active over a long period of time, and thus appear to be both pre-mineralization and post-mineralization in age. It is suspected that movement on these faults rendered certain portions of their walls permeable to the passage of solutions, thereby assisting in the process of mineralization. (Examples are the Dividend fault at Bisbee, Arizona; the Footwall fault in the western part of the Ely district, Nevada; and the Sleeping Beauty fault at Copper Cities, Arizona). Whether or not a master fault exists at Monte Cristo is uncertain, but the probable east-west elongation of the Monte Cristo stock before it was cut in two suggests that an older deep-seated fault in the underlying basement may have served to guide the intrusion.

3. Character of Flanking Sediments. The sedimentary rocks surrounding the stock may vary considerably, but, where they carry ore deposits, a carbonate rock (limestone or dolomite) is usually present and occurs as formations interbedded with quartzite and shale. Ore may be found in the carbonate rock near where the formation changes to beds of contrasting competence. In other words, in thick-bedded limestone beneath thin-bedded limestone; or in limestone beneath shale; or in cherty limestone beneath chert-free limestone. Apparently the favorability does not depend so much upon chemical composition of the host as upon its ability to become fractured and thus acquire an induced permeability that permitted solutions to enter and deposit mineral matter. Various types of fold and fault structures may provide this permeability in certain districts and dominate the picture. On the other hand, a basement of brittle quartzite may be barren, whereas an overlying limestone may carry ore, implying that chemical composition may be an im-

portant factor in some districts.

Thus a common productive arrangement at Pioche and Eureka is a thick basement of Prospect Mountain quartzite overlaid by alternations of shale and carbonate rock, where lower horizons of the carbonate rock, capped by shale, are ore-bearing. In such an arrangement it appears that the lower carbonate horizons, where capped by shale, have a better chance of trapping the ore-bearing solutions. At Eureka the thick-bedded Eldorado dolomite is the most favorable formation. It is overlaid by a thin-bedded, flaggy limestone (Geddes), which in turn is capped by the Secret Canyon shale. During folding and faulting it appears that movement was taken up in the thin-bedded limestone and shale by adjustment along beds, whereas the more massive underlying Eldorado dolomite was intricately brecciated and fractured and was made susceptible to mineralization.

At Monte Cristo the lowermost horizon identified by its diagnostic fossil content is equivalent in age to the Secret Canyon shale. Although this horizon and others at Monte Cristo differ considerably in lithologic character from their equivalents at Eureka, nevertheless there are certain resemblances. At Monte Cristo the Secret Canyon horizon consists of thin interlaminations of limestone and shale. Thus, like the equivalent shale at Eureka, it is thin-bedded and relatively incompetent at Monte Cristo, although considerably richer in carbonate layers. What is believed to represent the Geddes limestone, which occurs below the Secret Canyon shale and above the Eldorado dolomite at Eureka, is likewise thinly interlaminated shale and limestone

at Monte Cristo. Thus the thinly-bedded and relatively incompetent character of this formation at Eureka is also represented at Monte Cristo by an horizon of similar structural capabilities.

The erosion surface at Monte Cristo does not reveal any horizons below the supposed Geddes, and whether the favorable Eldorado dolomite occurs at depth cannot be determined by surface observations. Because of the persistence of this formation as a favorable host rock to the north at Eureka and the occurrence of its equivalent well to the south at Pioche, it is reasonable to expect it at depth at Monte Cristo. The belief is also warranted that this formation will remain thick-bedded, thus providing the structural discordance that is required. Whether it will occur at attainable drilling depth is problematical, but Mr. Wheeler's careful measurements suggest that this may be so.

4. Structure. Many productive mining districts and their intrusive stocks occur in the anticlinal crests of major folds. On the other hand, there also are a number of very important districts that are found in synclinal downwarps. Monte Cristo is in an anticlinal structure.

Structural deformation is commonly required to provide the induced permeability necessary for the introduction and entrapment of ore-bearing solutions. At Monte Cristo the stock was rendered permeable by several sets of fractures, but these were plugged by a flood of quartz, and copper-bearing solutions, if they were later active, could not gain easy entrance. The thin-

bedded equivalents of the Secret Canyon shale do not appear to have been made permeable by structural deformation at Monte Cristo, but if a massive dolomite, such as the Eldorado, occurs at depth, it might well have been properly prepared for mineralization without abundant fracturing of thin-bedded horizons appearing at the surface above it. For example, at Eureka the Eldorado dolomite is excessively fractured and it occurs only 30 or 40 feet below thin-bedded Dedds limestone that exhibits little or no disturbance. Therefore later copper-bearing solutions, denied entrance to the Monte Cristo stock, might have traveled laterally and deposited ore bodies along the Eldorado with only a little copper escaping into higher horizons.

5. Hydrothermal Alteration. Many mining districts exhibit wall rock alteration and mineral deposition caused by solutions that preceeded and accompanied metallization. This is a common accompaniment of ore deposition, but alteration can also occur without the formation of ore bodies. Nevertheless, the extensive hydrothermal alteration in and around the Monte Cristo stock is a distinctly favorable feature.

6. Metallization. As previously pointed out, metallization by copper is very low but rather evenly distributed in that part of the Monte Cristo stock already tested by drilling. Although there are cases where copper values improve at depth in massive igneous rocks, considering the depth now tested (775 feet) there is little reason to expect that commercial ore occurs in the stock within drilling range.

On the other hand, copper is erratically distributed in the flanking sediments, but here there is reason to expect that

ore may suddenly come in at depth in a favorable, bedded horizon. That such a tendency exists is shown by the extensive deposition of copper in granular quartz underlying the lower "jasperoid" zone. This is a major feature that is approximately flat and appears to be extended along gently dipping beds. Before oxidation it contained considerable copper, but it has not been explored in the sulfide zone to find out how important it really is. Inasmuch as it sits high stratigraphically, better mineralization in lower, buried horizons is implied if we draw a comparison with the Eureka district where upper horizons are less robustly mineralized than the underlying Eldorado dolomite.

7. Zonal Pattern. In many of our western mining districts there is a zonal distribution of different metals outward from a center or central zone. The latter usually contains most of the copper, succeeded outward by successive zones containing lead, zinc, silver and manganese. A similar zoning appears to be in evidence at Monte Cristo.

8. Position of Ore Deposition. The localization of ore deposits with respect to zones of thermal metamorphism is a matter of considerable importance. With regard to this, Tapleby has formulated the rule that the ore tends to occur on the "limestone side" of the contact zone; that is, between the skarn (the products of thermal metamorphism) and the unreplaced limestone.

INVESTIGATIONS TO DATE

1. Geological Study. Mr. Wheeler's careful geological study has already been discussed.

2. Geophysical Investigations. An airborne magnetometer

survey was made by Fairchild Aerial Surveys, Inc., of Los Angeles, the results of which are discussed in Mr. Wheeler's report. There has been some difficulty in interpreting some of this work, but it now appears that the principal anomaly determined (No. 1) reflects the Monte Cristo intrusive zone east of the young fault that defines the western margin of the Monte Cristo stock. A related anomaly (No. 2) apparently indicates the westerly portion of the intrusive zone that has been offset by the fault, the anomaly appearing north and west of the fault and apparently confirming a southerly dip to the intrusive zone. These anomalies do not necessarily indicate ore; however, if ore is found and its spatial relation to the stock determined, then this information will be helpful in considering the westerly offset segment.

A number of other smaller magnetic anomalies were found by the survey. These, of course, only point out magnetic material, which may be in various kinds of geological bodies, and they do not necessarily point to ore unless we later prove a constant relation between ore and magnetic material. Two of these anomalies, Nos. 16A and 16B, have been given considerable attention and will be referred to again later on.

Various self-potential geophysical surveys were made with generally negative results.

Geochemical samples were taken, but helpful results were not gained.

Although no direct indications of ore bodies were obtained from the various geophysical and geochemical investigations

noted above, they by no means deny the existence of ore. Many ore bodies are not associated with magnetic minerals, and, where they are, deep burial may prevent detection by magnetic investigation. Furthermore, where ore bodies are deeply buried in desert regions, self-potential surveys may be unsatisfactory. Therefore, in the writer's opinion, the failure of these methods to point out ore does not reduce the possibilities of the district.

3. Tests By Drilling. The Anaconda company drilled five holes, three of which searched the Monte Cristo stock for disseminated copper ore.

One hole, on the west, tested the down-dropped fault block in front of the southerly edge of the Monte Cristo stock. This hole remained in surficial gravels to a depth of 1032 feet and did not pierce bedrock.

The holes to test the stock were located along and a short distance outside of the southwesterly part of this intrusive body. They were collared in Mr. Wheeler's No. 1 target area, but, inasmuch as the south margin of the stock dips south, all holes except Nos. 5 and 5A entered the stock at depth. The holes were drilled to the following depths:

No. 2.....500 ft.

No. 3.....241 ft.

No. 4.....775 ft.

No. 5..... 85 ft.

No. 5A.....360 ft. (No. 5 redrilled)

In general the porphyry assayed from 0.02 to 0.20 percent of copper. Holes 5 and 5A, which contained practically no copper, cut only metamorphosed limestone and were disappointing because this area appeared to be better metallized. All of these holes to their bottoms cut rock that was oxidized. Although there were showings here and there of the iron sulfide, pyrite, the zone of clean sulfides was not reached, and there is much oxidation in evidence in the bottom samples of all of these holes. Very few or no copper minerals were noted in the samples inspected by the writer, and it is not clear just how the copper is carried.

Although the sulfide zone of the Monte Cristo stock was not given an adequate test, study of the surface and the drill cuttings make it evident that it is most unlikely that it will carry ore at depths that could be reached by drilling. There are cases where the copper content of igneous bodies increases with depth (western part of Ely, Nevada, district; O'okiep district, South Africa), but there is no hint that such beneficial change might take place in the Monte Cristo stock. Holes 5 and 5A in the flanking sediments were bottomed far above the favorable horizons believed to exist at depth and by no means constitute a test of their possibilities.

RISKS INVOLVED AT MONTE CRISTO

Although further exploration of the Monte Cristo stock is not recommended, there is the favorable possibility that ore bodies may be found in the flanking limestone and dolomite; however, it should be pointed out that search for such deposits

involves certain geological risks, which are discussed in following paragraphs.

First is the question as to whether the district actually contains a favorable thick-bedded formation of dolomite or limestone hidden below the beds exposed at the surface. With such a formation occurring both northwest of Monte Cristo (Eldorado dolomite at Eureka) and to the south (Lyndon limestone at Pioche), it seems quite likely that a similar formation must exist at Monte Cristo.

The next question is whether this formation is within drilling range. Mr. Wheeler's age determination of certain exposed formations by means of fossil content, his study of their detailed characteristics, his thickness measurements, and his mapping of the structural environment make it appear likely that the favorable ore-bearing horizon may be not too far below the gulch bottom that is situated approximately 1700 feet SSE from the southwesterly tip of the Monte Cristo stock (near the SE corner of the Minerva claim). Nevertheless there are certain doubts regarding the accuracy of this prediction because of the differences between the stratified rocks at Eureka and Monte Cristo and because of the possibility of flat thrust faulting in the Monte Cristo section. Therefore we should be prepared to drill holes to depths of 1000 to 1500 feet. Even this will probably not reach all the way through the Eldorado nor into the other favorable limestones intercalated in the underlying shale at Pioche.

Another question is whether the target area of possible mineralization is sufficiently large to permit effective search

by a few drill holes. Where ore deposits extend along gently inclined bedded horizons (as at Pioche, Nevada; Bisbee, Arizona; and parts of the Park City district, Utah), a broad flat target is presented that is less difficult to hit. On the other hand, if there be the tendency for ore bodies to extend themselves along steep fissures within the favorable formation, their discovery by drilling is more difficult. At Monte Cristo we do not know what form ore bodies would assume, if present, but there seems to be a fair chance that they might be extended along the bedding.

A further risk is in locating the holes properly in order to pierce the "limestone side" of the contact zone at depth. This is because the contact zone may vary in width in different stratigraphic horizons depending upon the varying degree of impurities in the beds, their different physical characteristics, and their degree of deformation.

From the above it will be evident that there are a number of uncertainties and that there are inherent risks to exploration at Monte Cristo, even though the work is conducted with skill and care.

MOST PROMISING AREA

The sediments just outside of the skarn zone flanking southerly part of the Monte Cristo stock appear to offer the best exploration chance for finding ore deposits in deep sedimentary horizons. This is judged to be so because the southerly part of the stock is more severely altered; the sediments here carry more copper mineralization, including that beneath the flat "jaspereid" zone; and because the older bedd

seems to emphasize its speculative nature. As the deposits become more difficult to find because of deep burial, with weak surface showings that indicate any "leakage", more and more of this type of speculative [illegible] [illegible]

[illegible]

[illegible] anomalies [illegible] [illegible] [illegible] [illegible] [illegible] they do not fit into a [illegible] [illegible] [illegible] case with [illegible] could be due to [illegible] [illegible] [illegible] south edge of [illegible]

[illegible]

horizons crop out in this section, making drilling to the presumed favorable horizon shallower than elsewhere.

Drilling in this area can be conducted in two structural situations. One is where the beds dip rather gently east and there appears to be little or no structural complications nor metamorphism. This is the best place to check the stratigraphic succession of the older beds and to determine whether the equivalent of the Eldorado favorable horizon actually exists in the Monte Cristo area. It is also a promising locality to test for ore along bedding extending out from the stock. This site is in the gulch bottom about 400 feet easterly from the SE corner of the Minerva claim.

When a presumably favorable, thick-bedded carbonate formation has been identified, then it should be further tested in the zone of "complicated structure" that persists south of the Monte Cristo stock. This is because such a zone of deformation may be necessary to provide the induced permeability required for ore deposition. Such a site is located about 600 to 700 feet NNW of the site described in the foregoing paragraph.

CONCLUSIONS

The above testing is estimated to require about 3,000 feet of drilling. Core drilling will be necessary in order to gain maximum information about the sedimentary horizons that are cut. In order to conduct the drilling; provide for sampling, assaying, and storage of the core; and allow for contingencies a budget of not less than $40,000 should be available.

The writer believes this exploration is warranted but

DMEA Form 7
(12-56)

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11/22	Friemel	500
11/25	GCS	130
"	Johnson	110
"	Cutterdon	100
		~~HB~~
11/26	gf	220
		500

500

NOV 25 1957

Mr. Spangler Ricker
Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

Re: Docket No. DMEA-4869 (Copper)
Umont Mining, Inc.
Monte Cristo Claims
White Pine County, Nevada

Dear Mr. Ricker:

The cited application is being referred to your office for consideration, a field examination of the property if warranted, and recommendations. Copies of memoranda dated November 18 and 19, 1957, by A. D. McMahon, Bureau of Mines, and N. E. Nelson, Geological Survey, respectively, relating to the project, are enclosed for your information. We are likewise enclosing an extra copy of the application for the Field Team use.

In case the project should be viewed favorably the proposed costs would require careful scrutiny. The outlined drilling costs of $12.00 per foot are completely out of line. In any event, we would require bids by three independent contractors covering such work. Furthermore, the "Personal Services" account is subject to criticism; the charges shown for resident engineer, plus his expenses, should be adequate for the outlined work.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (HB)

APPROVED:

Frank D. Lamb (HB)
Member, Bureau of Mines

Thor H. Kiilsgaard (HB)
Member, Geological Survey

WRGriswold/er 11/22/57
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Chron.

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DMEA Form 7
(12-56)

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11/22	[illegible]	500
11/25	[illegible]	130
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11/25	[illegible]	130
"	[illegible]	110
"	[illegible]	100
		~~HB~~
11/26	[illegible]	220
		500

NOV 25 1957

Mr. Dooley P. Wheeler, General Manager
Umomt Mining, Inc.
912 Kearns Building
Salt Lake City, Utah

Re: Docket No. DMEA-4869 (Copper)
Umomt Mining, Inc.
Monte Cristo Claims
White Pine County, Nevada

Dear Mr. Wheeler:

Your application for Government assistance to explore the cited property has been reviewed by the Division of Base Metals of the Defense Minerals Exploration Administration and is being referred to:

Mr. Spangler Ricker
Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

If additional information concerning your application is needed, the Field Team will get in touch with you at an early date.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

WRGriswold/er 11/~~22~~/57
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Region II (2)
Chron.

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11/21	WRB	500

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

November 19, 1957
Re: DMEA 4869
Umont Mining, Inc.
Monte Cristo Mine
White Pine Co., Nev.
$46,787.00 (Stage I)
$300,000.00 (Maximum)
Copper

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application

The applicant requests assistance in checking by drilling, the assumed stratigraphy of a block, certain beds in which are considered, by the applicant, favorable for the occurrence of bedded manto-like copper ore bodies. The particular unit to be sought is the Eldorado dolomite on the southeast flank of the Monte Cristo quartz-monzonite-porphyry stock and outside the contact zone marked by intense hydrothermal alteration.

The undisturbed Eureka dolomite is assumed to be about 500 feet below the surface in the area to be prospected by the first drill hole. The dolomite is the host rock of important ore bodies in not too distant areas and it is assumed it may be ore-bearing here.

Much ground work has been done by the applicant and most, if not all, of the assumptions are backed by geologic reasoning and pertinent comparisons with somewhat similar conditions in productive localities.

The cost of the 2, Stage I, 1500-foot holes is estimated to be $46,787.00. If the information is deemed favorable, follow-up work is proposed. A $300,000 project is envisioned, in the course of which drilling for disseminated copper in the quartz-monzonite porphyry would be done.

Although of a prospective nature, the bold concept merits consideration.

Referral of the application to the Field Team is recommended.

N. E. Nelson

N. E. Nelson

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

November 18, 1957

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: Commodity Specialist, Branch of Base Metals

Subject: Review of Application, Docket No. DMEA-4869 (copper), Umont Mining, Inc., Monte Cristo Claim Group, White Pine County, Nevada. $300,000.00.

The applicant is seeking Government assistance for a $300,000 three-stage exploration drilling program apparently consisting of 21,000 feet of diamond drilling in 14 holes. The estimated work outlined covers preparation of access roads to drill sites and the drilling of two 1,500 foot holes in Stage I at a cost of $46,787.00. Stages II and III are visualized as successively requiring twice the work of the previous stage at twice the cost which explains the $300,000 figure.

Three holes drilled by The Anaconda Company in the area proposed for testing determined that it is underlain by a quartz monzonite porphyry but the copper mineralization does not approach ore grade. Geologic reasoning leads the applicant to believe there are possibilities of finding replacement ore bodies at certain horizons not previously tested.

The cost of drilling seems high although the applicant advises that Anaconda's cost for one hole was considerably higher. Also, full time supervision by management and a resident engineer appears unnecessary for the contract drilling of one or two holes at a time.

It is recommended that the application be referred to the Field Team for an examination of the property. In the event the examiners determine that an exploration program is warranted, it is believed that a more reasonable and adequate exploration project could be developed.

A. D. McMahon

A. D. McMahon

Attachment

Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U. S. G. S.
F. D. Lamb
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

November 13, 1957

Uhont Mining, Inc.
King Street Dock
Burlington, Vermont

Subject: DMEA 4869

Gentlemen:

Your application for exploration assistance, dated November 2, 1957 submitted to our office at Reno, Nevada has been assigned Docket Number 4869 and referred to the Base Metals Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

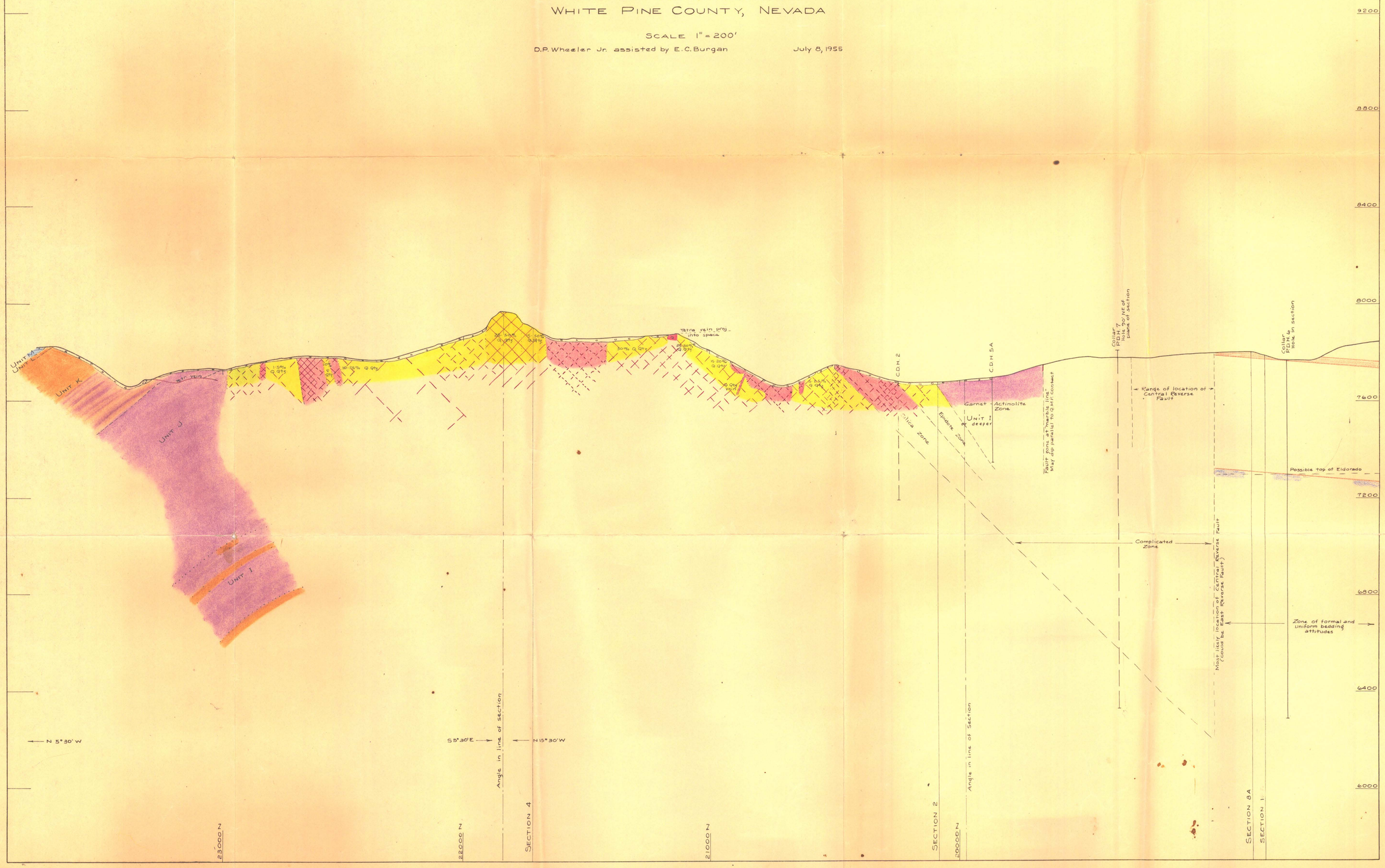
Allen S. Dakan, Director
Operations Control and
Statistics Division

Copy to: Region II

VERTICAL SECTION 10A
MONTE CRISTO AREA
WHITE PINE MINING DIST.
WHITE PINE COUNTY, NEVADA

SCALE 1" = 200'

D.P. Wheeler Jr. assisted by E.C. Burgan — July 8, 1955



UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA 4869
(COPPER)

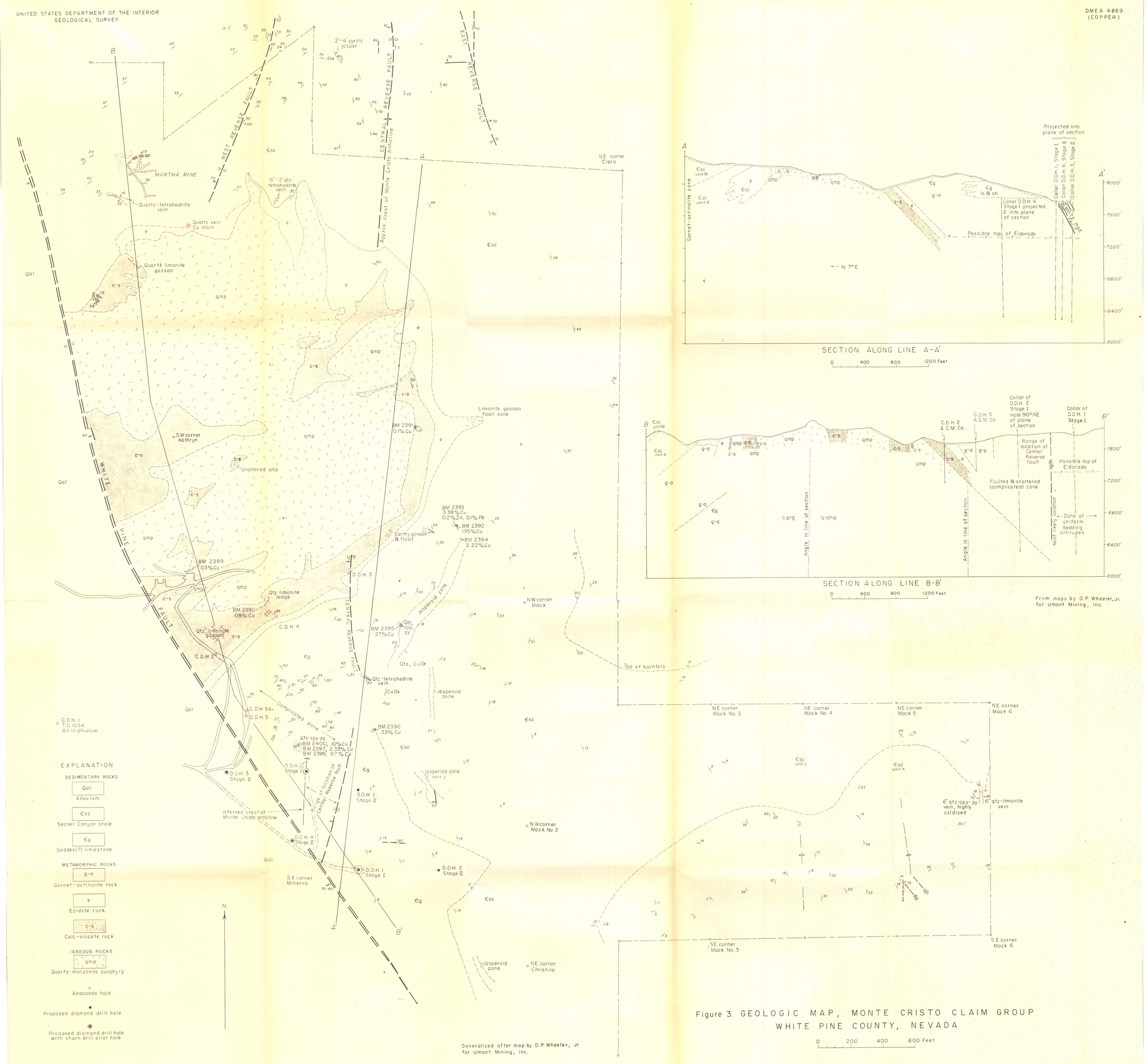
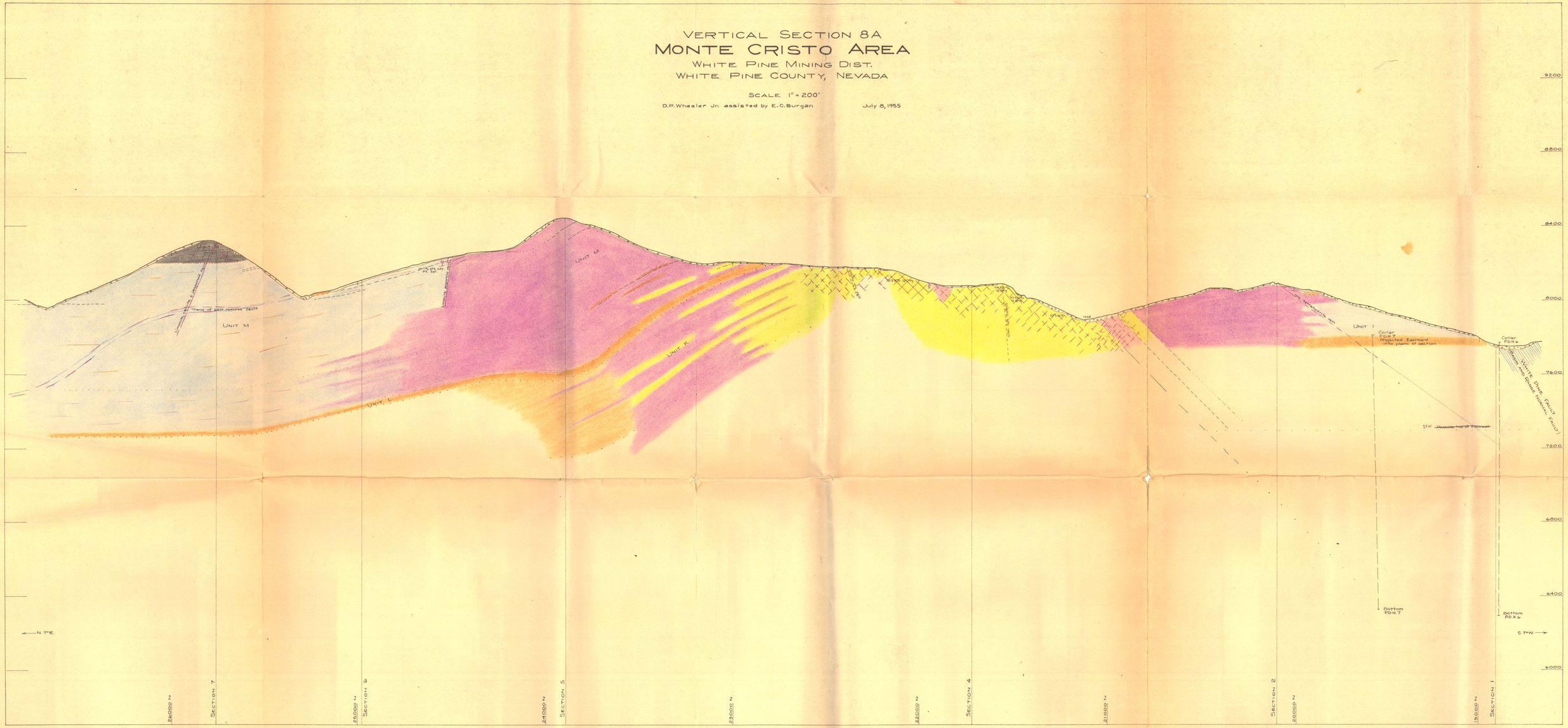


Figure 3. GEOLOGIC MAP, MONTE CRISTO CLAIM GROUP
WHITE PINE COUNTY, NEVADA

VERTICAL SECTION 8A
MONTE CRISTO AREA
WHITE PINE MINING DIST.
WHITE PINE COUNTY, NEVADA

SCALE 1" = 200'

D.P. Wheeler Jr. assisted by E.C. Burgan July 8, 1955



UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

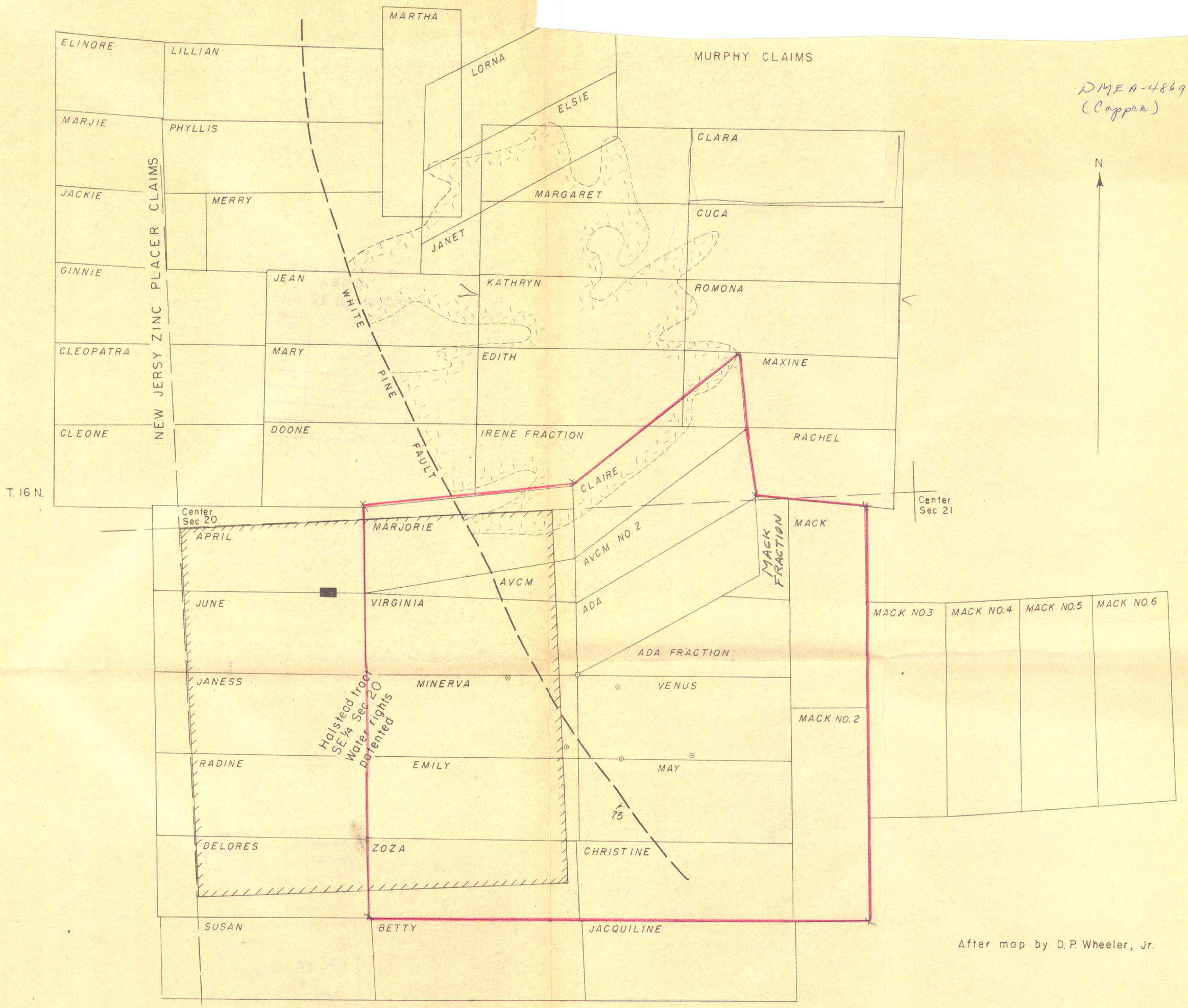


Figure 2. PART OF MONTE CRISTO CLAIM GROUP, WHITE PINE COUNTY, NEVADA

0 500 100 150 Feet