MME Form 9
Rev. Nov. 65

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey

OFFICIAL DOCKET FILE Contract No. _____ Docket No. 6888

Application
- [ ] Denied
- [x] Withdrawn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 Semiannual 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
- [ ] On-site Exam. Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No. _____: Reports

- [ ] Analysis of Semiannual Inspection Reports
- [ ] Project Summary (Interim) by MME Engineers

Right Side

- [ ] Field Team Semiannual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with Transmittal, Narrative and Maps

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

Folders No. _____: Settlement Sheets

Folders No. _____: Drill Logs

Folders No. _____: Royalty Material

72195-65

United States Department of the Interior

GEOLOGICAL SURVEY
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO:

Office of Minerals Exploration
Building 53 Room 28

OFFICIAL COPY
O. M. E.
RECEIVED
JUN 27 1973

INITIALS	CODE

June 21, 1973

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region III

Subject: Application by John H. Tippit (a partnership) for financial assistance in minerals exploration to explore their Alum Creek property in Conejos and Rio Grande Counties, Colorado.

Transmitted herewith is an application for financial assistance to explore the subject property by drilling, in two phases, for molybdenum-copper, porphyry type ore bodies in a potentially favorable area, of the Summitville mining district in the eastern San Juan Mountains in Conejos and Rio Grande Counties, Colorado.

The area has been the subject of Geochemical studies made by the U. S. Geological Survey (USGS Circular 557, enclosed) as well as having been drilled by Newmont Mining Company, and later by W. S. Moore Company. Only 4 short holes and one deep hole have been drilled to date. Limited mineralized material was found, however new geochemical, geophysical work, and additional geologic studies indicate extensive anomalous occurrences of lead, copper, molybdenum and zinc are present in the area. The applicant's consulting geologist has completed additional alteration studies and concludes that the area proposed for exploration is a viable one and a better target area than that previously tested. The total estimated cost for a two-stage drilling program is $105,338.00.

The application has been reviewed by Robert U. King, commodity geologist, U. S. Geological Survey, for molybdenum-rhenium who is familiar with the area and has studied it with respect to its being a potential area for the occurrence of molybdenum-copper porphyry type deposits. Mr. King and I reviewed the application with the applicant's consulting geologist on several occasions since he submitted it to this office.

Mr. King feels that the Alum Creek property appears to be favorably situated for a porphyry type Cu-Mo potential, being situated in or surrounded by past gold-silver-copper producing districts such as Jasper, 6 miles east; Platoro 3 miles southeast; and Summitville 2 miles northeast. Recent exploration activities and geologic mapping including core drilling has revealed solfateric and hydrothermal alteration to moderate depth containing anomalous amounts of molybdenum and copper.

The geophysical survey made by the applicant indicates that magnetic lows occur over the central area of alteration and is in contrast to high magnetic highs in surrounding unaltered rocks.

A centrally located lead anomaly surrounded by molybdenum may indicate an overlapping of mineralization pulses giving an apparent reverse zoning pattern.

Most recent work by the consultant indicates the proposed target area is best suited for exploration because the rocks of the zone here is characterized by potassic rather than argillic or sodic alteration. Major porphyry deposits are associated with the potassium alteration zone, according to Lowell, J.D., and Guilbert, J. M., 1970, Economic Geology, vol. 65, p. 373-408.

In U. S. Geological Survey Circular 557, Lead, Copper, Molybdenum, and Zinc Geochemical Anomalies South of the Summitville District, Rio Grande County, Utah, W. N. Sharp, and J. L. Gualtieri, indicate than an extensive lead geochemical anomaly, as well as several smaller anomalies of copper, molybdenum and zinc that have been found in a large area of altered volcanic and intrusive rocks south of the Summitville mine, which together with the geologic similarity to the productive Summitville district make the area attractive for further exploration, especially in the area east of Lookout Mountain. The area around the northeast end of the lead anomaly seems to be the most favorable inasmuch as geochemical anomalies of the other metals also occur there.

In reviewing the subject application I find that the applicant's explanation as to just how he intends to finance his portion of a loan was a bit nebulous, consequently I asked him to outline more specifically the origin of his funds as well as the amount needed. I also requested that he submit a financial statement to this office in order that it could be transmitted with his application.

The applicant's letters to the banks, requesting a loan are the letters written by Mr. William S. Calkin, to Mr. John H. Tippit dated April 2, 1973. Mr. Tippit informed me, during a conference with him on Friday, June 8, 1973, that he hand-carried the letters to the banks and that they constitute his request for financial assistance to explore the Alum Creek Property.

I explained to the applicant's consultant that the claim map should show the individual claims within the property boundary, and that our Washington office would no doubt request such a map.

Each copy of the application contains pencilled markings and notes of requested additions that we felt would more thoroughly explain the geologist's references from one figure to another in his text. Figure 16A was requested so as to show the proposed diamond drill hole with respect to previously drilled holes. This section shows the proposed hole to be nearer the others than it really is. The proposed hole will be located 500 to 700 feet from drill holes 1 and 3 and does not really parallel them, consequently there will not be duplication in drilling the same material, as different material will be penetrated by the proposed drill holes.

During the preparation of the subject application the Field Officer, Region III, conferred numerous times with the applicant's geologist, and upon several occasions he has been informed as to our modest budget, and for that reason, the request to the Banks was for two stages of $52,294.00 in Stage I and $53,044.00 in Stage 2. Should a contract be considered, it should be written for Stage I work. If Stage I work proves successful, the Operation may then apply for additional funding.

I concur with Mr. King, Mr. Sharp and Mr. Gualtieri, that the area is a most interesting one and is worthy of further exploration work insofar as the search for new resources of molybdenum and copper are concerned.

J. William Hasler

J. William Hasler,
Field Officer, Region III
Office of Minerals Exploration

MME Form 40
(Revised Nov. 71)

Form approved
Budget Bureau No. 42-R1368

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85—701 (72 Stat. 700; 30 U.S.C. 641)

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

John H. Tippit
1704 Security Life Building
1616 Glenarm Place
Denver, Colorado 80202

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: 6888

DATE RECEIVED: 6-27-63

REGION: III

DIVISION CODE:

BUSINESS ORGANIZATION *(Check one)*

- INDIVIDUAL [ ]
- CORPORATION [ ]
- PARTNERSHIP [X]
- OTHER *(Specify)* [ ]

STATE IN WHICH FIRM IS ORGANIZED:

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
John H. Tippit	1704 Security Life Bldg. Denver, Colorado	partner
Anson C. Moore	1080 Glen Oaks Blvd. Pasadena, California	partner
John B. Rigg	Colorado National Bank Denver, Colorado	blind trust

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE: molybdenum - copper

ESTIMATED COST OF PROJECT: $105,338.00

PROPERTY NAME	LOCATION COUNTY	STATE
Alum Creek	Conejos Rio Grande	Colorado

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. II). 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 two 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 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. 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 3(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 Department of the Interior, U.S. Geological Survey, Office of Minerals Exploration, Washington, D. C., 20242, or with the nearest OME 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, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

April 19, 1973
DATED

Wm. S. Calkin
BY *(Signature)*

Consulting Geologist
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

Form approved
Budget Bureau No. 42-R1368

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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APPLICANT *(Full legal name and mailing address as they should appear on contract if one is executed.)*

H. Tippit
Security Life Building
Glenarm Place
Denver, Colorado 80202

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: 6888

DATE RECEIVED: 6-27-63

REGION: III

DIVISION CODE:

ORGANIZATION

- [ ]
- [ ]
- [X]
- [ ]

THE FIRM IS

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
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MINERAL WHICH YOU WISH TO EXPLORE: Molybdenum - copper

COST OF PROJECT: $ 338.00

PROPERTY NAME	LOCATION COUNTY	STATE
Alum Creek	Conejos Rio Grande	Colorado

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LIST OF ILLUSTRATIONS

Figure 1. Location of the Alum Creek Prospect in Relation to the Principal Moly Porphyry Deposits of Colorado and New Mexico

Figure 2. Alum Creek Location Map

Figure 3. Index Map of the Alum Creek Prospect showing Claim Boundary

Figure 4. Regional Geologic Map; Alum Creek, Colorado

Figure 5. Geologic Map of the Alum Creek Prospect

Figure 6. Detailed Geology and Geochemistry of Alum Creek

Figure 7. Regional Pb and Mo Geochemistry, Alum Creek Area

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Figure 9. Magnetic Survey of Alum Creek Prospect

Figure 10. Drill Hole Locations, Alum Creek Prospect

Figure 11. Angle Drill Hole Geochemistry--Pb

Figure 12. Angle Drill Hole Geochemistry--Mo

Figure 13. Angle Drill Hole Geochemistry--Cu

Figure 14. Vertical Drill Hole: Geology, Alteration and Geochemistry

Figure 15. Geologic Cross Section of Alum Creek Prospect Showing Magnetic Data

Figure 16. Geologic Cross Section of Alum Creek Prospect Showing Proposed Drill Holes

Exhibit 1. Correspondence to Establish Financial Eligibility

Exhibit 2. Road Construction Bids

Exhibit 3. Drilling Bids

Exhibit 4. Geochemical Analytical Bids

Exhibit 5. Some Petrologic and Alteration Aspects of the Alum Creek Area, San Juan Volcanic Field, Colorado

ALUM CREEK PROPERTIES
OME PROPOSAL
APRIL 1973

1. FINANCIAL ELIGIBILITY

a Evidence of efforts to obtain financial assistance for this exploration program may be seen in the accompanying correspondence with the First National Bank of Denver and the Bank of Denver (Exhibit 1). Both indicated that the project is too high of a risk venture for their participation.

b Affiliated companies: not applicable.

c The partnership's share of the cost will initially be from a bank loan secured and guaranteed by the partnership and/or other individuals. The loan will be relieved either by partnerships payment or acquisition by a company or corporation.

2. APPLICANT'S RIGHTS IN LAND

a The partnership owns the mineral rights within a large contiguous block of some 350 unpatented mining claims. A map showing the outline of the property is shown in Figure 3. No liens, mortgages or other encumbrances exist on the property.

b The property forms a part of the Platoro-Summitville mining district of the San Juan Mountains. Specifically the claims are within surveyed sections 31, 32, 33, and 34 of T37N, R4E, Rio Grande County, Colorado; unsurveyed sections 3, 4, 5, 6, 7, 8, 9, 17, and 18 of T36N, R4E, Conejos County, Colorado; and unsurveyed sections of 12 and 13 of T36N, R3E, Conejos County Colorado.

The following are the unpatented mining claim holdings of the partnership filed in the records of Rio Grande County, Colorado at the book and pages listed:

CLAIM	BOOK	PAGES
Gardavann No. 1-4	270	387-394
Gardavann No. 16-20	270	395-404
Gardavann No. 27-31	270	405-414
Gardavann No. 31-E	270	415-416
Gardavann No. 32-35	270	417-424
Gardavann No. 36	270	443-444
Gardavann No. 37-44	270	425-440
Gardavann No. 45	270	445-446
Janabet No. 1-4	270	341-347
Janabet No. 11	270	348-350
Janabet No. 16-20	270	351-360
Janabet No. 27-29	270	361-366
Janabet No. 34-39	270	367-378
Janabet No. 41-44	270	379-386
WSM 64-1 to 64-8	291	235-242
AC-53,55,57,59,61, 63,64,65,66	312	149-166

The following are the unpatented mining claim holdings of the partnership filed in the records of Conejos County, Colorado at the book and pages listed:

CLAIMS	BOOK	PAGES
Gardavann No. 5-15	215	83-104
Gardavann No. 21-25	215	104-114
Gardavann No. 26	215	171-172
Gardavann No. 46-48	215	115-120
Gardavann No. 26-E	215	155-156
Janabet No. 5-10	215	121-132
Janabet No. 11-E	215	133-134
Janabet No. 12-15	215	135-142
Janabet No. 21-26	215	143-154
Janabet No. 30-33	215	147-164
Janabet No. 40	215	165-166
Janabet No. 45-48	215	167-176
Alum No. 1-20	215	371-391
Red Lode No. 1-87	201	205-291 & 448-620
Red Lode No. 88-120	201 & 215	292-324 & 1-66
Red Lode No. 133-140	201 & 215	325-332 & 67-82
Yellow Lode No. 1-26	201	333-358 & 395-466
WSM 64-9 to 64-12	220	350-354
WSM 54-1 to 65-8	220	355-362
AC-1 through AC-35	220	385-454
AC-36 through AC-52	220	475-508
AC-54,56,58,60,62	220	509-518

c All claims in the area of interest are believed to be totally owned by the partnership without conflicts.

3. PHYSICAL DESCRIPTION

a <u>Mining and Exploration History Prior to the Partnership's Control</u>

Prospectors examined the area during the early 1900's and dug a total of about a dozen pits within the Alum Creek property. No mine workings or production facilities exist on the Alum Creek property. Gold, silver and copper have been produced from areas 1 to 8 miles north, east, south and west of the Alum Creek property (Figure 2). The Jasper mining district lies about 6 miles east of the Alum Creek property and produced some silver and gold from veins during the late 1800's and early 1900's. The Platoro mining district lies about 3 miles to the southeast of the Alum Creek property and has had an intermittent history of gold-silver production from the late 1800's to the present. The Summitville mining district, the most significant mineral producer in the region, lies about 2 miles northwest of the Alum Creek property and has had significant but intermittent gold, silver, copper production from the late 1800's to the present.

b. History and Exploration Under the Partnership

Lode claims (273) were staked in the late 1950's by J. Rigg, J. Tippit, and A. Moore. In 1963 these claims were leased by the W.S. Moore Co. of Minnesota and 20 additional claims were staked during 1964 and 1965. Regional and detailed geological mapping was done in 1964 and 1965. In 1966 Newmont Mining Company with a lease from W.S. Moore Co. core-drilled four short and shallow angle holes (3110 feet of drilling). Over 1500 feet of this core was within propylitized rock. Limited molybdenite mineralization was encountered and Newmont Mining Company relinquished the property in 1967. In 1967 Earth Sciences Inc. by means of agreements with Tippit-Rigg-Moore and the W.S. Moore Co. obtained a lease on the property. During 1967 and 1968 Earth Sciences Inc. staked 66 more claims on the Alum Creek property. During 1967 through 1969 a vertical drill hole was completed to a depth of 2994 and did not encounter significant mineralization. Geological, geochemical and geophysical studies continued along with extensive efforts to joint venture the Alum Creek property. In the spring of 1971 Earth Sciences Inc. relinquished the property. Extensive efforts continued to joint venture the Alum Creek property. In the fall of 1972 the W.S. Moore Co. relinquished the property.

c Production and Grade

To date there has been no known production of any minerals from the Alum Creek property.

d Reserves

Although molybdenum and copper mineralization have been encountered on the property there are no ore reserves of any type yet indicated on the Alum Creek property.

e (1) Geology

Regional Geology

Quartz monzonite plutons, quartz latite dikes and andesite to rhyolite volcanics of Oligocene and Miocene (20-30 m.y.) age are genetically and spatially associated in the Alum Creek area (Figure 4). The principal multiple intrusive phases and hydrothermal alteration occur adjacent to the major structural intersection of the Red Mountain fault (initially called Cornwall fault and appears on all Figures as cornwall fault) and South Mountain fault (Figure 4). The age relationships from oldest to youngest are Conejos Andesite (Lower Lavas), Alamosa River stock (29 m.y., personal communication P. Lipman, 1970), multiple phases of Alum Creek porphyry, Fisher Quartz Latite (Upper Lavas) major dike activity, additional faulting, solfataric and hydrothermal alteration, and vent-dome activity (20.5 m.y., personal communication T. Steven, 1966). The compositional variations of these rocks follow the calc-alkaline rock series and show increasing silica and alkali content with decreasing iron and magnesium content during magmatic differentiation.

The Alamosa River stock is the largest exposed intrusive (10 square miles) in the San Juan volcanic field (Larsen and Cross, 1956). It is the most significant intrusive center in the southeast portion of the San Juan volcanic field and radial dikes with minor faults emanate from the area on a regional scale (Lipman et al, 1969). The complex Alum Creek porphyry has an arcuate ½ square mile exposure near the northwest flank of the Alamosa River stock (Figure 4 and 5). The pulsating emplacement of multiple phases of epizonal intrusive activity have caused significant structural doming with extensive fracturing, jointing and faulting within the overlying rocks. Many quartz latite dikes are emplaced along these structural zones of weakness. The Red Mountain fault and the South Mountain fault are the major fault systems and contain highly fractured, altered rock with less than 1% pyrite. Minor faults within the area are both altered and mineralized with 2-5% pyrite.

Large exposures of solfataric and hydrothermal alteration occur over a 20 square mile area and are marked by intense limonite and hematite coloration. Classic zones of solfataric alteration include chloritized, argillized, alunitized, and opalized rock. The 2500 feet of relief in the Alum Creek area has exposed many altered rocks and suggest a vertical transition of solfataric alteration that grades downward into hydrothermal alteration. Classic zones of hydrothermal alteration include propylitic, argillic and phyllic alteration facies that are centered on the Alum Creek prophyry. Intense and extensive quartz-pyrite-MoS_2 veinlets and faulting with pebble dikes occur along Alum Creek and reflect an arcuate symmetry coincident with the arcuate symmetry of the Alum Creek porphyry (Figures 4 and 5). The center of this arcuate symmetry lies some 2500 feet to the west of the vertical drill hole AC-1 (Figure 7). This center of symmetry is cut by a significant sanidine quartz latite dike system that has experienced different degrees of alteration. The numerous quartz latite dikes are both pre and post alteration-mineralization. Thus, the present exposures within Alum Creek of multiple intrusive activity and intense hydrothermal alteration are marginal to the center of a dynamic pulsating intrusive and alteration system.

Detailed Geology

Detailed geological and geochemical information was obtained from a limited portion of the Alum Creek porphyry to test the economic potential of a specific conduit within the margin of the principal area of interest (Figures 5 and 6). The exposed portion of the Alum Creek stock (less than ¼ square mile) is a small complex augite-biotite quartz monzonite porphyry with related fine-grained and chilled phases. Near the contact the coarser-grained porphyritic facies predominates and the phaneritic groundmass gradually becomes fine-grained to micro-phaneritic toward the core.

The de[illegible]led geologic mapping of [illegible] conduit area included an[illegible]ysis of the following:

(1) joint attitudes and their surface features

(2) pebble dikes

(3) faults and slickenside lineations

(4) rock types (Alum Creek porphyry and quartz latite dikes)

(5) orientation of quartz-pyrite veins and quartz-molybdenite veinlets

(6) hydrothermal activity including

a) propylitic alteration (calcite-epidote-chlorite)
b) argillic alteration (kaolinite)
c) phyllic alteration (sericite and interstitial quartz)
   (1) 1M muscovite (unstable and erodes to form a "bug hole" texture)
   (2) 2M muscovite (stable and resists weaterhing)
d) silicification
   (1) interstitial
   (2) veinlet

Figure 6 shows the results of this work. Statistical analysis of the joint intersection lineations suggested the location of an intrusive conduit axis. This conduit axis was later confirmed by drilling. Mapping within the intrusive delineated an altered area of extensive 1M muscovite (sericite). This area of 1M muscovite (sericite) is similar to the "bug hole" porphyry of Urad, where the original feldspar phenocrysts were altered to 1M muscovite and subsequently eroded by what appears to have been a gaseous venting or blow-out. This altered area of extensive 1M muscovite within the Alum Creek porphyry has been termed a blow-out zone (Figure 5, 6 and 10). The sericitization in the area surrounding the blow-out zone at Alum Creek is of the 2M muscovite type. The 2M muscovite is stable and does not weather to form "bug-hole" texture. As shown in Figure 6 the highly silicified rock in the rim of the blow-out zone is (1) cut by pebble dikes (2) contains numerous gray quartz veinlets with fine-grained molybdenite and (3) carries between 2-5% pyrite. The distribution of molybdenum in the vicinity of the blow-out zone shows (1) molybdenum varies between 80 and 100 ppm Mo within the 2M muscovite-bearing-rim surrounding the blow-out zone (2) the blow-out zone is composed of rock containing less than 80 ppm Mo and (3) a propylitized dike and a highly silicified zone within the blow-out have between 80 and 400 ppm Mo.

A hood of propylitized and kaolinized rock appears to have existed over the entire intrusive-alteration system. Most of this hood in the immediate vicinity of Alum Creek has been removed by erosion or is masked by vegetation. However, remnants of this hood can be observed in the northern and western portions of the lower part of Alum Creek. Caps of weakly altered rock occur along ridges and project downward into the more highly altered rock. The Alum Creek porphyry appears to have crystallized under high pressure.

Interpretation of the detailed geological and alteration data indicate that the porphyry was emplaced in a complex conduit which after solidification was fractured and flooded with pyrite and molybdenite mineralization that accompanied quartz vein development. A central portion of the intrusive conduit was then leached by gaseous exhalations accompanied by silicification along fault zones and the formation of pebble dikes by degasing. This gaseous phase was followed by at least one other pulse of intrusive activity during which the propylitized dikes were emplaced. The intrusive conduit that has been mapped in detail may be a satellitic center associated with and typifying a larger dynamic system in the unexplored and unexposed area immediately to the west.

Drill Hole Geology

All drill holes completed on the property are plotted on Figure 10. The complex intrusive contact relationships from surface to subsurface between the quartz monzonite Alamosa River stock and the quartz monzonite Alum Creek porphyry are indicated by angle drill holes DDH-1 through DDH-4 and surface geology as shown on Figure 10. The contact relationships between the Alamosa River stock and the Alum Creek porphyry within DDH-3 and the surface geology (Figure 10) indicate a southeast dip of 50-60 degrees along the contact of these two intrusives. The Alum Creek porphyry may thus represent a large arcuate ring-dike or arcuate ring-stock complex. The arcuate pattern of the Alum Creek porphyry is also apparent in Figure 4. The four -50° angle drill holes of Figure 10 indicate the area of principal phyllic alteration is to the west. This drill hole data helps to corroborate the interpretation of the magnetometer survey discussed under Geophysics e (3).

The AC-1 drill hole is located within the eastern margin of the arcuate outline of the Alum Creek porphyry and within the zone of phyllic alteration (Figures 6 and 10). A 6¼" rotary hole was drilled to a depth of 1675 feet; from there to 2994 feet (T.D.) the hole was BX cored. Electric logs of the 6¼" hole were prepared by Schlumberger and include formation density, gamma ray and sonic-amplitude.

The rock encountered from surface to 2994 feet represents at least 3 phases of quartz monzonite composition (Figure 14). Phase 1: a biotite-augite quartz monzonite porphyry with a microphaneritic groundmass of K-feldspar and quartz. This rock grades into Phase 2 of the Alum Creek porphyry at a depth of 2250 feet. Phase 2: biotite-hornblende quartz monzonite porphyry with a phaneritic groundmass of K-feldspar and quartz. Phase 2 continues to the bottom of the hole with the exception of a 16 ft. dike intersected of 2700 feet. Phase 3: biotite-

The alteration within AC-1 has been caused by hydrothermal activity. Pervasive alteration of the phyllic (sericite) and argillic (kaolinite) facies exists to a depth of 1100 feet (Figure 14). Uniform propylitic (chlorite) alteration exists from 1100 to 2000 feet. From 2000 feet to 2994 feet, the alteration is propylitic with several thin zones of argillic, phyllic, and silica alteration. The three principal silicified zones at 1730 ft., 2170 ft., and 2890 ft. probably represent healed fault zones. The zones of argillic and phyllic alteration contain 3-5% disseminated and veinlet pyrite. The prominent "silver dollar" fractures at 2652 ft., and 2980 ft. dip at 30° and were probably formed by compression-release stresses of intrusive emplacement.

The alteration patterns and fracture orientations from the drilling data have defined a mineralized phyllic altered zone that appears to represent a lateral portion of a larger altered hood zone extending to the west as interpreted in Figure 15, and as indicated by the magnetometer survey (Figure 9). The drill hole petrology indicates the presence of 3 phases of quartz monzonite composition and suggests that the drilling to date has occurred in an area lateral to the center of a dynamic intrusive system.

In summary, the salient geological features of the Alum Creek prospect include: (a) intermediate to acidic intrusive and dike activity with associated volcanics (2) localization of the pulsating intrusive activity by a major structural intersection (3) fracturing and faulting of the rock caused by structural doming related to emplacement of intrusions (4) classic zones of hydrothermal alteration which include propylitic, argillic and phyllic alteration facies.

e (2) Geochemistry

Regional Geochemistry

The regional rock geochemistry shows definite patterns of anomalously high Pb, Mo, Cu, and Zn in association with area of hydrothermal alteration (Figures 7 and 8, data after Sharp and Gualtieri, 1968). Anomalous Pb, Zn and Cu values may form zonal patterns within and flanking Mo accumulations. Inferred background values of these elements are: Cu (40 ppm), Mo (5 ppm), Pb (50 ppm), and Zn (50 ppm).

Anomalous Pb-in-rock (> 100 ppm) encompasses an area 3/4 of a mile wide and 1½ miles long (Figure 7). The long axis of the Pb anomaly has a northeast trend and may represent an extension or compression-release component of the dominant structural system in the area, namely the east-west Red Mountain fault and the northwest South Mtn. fault. This parallelism between the pathfinding Pb anomaly for Mo and the northeast trending dike system suggests leakage, possibly from an underlying plug or intrusive apophysis.

The Mo-in-rock anomalies (> 10 ppm) transgress lithologic and structural boundaries (Figure 7). The principal Mo anomaly is predominantly associated with the exposed portions of phyllic alteration facies within the Alum Creek porphyry. In general the Mo anomalies are in deeply incised areas located on the peripheral portions of the Pb anomaly. The Mo anomaly represents lateral portions of the postulated deep mineralized zone while the Pb anomaly is associated with the overlying hood. The Mo anomaly has a center of symmetry on the sanidine quartz latite dike system.

The Cu-in-rock anomalies (> 100 ppm)* and Zn-in-rock anomalies (> 100 ppm) are generally located outside the principal area of phyllic alteration and in areas where argillic and propylitic alteration prevail (Figure 8).

The regional geochemical patterns as exposed by differential erosion show overlapping anomalous zones encompassing both vertical and lateral dimensions. The lateral exposures in Figure 7 are associated with deeply eroded areas. The widespread Pb geochemical patterns represent a hood or cap zone surrounding the Mo zones. The more irregularly distributed distributed Cu and Zn geochemical patterns represent the outermost zones of alteration-mineralization associated with areas of leakage. The symmetry of these mineralized zones suggest an association with an intrusive center rather than fault zones. The regional geochemical zoning of Mo, Pb, Cu and Zn roughly coincide with the regional hydrothermal alteration zones.

Detailed Geochemistry

The detailed geochemistry consists of data from selected specimens, detailed mapping (Figure 6) and water samples within the lower portion of the Alum Creek drainage system.

Selected two pound specimens from surface exposures (see Figure 5) assayed .22% and .33% MoS_2. The detailed alteration pattern of the probable satellitic center within the intrusive conduit (Figure 6) showed a central zone 400 feet in diameter with "bug hole" alteration surrounded by a predominantly sericitized and silicified rim. Mo values in the leached interior were generally less than 40 ppm whereas within the nonleached rim values were over 40 ppm and frequently exceeded 75 ppm.

The stream waters in the lower portion of Alum Creek and within the immediate vicinity of the phyllic alteration of the Alum Creek porphyry have a pH of 2.5. The molybdenum content ranges from 0-20 ppb with a median of 2 ppb and a regional background of 0-1 ppb. The copper content ranges from 100-2000 ppb with a median of 800 ppb and a regional background of 100-200 ppb.

In summary the salient geochemical features of the Alum Creek prospect include: (1) a geochemical zonation encompassing a broad central Pb zone with surrounding Mo zones and additional external zones of Cu and Zn anomalies (2) anomalous concentrations of MoS_2 (up to .22% and .33% MoS_2) within phyllic zones of alteration (3) stream waters of low Ph (2.5) that contain anomalous concentrations of Mo and Cu. Such features are common to molybdenum-bearing porphyry areas in Colorado and New Mexico (Figure 1).

*Although the U.S.G.S. Circular 557 notes this as 10 ppm, check samples in the same areas by Earth Sciences Inc. suggest this is a misprint and should be 100 ppm.

Drill Hole Geochemistry

The geochemistry of the angle drill hole samples (Figures 11, 12 and 13) is based on 100-foot averages from 10-foot composite samples of DDH-1 through DDH-4. The Pb values (Figure 11) show anomalous concentrations of 50-100 ppm within zones of phyllic alteration associated with faults and intrusive contacts. The Mo values (Figure 12) show anomalous concentrations of 50-120 ppm within zones of phyllic alteration associated with the border fault. The Cu values (Figure 13) show anomalous concentration of 400-1000 ppm within zones of phyllic alteration. The border fault represents a significant near-vertical minor fault with anomalous mineralization.

The geochemistry of the AC-1 drill hole samples is based upon analyses of 100 foot composite samples from 20 to 2994 feet (Figure 14). Since phyllic alteration is reflected by marked decreases in sodium content, relative values of sodium can be used as a guide to alteration and are shown on Figure 14. Molybdenum values have a background of about 5 ppm and anomalous values that range from 25 to 225 ppm. Lead values have a background of about 50 ppm and anomalous values that range from 300 to 1500 ppm. Zones that are obviously anomalous in both lead and molybdenum occur at these footages: 500, 1000, 1500, 2150, 2600, and 2900 (Figure 14). The Mo, Pb, and Na values suggest the area from 500 to 1500 feet is an incipient mineralized hood, correlating with the edge of the phyllic alteration which extends to the west and north. Similar but less extensive amounts of mineralization occur from 2200 to 2900 feet. A mineralized, silicified fault zone exists from 2157 ft. to 2168 ft. with values of 225 ppm Mo, 1200 ppm Pb, and 5000 ppm Zn. Analysis of a gray slickenside coating at 2355 feet has values of 400 ppm Mo and 1500 ppm Pb.

In summary, the drill hole geochemistry suggests the presence of anomalous mineralization associated with phyllic alteration zones. These altered and mineralized zones are believed to represent a lateral expression of the hydrothermal alteration associated with an intrusive center of the sub-volcanic environment shown in Figure 15.

(3) Geophysics

A magnetic survey utilizing a McPhar M-700 fluxgate magnetometer was performed over the central portion of the Alum Creek property to further delineate the spatial relationship of alteration patterns and rock types. Readings were taken at 100-foot intervals along traverses encompassing the suggested geological and geochemical center. All readings on Figure 9 are shown as the relative magnitude of the vertical intensity of the earth's magnetic field in gammas. The readings range from +1650 to +80 gammas and have an average value of 515 gammas. The results indicate the following:

(1) A broad magnetic high (850-550 gammas) exists south and east of the Alum Creek porphyry. This magnetic high overlies unaltered to weakly propylitic quartz monzonite.

(2) A pronounced magnetic low (250-350 gammas) along Alum Creek extends upstream toward the Red Mountain fault. Other significant magnetic lows exist in portions of Lookout Creek. The pronounced magnetic lows overlie or indicate areas of phyllic (sericite) alteration.

(3) A broad area of intermediate magnetic intensity (350-550 gammas) exists in the area encompassing the center of geological and geochemical symmetry and the area between Alum Creek and Lookout Creek. The value of this zone is less than the average magnetic value of 515 gammas. This zone of intermediate to low magnetic intensity transgresses exposed rock units of quartz monzonite porphyry, quartz monzonite, andesite and quartz latite. This zone is believed to reflect phyllic and potassic alteration at depth beneath the hood zone of propylitic and argillic alteration that covers or caps the central portion of the multiple intrusive and alteration system.

In summary the salient magnetic features of the Alum Creek prospect include: (1) a magnetic high in unaltered to weakly propylitic rocks marginal to the principal area of intense alteration (2) a magnetic low corresponding to the exposed areas of phyllic alteration (3) a zone of intermediate to low magnetic intensity, which is less than the average magentic value, that is believed to reflect subsurface phyllic and potassic alteration. These magnetic results show marked similarity to known surveys over molybdenum-bearing porphyry deposits elsewhere.

f <u>Reasons for Expecting to Find Ore</u>

In the Alum Creek area, the structural intersection of the Red Mountain fault (Cornwall fault) and the South Mountain fault provided a zone of weakness for continued pulsating igneous activity during the time span of 30-20 m.y. This geologic age corresponds to the emplacement of known molybdenum-bearing porphyry deposits in Colorado and New Mexico (Figure 1). The igneous activity at Alum Creek is represented by multiple phases of quartz monzonite intrusives and cross cutting quartz latite dikes. The extensive alteration-mineralization activity are both pre and post dike activity and consist of propylitic (chlorite), argillic (kaolinite) and phyllic (sericite) alteration with accompanying 3-5% disseminated pyrite.

The geological, geochemical and geophysical evidence to date have tested a satellitic center of activity within the Alum Creek area (Figures 5, 6 and 15). The complexities of porphyry deposits cause conduits to form within and adjacent to the heart of the system. The geological, geochemical and geophysical data all appear to have the same common center of symmetry. This common center of symmetry is believed to represent the heart of the system. Thus the heart of the system appears to be in an unexposed and untested area some 2500 feet to the west of the tested area (Figures 15 and 16).

Drilling has tested the subsurface near the exposed Alum Creek porphyry stock. The data from the drilling combined with all other information suggests the following significant economic implications:

(1) Vertical drill hole AC-1 penetrated 2994 feet of the multi-phase Alum Creek porphyry stock. Interpretation suggests additional quartz monzonite intrusions may exist at depth or laterally to the west. Thus, a complex intrusive history is inferred and partially substanciated by surface exposures. The complexity of multiple intrusions within porphyry deposits is well known.

(2) The upper mineralized zone exists within Phase 1 of the Alum Creek porphyry and contains anomalous values of lead and molybdenum. Within Phase 2 of the Alum Creek porphyry are anomalous values of lead and molybdenum. These mineralized and altered zones are believed to represent a lateral manifestation of the potential Mo hood interpreted in Figure 15 and 16. The dimensions and spatial relationships of the suggested upper hood (Figure 15 and 16) compare favorably with those of the orebody hoods known to exist in porphyry deposits.

(3) The known molybdenum ore deposits of Colorado and New Mexico (Climax, Urad and Questa) have circular ore hoods which are commonly 2000 to 4000 feet in diameter. These spatial relationships can be accommodated within the proposed system of the Alum Creek prospect.

(4) The large unexposed and untested area to the west and northwest of the tested area offers excellent potential for discovery of a concealed porphyry ore deposit based on the following petrologic, geochemical and alteration evidence:

a) The arcuate pattern of the Alum Creek porphyry and the major dike activity to the west suggest an underlying geologic center of activity in this area (Figure 15 and 16).

b) The areal extent of the molybdenum and lead anomalies associated with these igneous rocks suggest a geochemical center of activity (Figure 7).

c) The broad intense low of the magnetometer survey opening to the west and northwest suggests a highly altered central area overlying the heart of the postulated mineralized hood (Figure 9).

(5) The ore of most porphyry deposits is associated with the potassic alteration zone (Lowell and Guilbert, 1971). Within the Alum Creek property propylitic, argillic and an outer fringe of a phyllic zone have been located. The objective of the exploration program is to locate the potassic alteration zone by a two phase drilling program as shown in Figure 16.

g This report and the references contain all the significant and essential information I am familiar with regarding the geology, geochemistry and geophysics of the Alum Creek property. Reports written for and by other companies previously involved in this project are not available. However, a copy of Calkin, W.S., 1971, Some Petrologic and Alteration Aspects of the Alum Creek Area, San Juan Volcanic Field, Colorado: New Mexico Geological Society - 22nd Field Conference, is included at the end of the report (Exhibit 5).

4. ACCESSIBILITY OF PROPERTY

a The project area is located 40 miles west of Alamosa and 3 miles due south of the Summitville mining district. The project may be reached by four different dirt roads but the Alamosa Creek road provides the most reliable route. The dude ranch town of Platoro is located 3 miles due south of the property. For access to the principal points of interest on the property from Alamosa, proceed south 3 miles on U.S. 285 to Colorado 370; hence, 14 miles due west to Colorado 15; hence, due south for 1 mile to end of surfaced road; hence, west on dirt road for 30 miles toward Platoro; ¼ mile east of Alum Creek bridge bear right on project road for 1 mile.

Arrangements to visit the property should be made with Wm. S. Calkin, consulting geologist, Rt. 3 Box 408A, Golden, Colorado. Phone (303) 277-0711.

b The local supply point and shipping center for the property is Alamosa. The Alum Creek project is located approximately 50 miles from Alamosa.

5. EXPLORATION WORK

a The proposed exploration program can be divided into two phases as follows:

1. Phase 1 - drilling of a 3000 foot (PDDH-1) NX and BX diamond drill hole @ -50° S80W and located within the Alum Creek drainage approximately 600 feet upstream from the deep vertical AC-1 drill hole. This angle drill hole will test the suggested target area in the most economical and environmentally advantageous manner possible. See Figure 9 for drill hole location and Figure 16 for a geological cross section.

2. Phase 2 - drilling of a 3000 foot (PDDH-2) NX and BX diamond drill hole @ -50° N15E and located within Lookout Creek drainage approximately 1000 feet above the concrete spillway on the road to Elwood Pass. This angle drill hole will further test the suggested target area in a most economical manner. It offers the second most advantageous environmental approach. See Figure 9 for drill hole location and Figure 16 for a geological cross section.

b Access roads must be built to each proposed drill site. These roads will be built by a D-8 Caterpillar or equivalent. Phase 1 will require a 500 foot extension of a presently existing road while Phase 2 will require 1000 feet of new road. Both roads will be built adjacent and parallel to present creek drainages and thus tend to minimize any environmental changes.

c If an OME contract is executed by August of 1973, work would start within a month and Phase 1 would be completed within 3 months thereafter. If the results of Phase 1 are positive, Phase 2 would commence in June of 1974.

Each road building phase would be completed within a week after commencing. The anticipated average daily drilling progress would be 30 feet per shift per day for a total of 60 feet per day for the first 1500 feet. Thus, the first 1500 feet of drilling should be completed within the first month. The last 1500 feet generally takes twice as long due to additional problems associated with increased depth and is, therefore, allocated two months.

6. EXPERIENCE

The geological and managerial portions of the program will be under the direction of Dr. Wm. S. Calkin, who has studied the area for the past 9 years and who has partially directed the work done on the property during that time.

7. ESTIMATE OF COSTS

The objective of the exploration drilling program on the Alum Creek property is to intersect at depth the inferred potassic alteration zone associated with an intrusive center of the subvolcanic environment. Two drill holes are designed to complete those objectives. The mountain climatic conditions offer a relative short period of time for a deep drilling program; thus the two drill holes encompass a two year program with one hole being drilled during each summer. Stage I represents the initial exploration program for the summer-fall of 1973. Stage II represents the exploration program for the summer-fall of 1974, and is naturally somewhat contingent upon the drilling results of the previous year.

Stage I (summer-fall 1973)

a Independent Contracts

1.	Road construction to site No. 1	750.00
2.	Diamond core drilling; diamond drilling of one angle drill hole to a depth of 3000 feet at cost ranging from 9.70/ft to 16.60/ft with an average cost of 14.33/ft	43,000.00
	total a	$43,750.00

b Personal Services

1.	Geological consultant: 12 days/month @ $150.00/day for 3 months	5,400.00
2.	Travel allowance: $20.00 per diem for 8 days/month for 3 months	480.00
3.	Mileage allowance: @ 12¢/mile round trip from Alamosa 4/month=400 miles round trip from Denver 4/month=2000 miles total mileage/month=2400 for 3 months @ 12¢	964.00
	total b	$ 6,744.00

c Operating Expenses

1.	Sample preparation	300.00
2.	Geochemical analyses for 4 elements. Assume 300 samples @ $5.00 per analyses	1,500.00
	total c	$ 1,800.00

defg - These cost items are not applicable to this OME proposal

Stage I total a+b+c $52,294.00

Stage II (summer-fall 1974)

a Independent Contracts

1.	Road construction to site No. 2	1,300.00
2.	Diamond core drilling: diamond drilling of one angle drill hole to a depth of 3000 feet at cost ranging from 9.70/ft to 16.60/ft with an average cost of 14.33/ft	43,000.00
	total a	$44,300.00

b Personal Services

1.	Geological consultant: 12 days/month @ $150.00/day for 3 months	5,400.00
2.	Travel allowance: $20.00 per diem for 8 days/month for 3 months	480.00
3.	Mileage allowance: @12¢/mile round trip from Alamosa 4/month=400 miles round trip from Denver 4/month=2000 miles total mileage/month=2400 for 3 months @ 12¢	864.00
	total b	$ 6,744.00

c Operating Expenses

1.	Sample preparation	300.00
2.	Geochemical analyses for 4 elements. Assume 300 samples @ $5.00 per analyses	1,500.00
	total c	$ 1,800.00

defg - These cost items are not applicable to this CME proposal

Stage II total a+b+c	$53,044.00
Total Stage I and II	$105,338.00

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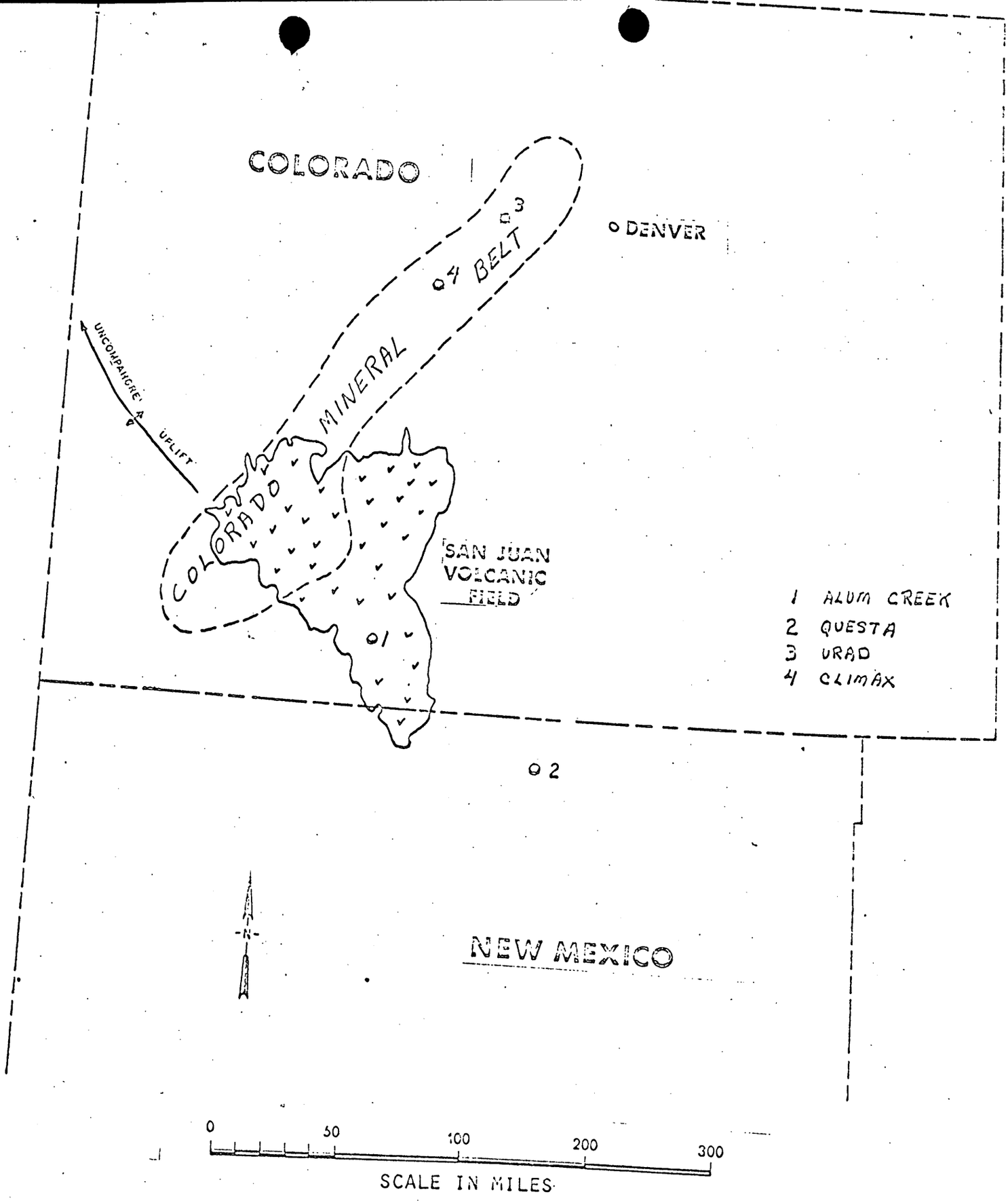
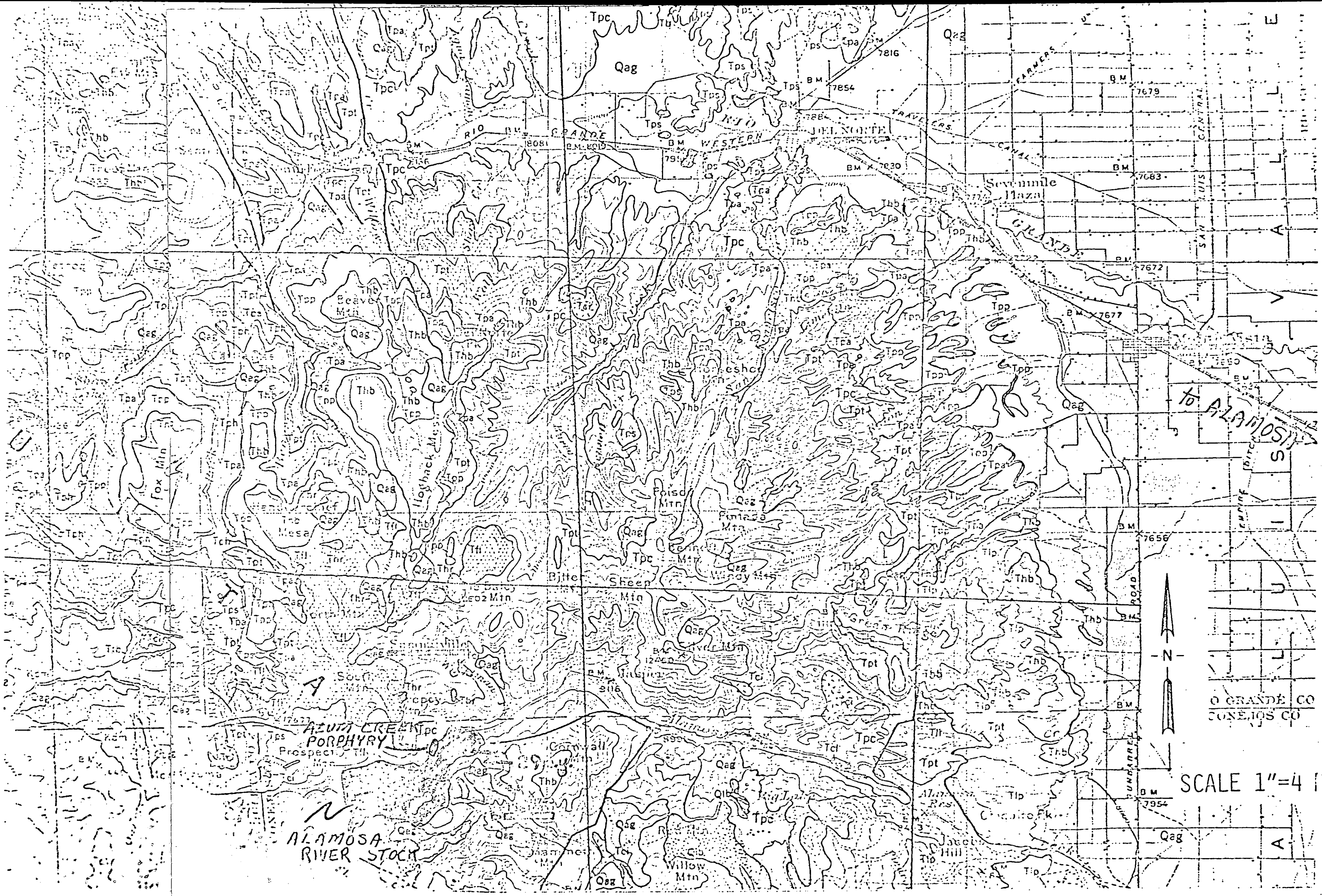


LOCATION OF THE ALUM CREEK PROSPECT AND THE PRINCIPAL MOLY PORPHYRY DEPOSITS OF COLORADO AND NEW MEXICO

FIGURE 1



SCALE 1"=4 MILES

FIGURE 2 LOCATION MAP SHOWING THE ALAMOSA RIVER STOCK
TION OF THE SAN JUAN VOLCANIC FIELD, COLORADO

AFTER LARSEN & CROSS, 1956

OFFICIAL
COPY
O. M. E.
PROCESSED
OCT 26 1973
INITIALS CODE
HK

Office of Minerals Exploration
Building 53 Room 28

October 19, 1973

Mr. John H. Tippit
Attorney at Law
1704 Surety Life Building
1616 Glenarm Place
Denver, Colorado 80202

Re: OME-6888 (Molybdenum-Copper)
John H. Tippit
Alum Creek Property
Conejos and Rio Grande Counties, Colorado

Dear Mr. Tippit:

Enclosed is a copy of your application for financial assistance to explore your Alum Creek Property in Conejos and Rio Grande Counties, Colorado. The application (two copies) was received in this office June 16, 1973 and one copy of the application was sent to Washington after a preliminary review and study with your consulting geologist, William S. Calkin.

In a letter dated September 10, 1973 to Mr. Harold Kirkemo, Chief, Office of Minerals Exploration, you requested the return of the two application folios for the subject application. Our Washington office has returned their copy of the subject application. We are pleased that you have secured sufficient financing from another source to explore the Alum Creek properties. We hope you will meet with success, and we will be interested in knowing of your success and findings.

We appreciate your efforts and cooperation concerning the W. S. Moore OME contract at Summitville in making your maps available to us.

Thank you for bringing your Alum Creek properties to our attention, as the area is a most interesting one.

cc: Chief, OME
OME-6888
OME chron
Mr. Hasler

Enclosure

Sincerely yours,

J. William Hasler

J. William Hasler,
Field Officer, Region III
Office of Minerals Exploration

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code

SEP

Mr. John H. Tippit
Attorney at Law
1704 Security Life Building
1616 Glenarm Place
Denver, Colorado 80202

Re: OME-6888 (Molybdenum - Copper)
John H. Tippit
Alum Creek Property
Conejos and Rio Grande Counties,
Colorado

Dear Mr. Tippit:

In response to your letter of September 10, 1973, requesting return of the two application folios for the subject application, we enclose one complete folio. We are asking Mr. J. W. Hasler, Field Officer, OME Region III, to return to you his copy of the application, and we are considering the application withdrawn.

We are pleased that you have secured sufficient financing from another source to explore the Alum Creek Properties, and we hope that the project is a success.

Thank you for the assistance you have extended to Mr. Hasler in obtaining information on operations at the Summitville mine.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Enclosures
cc: Director's reading file
Mineral Resources
OME reading file
Region III
Mr. Kirkemo
HKirkemo/cac 9-28-73

JOHN H. TIPPIT
ATTORNEY AT LAW
1704 SECURITY LIFE BUILDING
1616 GLENARM PLACE
DENVER, COLORADO 80202

THOMAS W. WHITTINGTON
STEPHAN A. TISDEL

TELEPHONE 303-266-1441

September 10, 1973

OFFICIAL COPY
O. M. E.
RECEIVED
SEP 17 1973

INITIALS	CODE
CAC	120 NV
EAW	BU
HK	120

Mr. Harold Kirkemo, Chief
Office of Minerals Exploration
Geological Survey
United States Department of
the Interior
Washington, D. C. 20245

Dear Mr. Kirkemo:

This is to inform you that additional financing has been obtained with regard to the project involved in OME Docket 6888, John H. Tippit, Alum Creek Properties, Conejos and Rio Grande Counties, Colorado, and I request the two application folios be returned to me.

Yours very truly,

John H. Tippit

Copy to Region III
C.C.

JHT:j

United States Department of the Interior

GEOLOGICAL SURVEY
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO:

Office of Minerals Exploration
Building 53 Room 28

Cal 120 M
HK 170

August 22, 1973

Memorandum

To: Chief, Office of Minerals Exploration

From: Field Officer, Region III

Subject: OME-6888 (Mo-Cu)
John H. Tippit
Alum Creek Property
Conejos and Rio Grande Counties, Colorado

During a telephone conversation with Mr. John Tippit on August 14, 1973 he informed me that he had replied to your letter of August 2, 1973 and expressed his appreciation that his attention had been drawn to the fact that our contracts do not allow for payment of any incomplete drill holes, and that if this happened to one of them he would be obligated to pay for the hole on his own account. This would mean that the drilling at Alum Creek may entail far more expense than was originally anticipated.

Mr. Tippit informed me that Inspiration Consolidated Copper Company has expressed an interest in the Alum Creek property and may drill the holes this fall. Mr. Tippit will inform us of this and will probably withdraw his application at a later date.

J. William Hasler

J. William Hasler,
Field Officer, Region III
Office of Minerals Exploration

Copy sent to Region III

JOHN H. TIPPIT
ATTORNEY AT LAW
1704 SECURITY LIFE BUILDING
1616 GLENARM PLACE
DENVER, COLORADO 80202

THOMAS W. WHITTINGTON
STEPHAN A. TISDEL

TELEPHONE 303-266-1441

August 8, 1973

OFFICIAL COPY
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HK | WK
cc

Mr. Harold Kirkemo, Chief
Office of Minerals Exploration
Geological Survey
United States Department of
the Interior
Washington, D. C. 20245

Dear Mr. Kirkemo:

Re: OME-6888 (Molybedenum-copper)
John H. Tippit, Alum Creek Property
Conejos and Rio Grande Counties,
Colorado

Thank you very much for your letter of July 31, 1973, relating to the captioned application. I appreciate your making clear the added risk to me in the event of an incompleted hole and it is something that I, of course, will have to consider quite seriously. You are quite right that this situation should be disposed of before proceeding further with the application. I will discuss the matter with my associates and advise you in the near future of our decision.

In the meantime, I am embarrassed over the difficulties you are having with the Summitville contract. I simply do not understand why information is not made available to you so that you can make a determination. I have had several conversations with Bill Hasler concerning it and hope that we can come up with some sort of a solution which will keep Mr. Hasler from expending

JOHN H. TIPPIT

uncalled for time and effort in disposing of the matter.

Again, thank you for your consideration.

Yours very truly,

John H. Tippit

JHT:j

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code

AIRMAIL

Mr. John H. Tippit
1704 Security Life Building
1616 Glenarm Place
Denver, Colorado 80202

Re: OME-6888 (Molybdenum-Copper)
John H. Tippit
Alum Creek property
Conejos and Rio Grande
Counties, Colorado

Dear Mr. Tippit:

Your application for exploration assistance, dated April 19, 1973 and received in this office on June 27, 1973 has been assigned Docket No. 6888. Please identify all future correspondence relating to the application by this docket number.

We enclose for your information a copy of Exhibit A, entitled "Notice to Prospective Federally Assisted Construction Contract~~s~~" which describes certain additional regulations and requirements. This should be filed with your copy of the application.

A number of questions have been raised in our preliminary review of the application, and the most substantive one should be resolved first. The main question relates to payment for incomplete drill holes. OME policy on contracts is to pay the Government's share of the costs of a drill hole only upon satisfactory completion of the hole. Any incomplete holes must be paid for entirely by the Operator.

We note that you propose a two-stage project, each stage consisting of one 3,000-foot diamond drill hole. The first hole is estimated to cost $52,294.00, and the second, $53,044.00. In the event of a contract,, would you be financially able to pay all of the costs of incomplete drill holes as well as your share (50%) of completed holes?

The risk of losing holes when drilling to the depths proposed is considerable. If an attempt to drill the first stage hole failed at a depth of 1,500 feet for instance, you would have to bear the total cost of the incomplete hole which would be significant, plus one half the cost of the new hole, assuming that it is completed. The cost to you in that situation could easily equal the estimated total cost of the first stage. A similar liability would prevail for drilling on the second stage.

If you cannot afford the contingency expense of incomplete drill holes, you should consider withdrawing the application.

We believe you should be aware of this situation before we proceed further with the application. We would appreciate hearing from you at your earliest convenience.

Normally, we do not refer an application to a Field Officer for consideration before most of our questions have been answered by the applicant. However, in the event Mr. J. W. Hasler should visit the Summitville mine in the near future, we have authorized him to examine the Alum Creek property as well in order to reduce the cost of travel on our program this year. An examination of the property should not be construed as a commitment by the Government to offer you a contract.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Enclosure

cc: Director's reading file
Mineral Resources
OME reading file
Region III
Mr. Kirkemo
HKirkemo/cac 7/31/73

Items needed on OME - 6888 John H. Tippit.

1. Copy of partnership agreement
2. Copy of Trust Agreement between John B Rigg & Colorado Nat. Bank verifying authority of fiduciary. If it has authority to 1) enter into partnership agreement
   2) enter into an OME contract. ~~&~~

~~In lieu of trust agreement document OME could accept a certified statement from a trust officer of the Bank attesting to OME stating it has the above authority.~~

3. A new application signed by one of the partners with the name of the applicant "John H. Tippit, Ancon C. Meade, Colorado National Bank as Trustee for John B. Rigg, a limited partnership*".

*Note – assuming it is in fact "a limited partnership".

4. Compliance with Financial Eligibility requirement of Form 40 to include 1) Copies of letters to credit sources showing date of loan request, amount & terms requested.

   2) Copies of replies which must state the reasons why the loan request is denied.

   3) An full disclosure showing names, amounts & terms of any borrowing secured to pay applicant's share of costs.

   4) A complete statement of the means whereby the bank loans will be repaid including evidence of the documents committing the partnership earnings in dividends to make orderly repayment & the terms of the commitment.

   5) If the individual partners and the bank trustee are to supply the loans OME should require financial statements from each, or if some other individual will supply to the OME (K)

as to guarantee the Corp. OME should require a financial statement from such party or parties showing he has the resources to make such payment.

c) If it is proposed that the interest of the partnership is to be acquired by some company or corporation with repayment of the Corp. as a part of the acquisition, OME should say Corp. that such a procedure would not be acceptable unless the terms are that the commitment to acquire is made prior to execution of the OME (K) and the transfer of right, title or interest will occur after completion of the OME work, or that the proposed other individual would be acceptable to OME or an assignee of the OME (K). In any event, OME should insist upon disclosure to it in advance of any proposed agreement to transfer the partnership property before the (K) is executed.

6. A copy of the mine map showing the property proposed to be included in the (K).

7) Copies of the recorded location notices for each claim to be included.

8) A statement the experience & background of the person who will supervise the work (presumably Mr. Calkins) and whether is to be the full time supervisor or a consultant for project. [In this regard note on p.15 an item for $5,400 for drafting and consultant 12 days per month @ $150 per day for 3 months. Will he supervise full time?].

Comments:

I

First Page. 1. By no stretch of the imagination can one man be a partnership as stated in the application. If Anson C. Moore is a partner he must be so named in the application & contract, if any.

2. As to John B. Rigg — I have a question as to whether a bank trust department is authorized to be a partner. I would want to see the written authorization — for this is the file.

3. I'd also like to see the articles of partnership prepared & recorded as required by Colorado law. We need to know the "extent & nature of partners' participation."

4. I think notwithstanding the language in the form entitled "Certification" the record should contain a signed statement from Tippit, Anson Moore and the authorized officer of Colo. Nat. Bank that they as partners must to apply for a CMF loan & that the would not undertake etc. After all, who is Calkins? Is he supposed as "consulting geologist". Is he an employee or officer of the partnership? Or someone hired to consult.

II. Financial eligibility:

1. Calkins states that banks indicated that "the project is to high of a risk or return for their participation." That's nonsense! The bank letters (identical) state only that the bank is not interested in make a loan. Bill Wassler's report, p. 2, at bottom, says Calkins write a letter to Tippit & showed to bank & this constituted his request for loan. That letter, dated April 3, 1973

does not by any means comply with requirements of that ltr to banks showing the date of the loan request, amount & terms requested & the reasons for the refusal.

2. Answer c. makes it most important OME know the nature of this so-called partnership and the agreement between them if their 25% is to be covered by their payment. Also, what "other individuals" would pay the loan note b. says no affiliated companies.

Finally, if they can or expect to secure their 25% from a bank loan, why can't they secure all of the money from a bank loan. OME needs a full disclosure of the financial arrangements!

III Applicant's Rights in the Trades.

Statement is made that partnership "the mineral rights" within a block of 38 unpatented claims. No claim maps as yet showing individual claims. OME should have claim maps, copies of mining claim filings showing ownership by partnership

In the event of approval, copies of letter to the bank specifying terms, amount, collateral, etc., required.

1(c) Operator's share by bank loan? Loan would have to obtained prior to execution.

2. all claims believed to be totally owned by the partnership without conflict.?

Application not.

CIRC. 557

GEOLOGICAL SURVEY CIRCULAR 557

Lead, Copper, Molybdenum, and Zinc Geochemical Anomalies South of the Summitville District Rio Grande County, Colorado

Lead, Copper, Molybdenum, and Zinc Geochemical Anomalies South of the Summitville District Rio Grande County, Colorado

By William N. Sharp and James L. Gualtieri

GEOLOGICAL SURVEY CIRCULAR 557

Washington 1968

United States Department of the Interior
STEWART L. UDALL, *Secretary*

Geological Survey
William T. Pecora, *Director*

Free on application to the U.S. Geological Survey, Washington, D.C. 2024

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LEAD, COPPER, MOLYBDENUM, AND ZINC GEOCHEMICAL ANOMALIES SOUTH OF THE SUMMITVILLE DISTRICT, RIO GRANDE COUNTY, COLORADO

By WILLIAM N. SHARP and JAMES L. GUALTIERI

Abstract

An extensive lead geochemical anomaly, as well as several smaller anomalies of copper, molybdenum, and zinc, have been found in a large area of altered volcanic and intrusive rocks south of the Summitville mining district. These geochemical anomalies, together with the geologic similarity to the productive Summitville district, make the area attractive for further exploration.

INTRODUCTION

A geologic and geochemical study of a large area of highly altered rocks in the volcanic and intrusive center around Summitville and Lookout Mountain in the eastern San Juan Mountains has revealed a possible exploration target near Lookout Mountain. This area was investigated as part of the Heavy Metals program of the U.S. Geological Survey to assess its resource potential for metal deposits. Summitville has produced significant quantities of gold, silver, and copper from a mineralized volcanic plug and is currently being developed for further mining. Other areas to the south have been widely prospected, but production has been negligible. The geologic similarity of the Summitville district and the area around Lookout Mountain to the south suggested that reconnaissance geochemical and hydrothermal alteration studies of the Lookout Mountain area might reveal evidence for the presence of hidden ore deposits.

GEOLOGY

The area studied is underlain by a thick series of lava flows representing several distinct periods of volcanic activity. The lowermost and most widespread flows are part of the Conejos Formation of Oligocene or older age (Steven, Mehnert, and Obradovich, 1967). These are overlain by later flows of rhyodacite, quartz latite, and rhyolite; and at Summitville, they are cut by numerous associated plugs which were called Fisher Quartz Latite by Steven and Ratté (1960). South of Summitville the Conejos Formation has been intruded by a large body of quartz monzonite (quartz monzonite of Klondike Mountain of Patton, 1917) and by a large dike of quartz latite porphyry and several smaller bodies of coarsely porphyritic quartz latite closely similar to the Fisher Quartz Latite at Summitville.

ROCK ALTERATION

A large mass of altered rock forms the northern side of the upper Alamosa Creek valley and includes Lookout Mountain (fig. 1). It extends over a northeast-trending area 4–5 miles long and about 2 miles wide and lies roughly astride the contact between volcanic rocks on the northwest and quartz monzonite to the southeast. The large dike and other small bodies of quartz latite porphyry that intrude the volcanic rocks also are altered. The altered rocks are exceptionally well exposed on the rugged east slope of Lookout Mountain.

Hydrothermal activity in one or two stages has converted the original drab-colored flows and intrusive rocks into conspicuous white, yellow, and red masses consisting largely of quartz, kaolinite, and illite. Rocks along a wide belt that includes the large quartz latite porphyry dike south and east of Lookout Mountain have been altered predominantly to quartz, alunite, and pyrophyllite. This assemblage is considered to represent a more advanced stage of hydrothermal alteration than the more wide-

spread quartz-kaolinite-illite assemblage, and the general parallelism of the quartz-alunite-pyrophyllite rocks to the dike suggests that they are genetically related to the dike.

GEOCHEMICAL ANOMALIES

More than 200 rock samples were collected throughout the area of altered rock (fig. 1); most were collected from intensely altered areas. Chemical analyses of these samples indicate zones of anomalously high content of lead, molybdenum, copper, and zinc (figs. 2–5). Neither gold nor silver was detected in the samples from the area around Lookout Mountain; the limits of detection of the analytical methods used were 0.1 ppm (part per million) for gold and 0.5 ppm for silver. Traces to appreciable amounts of both metals were detected in samples from the Summitville area.

The most pronounced geochemical anomalies are in a group east of Lookout Mountain. A lead anomaly nearly 2 miles long and as much as 0.6 mile wide encloses most of the large quartz latite porphyry dike and overlaps onto the quartz monzonite to the southeast. Within this anomalous area, all samples contain >100 ppm lead. The lead anomaly covers and is roughly parallel to the southeastern part of the zone of quartz-alunite-pyrophyllite alteration and extends into adjacent parts of the zone of quartz-kaolinite-illite alteration. Smaller anomalies of molybdenum, copper, and zinc are peripheral to the lead anomaly.

This arrangement of metal anomalies suggests that lead, being less mobile in a surface environment, may be accumulated more closely around the locus of mineralization, whereas the copper, molybdenum, and zinc were more easily moved through the rocks and thus were deposited farther from the center.

COMPARISON WITH THE SUMMITVILLE DISTRICT

The area of altered rocks discussed in this report is about 3 miles south of the Summitville district, and the similarities of the two areas in geologic relations, alteration pattern, and geochemical anomalies are noteworthy. In both areas, rock alteration is concentrated in the vicinity of intrusive bodies and volcanic plugs. The gold-silver-copper mineralization at Summitville was centered in the most strongly altered rocks in a plug of coarsely porphyritic quartz latite (Steven and Ratté, 1960) that lithologically resembles the large dike east of Lookout Mountain. Within the plug, mineralization was closely confined to a zone of quartz-alunite alteration within a wider body of more weakly altered rocks. An area with anomalously high lead content encloses the mineralized zone at Summitville, and local areas with high zinc and molybdenum content are peripheral to the area of high lead content.

CONCLUSIONS

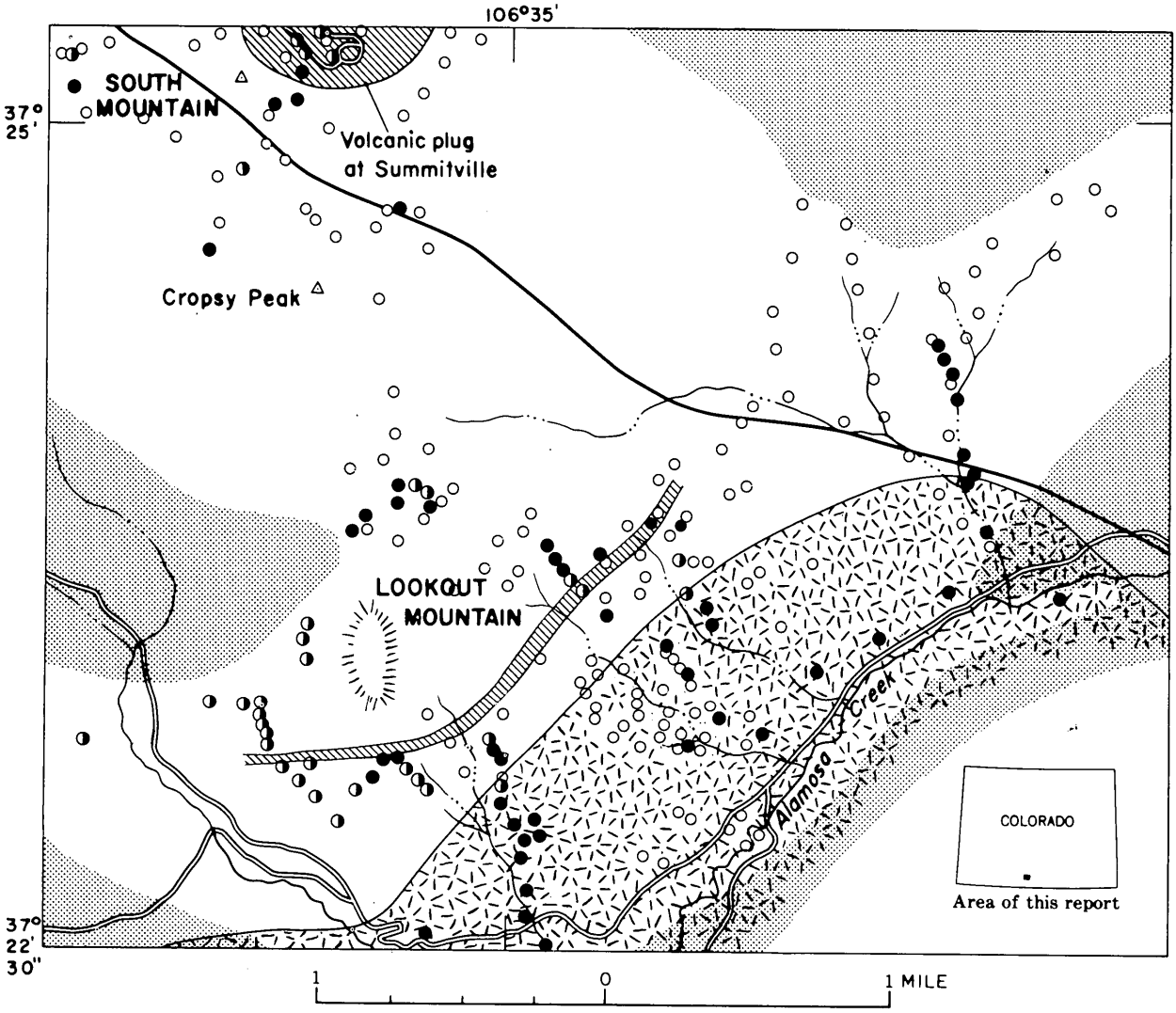
The geologic relations, the alteration patterns, and the geochemical anomalies indicate that the area east of Lookout Mountain deserves careful consideration as an exploration target. The area around the northeast end of the lead anomaly seems to be the most favorable, inasmuch as geochemical anomalies of the other metals also occur there. In view of the possible secondary migration of metals downhill, the topographically higher parts of the target area near the porphyry dike should be tested first.

REFERENCES CITED

Patton, H. B., 1917, Geology and ore deposits of the Platoro-Summitville mining district, Colorado: Colorado Geol. Survey Bull. 13, 122 p.

Steven, T. A., Mehnert, H. H., and Obradovich, J. D., 1967, Age of volcanic activity in the San Juan Mountains, Colorado, *in* Geological Survey research 1967: U.S. Geol. Survey Prof. Paper 575–D, p. D47–D55.

Steven, T. A., and Ratté, J. C., 1960, Geology and ore deposits of the Summitville district, San Juan Mountains, Colorado: U.S. Geol. Survey Prof. Paper 343, 70 p.



EXPLANATION

Quartz latite porphyry of Miocene age

Quartz monzonite of Miocene age

Conejos Formation and younger volcanic rocks, of Oligocene or older age

All rocks are altered except where stippled; stippling indicates unaltered rock

Fault

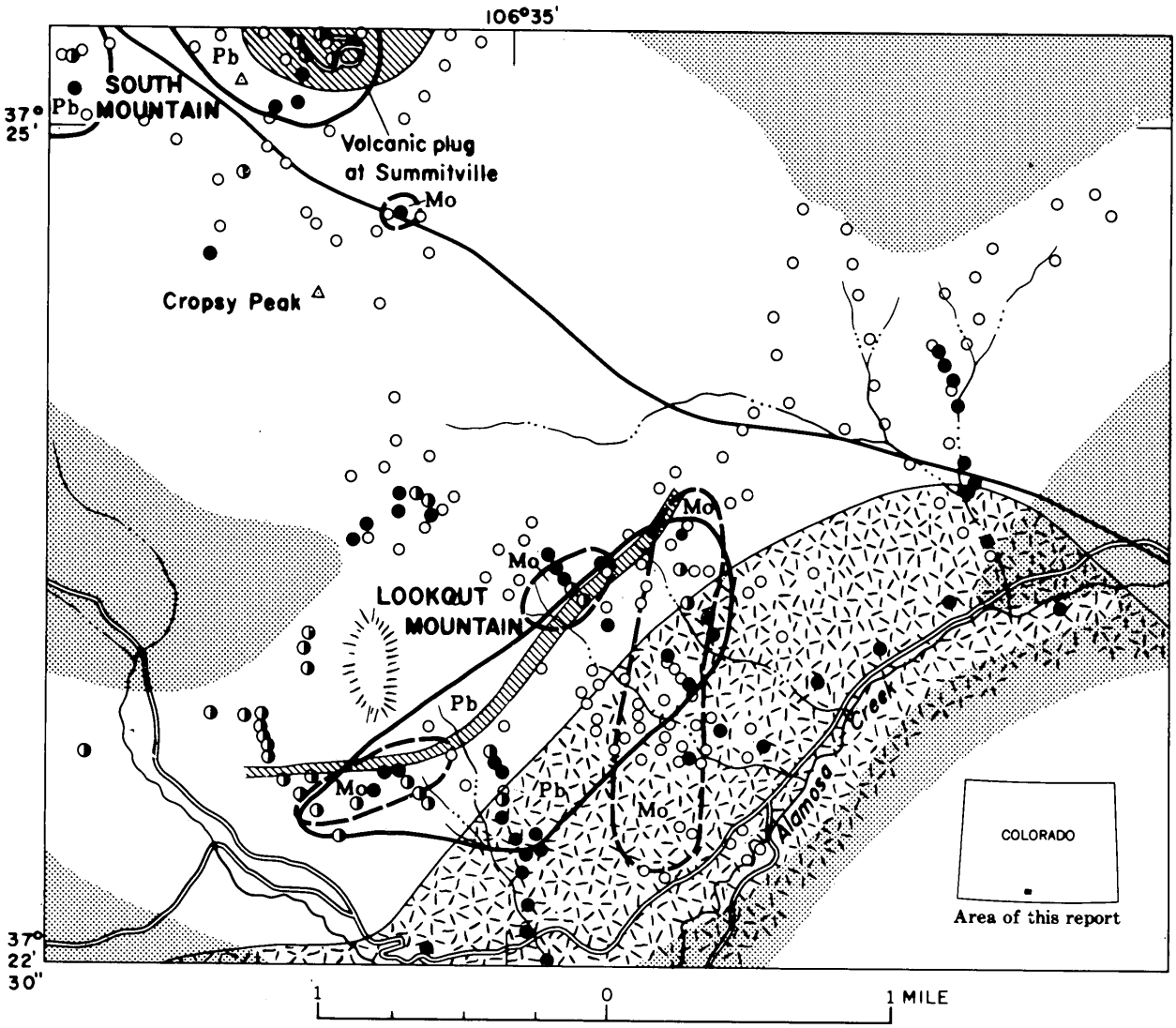
Alunite-bearing

Illite-kaolinite - bearing

Not differentiated

Sample localities, showing mineralogy of altered rocks

FIGURE 1.—Generalized geologic map of the Lookout Mountain-Summitville area.



EXPLANATION

Quartz latite porphyry of Miocene age

Quartz monzonite of Miocene age

Conejos Formation and younger volcanic rocks, of Oligocene or older age

All rocks are altered except where stippled; stippling indicates unaltered rock.

Fault

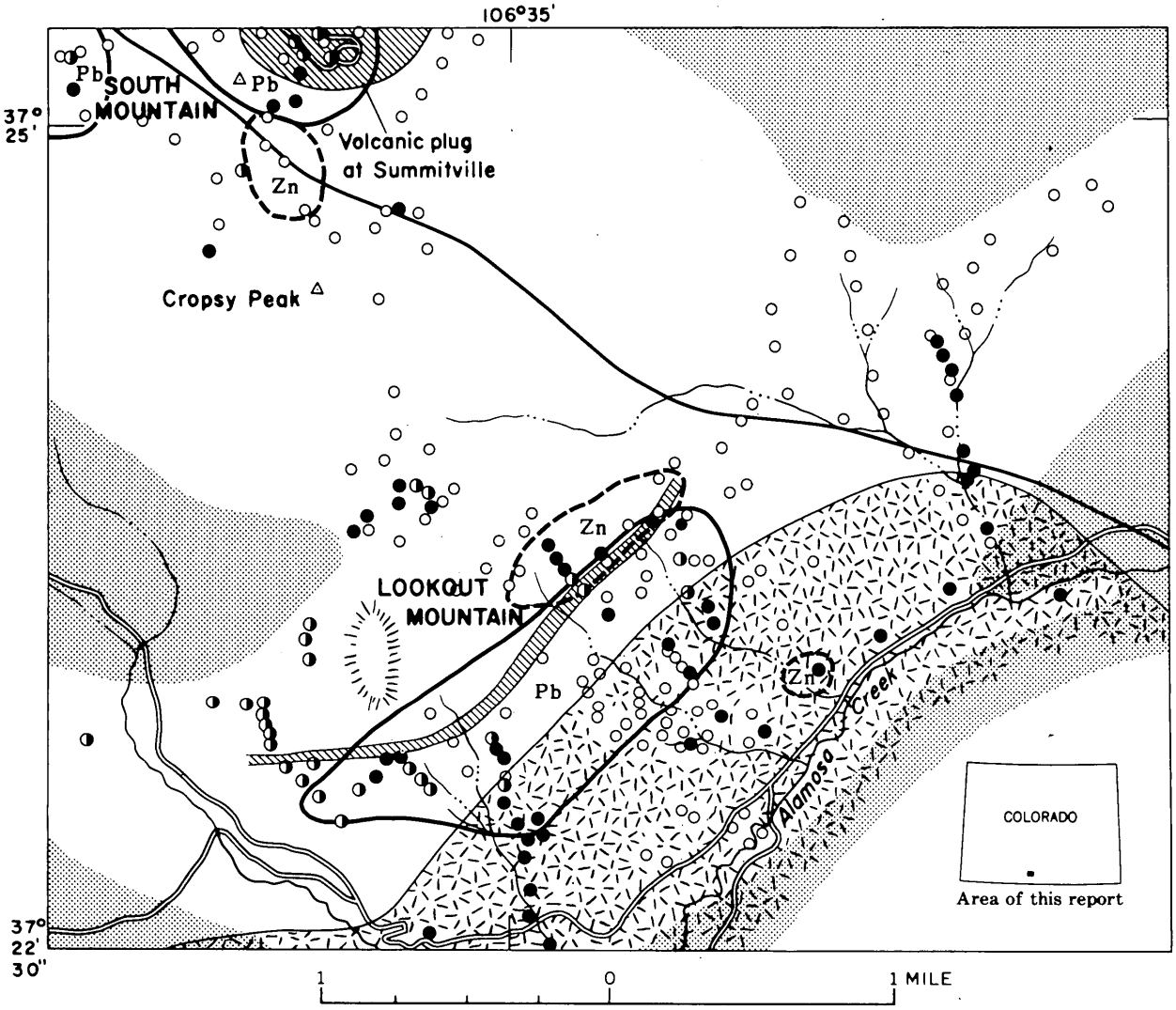
Alunite-bearing

Illite-kaolinite - bearing

Not differentiated

Sample localities, showing mineralogy of altered rocks

FIGURE 2.—Geochemical map showing areas with molybdenum values >10 ppm in relation to areas with lead values >100 ppm.



EXPLANATION

Quartz latite porphyry of Miocene age

Quartz monzonite of Miocene age

Conejos Formation and younger volcanic rocks, of Oligocene or older age

All rocks are altered except where stippled; stippling indicates unaltered rock.

Fault

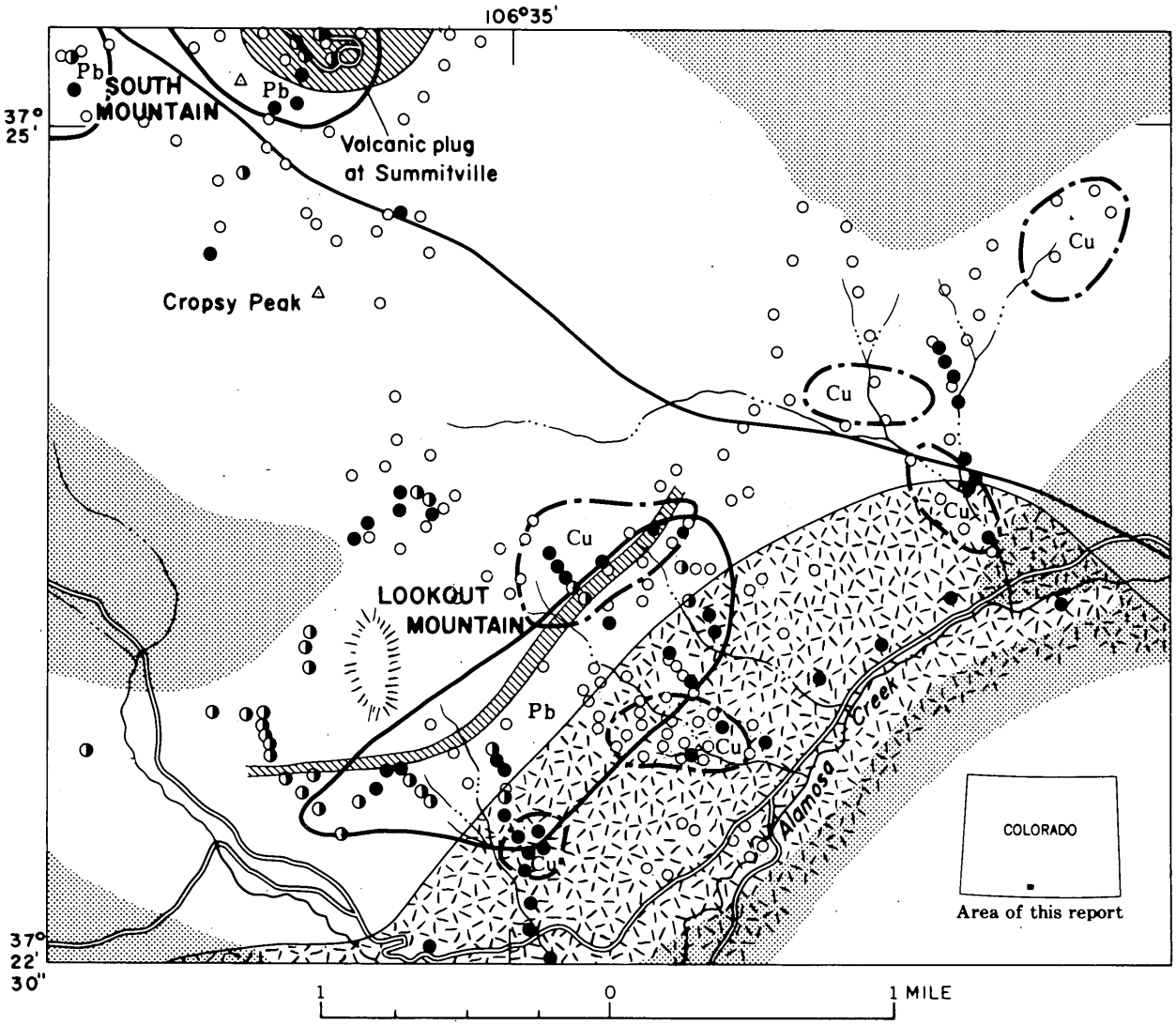
Alunite-bearing

Illite-kaolinite - bearing

Not differentiated

Sample localities, showing mineralogy of altered rocks

FIGURE 3.—Geochemical map showing areas with zinc values >100 ppm in relation to areas with lead values >100 ppm.



EXPLANATION

Quartz latite porphyry of Miocene age

Quartz monzonite of Miocene age

Conejos Formation and younger volcanic rocks, of Oligocene or older age

All rocks are altered except where stippled; stippling indicates unaltered rock

Fault

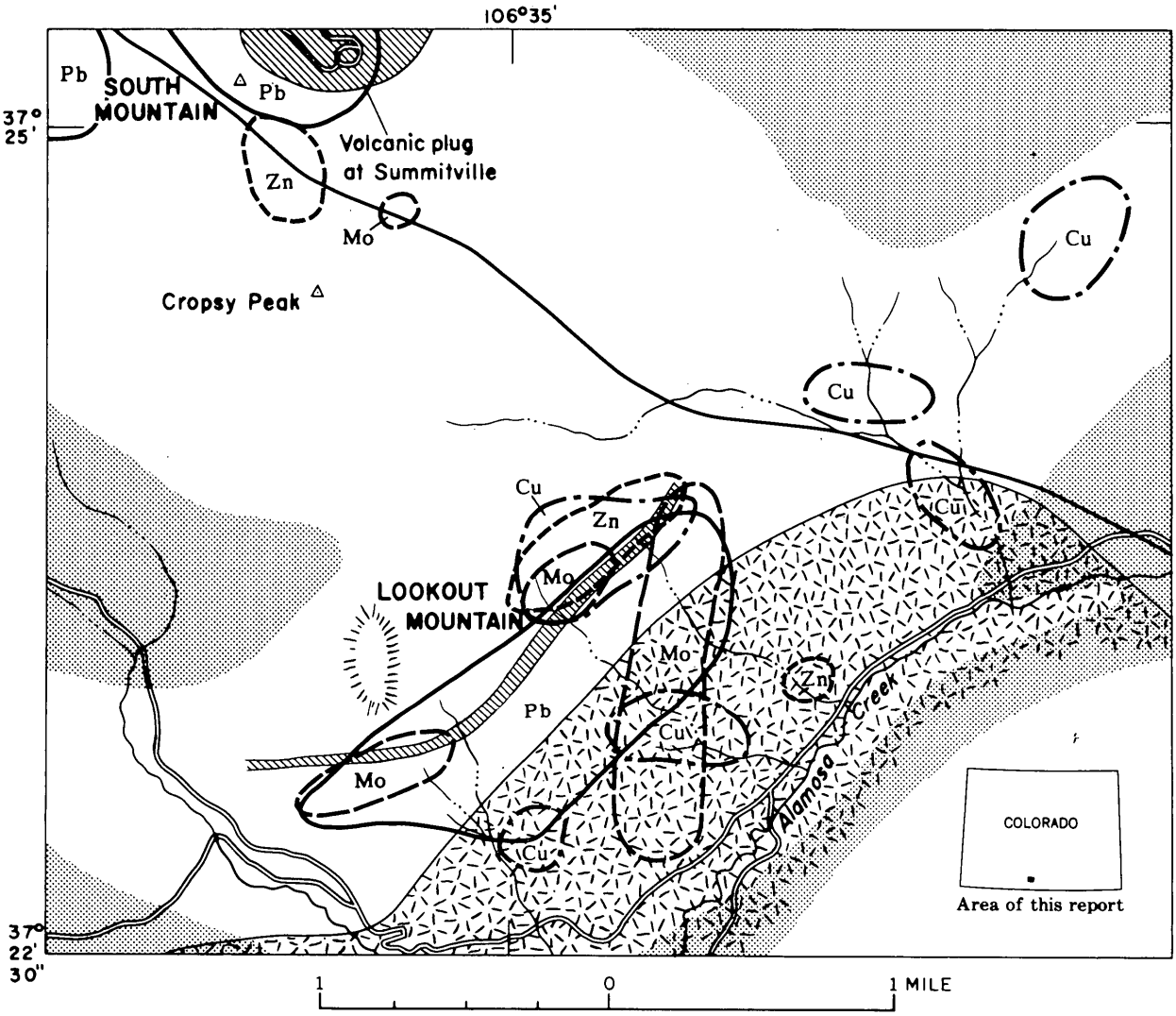
Alunite-bearing

Illite-kaolinite - bearing

Not differentiated

Sample localities, showing mineralogy of altered rocks

FIGURE 4.—Geochemical map showing areas with copper values >10 ppm in relation to areas with lead values >100 ppm.



EXPLANATION

Quartz latite porphyry of Miocene age

Quartz monzonite of Miocene age

Conejos Formation and younger volcanic rocks, of Oligocene or older age

All rocks are altered except where stippled; stippling indicates unaltered rock.

Fault

FIGURE 5.—Combined geochemical map showing relation of anomalous areas.