

INGOT MINES, INC.

SILVER-COPPER PROJECT

NEVADA MINING DISTRICT WHITE PINE COUNTY, NEVADA

PRELIMINARY GEOLOGICAL REPORT

OCTOBER 1972

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SILVER-COPPER PROJECT

NEVADA MINING DISTRICT WHITE PINE COUNTY, NEVADA

GENERAL INTRODUCTION

1. GENERAL:

Herein is assembled the material now available on the INGOT MINES, INC. project in the NEVADA MINING DISTRICT in White Pine County.

The geological data applicable to the entire district is assembled in First two Sections of this submittal. The CARRIE ANN claim group is discussed first, and then the essential mineralogical, analytical, and drilling data of the other associated claim groups, including the CHRIS, the TAMAR, and the MIKE are then included. The patented claim THE CHAMPION, and its limited exploration work is also included in an appropriate SECTION.

In this manner, each SECTION can be removed for revision, without interferring in the assembled data of other portions.

The drill hole logs and assay data for each mineralized area drilled is also assembled separately since work is still in progress and revisions will be required in the near future.

The assembled material, logs, maps, and data, represents the body of material available as of October 1, 1972. The project is not a completed project, but is just in an initial Preliminary Stage of exploration, and thus this report will not be considered completed nor all inclusive.

INGOT MINES, INC. at present has the following claim groups in its land position in the district:

CARRIE ANN MIKE TAMAR CHRIS CHAMPION

It will seek by acquisition to acquire other claim groups which include the Farnsworth interests, the Bright, Zero, Argente, and Tamberlane Claims, held by individuals or groups. The five claim groups of Ingot Mines, Inc. are all included herein.

SECTION 1

SILVER-COPPER PROJECT

PRELIMINARY GEOLOGICAL REPORT

NEVADA MINING DISTRICT WHITE PINE COUNTY, NEVADA

CARRIE ANN CLAIM GROUP

OCTOBER 3, 1972

SILVER-COPPER PROJECT

PRELIMINARY GEOLOGICAL REPORT NEVADA MINING DISTRICT WHITE PINE COUNTY, NEVADA

CARRIE ANN CLAIM GROUP

1. INTRODUCTION

1.1 PURPOSE AND SCOPE OF THIS REPORT:

The Nevada Mining District was one of the more than 600 mining districts included in a systematic investigation and re-evaluation project for potential silver exploration projects started in 1956. The district was one of 60 found to have merit justifying further exploration activities. The district was found to have been one from which silver had been produced prior to 1873, but had been closed down because a mill facility near Ely, Nevada had burned down and no longer accepted custom ore. A single patented claim had been surveyed in about 1906, but records show little or no activity since that date until the present work initiated after the samples taken by G. Stewart of White Pine Assay showed favorable results from areas not previously worked.

Old, unpatented lode claims, staked in the early days, had reverted to public lands so the district was available for staking by anyone finding merit or making a new discovery. New discoveries have now been made as a result of the re-evaluation project, and a more detailed geological and petrographic investigation, and drilling project, is underway; all stimulated by the increase in the price of silver and its future.

Detailed field investigations, petrographic and alteration studies, and limited drilling, were engaged in during 1969 and early 1970. Eventually nine claims were staked as the Carrie Ann claim group, one of more than seven claim groups in the district, and one of four that are part of this present study. The others include the Chris, Tamar, and Mike claim groups. Ingot Mines, Inc. will seek to unitize other claims in the district into a district wide project. Investigations are still in progress, and the district is now beginning to assume some importance as a silver-copper prospect of merit.

It is the purpose and scope of this report to submit the results of field work, analytical and laboratory results, and exploration drilling available as of October 1972. Work is still in progress and will require that considerable portions of this preliminary study be revised later in 1973.

1.2 AUSPICES:

The field investigations being carried out on the Carrie Ann and the related claim groups, Tamar, Mike and Chris, were initiated by Gary Stewart and associates of Ely, Nevada, carried on by private individuals known as Silver Combine, continued by the present writer and associates under the name of Silver Diamond Corporation, and further continued by Ingot Mines, Inc. under whose auspices the work is now being conducted.

1.3 RESEARCH:

Sources of pertinent information and geological data used and incorporated into the body of this report include the following:

BULLETIN NO. 4: University of Nevada, 1943.

PROFESSIONAL PAPER 557: Geology of the Connors Pass Quad 1967

WHITE PINE COUNTY HISTORY: Effie O. Read, 1965.

WHITE PINE (WARD) REFLEX: Paper published at Ward, Nevada.

HISTORY OF NEVADA 1881: Thompson and West, 1958 Edition.

REPORT NO. 7: Nevada Bureau of Mines, 1964.

GUIDEBOOK TO THE GEOLOGY OF EAST CENTRAL NEVADA, 1960 IAPG and ENGS

BULLETIN 648 1916: Notes on Some Mining Districts-Eastern Nevada, James M. Hill.

BULLETIN 69: Nevada Bureau of Mines, 1967.

GEOLOGY OF THE ELY DISTRICT, PP. U.S.G.S. A. SPENCER

The above references have been found useful in the interpretation and understanding of the region and the Nevada Mining District.

1.4 FIELD WORK:

Five of the original Carrie Ann claims were staked in the

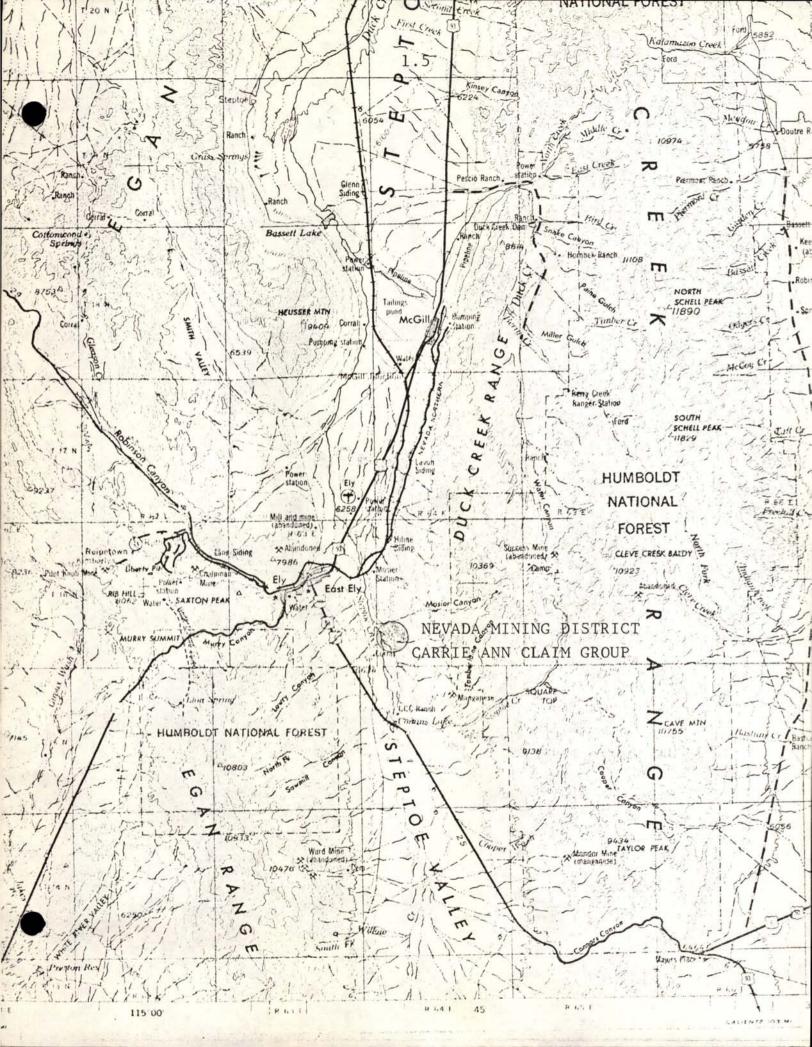
fall of 1969 by Gary Stewart and associates who prospected the area. Samples taken from a number of altered and mineralized areas assayed favorably and the claims were then located. These claims were staked in the western portion of the Nevada Mining District which had been the objective of field investigations and some claim acquisitions by the writer and associates in 1965. The earlier work was essentially confined to the eastern portion of the district where most of the very early work had been done prior to 1873. The district is known as Tamberlaine and Tamberlane in the old reports named after Tamberlaine Canyon and Tamberlaine Ridge.

In 1965 most of the claims in the district were held by Fred Farnsworth of Ely, Nevada and are still in his possession, including some recent claims he staked in the western portion of the district near the present area being studied, called the Zero Claims. Most of his ground was optioned through the writer to Silver King Mines, Inc., and through them to Phillips Petroleum Company. These companies have made recent discoveries of silver in the Ward and Taylor districts about 10 miles south and southwest.

Resumption of field work in the western portion of the District in 1969 and continued until the present is resulting in the renewed interest in the district and general region.

1.5 ACKNOWLEDGEMENTS:

Field assistance has been rendered by G. Stewart, Steve Dizzia, Ray Priest, and others. Dr. S.A. Williams has prepared thin and polished sections on the samples from the district, and maps have been and are being prepared by Joseph Owens, Dave Severson, Jim Reza and associates. Certification work, and drilling, have been done by various contractors including Jack Copper, Nevada Mines Service, H & R Drilling, Montain Corporation, Aerial Surveys, Ltd., and others.



2. LOCATION AND ACCESSIBILITY

2.1 LOCATION:

The Carrie Ann Claim Group is located in the Nevada Mining District, White Pine County, Nevada one of the mining districts organized on the Duck Creek Range.

The claim group is located specifically on the southwest end of the Duck Creek Range in Township 16 North, Range 64 East or in the upper or northern portion of Section 33, but mostly in Section 28. For location of the claims see Index Map on page 1.5, MAPS 1 and 2 in the map series, especially MAP 2, the COMINS LAKE QUADRANGLE 7.5 minute MAP. A specific survey has to be made to conform the present claim posts to the legal description and location as shown on the Comins Lake Quadrangle map, thus certain adjustments will be made and correction made on MAP SE-CA-1; the property map MAP-3, in the map series.

Bordered on the north by Mosier Canyon, on the East by Tamberlaine Canyon, and on the south by Steptoe Creek and on the West by Steptoe Valley, the Nevada Mining District is one of the most accessible of the districts in White Pine County, and one of the nearest to Transporation and supply centers.

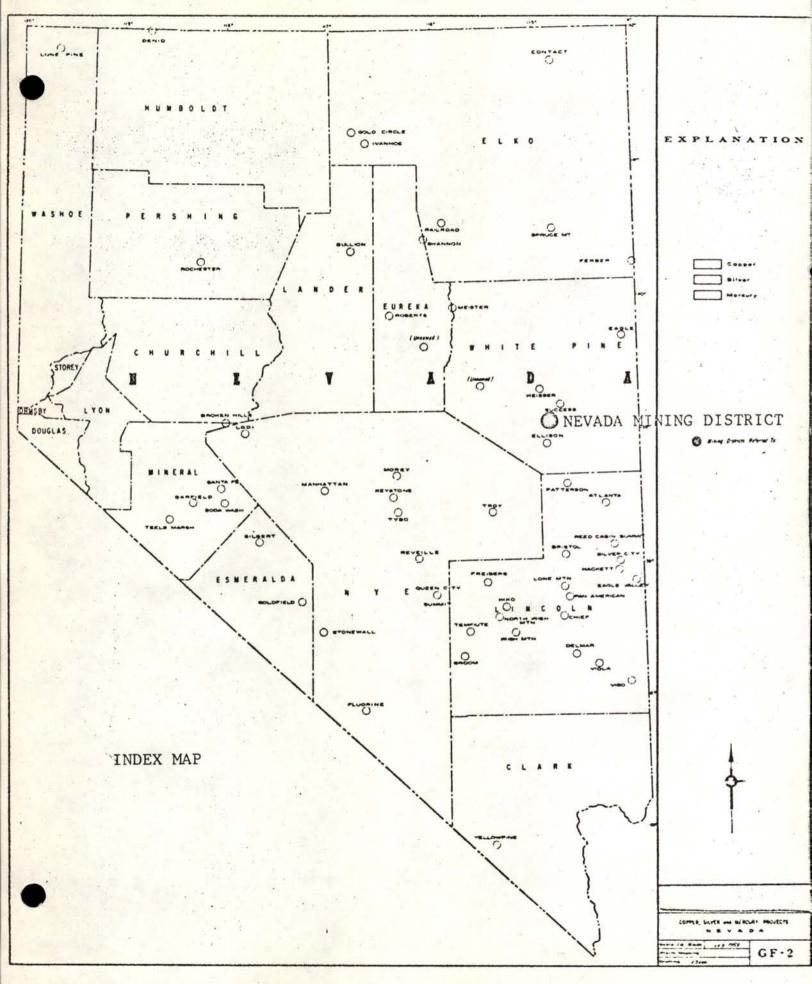
The Carrie Ann Claim Group is about 13 road miles from Ely, Nevada, and about five air miles from that city as shown on the Comins Lake Quadrangle Map (MAP-2).

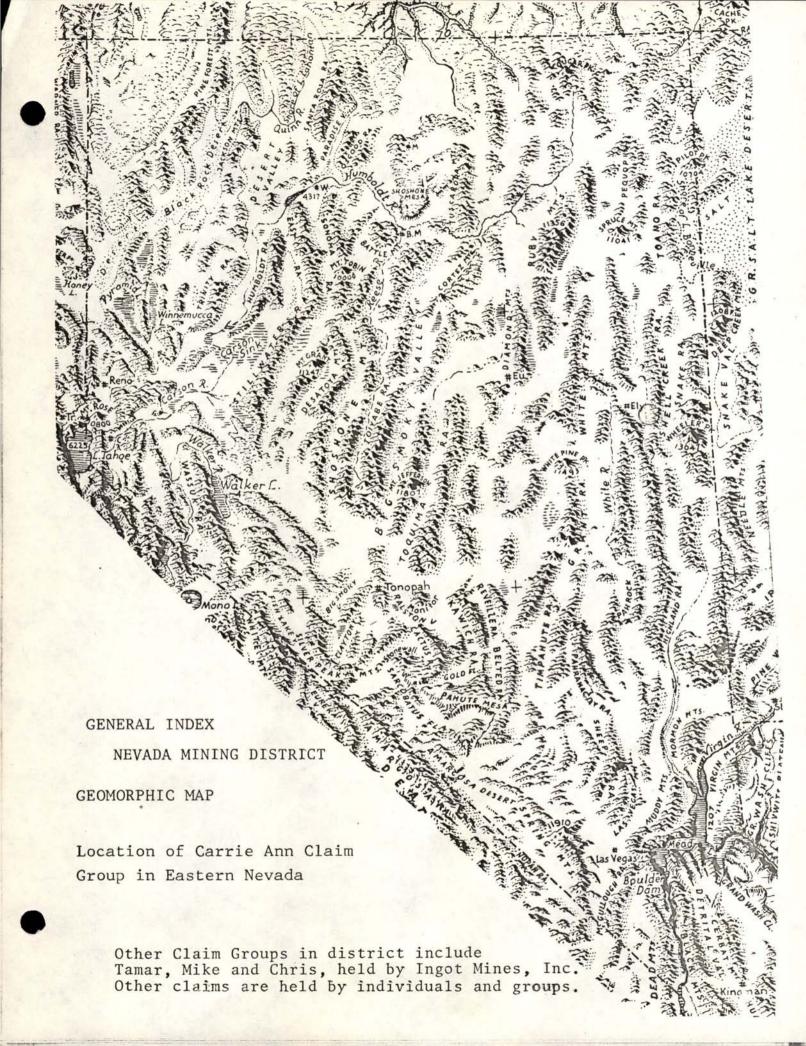
2.2 PHYSIOGRAPHY:

The claims are located in the Basin and Range Province of linear mountains ranges and separated by broad, flat valleys as shown on the general index Map page 1.6.

The claims are located on the southern plunging nose of the Duck Creek Range dome or elongated anticline, which is transitional between the rugged topography of the north, to a less rugged topography of the southern valley system. Many complex and unusual structural features make up the Duck Creek Range and its associated domal complex. (See Index Map page 1.8).

Steptoe Valley, west of the mining district and into which the runoff and drainage of the district discharges, is a populated valley at an altitude of less than 7000 feet, and in turn Steptoe drains northward into two closed depressions.





As MAP-2 indicates, the relief of the Carrie Ann Claim Group is subdued, with less than 200 feet of variation over the claim area; varying from 6800 to 7000 feet, making the claim area very accessible and providing a low-cost exploration potential.

VEGETATION:

The vegetation is very sparse, and belongs to the sage-pine-juniper biome, but with actually very little of any of the aspects of the biome, so most of the claim area is rock outcrop thus the altered and mineralized areas are often quite obvious and stand out clearly. This lends itself to less costly mapping and geological investigations.

The physiographic aspects of the claim group are very favorable and will permit easy access by drilling rigs and mining equipment and will greatly facilitate the future field work and evaluation work yet to be carried out.

CLIMATE:

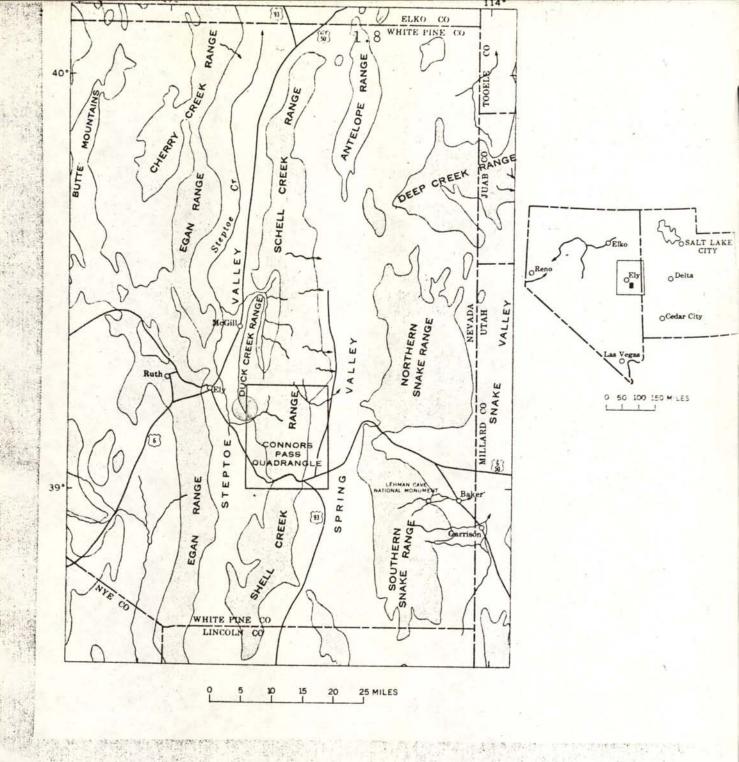
The district enjoys the semi-arid temperate climate of Steptoe Valley with its less than 160 days of freeze and thaw each year, and less than 8 inches of total precipitation annually. The dry climate renders the lower winter temperatures acceptable since there is little snow or rain in the district, and the summer temperatures seldom every rise above 85° F. Thus the weather is very equable. Storms are short lived, what snow does fall evaporates easily, so that open pit operations and activities can be contemplated without any difficulty from weather conditions. Most of the field work recorded in this preliminary report was done during December, January and February, without any difficulty, which speaks out clearly for a favorable weather situation.

2.3 ACCESSIBILITY:

The Index Map on page 1.5, as well as MAPS 1 and 2, in the map series, shows the general relationship of the properties to the region's road-rail-air transportation services and facilities.

The property is accessible over about six miles of good dirt roads from the junction of the CCC Ranch located at Comins Lake six miles south on U.S. Highway 6 and alternate 50, from Ely, Nevada as shown on MAP 2 in detail.

The roads require very little up-keep, are in fair condition, and drill rigs and equipment have been transported over them to accomplish required certification work, access drill roads and sites for drilling on some of the silver mineralized areas of the Carrie Ann Claim Group.



INDEX MAP

Location of the Carrie Ann Claim Group in the Nevada Mining District. The Connors Pass area is the one mapped by Drewes, barely reaches the eastern portion of the Nevada district. Access roads to most of the main mineralized areas of the Carrie Ann Claim Group have already been prepared, and drill sites for a preliminary drilling program have also been prepared. The topographic relief, as noted, is quite low, with less than 200 feet variation on the claims, so most of the area is quite accessible and easily accomodates field work and future programs planned for drilling and evaluation.

AIR TRANSPORATION:

Frontier Airlines serves Ely (through United Airlines) from east and west once daily, and thus links with main lines in Salt Lake City, Utah and Reno, Nevada. Light aircraft facilities are excellent at the airport as well, so that various desired facilities such as air transportation, air freight, and associated services are readily available.

OTHER TRANSPORTATION:

Lewis Bros Stages or bus lines also services Ely from the east, and other bus lines serve Ely with the Hotel Nevada serving as the base Freight and other transportation facilities are thus also available through this media.

The nearest smelter for shipping high grade ore, or concentrates, is the International Smelting and Refining Co. at Tooele, Utah, some 230 miles from Ely, Nevada. Also United States Smelting and Refining and Mining Co. have their upgrading mill at Midvale, Utah and accept Custom ores for treatment.

RATI. TRANSPORTATION:

The Nevada Northern Railroad services Ely and the district. with a number of loading platforms for ore and concentrates, which are available in good repair. A freight rate for ore and concentrates has been established for the area which is quite equable. There are other rail facilities as well, in East Ely, Nevada where freight and other shipping facilities are extant.

The Nevada Northern Railroad joins the Western Pacific Railroad at Shafter, Nevada about 120 miles north of Ely, Nevada, thus linking to the main rail lines.

SUPPLY CENTER:

Ely, Nevada (See Comins Lake MAP-2) is an excellent supply center, as well as center for labor forces and other facilities. Ely is situated between the two industrial facilities of McGill and Ruth, Nevada, operated and owned by Kennecott Copper Co, and where Kennecott operates their large porphyry copper facility and smelting complex. Thus supplies

and all necessary equipment and facility centers are located at Ely, Nevada, including housing and related needs.

POWER:

Power lines of the Mt. Wheeler Power Company, furnishing power for the Kennecott McGill smelter north of the district cross within a few thousand feet of the claim groups. A sub-station could therefore be installed to service any facility contemplated for the district.

Thus, the properties are well situated for any operation that might materialize from exploration and development of the silver-copper mineralized zones within the district.

2.4 MAPPING:

Mapping is a continuous program. Base maps and revisions to previous maps are in progress. Some of the maps now prepared on various mineralized areas of the claim group include:

MAPS T-1	General map of Claim groups of Ingot Mines, Inc
7, CA-1	Map of Carrie Ann claims and mineralized areas.
CA-AS-1	Map of the Argenta Silver area where drilling has been accomplished and where initial drilling was accomplished in 1970. 12 holes
CA-CS-1	Crimson Zone-Sue Deposit area. 15 holes
VIM-CA-5	Crimson Area.
CA-BJ-1	Berg Silver zone, Jan Deposit area. 4 holes
CA-RB-1	Regina Silver Zone-Bernedine Deposit 15 holes.
7 CA-V-1	Verde Area, ready for drilling.
7 CA-M-1	Malta Area, no roads or sites as yet.
CA-RS-1	Ridge Silver Zone-Cassin deposit. 13 holes.

In addition, copies of Drewes geological maps and cross sections accompany this report, as do topographic maps covering the region and general area.

All of the maps are subject to constant revision and additions as work progresses.

A master base map of the entire district is now being prepared from aerial photo coverage flown by Aerial Surveys Ltd. This will be available during late October or November 1972.

HISTORY AND BACKGROUND

3.1 GENERAL:

The Nevada Mining District is on the western slopes and southwestern flank of the Duck Creek Range where it joins the Schell Creek Mountains, some five miles southeast of Ely, Nevada.

Continuing research on the history and background of the district keeps turning up useful information. Early reports on the district by the writer are thus subject to revision, as are all preliminary reports.

DISCOVERY:

Ore was first discovered on April 25, 1869, by a party of prospectors from Reno, Nevada who were working the Duck Creek Range on the west side of the Schell Creek Mountains almost directly across the valley from Ely, Nevada. A mining district was formally organized, so claims could be recorded, on May 7, the same year. The district was one of of the early districts organized in White Pine County, though at that time the area was located in Lander County which later was to be split up to form White Pine County as the result of a rich silver strike 50 miles west at Hamilton.

A small settlement was established in Tamberlaine Canyon near a spring now called Tamberlaine (also spelled Tamberlane), though at first water was obtained from Steptoe Creek three miles to the south. Some additional silver discoveries were made on the west side of the ridge just west of Tamberlaine Canyon. For these operations, now the sites of the present claim group, and renewed activity in the district, a spring supplied water; now dried up.

Ore was originally discovered in the limestones and by 1873 a number of prospects had been staked out, when in that year Wagner Hill was discovered with its high grade silver ore and 30 more claims were laid out.

Most of the new residents of Tamberlaine came from Mineral City about 15 miles to the west in Lane Canyon now Robinson Canyon. Shipments of ore were made to the Selby Smelter at Ely also known as the Robinson mill at the mouth of the Canyon in the Murray Canyon area. The mill was a ten-stamp mill and when it burned down right after 1873 most of the small silver mines in the region were forced to close down as well. Most of 75 homes in Tamberlaine were then moved to Ward in 1876 when a new silver strike was made there and the Martin White company began to erect a mill. The newspaper at Ward, known as the

Ward Reflex, and a source of information on many of the mines and mining towns of the region, stated that in 1880 a large body of ore had been hit in the Champion Mine in the Nevada District. However, the ore turned out to be rather low grade for the times, and though worked through a small shaft and incline operation did not yield a great tonnage. It was also complex ore with copper oxides and sulfides and would not mill or cyanide easily or amalgamate. Attempts to operate the mine continued off and on and the claim covering the Champion mine was finally patented in 1906 as the Champion No. 36 patented claim, the only patented claim in the western portion of the district.

After 1906 very little mining activity occurred in the district and it went into a long decline and soon knowledge of its silver mineralization was known only by a few. Other mills were soon built but the attention was to high grade silver ores at Ward and Taylor, then the big boom when the copper discoveries were made just 10 to 15 miles west which, after 1906, occupied the region and continues to be the largest productive area in the state of Nevada.

Mr. Halstead of Duckwater, Nevada has acquired the Champion patented claim. Fred Farnsworth of Ely staked some claims in the district in 1964-65 period, and some in 1969. But most of the new activity, which is centered in the western portion of the district, has occurred at the end of 1969 and early 1970. The Carrie Ann Claim Group, now full sized lode claims, cover some 180 acres in Section 38 as shown on MAP-2.

White Pine County was created in March 1869, from Lander County. White Pine County is now one of the most productive counties in the state with very important mining districts all within 20 miles of the Nevada Mining District. It could be that the silver mineralization of the Nevada Mining District are satellite deposits of the porphyry copper series in the Robinson Canyon area 10 miles west of the Carrie Ann Claims, or the Nevada Mining District may reflect a separate source and magmatic center and thus offer its own special target for exploration, but near the surface as well at depth.

Old Production records indicate some production was achieved from the Nevada district, but essentially the district is a virgin one, with most of its potential undeveloped and unknown. The district has never been subjected to a geological investigation until 1967 when Harald Drewes of the U S.G.S. prepared his PP 557 on the Connors Pass area which did not include the Nev. District except on its eastern side, therefore today there is still much unknown about the district but it could be potentially a very important silver region, as well as containing other targets in base metals.

4. PROPERTY DESCRIPTION

4.1 PROPERTIES:

The CARRIE ANN CLAIM GROUP is comprised of nine unpatented lode claims as follows:

CARRIE ANN CLAIMS 1-9 inclusive

They are contiguous claims, running full size of 20 acres each, and have the relationship to each other as shown on MAP CA-1 (MAP -3) of the series of Maps being prepared, and also as shown on MAP T-1.

Originally five claims were staked, then as prospecting indicated additional favorable ground, four more claims were staked.

Assessment work for the past year (1971-1972) has been completed and filed. The work included extensive drilling of a number of areas on the claims. Work is now in progress so the assessment work for the 1972-1973 year will soon be completed and the work filed. Mapping, Aerial surveys, and a series of base maps are in progress.

The Claims are recorded in Ely at the White Pine County recorders office. MAP -3 shows the claims as well as some of the mapped mineralized areas.

The claims have not been officially surveyed, quite often lode claims are not formally surveyed unless some specific reason requires they be so. The nine claims are now surrounded on all sides by various other claims held by various parties or groups.

The claims were acquired from Gary Stewart and associates on a lease with option to purchase. This lease was conveyed to Silver Diamond Corporation and by that company to Ingot Mines, Inc. The agreements are available for review.

2.1 GEOLOGICAL SETTING

1.1 GENERAL:

No geological investigations have ever been made of which there is record on the western portion of the Nevada Mining District. The eastern portion, in Tamberlaine Canyon, is included in the mapping recently completed by Drewes in 1967 PP 557. Portions of the ridge and foothill area, west of Tamberlain Canyon, contains most of the area of present interest, and is off of the quadrangle map, but essentials of the work by Drewes apply to the region and are incorporated into this preliminary report.

MAP-4 in the series of maps that accompany this report is a copy of the geological Map by Drewes and provides the general geological setting and regional geological picture relating to the district. Future geological work in the Nevada Mining District would conform to the pattern now set by Drewes, utilizing his geological designations, stratigraphic column and structural naming.

MAP-5 is the Isometric sections prepared by Drewes for the Connors Pass Quadrangle Map, and the cross sections include the margin of the area west of Tamberlaine Canyon as well as Tamberlaine Canyon and the eastern portion of the Nevada Mining District, but do not quite extend far enough to reach the Carrie Ann Claim group, but do point out the structural problems and situation of the region, as well as provide essential stratigraphic control. Considerable use can therefore be made of the work by Drewes.

Therefore, all of the geological work yet remains to be completed in the western portion of the Nevada Mining District, the subject area now being investigated.

1.2 GEOLOGICAL SUMMARY:

The Carrie Ann Claim group within the Nevada Mining District, lies southeast of Ely, Nevada in the western and southwestern foothills of the Duck Creek Range where it joins the Schell Creek Range as shown on page 2.4.

The rocks from Precambrian to Recent in age comprise a stratigraphic column more than 5 miles thick. There are a few hundred feet of the upper Pre-cambrian rocks above which there is more than 23,000 feet of Paleozoic rocks, the predominant rocks of the region.

PALEOZOIC:

The rocks of the Paleozoic reflect the environmental changes that occurred in the miogeosyncline which occupied eastern Nevada for most of the Paleozoic. The Cambrian rocks which begin the Paleozoic sequence begin with the clastic rocks of the Prospect Mountain Quartzite and the Pioche Shale major ore horizons of the Pioche District 90 miles south, and never prospected in the region now under study.

Following these rocks there are the dominantly calcareous rocks of the Pole Canyon Limestone and the Lincoln Peak Formation, above which is the undifferentiated Cambrian-Oroccian sequence that correlates with the Pogonip to the west.

Mid-Paleozoic rocks consist of dolomite and quartzites, including the Eureka Quartzite and Fish Haven Dolomite of Ordovician age, host to deposits of silver in many districts within 70 miles of the Nevada District. The Silurian Laketown Dolomite lies on top of these rocks.

Important to the present work and the Carrie Ann claim group is the Devonian rocks with the older Sevy Dolomite, the Simonson Dolomite which out-crops in part on the western edge of the Carrie Ann Claim group, and the main rocks host to silver mineralization, the Guilmette and its various members.

There are disconformities above and below the Devonian rocks and an unstudied hiatus in the upper Devonian that is important for ore control as found in the Taylor Mining District southeast of the Nevada district.

A change in the miogeosyncline occurred in Late Devonian, with the deposition of impure sandstone in the upper part of the Guilmette Formation, then the deposition of the Pilot Shale of Devonian and Mississipian age, followed by the Joana Limestone, often host to ore deposits in the region, and the Chainman Shale a thicker marker horizon was then deposited followed by the Ely Limestone, one of the main hosts to ore in the Ward District south of the Nevada district. The Permian Rib Hill and Arcturus Formations have few reported occurrances of ore of any kind and have been eroded from much of the region.

Orogenic uplift west and north of the region provided the clastic debris making up some of the upper Paleozoic rocks.

MESOZOIC:

The Mesozoic rocks are poorly represented due to the orogenic cycles occurring in the region which continued into Tertiary time. The great low angle thrust faults seem to be Mid-Mesozoic

TERTIARY:

Between Mid-Jurassic time and the Eocene the area was

strongly uplifted, greatly faulted, and intruded by monzonite rocks and some quartz monzonite with associated differentiates which are dominant at the surface. In the Nevada Mining District, however, no igneous rocks have been exposed by erosion, though the mineralization, which includes silver, and associated copper-lead-zinc values suggests a magmatic center or source that generated the ores to be present somewhere close by, unless the series of monzonitic copper porphyry deposits in Robinson Canyon to the west were the source of the ore deposits, but geologically, it is considered likely that a separate source for the ore deposits now exposed at the surface may exist at depth as was recently found to be the case at Ward.

During Eocene and Oligocene time much volcanic rock was deposited east of the district associated with terrestrial red conglomerates and other terrestrial rocks. The volcanic history during the Tertiary time may be important for the region east of the district, but its importance has not as yet been established for the Nevada Mining District

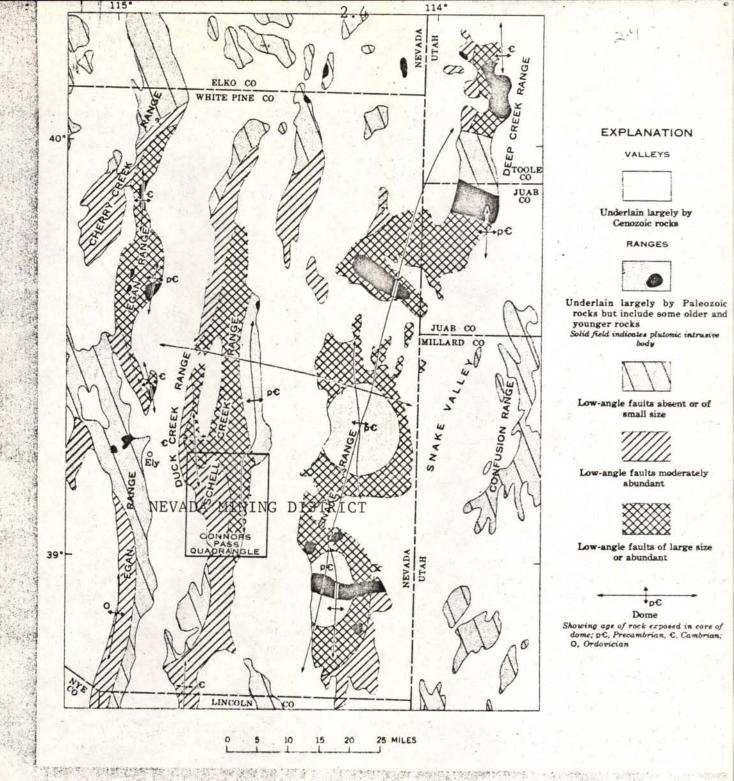
The usual pediment and alluvial deposits occurred during Quaternary time.

1.3 STRUCTURAL GEOLOGY SUMMARY:

Page 2.4 shows the tectonic outline for the region, and indicates the Duck Creek Range is part of a large domal feature which occupies most of eastern Nevada and is some 40 miles wide and 80 miles long. The axis of the Duck Creek Range runs north-south and the mining district is about on the plunging nose of the southern end of the structural feature.

Most of the evident structural features developed post the Ely arch which had its development in sympathy with the Manhatten anticline that entered central Nevada and in part may have been responsible for the Devonian hiatus and the disconformities recorded in that part of the section. The Ely arch continued to develope westward of the district with late Devonian and Mississippian and early Pennsylvanian formations thickening to the south and east and north and west from the Arch center about 20 miles to 30 miles west of the district.

The region was subject to repeated orogeny after the geanticline development with changes in the miogeosyncline as noted. The important Nevadan orogenic activity with the consequent monzonitic intrusives, associated copper porphyry deposits, and large precious metal deposits which it generated was one of the most important episodes in the region and is dated about 100 million years ago. However, the mineralization in the Nevada Mining District seems to be younger and may be related to the late phases of the Laramide orogeny which also generated ore deposits in many districts.



TECTONIC MAP

The large structural feature with a 40 by 80 mile dimension and with many 8-10 miles or larger smaller domes or anticlines, such as Duck Creek, has its axis along the northeast trend of the Snake Creek Range.

The rocks of the district are faulted and locally folded. While the structural features are simple, the outcrop patterns associated with the Schell Creek Range thrust fault (see MAP-5) are complex because faults different in age and direction of movement often share fault surfaces complicating the problems of interpretation.

OLDEST STRUCTURES:

The oldest faults seem to be of Mesozoic age and chiefly low angle faults almost parallel to bedding planes. The most important of the low angle faults is the Schell Creek Range thrust fault whose plane dips westward and southward as shown on the Isometric diagram of the MAP-5 from Drewes. Along this thrust fault, rocks as young as the Arcturus Formation are thrust onto rocks of Late Cambrian and Ordovician age. Great units, up to 2.5 miles, of strata are missing. In the upper plate, where mineralization is located in most of the districts of the range, most of the faults have displacements in hundreds of feet. Note the relationship of the Devonian Sevy and Simonson Formations with the Guilmette Formation and its various members in the central and eastemportion of the Nevada mining district, as indicated on MAP 3.

The thrust faults date mainly from Late Jurassic or Early Cretaceous and seem to follow the Nevadan Orogeny as well as link into the activities of the later Laramide Orogeny.

Some normal faults of middle Tertiary age, mostly post mineral in character, and often associated with some of the volcanic vents found in the general region since the volcanism seems to be tectonically aligned along the fault trends.

YOUNGER STRUCTURES:

Mid and Late Tertiary faulting, essentially gliding faulting and folding, occurred in the central portion of the region east of the mining district, and seemed to be unrelated to any features in the Nevada Mining District, but are discussed by Drewes in his Connors Pass Quadrangle. The glide plates are cut by late Tertuary and Quaternary faults, most of these are normal faults.

The only range-front fault recognized trends southwest and extends into the northeast corner of the Connors Pass Quadrangle and is not important for consideration of the present mining district, but is for districts to the north and east that may be worth while prospecting at some future date.

Most of the rocks in the Nevada Mining District are moderately deformed, dipping westward off the flank of the dome up to 35°, but often much less than this, and form a pediment zone that has received no exploration as yet, and could constitute an important prospecting area.

REGIONAL UPLIFT:

Regional uplifts in the region recorded by the unconformities between Paleozoic and Mesozoic-Tertiary rocks varied the structural environment considerably. Cumulative uplift amounted to many thousands of feet, with vast portions of the Paleozoic and most Mesozoic rocks being removed by erosion. The underlying causes of the uplift may be igneous intrusions reflected by the volcanic vents and regional volcanism, which when emplaced and crystallized and following extrusive activity, a relaxation or cessation of upward forces occurred with subsequent adjustments mostly as normal faulting. Recurrent normal faulting and volcanic activity indicate the magmatic activities producing tension at depth in the upper crust were discontinuous and varied in intensity. In the vicinity of the Nevada Mining District there are no outcropping igneous rocks, at least not as yet found, but detailed mapping of the surface areas may yet disclose their presence. Underlying magmatic bodies are assumed, as a source of the ingressing mineralizing solutions, but these are not demonstrable as yet.

It is becoming a recognized fact that many of the ranges in the Basin and Range Province are uplifted blocks residing on cores of magmatic intrusives. Erosion has not exposed these magmatic cores, but deep drilling in some ranges for mineral deposits disclose their presence. They are also inferred from the volcanic differentiates that are present in some ranges and from the amount of extrusive material that Uplift and relaxation features also imply magmatic activity within the cores of the ranges and domal areas. The large domal features shown on page 2.4 would seem to indicate a regional intrusive root for the eastern Nevada region but gravity work and magnetometer work has not as yet been done to comfirm such, but work of this type just south in the Egan range and deep drilling by Phillips Petroelum Co. has confirmed intrusive cores for the Egan Range in the Ward Mining District area in association with ore deposits of major magnitude. area being explored by Phillips is only about 10 to 15 miles to the south.

Recently, drilling by Phillips in Copper's Wash, east of the Nevada Mining District, has discovered extensive copper mineralization in association with acid igneous dikes and some major faulting. This discovery has implications for area of Connors Pass Quadrangle and the Nevada Mining District.

Much work remains to be done in the area, and the total understanding of the Nevada Mining District will be approached when the geological work, mapping, and studies in the district have been completed, they are now only beginning.

DOMING:

As the generalized map on page 2.4 shows, a great domal feature exists in eastern Nevada with its axis running slightly northeast and centered about in the Snake Range and its western edge comprised of the Duck Creek Range whose southern plunging nose is the lock for the Nevada Mining District.

The Major Dome, which Drewes has not as yet named, though his study seems to define it in greater detail, is flanked by eight minor domes, each 10-30 miles in diameter with which the low angle faults are associated and the most intense faulting with greatest displacements are associated with the center of the large domal feature. Most of the igneous rocks are associated with the centers of the small domes, and while there are no igneous rocks exposed in the Nevada Mining District it is assumed they are present at depth and responsible for the mineralization found there, but this has not been demonstrated.

Most of the structural features as outlined above are of four general ages: 1. Mesozoic, 2. Middle-Late Tertiary, 3. Late Tertiary-Early Pleistocene, and 4. Late Pleistocene The most important is the low-angle Schell Creek Range thrust fault which extends diagonally northwestward from Connors Pass to Mosier Canyon. Mosier Canyon is the northern boundary of the Nevada Mining District, and as MAP-3 shows, the thrust underlies the Nevada Mining District and poses a problem in correlation and sub-surface exploration for the possible source of the mineralization. If the mineralization is pre-thrusting, then the roots of the mineralization will be considerably to the west and south, if the mineralization is post-thrusting, then the roots and source of the mineralization will be at depth below the district. A geochronological problems of importance does exist and geological investigations in progress on the Carrie Ann and in the district will seek to establish the relative ages of the thrusting and mineralization because later exploration may be affected.

The ages of mineralization in the district have not been established, nor for most of the other mining districts in the general region, though those at Ely, to the west, and Ward, seem to be related to Nevadan intrusives and date 100 million years ago. Taylor Mineralization seems to be related to the Laramide 45-65 million years ago, but some mineralization in the cleve Creek Area region may be as young as Miocene and related to the Western Utah intrusive-mineralization episodes recorded about 15 million years ago. The suggestion is that at least three major mineralizing episodes have occurred in the general region, and thus targets for exploration may be many and involve considerable depth once a mineralized area has been established, as the Nevada Mining District has been.

2.2 STRATIGRAPHY

2.1 GENERAL:

On page 2.9 is a generalized stratigraphy section of rocks exposed in the Connors Pass quadrangle taken from PP 557 by Drewes which is useful in the interpretation of the stratigraphy in the Nevada Mining District.

For the Nevada Mining District and the Carrie Ann claim group, only the Devonian rocks of Lower and Middle Devonian age are important. These essentially include the Sevy and Simonson Dolomites and the Guilmette Formation with its several members. Only these essential formations will be discussed, the column on page 2.9 will provide general information on the other formations in the region.

2.2 DEVONIAN SEVY DOLOMITE:

The Sevy Dolomite, while the least important of the formations that may be host to silver mineralization in the Carrie Ann area, does not outcrop as far as is now known, but may not be to deep on the east side of the claims or far west side. Detailed mapping will be required to establish the identification of the white dolomites that outcrop on the Carrie Ann 7 claim.

The Sevy Dolomite is a fine-grained light-gray dolomite up to 900 feet thick. It weathers to a distinctive very light gray to light gray rock. There are two ledge forming units separated by a cliff-foriming unit. The beds in the ledge-forming units are commonly about 1-2 feet thick, often with a sedimentary breccia, sometimes with faint lamination, and sometimes separated by minor disconformities. Along Tamberlaine Canyon and on the high ridge southwest and south of Kolcheck Basin there is a sandy layer, less than 20 feet thick, near the top of the Sevy. This feature in the Nevada Mining District will help stratigraphically to identify the dolomite which is not very fossiliferous.

The fine-grained Sevy Dolomite lies near the middle of the thickest part of the Mid-Paleozoic dolomite sequence and overlies the only widespread unconformity in these rocks. There are a number of studies that are in progress on the indications of Devonian Hiatus features, little is known about them. The Sevy sea undoubtedly had high concentrations of magnesium.

Of the formations in consideration, the Sevy is the least important.

Age			Formation	Thickness, esti- mated (feet)	Lithology
		Recent	Alluvial sand and gravel.	0-100+	Unconsolidated sand and gravel in lower stream terraces.
Quaternary			Lacustrine silt, sand, and gravel.	- Unconformity	Unconsolidated silt and sand, and bars rounded gravel.
		Pleistocene	Younger alluvial and fan gravel.	- Unconformity(?) - 0-100+	Very weakly indurated sand and gravel in lostream terraces and fans that have a slight mature morphology.
			Older alluvial and fan gravel.	- Unconformity(?) - 0-200+	Very weakly indurated sand and gravel in his stream terraces and fans that have a matu morphology.
-		Pliocene(?)	Fanglomerate	- Unconformity - 0-600+	Weakly indurated fanglomerate of locally of rived coarse subangular fragments.
		Oligocene(?) and Eocene	Dacite vitrophyre	— Unconformity — 0-1, 200+	Lava flows, tuff, and intrusive bodies.
			Latite tuff	0-2, 000	Light-gray massive tuff and local lenses welded tuff.
T	Certiary	Eocene	Quartz latite vitro- phyre.	0-300	Lava flow underlying conspicuous browningray cliff.
			Conglomerate	0-100+ Unconformity —	Reddish-gray to yellowish-gray conglomer of coarse subangular fragments deriv locally and from adjacent ranges; contain lens of fresh-water limestone near base a lenses of tuff near top.
			Basaltic andesite vitrophyre.		One small dike.
	ertiary or retaceous		Shale and tuffaceous sandstone.	- Unconformity(?) - 50±	Black shale and mudstone and light-gr tuffaceous sandstone in one small dov faulted block.
Cr	ertiary(?), retaceous, d Jurassic		Porphyritic rhyolite	- Unconformity	Altered granophyric dikes, probably associa with silicification and mineralization a possibly associated with an unexposed p
			N/A		tonic body.
		Early Permian	Arcturus Formation		Pale-yellow-brown siltstone and sandstone a interbedded medium-gray shaly limesto possibly contains a little gypsum; 500-1, ft; probably as young as Leonard a Reddish-brown conglomerate of round chert and quartzite pebbles derived from distant source; 0-500 ft. Medium-g shaly limestone, reef limestone, and pryellow-brown limy siltstone; 1,500-2,000 of Wolfcamp age.
	Permian	Daily 1 Oliman	Rib Hill Sandstone	1,000+	Pale-yellow-brown fine-grained sandstone.
			Ely Limestone	2, 500±	Light-gray limestone and pale-yellow-bro siltstone; contains thin local basal of glomerate; 500-800 ft; of Wolfcamp Light-gray shaly limestone and pale-yell brown siltstone. Chaetetes-bearing beds
sn	Pennsylvanian and Mississippian	Middle and Early Pennsylvanian		-Unconformity-	base; 500-600 ft. Light-gray to medium-gray medium-to-th bedded cherty limestone; 1,400 ft; loc includes some rocks of Mississippian at base.
nifero		Late Mississippian	Chainman Shale	1,100±	Dark-gray clay-shale containing a little sa stone, conglomerate, and limestone,
Carboniferous	Mississip- pian	Early Mississippian	Joana Limestone	300–500	traces of gypsum. Medium-gray bioclastic cherty massive thick-bedded limestone.
	Mississip- pian and Devonian	Early Mississippian and Late Devonian	Pilot Shale	320-480	Dark-gray shale and siltstone that wear to yellowish-brown and reddish-brown pla contains a little quartzite, argillite, limestone.
Devonian		Late and Middle Devonian	Guilmette Formation	Unconformity (?) 2,000±	Sandstone and conglomerate overlain by silimestone and reef limestone; 600± only very locally preserved. Bluish-gray cherty limestone and shaly listone; local lenses of dark-brown coagrained dolomite; 400-600 ft. Dark-brown coarse-grained dolomite, in bedded shaly limestone, and a sandst unit; 300-700 ft. Blue-gray thick-bedded cliff-making limest above a basal silty dolomitic limest 500-600 ft.
		Middle Devonian	Simonson Dolomite	600–700	Light-brown and dark-brown laminated coagrained dolomite; 150+ ft. Dark-brown coarse-grained cliff-forming of mite; 100+ ft. Light-brown and dark-brown laminated coagrained dolomite; 150+ ft. Pale-brown coarse-grained dolomite; 200+
		Middle(?) and Early Devonian	Sevy Dolomite	900+	Medium-gray fine-grained dolomite weathers light gray.
Silur	rian	Middle and Late Silurian	Laketown Dolomite	Unconformity 600-700	Light-gray coarse-grained thick-bedded
		Late Ordovician	Fish Haven Dolomite		Dark-brown coarse-grained dolomite; cont
Ordo	ovician	Middle	Shore See Land and Area		Very light gray to pinkish-gray thick-bee
		Ordovician	Eureka Quartzite	300-400	quartzite.
	ovician and ambrian	Middle and Early Ordo- vician and Late Cambrian	Limestone	3,000±	Medium-gray fine-grained bioclastic, hi fossiliferous limestone; 300–400 ft. Dark-olive-gray fissile shale, interbedded for iferous limestone, and a little sandstone conglomerate; 400± ft. Medium-gray limestone and siltstone, in bedded with shale and a little intrafortional conglomerate; 1,100–2,000 ft. Light-medium-gray thick-bedded cherty listone; 1,000–1,100 ft. Light-medium-gray thin-bedded limestone, partings; 200–800 ft. This formation equivalent to the Pogonip Limestone Hague (1883) and approximately equivate to the Ordovician Pogonip Group and Cambrian Windfall Formation (Nolan others, 1956).
		Late and Middle Cambrian	Lincoln Peak Forma- tion	1,600–1,800	Shale and dark-gray thin-bedded hi fossiliferous limestone. Medium-dark-gray medium-thick-bedded l stone; pinches out to south; 0-250 ft. Medium-gray to pale-olive-gray slightly l shale.
Jan	brian	Middle Cambrian	Pole Canyon Lime- stone	1,500–2,000	Medium-gray fine- to medium-coarse gralimestone; 100-300 ft. White to very light gray saccharoidal limestor low-grade marble; contains thin limestone and local lenses of dolon 1,200 ± ft. Medium-dark-gray fine- to medium-cograined limestone; contains a few limestone; contains
Cambrian		Middle and Early	Pioche Shale	250–315	Olive-black to greenish-gray quartzitic s and siltstone; contains some interbed
		Cambrian Early Cambrian	Prospect Mountain Quartzite	4,000-5,000	quartzite and limestone. Light-gray to dark-purplish-gray thick-bed crossbedded quartzite and metaquart contains some shale near top and conglos atic quartzite near base; locally cont some bodies of altered metadiabase; mapped may include some rocks of
	Precambrian		Metasedimentary		cambrian age.
120	A CHAPPER PUR PRINCIPLE		. IN OTROOMING ON FORM	700-800	Phyllitic shale, metaguartzite, and s

Metasedimentary rocks

700-800

Phyllitic shale, metaquartzite, and slaty argillite.

2.3 DEVONIAN SIMONSON DOLOMITE:

The Simonson Dolomite is a coarse-grained brown dolomite up to 700 feet thick with some strongly laminated beds. It conformably overlies the Sevy.

The Base of the Simonson is marked by the lowest appearance of a yellowish-gray to light brownish-gray medium-to coarse grained thick-bedded to massive dolomite. In the lower part of this buff member are some fine-grained dolomite beds that alternate with coarse grained rock, the upper portion of the buff member has somewhat thinner bedded laminated rock as well. There are prevailing dark beds which form units 3 to 30 feet thick and contain brown laminae, some of which are biostromal coquinas.

Along Tamberlaine Canyon the formation is inconspicuous the brown cliff-forming portions of the formation contain many thin beds of drk-gray fine-grained limestone.

In the upper portion of the formation there are widely scattered chert nodules, and near the top it grades upward from brownish-gray laminated dolomite to a medium-gray faintly laminated limy dolomite.

The formation is not too fossiliferous.

2.4 GUILMETTE FORMATION:

This is the most important formation for mineralization in the Nevada Mining District, It is a sequence of limestone, dolomite, and small amounts of sandstone, and is up to 2000 feet thick and confomably overlies the Simonson Dolomite. Because if its rapid and irregular lateral changes in lithology it can be broken into four members, though all may not be present in every portion of the region. In the Nevada Mining District the four members of the Guilmette are recognized and so will be described.

MEMBER A:

The lowest and oldest member of the Guilmette Formation is about 600 feet thick Cliff-forming limestone at Cave Creek changes to dolomitic rocks at Steptoe southeast of the district. The basal thickbedded limestone of the member is a white cliff forming rock.

Member A consists of often fossiliferous and slightly bluish gray cherty fine-grained limestone in portions of the district, and locally may be dark-brown dolomite up to 300 feet thick.

Member A of the Guilmette will be an important formation in the district and is host to mineralized zones. It seems to underly much of the Carrie Ann claim area.

MEMBER B:

Member B of the Guilmette Formation is up to 700 feet thick and consists of alternating layers of darkbrown coarsegrained dolomite and shaly or thin bedded limestone. In some areas there is a thin marker bed of sandstone-quartzite and light-brownish gray coarse-grained dolomite.

The limestone is commonly a slightly bluish to medium-gray rock containing crinkly beds 1/2-4 inches in thickness separated by yellow-brown silty partings.

The formation is fossiliferous and contains Atrypa spp. fossils.

Where the formation is dolomitic there are small dark-brownish gray chert nodules scattered through it.

At the top of Member B and perhaps in part in Member C there is a quartzitic sandstone bed 15-30 feet thick, and can be utilized as a marker bed because in places it can get as thick as 60 feet. The rock is light gray and weathers grayish pink to very pale orange with faint laminations.

The upper part of Member B contains less dolomite and more silty limestone and includes some yellowish-brown limy siltstone. While fossiliferous, it contains more corals than brachiopods.

This formation is probably the most important in the district for host rocks to mineralization. Probably most of the rocks of the Carrie Ann are of this member, though detailed mapping will be required to properly make the stratigraphic identification in detail. Most of the silicified areas in the district seem to be within this member of the Guilmette Formation.

MEMBER C:

This next youngest member of the Guilmette is up to 600 feet thick and is more uniform in character than the two underlying members just described.

Member C consists of silty limestone and limy siltstone. It may contain some dolomite. The limestone is generally fine grained, slightly bluish gray, and thin bedded although some beds of less than 20 feet thick contain units as much as 4 feet thick. Corals and biostromes are abundant and help identify this member. Nodular to slightly lenticular dark-gray chert that weathers light brown are also present. There is a hiatus on top of this member, recognized in the Taylor District. Member C is the most important host rock in that district, and may also be important in the Nevada Mining District. Above the hiatus in rocks that have abundant Atrypa sinuata there are many ore deposits in the Taylor District that have been drilled and blocked out by the writer. Members C and D are therefore important in certain localities, but the Nevada Mining District seems to contain more ores in the lower members, A and B.

MEMBER D:

This upper member, not always present because it lies unconformably on the lower member Member C, can be as thick as 600 feet, but most often is much less. It consists of limestone interbedded with small amounts of sandstone, quartzite, and conglomerate as well as locally carboniferous shale often host to silver ore deposits because of the H₂S present.

The basal 50 feet of this member consists of platy limestone, shale, sandstone, quartzite, conglomerate, and sedimentary breccia because it was laid down on an irregular surface and at the end of a hiatus juncture in Devonian time. The upper portion of this member contains thin layers of Atrypa s. and this helps identify the unit. There are also locally, conspicuous outcrops of reef limestone, these contain a rich fauna of partly silicified corals.

The sandy rocks of member D are the oldest deposits in the Connor Pass region that reflect orogenic movements occurring near the end of Guilmette time in northwest Utah and south-central Nevada. Seas were shallow, and for a while clastic sediments were restricted in their distribution.

ENVIRONMENT:

During the early Guilmette time, quiet deposition seems to have prevailed in this portion of the miogeosyncline with progressively less dolomite and more limestone being deposited. The magnesium concentrations, rich during the Sevy period, was being reduced, and Secondary dolomite replacement ceased during middle Guilmette time, limestone deposits, more favorable to mineralization and replacements predominate after that.

Orogenic activity is reflected in the clastic character of the sediments that were then deposited. Shallow water seemed to dominate, and biostromes were developed in a neritic environment. The Ely Arch, developing to the west may have played a role with the shallow seas to the east flanking the doming of that area which continued into Pennsylvanian time with thin units in the Ely area thickening in all directions away from the arch. The arch area may reflect igneous sub-crustal activity that culminated in the Nevadan Orogeny with its monzonitic intrusives now just 15 miles to the west and where subsequent porphyry copper deposits were developed.

Later structures became egressing paths for solutions hydrothermally derived from some magmatic source, and the Guilmette members became host to replacement activities now exposed by erosion and planned for exploration and shallow or deep drilling.

Primary concern in future field work will be with the above described formations which are the main host rocks to mineralization in the Nevada Mining District, particularly the eastern portion with which this report is concerned.

A detailed lithological study will eventually be made on the Carrie Ann claim group and this will establish the identification of the formations exposed and outcropping and host to the observed mineralization.

Erosion has exposed the present rocks and the mineralization that now outcrops in the observed formations would suggest that the top of mineralization is just being revealed. Erosion has not cut into the roots of mineralization nor to any great depth. More discoveries of silver mineralization may be made made below and at depth beyond the present lower temperature zones exposed.

There may exist extensive alteration and replacement zones below the present array of outcrops on the Carrie Ann claim group. It will be the purpose of exploration work to evaluate and follow through on such inferences, and to prospect those areas which have been selected for preliminary drilling and exploration.

Additional aspects of the geology and stratigraphy by refering to and studying the northwest portion of the maps by Drewes which accompany this report.

3.1 MINERALOGY AND GEOCHEMISTRY

1.1 GENERAL ECONOMIC GEOLOGY:

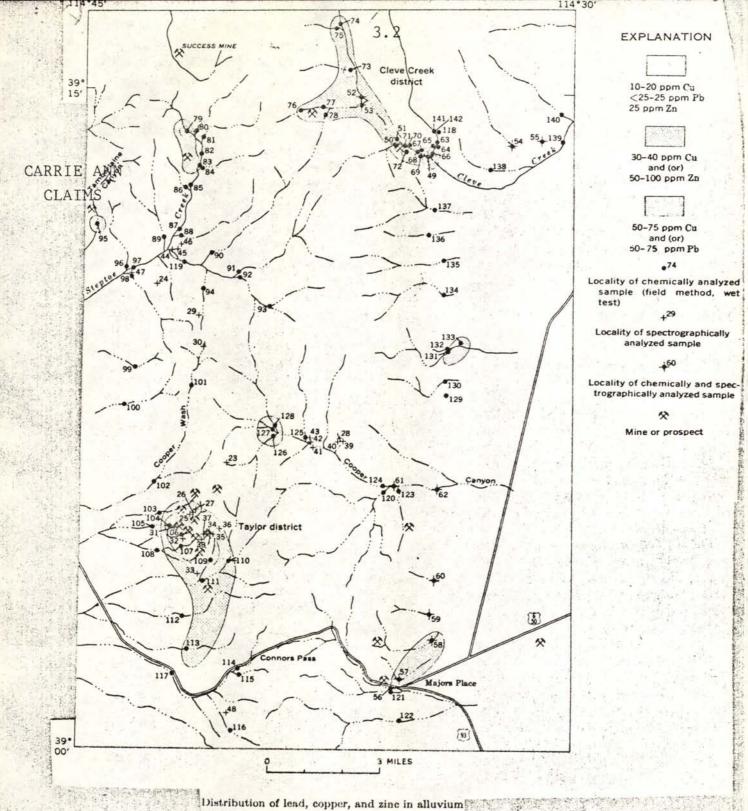
The index map on page 3.2 shows the location of the various mining district within the general region. The Nevada Mining District, which includes Tamberlaine Canyon is not entirely shown on the map because it was outside the general area covered by the investigations of Drewes incorporated into his PP 557. The map also shows areas of anomalous amounts of copper-lead-zine and provides an interesting geochemical map and suggests areas for further exploration.

The scattered mining district have produced chiefly silver with some production in gold-lead-zinc-copper, some tungsten and beryllium and manganese. As yet there is not the production achieved by the Robinson district 10 to 15 miles west of the Carrie Ann group, but then again, there has not been a 65 year history of exploration in the general region and so many new and important discoveries may yet be found within the region.

Mining activities in the past were therefore of small duration, though the Taylor District is now enjoying resurgent activity in the hands of Phillips Petroleum Co. who have also made a discovery of copper in the Copper Wash north of the Taylor District. Rich silver, produced from the Guilmette members C and D containing up to 480 ounces of silver per ton have been mined from ore bodies discovered by the writer in 1963 and drilled extensively. Aspects of these discoveries apply to the zones now under investigation in the Nevada Mining District.

It is the limestones of the Guilmette Formation that are most important, at least in the light of available data, though this could change as exploration becomes more extensive in the region. This formation as well as others contain stringers, sheets, pods, and large irregular bodies of silicified rocks, calcitized areas, and otherwise altered areas in association with dispersed and concentrated silver values with accessory values in lead-copper-zinc and minor gold.

The silicified areas form dark-brown to dark-gray reddish areas often ledges and ribs that project above the level of the adjacent and surrounding limestone. The altered and mineralized bodies, as can be observed on MAP SE-CA-1 are often alined along north-northeast trending faults and along some north-striking structural-stratrigraphic features. Many of the larger silicified bodies grade into the limestone host rocks through zones of weakly silicified rock in which quartz stringers are common. Mineralization of better grade is often associated with these later quartz zones.



GEOCHEMICAL ANOMALIES

These areas of geochemical anomalies will be good areas to prospect. The Carrie Ann group, in the Nevada Mining District are outside the general area covered by this study, but are very favorably located. The Taylor district of considerable importance now has similar alteration and mineralization areas as the Carrie Ann.

Silica has preferentially replaced the thin bedded limestones and the separation of limestone fragments by a siliceous matrix indicates replacement of limestone by silica, a common feature in the Carrie Ann mineralized areas.

Some of the silicified bodies are sheared and brecciated, such as the Regina Area on the claim group. Carbonate and quartz veinlets cut the silicified rock and commonly fill the interstices in the brecciated rock.

Calcitized areas more numerous on the southern end of the Carrie Ann No. 1 claim are also loci for silver mineralization.

Unlike many districts, however, the Nevada District does not have any mapped igneous rocks, though they may occur near the surface but as yet without surface expression.

ORE MINERALS:

Ore minerals include argentiferous galena, chalcopyrite, sphalerite, and oxides of silver and lead and copper. Ore minerals are often scarce and inconspicuous in most of the altered and mineralized zones, but are often detected by the bluish-green secondary minerals resulting from supergene mineralization or oxidization of primary ore sulfides. The silver minerals that contribute silver in excess of argentiferous galena or silver in the absence of galena have not as yet been identified since few polished sections have been prepared, but during future geological investigations the discrete silver minerals will be identified.

MINERALIZATION PERIOD:

This is an important problems in the district as mentioned in the discussion on structure in Section 2. The rocks seem to have been mineralized in late Mesozoic or early Tertiary time, apparently during the period of maximum stress and tensional stresses, probably post Laramide or associated with the Laramide activity which is responsible for many mining districts in the western U.S.

Siliceous solutions probably followed main fault systems and selectively replaced the impure limestones beneath the shale zones, or within formations where replacement was favorable.

Silicified rocks were fractured by further adjustments along faults, and orebearing solutions following perhaps the same ingressing paths as before, or other newly created ones, deposited base metals and silver ores in the zones of severest brecciation or dilation. Solutions rich in silver retained mobility longer than those of other metals and thus ascended a litle higher or futher from the source. This leads one to suspect that there will be more found at depth in the Carrie Ann area because the evidence is that the mineralized zones

are the upper reaches of the mineralizing activities resulting in the present configuration of altered, silicified, and silver mineralized areas within the Nevada Mining District.

Siliceous solutions and the ore minerals may have been derived from a stock or cupola of ingeous rocks that lie not far beneath the surface in the Nevada Mining District. A study of zoning will be made in the district with hopes of pin pointing or selecting an area that might be worth deep exploratory drilling.

TAMBERLAINE AREA:

A number of small adits and shafts are located in the Tamberlain Canyon area, the eastern portion of the Mining District. From these small amounts of silver were shipped in the early days until the Selby smelter shut down, the town was then moved to Ward; work was never resumed in the Tamberlair region.

The Tamberlaine Canyon workings are in pods of silicified limestone in members B and C of the Guilmette Formation, along a zone that extends westward from the major normal fault trending northwestward across the canyon and continues beyond the west boundary of the area mapped by Drewes (See Map-4).

Quartz replaces limestone along northeast-trending fracture zones within the main east-trending zone, some of the quartz is brecciated and sheared and contains later silica as petrographic evidence shows, and coatings of brownish and yelowish gray material, some manganese oxide. Mineralization is associated with the brecciated silicified limestone areas.

CARRIE ANN GROUP:

On the Carry Ann Claim Group there are five silicified areas of importance, so far found and sampled, and these are located as shown on MAP SE-CA-1 (Map-3). These have been prospected at one time or other, small pits or shafts are present, and some mining was evidently done in the Regina area where some high grade was present, but no drilling has ever been done, and the depth, thickness, or extent, of the mineralized zones are as yet unknown.

1.2 GENERAL GEOCHEMICAL BACKGROUND:

The map on page 3.2 shows a series of main geochemical anomalies. Many of these are now being studied by the writer and active exploration is being conducted in most of them. The Nevada Mining District for the most part was outside of the area of this study, but became important when samples showed low grade and intermediate grade values in mineralized areas.

The geochemical aspects of the region are closely related to the tectonic aspects as well. The tremendous development of the Robinson district west of the Nevada Mining District, and the new discoveries at Taylor and Ward south and southeast of the district suggest major discoveries are possible within the region. The essential orogeny, the Nevadan, which extended from Late Jurassic time into Early, and perhaps Middle Cretaceous time, with effects recorded in the sedimentary record may be the most important. The Laramide and Tertiary mineralizing episodes may also have had an impact on the district, such details will be investigated during the work in progress and work to be done.

PETROGRAPHY

1.3 MINERALOGICAL INVESTIGATIONS:

MAP-3 shows the Carrie Ann Claim group and also the general distribution of mineralized areas so far stuidied on the claims. There are still large areas that require detailed field investigations, prospecting and surface evaluation and mapping, and many more areas may yet be found, but those now known are the obvious ones and among the largest. These have been sampled and evaluated for future drilling and subsurface exploration. Samples of the rocks have been obtained from these areas and sent to Dr. S.A. Williams for thin and polished section study. Other areas of the district are being similarly studied, and the results are tabulated on each claim group in reports being prepared for each group of claims; each group the subject of a separate report and program and with distinctive areas of merit.

The justification for proposed work, drilling and detailed exploration activities are based on the petrographic and quantitative analyses which will now be discussed.

ARGENTA AREA:

The largest of the silicified areas now known on the Carrie Ann claim group is located on claim 5. A final survey may result in relocation of the claim posts and therefore a different relationship of the altered and mineralized zone to the claim outline may result, so this report and the claim maps are subject to revision.

There are several small pits in this area, but no deep workings. The silcified area is quite large and access roads have been made into the area and drill sites for extensive prospecting of the mineralized zone have been prepared, the Argenta Area is now ready for drilling.

SAMPLE CARRIE ANN 3 JASPER:

A sample from the mineralized area near where several drill holes will be located and where good assays have been obtained which will be discussed below, was found to be a breccia of large limestone and quartz fragments.

Most pieces of the sample are very angular, but of quite similar size. Most common is alpha quartz, both as fragments and as cement. The quartz cement is poorly recrystallized quartz rubble.

Less common are limestone fragments which have invariably silicified matrices. These are often veined with chalcedonic quartz as well

The rock is similar to that found in the Regina area.

The sample is made up of 40 % calcite and 60 % Quartz.

REGINA AREA

This area partially located on claims 3 and 4, is one from which some former production seems evident. Assays from this area indicate a very good chance for an appreciable tonnage of low grade silver to be extant, and which can be established by shallow drilling.

Access roads have been prepared into this area, and some drill sites for preliminary drilling have been prepared. If these preliminary drill holes are successful, then more extensive drilling will be justified.

SAMPLE CARRIE ANN 1 JASPER:

A sample taken from the outcropping jasperized area which also assays 1-3 ounces of silver per ton, was found to be a jasper derived from a breccia by intense silicification. Silicification has progressed to completion and no vestiges of textures of original fragments can be seen. The quartz grain size does vary from one fragment to another.

Traces of hisingerite fill interstices and in some replaced fragments tiny blebls of calcite may be locked in the quartz.

Late brecciation occurs in thin bands cutting the fabric. The healing of this crushed quartz is negligible. The silicification is homotatic and extremely pervasive. The Regina Area is considered a prime target area on the Carrie Ann Claim area.

QUANTITATIVE ASSAY RESULTS

1.4 QUANTITATIVE ASSAYS:

A number of altered and silicified zones, as shown on MAP-3, on the Carrie Ann claim group that show apparent mineralization have been sampled and quantitative assays received for a number of samples from many of the altered and silicified areas. The map shows the location of many of these samples. A number of others, not as yet plotted on the map are also included in the discussion that follows:

CARRIE ANN CLAIM NO. 1:

On this claim there are two areas, the VERDE AREA, and the CRIMSON AREA, these will be briefly discussed and the assay results obtained from samples from these areas tabulated.

VERDE AREA

This area, mainly a calcitized and altered area, with some visible ores, is located on the southern end of the claim with an access road near by. The mineralization is slightly exposed by a small cut and pit dug into the more obvious areas of the structural zone and bedding which dips gently to the west. The host rocks appear to be Guilmette Member A, limestones.

SAMPLE 1A:

This sample, taken from near the location monument assays as follows:

Gold: 0.01 oz

Silver: 1.63 oz

Copper: 0.24 %

Lead: 3.51 %

Zinc: 1.36 %

and would have a value in excess of \$13.00 per ton, which in large quantities could be processed as a low grade deposit through a large mill.

SAMPLE 2A:

This sample from a small dump east of the monument assayed:

Gold: 0.01 oz

Silver: 0.77 oz

Copper: 0.10 %

Lead: 0.54 %

and would be considered quite low grade, sub-grade, but does indicate some of the waste rock carries some values.

SAMPLE 7C:

This sample was taken from a copper stained portion of the mineralized zone and assayed:

Gold: 0.01 oz

Silver: 1.84 oz

Lead: 2.42 %

Copper: 0.74 %

Zinc: 2.35 %

and indicates some of the slightly richer ore with a value in excess of \$16.00 per ton.

This area will require some drill sites and additional access roads before it can be drilled, but shallow drilling seems to be the best way to evaluate and block out what tonnage may be in this region.

CRIMSON AREA

On the northeastern portion of Carrie Ann Claim No. 1, there is a small shaft and a faulted zone, with mineralization, mostly veining and calcitization. Samples from this area were taken for analysis:

SAMPLE 8C:

From a vein near the timbered shaft:

Gold: 0.01 oz

Silver: 2.50 oz

Copper: 0.34 %

Lead: 1.99 %

Zinc: 0.43 %

The ore would have a value in excess of \$13.00 per ton, and could represent some body of ore at depth. Another sample was also taken from the area with similar results:

SAMPLE 2B:

Gold: 0.01 oz

Silver: 2.07 oz

Copper: 0.30 %

Lead: 1.90 %

Zinc: 0.40 %

Note the decreasing zinc content as one goes north on the Carrie Ann group, the increasing silver content and decreasing copper. The value of the material would be more than \$12.00.

CARRIE ANN CLAIM NO. 2:

The northern area of this claim has some strong structures and veins which have not been evaluated in detail as yet, nor sampled extensively, but a few samples taken are instructure. There are no access roads into this area as yet and no drill sites have been prepared, but at a later date, after complete mapping, this could be another attractive area to prospect.

SAMPLE 4C:

This was a sample of float that had to come from ground eastward and northward. It was assayed for possible implications for prospecting in the area:

Lead: 3.23 %

It will carry some zinc, copper and silver as well, but sufficient lead to indicate the source would be interesting.

SAMPLE 1B:

This is a vein with a jasper outcrop, and will be drilled in part when the Crimson Aræ is drilled since the vein dips into the Crimson area. The vein strikes North 22 East, and dips 55° west. Roads prepared to drill the Crimson area will also permit this vein to be evaluated at depth. The wein assayed:

Gold: 0.01 oz

.Silver: 0.21 oz

SAMPLE 5C:

This was from a quartz vein that needs more detailed sampling and studies made:

Gold: not assayed yet

Silver: not assayed yet

Copper: 0.19 %

Lead: 0.75 %

With these values, the quartz vein is worth checking over in detail. There are no access roads into the area yet, nor has the surface been mapped or the vein followed out.

SAMPLE 3C:

Another portion of the same vein as above was also sampled in another area and assayed:

Copper: 0.09 %

Lead: 0.91 %

There is an increase in lead in the direction of this sample, perhaps of silver as well. More sampling will be done in this area since the assay results indicate some gold and silver should also be present.

SAMPLE 6C:

With the favorable results of the above two samples, another sample on the vein at another point yielded:

Gold: 0.04 oz

Silver: 1.35 oz

Copper: 0.13 %

Lead: 0.65 %

The high gold with moderate values in silver-copper-lead suggest the vein should be prospected at depth and mapped in detail. This area will be included in future field work.

CARRIE ANN CLAIM 3:

This claim has the Regina Area silicified zone which extends partly onto Claim CA-4 as MAP-3 shows. From a dump near the location monument a sample was taken from altered limestone and assayed:

SAMPLE 5B:

Gold: 0.01 oz

Silver: 1.72 oz

With this gold-silver value, the area will be mapped and probably included in future exploration, now there is no access road to the area nor any drilling sites.

REGINA AREA

This is one of the important areas of the Carrie Ann Claim group, and offers the chance for a large low to intermediate grade silver deposit to be found here. Assays include:

SAMPLE 3B: ·

Gold: 0.01 oz

Silver: 1.63 oz

The sample is from waste dump near a small shaft on the north side of the silicified zone, and a drill site is located near by and access roads have been completed into the altered and mineralized areas for preliminary drilling.

On the south side of the mineralized zone a series of sample were taken for analysis:

SAMPLE 4B:

Gold: 0.01 oz

Silver: 2.21 oz

The silver -gold values constitute a low grade value that if in great quantities could be interesting, and if gold or silver values increased with depth the area would be important.

SAMPLE 4 A:

Gold: 0.01 oz

Silver: 11.01 oz

Lead: 3.12 %

Ore of this grade would be worth about \$30.00 per ton and represents the attractive possibilities of the ore deposit in this area and the reason for the drilling program laid out for this area. The sample also contains some values in zinc and copper, but mainly in silver-lead.

SAMPLE 5A:

This sample was taken from altered material on a small dump south of the wash near the Regina area it assayed:

SAMPLE 5A:

Gold: 0.02 oz Silver: 0.80 oz

The Regina Area is ready to be drilled and sufficient access roads and drill sites have been prepared for a preliminary evaluation program of the abundant silicified and mineralized area. A detailed map will be prepared of the Regina Area as drilling proceeds.

CARRIE ANN CLAIM NO. 5:

This claim has two of the largest and most important silicified and mineralized areas of the claim group. Access roads have been prepared for only the Argenta area. During the course of drilling a detailed map will be prepared of the surface to evaluate the drilling and to prepare cross sections and studies to accompany the near surface evaluation of the area

ARGENTA AREA

Samples from this large silicified locality include:

SAMPLE 1-C:

Altered lime assayed: Gold: 0.01 oz

Silver: 0.46 oz

The altered lime associated with the silicification carries only low values. The main silver mineralization seems to be confined to the silicified material and replacement deposit within the Guilmette limestone.

SAMPLE 2C:

Sulfides were present in this sample and are being studied petrographically for the sulfide paragenesis, but the results are not available for this writing.

The sulfide sample assayed: Gold: 0.02 @z

Silver: 54.84 oz Copper: 3.75 %

Lead: 8.82 %

Zinc: 3.10 %

The ore having this tenor and content would have a value in excess of \$150.00 per ton. It represents possibilities in this area and a potential in high grade silver which justifies the exploration work required to make a preliminary evaluation of this area. The drill sites are ready for drilling in this area.

SAMPLE 9B:

This sample of quartz rock with obvious late mineralization found to be the main mineralizing sequence in the paragenesis of the ore deposit assayed:

Gold: 0.02 oz Silver: 8.72 oz Copper: 0.48 % Lead: 3.90 % Zinc: 3.17 %

It would have a value of more than \$30.00 per ton, and again suggests possibilities in this area.

SAMPLE 8B:

This was high grade copper stained rock:

Gold: 0.02 oz Silver: 30.06 oz Copper: 4.50 % Lead: 17.29 % Zinc: 0.11 %

Note the high ratio of copper and lead but low zinc, zoning is again apparent, though as yet not understood in detail and won't be until the area has been sampled and mapped. Ore of this content would have a value of more than \$130.00 per ton. There seems to be more than one phase of mineralization in this area, with rich copper-lead-silver in a late phase. The drilling will evaluate the trends and zoning in the Argenta area as well as prospect at depth and delineate the general zone.

SAMPLE 7B:

This sample is from an altered area 200 feet south of the location monument on the Carrie Ann Claim and the northern area of the silicified zone. It assayed:

Gold: 0.01 oz

Silver: 1.91 oz

It indicates dispersed silver values in the replacement zone of the Argenta area so drilling will continue out to the altered limestone edge of the area.

OTHER AREA

Revised MAP SE-CA-1 will show this area and its name which had not been established at the time of this writing. There are no access roads into this large silicified area, nor any drill sites as yet, though the area is on top of a ridge and easily accessible by jeep at present, it would not require much dozer work to put in roads and drill sites.

SAMPLE 6B: ·

This sample was taken from the southern edge of the area.

Gold: 0.02 oz

Silver: 0.88 oz

Some field work has been done in the area, and it is obvious that better samples will occur in the central and northern portion of the area. It may be linked at depth with the Argenta area. Mapping and surface work will be accomplished on this area in the future.

CARRIE ANN CLAIM NO. 4:

Sample 10B was taken from an outcrop eastside of the ridge along which the access road was being prepared to get into the Argenta area. A structural zone is apparent here and so it will be mapped and studied in more detail since it carried low grade values:

Gold: 0.03 oz Silver: 0.21 oz

Values of this kind could lead to something better at shallow depth, and while not planned in the future drilling program, as the region becomes better known, this area may be worth prospecting at a later date.

DATA:

The assay certificates for the assaying reported above accompany this report, having been processed by White Pine Assay office out of Ely, Nevada, operated and run by a former Kennecott Copper Co. assayer.

Revised maps are being prepared at all times as the field work progresses, and such revised maps will show more areas and progressive results of field mapping and eventually this report will need to be revised.

The above data is submitted at this time in justification of the planned program of prospecting, mapping, geological investigations, and preliminary dilling recommended to evaluate the region.

It is clear that values in gold, silver with good accessory values locally in lead-copper-zinc are present on the Carrie Ann claim group. The areas are quite accessible and can be easily drilled. The potential is for large open pit reserves for at least three of the areas. It is large open reserves that will be the primary objective of the preliminary drilling.

4.1 ORE ZONES AND AREAS

1.1 GENERAL:

On the Carrie Ann, at the present time, there are no completely blocked out ore deposits, but there are a number of area which have been drilled and which upon complete drilling would constitute deposits of silver mineralization with accessory values in lead-copper and zinc and some gold.

Only shallow drilling is being conducted in the Preliminary Drilling Projects, often less than 100 feet deep. The primary objective is to try to delineate near surface zones of silver mineralization amenable to open pit exploration and exploitation.

OBJECTIVE:

A reserve of more than 1 million tons of commercial grade or profitable ore would permit the development of a mining and milling activity in the district. A minimum reserve of 500,000 tons blocked out in detail would permit the planning of an operation provided there were other potential ore areas that showed by preliminary drilling an additional reserve possibility.

The Preliminary Drilling conducted so far in only a few of the many known mineralized areas suggests that there is a fair chance that the required tonnage and grade will be found once the district has been completely explored. The zones of silver mineralization so far drilled vary from low to fair grade, some would not be commercially attractive until the price of silver increases, others may be low grade edges of higher grade zones which will be found as drilling progresses. Deposits, such as the Bernidine, have good ore intercepts and are shallow and will constitute an initial reserve picture. But as yet only one side is known on the Bernidine, so much more drilling will be required to fully delimit its dimensions.

Because now particular zone has been completely blocked out no attempt has been made to try to compute from the present drill hole series an average value or silver content. The values run from 1 -10 ounces of silver and therefore suggest that range may be extant for the deposits in the region when completely drilled, though higher grade may exist locally, and at depths rather deeper than the present 40 to 120 foot holes now being drilled.

Since more than 75 mineralized areas are known in the Claim area and its associated areas, and only about 10 of these have been drilled, clearly a good chance exists that the necessary reserves, at shallow depth, may be found in the district, for a district development project.

MINERAL SUITE:

The original objective of the exploration of the district was silver. The analytical data points out the added possibilities of a silver deposit with accessory values in gold, and copper-lead-zinc.

The ore bearing areas were originally primary sulfides that have only been slightly oxidized. The sulfides include chalcopyrite, galena, sphalerite, argentite, an unidentified silver mineral, and pyrite. A mineralogical study is now in progress to further study the mineral suite, identify the silver hypogene ores, and to establish the paragenesis and sequence of mineralization for technical purposes and exploration criteria. When such work has been completed, a separate SECTION will be added to this report.

STRATIGRAPHIC CONTROL:

Various members of the Guilmette Formation are the important host rocks to the mineralization. Replacements seem to be the most important along with brecciated zones and fault zones.

Main bedding zones seem to be prevalent as drilling progresses. But associated feeding structural features will no doubt be isolated as work continues.

SIZE OF DEPOSITS:

Because no particular zone has been completely delimited, the size of individual deposits can only be conjectured. It would appear that individual zones may have tonnages of 100,000 tons or more, to be confirmed, of course by further drilling. Others may be larger than this, and some may be smaller as well. It would seem that from an exploration point of view, that when the total district has been prospected and drilled, that a much larger tonnage than the 1 million being sought may actually be found.

PRELIMINARY DRILLING:

With more than 75 known mineralized zones in the district and less than 40 % of the ground prospected or examined to find these, it becomes important that drilling at this stage of the program be limited to a few holes in each area to determine those with the highest grade or silver content, and not to spend time and means blocking out zones until the merit of the areas have been individually established and then concentrated drilling on a selected few could be accomplished to finalize initial reserve areas for development. Not more than 15 holes have been drilled in individual mineralized areas. These have been sufficient, such as in the Bernidine deposit, to find one edge and to give some idea as to thickness, content, and dimension. When all of the work has been done, computerized treatment of the data can be accomplished. Only such evaluation work as described is now in progress. Many areas remain to be drilled.

1.2 ARGENTA AREA DISCOVERY:

An initial exploratory drill hole was drilled on the down dip slope area near a small outcrop dug into in the early days. Map CA-AS-1 shows the location of this initial hole CA-5-4 which was drilled only to a depth of 44 feet.

Silver-gold mineralization was intercepted at a depth of 12 feetand an interval of 6 feet averaged .023 ounces in gold and 3.20 ounces in silver, with .10 % lead, .03 % copper, and 1.00 % in zinc. Only the silver-gold values would be of merit in this hole. The hole demonstrated there was a possible bedding zone dipping northwestward along a dip slope that could be evaluated easily by shallow holes that might have sufficient silver-gold values to open pit mine at some future date.

Subsequently a series of hole the B-Series, were drilled, and some higher gold-silver values obtained, though the thickness did not increase much more than 12 feet. See the drill logs for the SUE DEPOSIT which accompany this report.

The western most hole at a depth of about 40 feet began to intercept another silver zone that seems unrelated to the near surface one. No off-set holes have as yet been drilled in that direction but future drilling will explore the possibilities that two zones of near surface mineralization may occur in the Argenta area.

The area is about the northern most mineralized area known in the district and is 8000 feet northwest of the mineralized zones of the Mike Claims. Throughout the dividing distance there are many mineralized zones, so the possibilities at depth as well at shallow depths are clearly pointed up.

MINERAL AREAS:

On the Carrie Ann Claim group there are eight known mineralized areas these include the following:

ARGENTA	Sue Deposit		holes
	Lenora Zone		hole
RIDGE	Cassin Deposit	13	holes
REGINA	Bernedine Deposit	15	holes
CRIMSON	Sandra Zone	15	holes
CKIMSON	- Kay Zone	3	holes
VERDE	Hallie Zone		E
BERG	Jan Zone	4	holes
MALTA			
DIKE			

As yet some 80 % of the claim area has not been mapped or prospected so more zones no doubt exist but have to be located by field work. The Claim Map shows the location of most of these zones within the claim area.

Drilling Record

rface Ele	vation 7110 Sample Length2! Plugged		0	то	tal Depti	44'	
ologist E	CE Driller Expl. Dril	1, I	nc.	Time Ra	te hou	rly	
DEPTH	LITHOLOGY					SAYS %	
		Au	Ag	Pb	Cu	Zn	
0- 12		.005		0	tr	0	
14	Intensly silicified limestone with		3.87	:107		1.15	
16	coarse vein quartz, vugs in quartz		4.81		.043	1.06	
18	carry mimetite, chrysocolla.	.02	0.93	.022	.01	0.38	
20	Same as above	.005	.32				
22	Dark grey, intensely silicified	tr	.17				
24	limestone with recrystallized calcite		.17				
26	Dark grey limestone, locally slightly recrystallized with clean calcite vei		.16				
28	recrystallized with clean calcite vei	ns	.06				
30	mildly brecciated limestone.						
32	TI .		.02				
34	m sile in	*	.04				
36	II .	8	.03				
38	II FEEDER TO BE TO SEE THE SEE		.02				
40			tr				
42	"		tr				
-	" locally recrystallized.	0	tr				
44	" Tocarry recrystarrized.						
	The State of the S						
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					1	-	
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1.3 REGINA AREA DISCOVERY:

A Preliminary Drill hole was drilled in 1970 in the Regina Area, hole CA-1. This hole intercepted good silver-gold values at a depth of 10 feet, just below alluvial fill in the wash and was still in mineralization when the hole was terminated at the allowed depth which funds permitted at that time. The log of the hole on page 4.6 shows silver values of almost 4 ounce silver per ton, and about .03 in gold, with only traces of base metal values.

During 1972 an additional 15 holes were drilled in this area and are shown on map CA-RB-1. Several of the holes on the southeast side were intercepting only low values and this may constitute the southeast edge of the zone of mineralization. However, the rest of the holes were still in good mineralization and the extent of alteration at the surface indicates this will be a fair sized deposit (in excess of 100,000 tons) but this needs confirmation by drilling and full delineation of the zone, designated the Bernidine Deposit.

The logs and assay values in the Ber-Series of drill holes accompany this report. The zones of mineralization varied from 8 to 40 feet thick. The mineralization was generally less than 16 feet below the surface.

The area would be amenable to open pit mining and is quite accessible.

The extensive alteration on the northeast side coupled with a large massive fissuring system with massive calcite indicates structural control of this deposit was important, and that mineralization may exist at depth. Deeper drilling could be accomplished at a later date, however, and none is being attempted at this time. When all the near surface zones have been evaluated, the zoning pattern may be developed fully enough to pin -point or select deep holes on a much more firm basis than would be the case at this point in the program.

1.4 OTHER AREAS:

Good silver mineralization, though not as thick as the Bernidine has also been found in the Ridge Area, for which an east side has been established. The R-Series of holes. and logs provide data on this area.

The Crimson area has also been drilled, though of lower grade silver-gold content, but often quite thick. Richer zones will take future preference for delineation and blocking out, but some time in the future this area may be exploited.

The Berg area has also been drilled, an east side established, and a few more holes may lead to richer silver-gold values.

Drilling Record

HOLE NO.

	vation7058					
ologist	ECE Driller Expl. Drill. Inc. Time Rate hourly					
DEPTH	LITHOLOGY	Au	Ag	Pb	Cu	AYS %
0- 4	Grey densely silicified limestone					
6	"	.01	.27			
8	"	.01				
10		.01	.16			
12	Grey-Black Silicified Limestone Calcitic veinlets.		1.10			0
14			3.85			.09
16	"				.013	
18	The state of the s	-11			.013	
20		.03	4.14	.022	tr	0
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5.1 GEOPHYSICAL CONSIDERATIONS

1.1 GENERAL:

As a guide to sulfide ores, I.P. geophysical work would be the most applicable, and would provide some useful information down to depth of up to 900 feet. If conductors could be found with this method, hidden deposits without surface expression at present may be detected.

However, until the nature of one of the deposits has been determined no geophysical work will be recommended, but after preliminary drilling, if the nature of one of the deposits turns out to be such that geophysical could detect them readily, then recommendations will be made for this particular approach to be made in the areas of non-surface exposures, or apparently barren areas, and also to see what may be present deeper, below the present mineralized areas.

Gravimetric and magnetometer surveys may be desired if evidence is forthcoming through the drilling and geological work for a source at depth of the complex base metal ores. Before these tools are applied, more information from the initial drilling and geological work will have to be obtained and evaluated.

SPECIAL APPLICATION:

Assuming that the ores are being generated by a magmatic source that may or may not be associated with the regional picture of intrusives at Robinson and Ward mining districts, associated with porphyry copper type deposits and deep bedded and replacement ore deposits, then geophysical tools may become essential in the further evaluation of the region. The hunt for the ore source or sources could then become important. However, as criteria to evaluate the possibilities are obtained from the work recommended, then further consideration can be given to this aspects of the evaluation of the region.

METHODS OF SURVEY:

The claim group lends itself to a rigorous survey, and because of the low relief and limestone formations, anomalies would be more easily interpreted. Geophysical surveys have been very successful at the Ward and Robinson districts one the control data had been established. It is quite likely that eventually geophysical tools will be employed in the region to advance the prospecting of the area.

6.1

6.1 METALLURGICAL ASPECTS

1.1 GENERAL:

A combination of cyanidization and flotation may be required to recover and process the ores if they conform to what is now known about the altered and mineralized areas.

Low grade silver zones with little other values would be possibly subject to cyanide type processing. But the sulfide and complex ores with copper-lead-zinc values in additional to silver may require flotation as most such deposits do, but the metallurgical considerations for any given deposit will depend on what is found. Thus, the samples that are taken from any successful drilling can be utlized for testing to establish metallurgical characteristics of the ore zones. At the present, based on what is now known of the region, it appears that a mill employing both a cyanide circuit as well as flotation circuits may be required.

The ore occurrances are simple, however, and all the mineralization so far has been discrete minerals and no detrimental features have been observed, so an economic flow sheet for treatment should be easily established.

WATER SUPPLY:

A milling operation would require water, and while there is water available at Steptoe Creek, and springs at higher elevations, most water would probably be obtained by drilling and the installations of wells on or west of the property. If during drilling water is found, such holes will be recorded and plugged and could possibly be used later as wells. A U.S.G.S. report on the ground water of Steptoe Valley is available, and it indicates that there is plentiful water in the valley. The writer drilled 300 foot wells for water supplies for a 450 ton per day mill 17 miles to the northwest for Silver King Mines, Inc. in 1964, and the wells were very successful.

POWER:

Commercial power is available at Ely from the Ely Light and Power Company. Power lines come within 4 miles of the property. Power is therefore available.

TAILINGS:

The area west of the claim area is open ground and there is ample area for waste and tailings disposal.

NOTE:

In the two ore discoveries made in April after this report was finalized, the predominant values are in silver-gold.

7.1 MINING ASPECTS

1.1 GENERAL:

While a sufficient reserve of ore near the surface or under a low ratio of waste to ore will be sought, until the size, shape, and character of an ore deposit has been established the method of mining or recovery of the ore can only be conjectured.

The topographic relief of the area is such that the area would lend itself to open pit mining methods should shallow deposits be discovered. Likewise, should deep ores be found, the area is very accessible, and underground mining could be engaged in.

1.2 OPEN PIT:

Important aspects of the ore deposit, such as thickness, ratio of waste to ore, content and values, and related items, must be established first before the method of mining can be discussed, but it is apparent from the nature of the present exposed mineralization that a definite open pit potential does exist. Any reserve of ore that could be mined cheaper by open methods than underground will receive first attention. It will require higher grade values in order to go underground for the ore. Much lower grade ores can be mined through open pit methods. Much depends on the thickness and grade of the ore, yet to be discovered or blocked out, but certain things can be kept in mined as objectives so that consideration can be given to this method of exploitation.

1.3 UNDERGROUND:

Because of the structural control, and the evidence that suggests the present exposed alteration and mineralization is the expression of the upper portions of mineralization, it is most likely that ore zones will be found to go to depth, and consideration will have to be given to underground mining methods as well.

Only those ores that will provide a reasonable profit and in quantity enough to justify going after them by underground methods will be classified as underground reserves, but all depends on the results of the drilling and how deep the ores are found to persist. The writer found ores in the Guilmette Formation at Taylor at 450 feet, and engineered a 480 foot shaft to exploit them. Thus there has been recently some experience in ores that persist with depth and require this type of mining.

8.1 ECONOMIC CONSIDERATIONS

1.1 GENERAL:

Water, power, labor, supplied, and other important items that require economic consideration have been briefly mentioned in earlier parts of this report. There are a few others to be mentioned. Timber needs will probably be fulfilled out of California where mining timbers are regularly being obtained for the Ward District and Taylor District. Other operating supplied, including cement, machinery, etc., are generally available in Ely, Nevada. Specialized items may be obtained from Salt Lake City, Utah, some 250 miles northeast through the regular transportation means available.

PROPERTY ACQUISITION:

Some of the area to the west may be acquired by further staking. Most of the present claims of the group are now being acquired on a lease with option to purchase agreement that is based on equable terms. See the existing contracts for details of the terms.

OTHER PROPERTY:

There are other properties in the region, which could possibly be unitized into one project, these would include such claim groups as the Mike, Zero, Tamar, Argente, and Halstead groups. Work is in progress to evaluate these claims groups as well. The entire region is important as a relatively previously unknown silver district with good values in accessory copper-lead-zinc.

PLANT INVESTMENTS:

The discovery of an ore body of 500,000 to 1,000,000 tons or more, would materialize into a major project that ultimately would require an investment up to \$1,500,000.00. The cost of the initial exploration work will vary depending on what is discovered, but could run up to \$300,000.00, but would be done in phases, and each phase may require \$30,000.00, and successive phases would depend on results as one continued the program. The total investment then depends on the results of the drilling program and preliminary evaluation of the now known altered and mineralized areas. But success in them will then shift the project into an investment picture that will be as much or more than indicated.

PRODUCTS:

The products, or concentrates of the values, produced by a milling operation would most likely be sold to the smelters at Tooele, Utah. Shipments would be by rail for which rates now exist, with the rail head at Ely.

9.1 DRILLING APPROACH

1.1 GENERAL:

Montain Corporation, a licensed and bonded drilling company with its new equipment, capable of percussion drilling, coring, wet or dry, has been used during the drilling season 1971 and 1972. H & R drilling equipment was used during the early drilling activities as was Exploration Drilling, Inc. Recovery was always good, and drilling was economically accomplished, costing from \$3.25 to \$4.25 per foot depending on where and what was drilled and how long the project lasted.

The holes are generally a 5½ inch bore hole, with samples collected at 2 or 4 foot intervals.

Samples are then taken and stored.

SAMPLING:

Samples on 2 and 4 foot intervals are sacked and stored and assayed zones have been retained as well as reject portions for future check and analysis.

ASSAYING:

White Pine Assay office in Ely, Nevada, an Umpire assay firm, formerly Kennecott assay staff, have run most of the assays.

LOGGGING:

In addition to the lithological logs, petrographic work is being done on the samples for alteration and mineral studies. The logs are therefore still being worked on at this time, but those that accompany this Preliminary Report do contain most of the silver and gold values.

HOLE DEPTHS:

The mineralized areas outcrop for the most part, and so targets are easily enough established. Preliminary holes are drilled, often 4 to 8 holes within the mineralized zone, and then a few off-set holes around those that assay the best, but not more than 15 holes have been drilled in each area, and since the zones have a near surface expression, as soon as unaltered rock is intercepted in the hole the drilling is terminated, or deepened only a few feet more. Most holes are therefore less than 100 feet deep. Deeper drilling can be accomplished at a later date. See logs for depths and details.

COMPUTER ANALYSIS:

Eventually all drilling will be computer analyzed.

10.1 RECOMMENDATIONS

1.1 GENERAL:

Work on base maps, altered and mineralized aspects of the mineral studies, and the location of other mineralized areas, is all in progress.

Essentially now the work to be done would be the drilling of the mineralized areas in two phases;

DRILLING FIRST PHASE;

This would be continued prospect drilling in other outcrops of alteration and mineralization to discover favorable areas for more concentrated drilling.

DRILLING SECOND PHASE:

This phase of drilling will be the blocking out of the discoveries based on priority of merit to establish the full reserve and total mineral and silver content picture of the individual deposits.

The deposit with the most merit at present is the Bernidine Deposit. Some 20 to 30 holes on 50 to 100 foot centers may be required to fully delimit this zone, perhaps even more holes than this.

Following the blocking out of the Bernidine deposit, the two mineralized areas in the Argenta and Ridge areas could be further evaluated by shallow holes to ascertain their extensions to the west. Up to 20 holes, about 10 on each zone, would be required.

The Berg zone should be drilled with several more holes to the west, it may be the east extension of the Bernidine zone.

The results of drilling in the other zones, not as yet drilled, or in new areas yet to be found, would dictate drilling in excess of the above.

Recommendations on the Tamar, Chris, Mike and Champion claims will be submitted in the discussions prepared on the claim groups.

CHRIS CLAIM GROUP

AND

SUB-SECTION 3

11.1 CHRIS CLAIM GROUP

11.1 GENERAL:

In this Section and Sub-Section 3, the data available on the CHRIS CLAIM GROUP is submitted. The data is being revised and updated and this report will eventually be incorporated into this PRELIMINARY REPORT.

11.2 PROPERTIES:

The CHRIS CLAIM GROUP is comprised of eight claims all unpatented, staked as shown on MAP T-1, and IM-C-1, as follows:

CHRIS CLAIM GROU₱ 1-8 inclusive

Assessment work on the claims has been done, and the current work required for the year 1972-1973 is in process of being completed and filed.

11.3 MAPPING:

Maps are being prepared on many of the Chris mineralized areas, those now available include the following:

MAP 7 T-1	Claim Map
? IM-C-1	Claim map showing altered areas
✓C-AL-1	Argus Silver Zone-Laura Deposit
C-AP-1	Argentine Silver Zone -Pamela Deposit

Others are being revised and may also be included in this report as part of the map package and will have the Letter C to designate they are from the Chris Claim group.

11.4. DRILLING:

In addition to the following Sub-Section on Mineralogy, and assay data, SECTION 3, drilling has been conducted on a limited prospect scale of 4 or 5 holes in mineralized areas as shown on the maps. These altered areas all had some silver mineralization sufficient to justify a few more holes to further confirm merit and to evaluate the previous drilling.

11.5 RECOMMENDATIONS:

All altered and mineralized areas should be drilled with 2 or more drill hole to establish the merit of each of them.

11.6 MINERALIZED ZONES:

The following mineralized zones have been sampled and studied and prospected on the CHRIS CLAIMS:

SILVER ZONE	NAME OF DEPOSIT	HOLES DRILLED
PLUMA	VENTURA	
ARGUS	LAURA	7
VERMILLION	LIND	3
ELAN		
ARGENTINE	PAMELA	5
AZURE	VIVIAN	2
INDIGO	GERT	2
NORDE		

Access roads to most of these have been prepared and some drill sites have also been completed. Limited drilling indicates most of these deserve further drilling and evaluation. There are probably another 16 or more mineralized areas on the Chris claims having as yet not been mapped or stdied.

Essentially the area is ready for additional dilling and further prospecting.

3.1 MINERALOGY AND GEOCHEMISTRY

1.1 GENERAL ECONOMIC GEOLOGY:

Within the Connors Pass quadrangle there are a number of mining districts, the most important in terms of past production is the Taylor Mining District. Areas of geochemically anomalous amounts of copper, lead and zinc are shown on the map on page 3.2 which is taken from the PP 557 by Drewes, it shows the Taylor District to the southeast of the Tamberlaine Canyon. Tamberlain Canyon is the east side of the Nevada Mining District.

Production from the region includes gold, lead, zinc, copper, minor beryllium, and some tungsten. The Manganese mine several miles southeast of Tamberlaine was a producer up to World War II. No production has achieved the quantity of that of the Robinson 10 miles west of the claims area. The chief production of the region has been silver, however, and the region is recognized as a silver province with accessory values in lead-copper-zinc and minor gold.

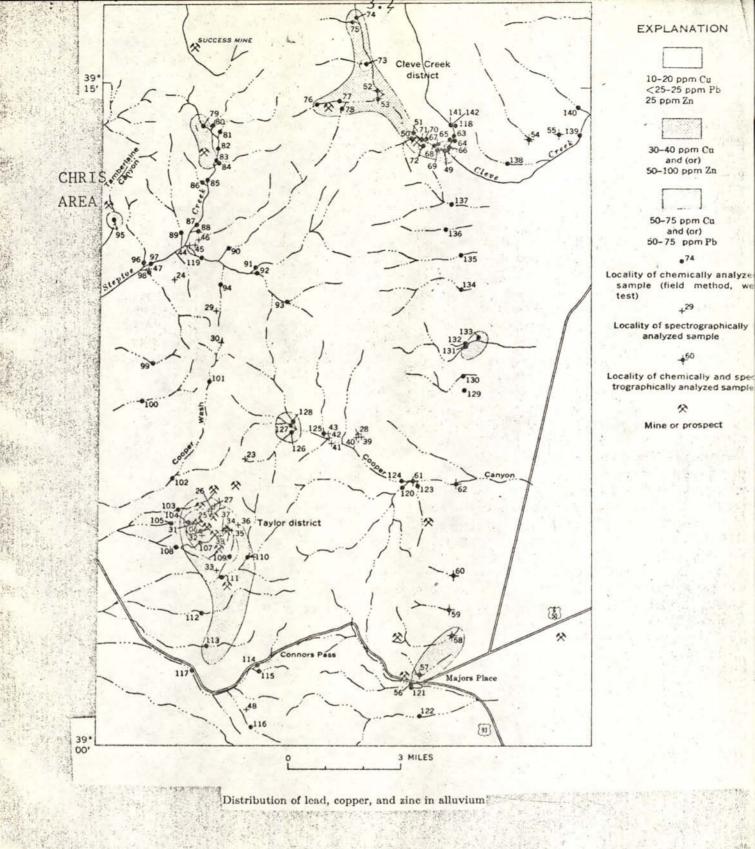
The duration of mining activity, except in the Taylor District, which is now enjoying some resurgent activity and is in the hands of Phillips Petroleum Co., has been brief, as already noted for the Nevada Mining District.

The several small adits and prospects in Tamberlaine Canyon and on the west side of the ridge, which includes the Chris Claim Group, were prospecting silver as a prime objective. The ore occurrs in silicified areas of members B and C of the Guilmette Formation, along a zone that extends westward from the major normal fault trending northwestward across the Canyon and continues beyond the west boundary outside of the mapped area on MAP-4, and MAP-5.

Quartz replaces limestone along northeast-trending fractures within the main east-trending zone on the east side of the Nevada district, and follows north trending zones on the west side that often dip to the west steeper than the beddings, so structural control is important.

Some of the quartz is brecciated and sheared and contains later silica of a separate phase of mineralization and silicification and coatings of brownish-yellowish gray material. The main silver mineralization is associated with the brecciated, silicified limestone; and often unoxidized galena cubes are observed in freshly broken pieces. Copper stains are sometimes visible and act as a guide to richer silver zones in the silicified masses.

Areas now known can be programed for trenching, channel sampling and other sampling activities concurrent with drilling. This preliminary report placed emphasis on alteration and petrographic studies of selected samples from mineralized areas.



General Geochemical anomalies in the region could lead to other prospective districts of merit. The Chris claim area is located in a favorable area, but was outside the limits of this study. The Taylor district has turned out to be a very important district, and the same rocks and types of mineralization are present in the Nevada Mining District

1.2 GENERAL GEOCHEMICAL BACKGROUND:

As the map on page 3.2 indicates, there are main anomalous areas within the region that seem to have some merit in terms of exploration objectives. Outside of Taylor the Cleve Creek District, and the Nevada Mining District including Tamberlaine, are the two most obvious ones, and these are receiving attention at the present time, further stimulated by the 1967 work of Drewes.

His samples were mainly soil samples in drainage areas, and offer a preliminary indicator of areas that might have merit. It is the detailed follow-up such as is now being accomplished on the Chris Claim group and elsewhere in the Nevada Mining District that advances the prospects of the region and leads to discoveries.

The geochemical aspects of the region are closely related to the tectonic aspects as well. Important for the region is the association of strong and intense mineralization extending from the Ely district (Robinson copper porphyry areas) to the Ward region, 18 miles south, and the districts involved in the Duck Creek and Schell Creek Ranges. The essential orogeny isthe Nevadan which extended from Late Jurassic time into Early, and perhaps Middle Cretaceous time with its many effects recorded in the sedimentary record of the region. The main characteristics of the orogeny need to be kept in mind as prospecting takes place within the region:

- Deformation principally involved eugeosynclinal rocks.
- 2. Rocks were folded and often metamorphosed, and could be mistaken for Precambrian rocks.
- Little thrusting has been attributed to the Nevadan orogeny, but later Laramide activities, and Tertiary, principally Eocene and Miocene igneous activities, are reflected in the younger fault structures
- 4. Intrusives of batholithic proportions were intruded, often without surface expression, but may be at the heart of domes and anticlinal ranges. Recent discoveries at depth at Ward disclose complex intrusive activity in association with porphyry type deposits and extensive satellite deposits.
- 5. Metallization may have occurred beginning with the Nevadan orogeny, 100 million years ago, but there may have been pulses of mineralization subsequently. Thus the date of the mineralization will become important in establishing genetically related deposits or separate episodes of mineralization.

The geochemical environment established by the Nevadan Orogeny would be modified by the low-angle faults, of which the most important is the Schell Creek Range thrust fault. which would have cut off sub-surface plumbing between the upper and lower plates. Thus, if the origin of ore in the Nevada Mining District was derived from Nevadan intrusives or genetically related sources, then the Nevada district is now isolated from its sub-surface source as one might interpret from the Isometric Map Map-5. If the ores were derived from late Mesozoic Laramide, or Eocene or even Later Miocene mineralizing episodes, then the sources may be nearer the surface and have some continuity with depth. The intimate relationship of structure, and subsequent geological history in all of its complexities bears greatly on the nature of the ultimate character of the geochemical province. These are things that must be investigated yet, and perhaps Potassium-Argon dating of the deposits may help isolate some aspects of this problem that will be of use in interpeting the potential of the region.

The structural features and igneous history of the Mesozoic are therefore important items for future investigations.

PETROGRAPHY

1.3 MINERALOGICAL INVESTIGATIONS:

MAP-6 shows the claim group, and also the general distribution of mineralized areas so far studied on the Chris Claim group. There are still large areas that require investigation, prospecting and surface evaluation, and many more favorable areas for drilling and geological work may yet be found, but those now known are the obvious ones and among the largest. These have been sampled and evaluated for future drilling and subsurface exploration. Samples from these area now available will be discussed below. These are the justification for the proposed work, drilling activities, and extensive geological activities to explore for a significant silver ore reserve. Polished and thin section studies were made on the various samples selected from various areas.

INDIGO AREA:

One of the largest silicified areas on the Chris Claim group is the INDIGO AREA, located on Claims No. 7 and 8 as shown on MAP-6 (BRS-C-1). The area of extensive silicification also contains east-west zones of later quartz quite often found to contain sulfide mineralization, mainly galena. Samples of the material were taken for petrographic work. These samples, processed by Dr. S.A. Williams form the basis for the following interpretation and discussion. See MAP 3 for sample locations.

SAMPLE CHRIS-NO. 2-QUARTZ:

The sample consists almost exclusively of coarse, equant alpha vein quartz occurring as stringers and veins in a jasperized area. Many crystals show margins which tend to be fibrous or exhibit divergence. The interstitial areas may be severely granulated. Such features would be characteristic of silver bearing areas and may be developed into useful criteria.

Post-granulation, occurring as a third or later episode, galena and chalcopyrite were disseminated in and replaced quartz. The sulfides are silver bearing since no discrete silver mineral was identified in the sample.

Oxidation has resulted in almost total replacement of galena by granular to round blebs of cerussite.

Copper from the Chalcopyrite, replaced in-situ by hisingerite, has replaced galena so that the cerussite is intimately associated with malachite. Malachite also surrounds blebs of chalcocite replacing chalcopyrite. Late chrysocolla shows incipient replacement of malachite.

This area will be programed for shallow drilling. Surface samples show 0.02 oz of gold and .44 oz of silver in the Jasper away from the sulfide bearing veinlets.

SAMPLE CHRIS-NO. 7:

This sample was taken from the jasper area assayed as just mentioned.

The sample is a jasper showing a complex history.

The sample was originally a breccia of fragments of varied and uncertain character, mostly limestone and silty limestone. These show well preserved, very finely laminated structure and may originally have been Devonian sediments of the surrounding beds. Mild rotation of the fragments was followed by total replacement by interlocking, rod-like alpha quartz enclosing scattered and minute calcite blebs.

Brecciation of this jasper was followed by cementation with coarse alpha quartz. The fragments were unaffected during this episode which was related to the veining described above. Silver and sulfide mineralization occurred during or following the alpha quartz introduction. Only limited silver values were present with the rod-like alpha quartz, or introduced with it.

There was fracturing and then veining by coarse calcite.

SAMPLE CHRIS -8-6:

This sample was taken for further study of the sulfide occurrances in the Indigo Area and the host rock and the detailed character of the jasper-quartz zone which is quite extensive.

The sample consists almost exclusively of interlocking, short alpha quartz prisms, or rod-like quartz, which as noted in the previous sample followed the brecciation and rotation of the original sediments.

The quartz prisms invariably enclose dense clusters of calcite blebs in their cores along the (0001) axis. No vestiges of original textures of the silicified sediments remain.

The rock was then fractured again and cut by veins of coarser quartz with which the main values were introduced. The silicification was a continuing process, and the quartz veining may have been so close in time to be considered contemporaneous with the silicification.

Later calcite veinlets cut all other features, and indicate another episode of fracturing followed by this rehealing of the dilated structures. This coarser calcite may be stained with hematite along cleavage planes.

Galena is sparingly disseminated in the fabric and replaces quartz, thus slightly later than the quartz introduction in the fabric, but closely related to the veining where galena is also found as noted above, often with associated chalcopyrite.

The galena is altered to cerussite locally.

Minerals present include:

Quartz: 94 %
Calcite: 5 %
Galena: 1 %

Traces of hematite, cerussite and zircon.

The original sediments may have contained some contaminants and the zircon.

Quantitatively, original limestone and silty-limy sediments have been replaced almost entirely by hydrothermal activity.

Loc

The Indigo Silver Area, as mapped on MAP-6 (SC-CI-1) has had access roads prepared, and drill sites, and is ready for prospect and exploratory drilling to shallow depths. In the Quantitative Analytical portion of this Section, additional assay data is provided for this area. The petrographic and analytical work on the altered and replaced area justifies the shallow drilling that will be required to further evaluate this silver area.

The objective of drilling the INDIGO SILVER AREA will be to ascertain the possibility of a large, low-grade silver area that can be open-pit mined and add to a reserve picture for the Chris Claim Group that would justify a large mill for the region.

AZURE AREA:

This area is a long, linear, structural zone running north on Claims Chris 4 and 3 as shown on Map-3 (BRS-C-1). The structure is well mineralized with good silver assays with some high lead and zinc values being obtained from samples taken from the structure which recently has been traced out southward more than the present map shows. Associated with the structure are silicified zones adjacent to or along the strike and these offer chances for bodies of intermediate to low-grade silver ore with accessory values in lead-zinc and perhaps some copper. A sample was taken from one of these silicified areas to compare with other such samples being taken from other areas on the Claims, and to obtain additional data for guiding drilling activities.

SAMPLE CHRIS 4:

This sample was taken just south of a small pit dug into the vein which is 4 to 6 feet wide, but widens where the silicified zones occur, and which is nearly vertical in dip, but may vary along strike. The sample location is north of the 6D sample location shown on the present map. More samples have been taken from the area which are included in this report, and the map will be revised to show their location.

The sample represents a jasperoidal breccia with matrix quartz leached and redeposited as vuggy quartz.

These vugs are mostly filled with coarse cerussite after galena, and are often spotted with chrysocolla, and fine granular conichalcite, and perhaps some barthite which may account for the high zinc quantitative assay obtained from this locality. This sampled area has been planned for a drill hole, and access roads and a drill site have been prepared. The zone is ready for drilling. Some quantitative results are discussed below for this area in the portion of this report dealing with the assay results.

TAMBERLAINE CANYON:

A sample was obtained from the ore zones mined in Tamberlaine Canyon for comparison with the mineralized zones on the west side of the district where the Chris claims are located.

SAMPLE GARY-T:

Polished section work shows isolated galena and sphalerite grains in a quartz gangue.

The sphalerite shows no chalcopyrite exsolution, so the temperature of mineralization was probably below 350° C., in harmony with the indications of a lower temperature mineralization activity in the Chris Claim group, indicating again, that erosion is now exposing the upper portions of a mineralized system.

The sphalerite is an iron-poor variety. The iron rich varieties, abundant at Ward and in the general region, usually reflect near-by intrusives. The source of the ores may be somewhat remote from the areas now being examined, but more work may reveal information to evaluate this inference.

Galena is slightly replaced by covellite and then thickly rimmed with anglesite-altered in turn to cerussite. In addition, mimetite, malachite, and chrysocolla were noted.

There were no discrete silver minerals identified in the sample, but high silver assays from the region indicate there is a higher ratio of silver to lead than would be the case for a strictly argentiferous galena. Most often times the silver minerals oxidize first and until some fresh sulfide sample with a richer mass of sulfides has been studied, the identity of the specific minerals contributing silver other than the base metal sulfides is not as yet known.

This sample, as well as observations made in the Tamberlaine Canyon area seems to indicate that the more intense silicification occurs on the western portion of the district, while structural controlled mineralization seems to be the case at Tamberlaine; thus the chance for larger bodies of low to intermediate, or even high grade ore, amenable to open pit exploitation seem to be much better on the west side in the Chris Claim Area. The altered and silicified zones, as now known on the Chris Claim group, are quite extensive and bear this conclusion out.

QUANTITATIVE ASSAY RESULTS

1.4 QUANTITATIVE ASSAYS:

During the course of evaluating the Chris Claims, a number of altered and silicified zones with apparent mineralization, have been found and in part delineated, and these are now known as shown on MAP-3, (BRS-C-1). About 60 % of the claim area has been examined and studied so far, so a number of such areas may yet be found as work proceeds.

The present map shows by sample symbols the location of some of the quantitative analyses so far obtained. A number of others, not as yet plotted on the map, are also included in the discussion that follows:

CHRIS CLAIM NO. 1:

On the Chris Claim No. 1, there are four areas that have alteration and yield evidences for mineralization making them worth while target areas for exploration and drilling. Drill access roads and drill sites have been prepared on three of these, and more work will be done to prepare drill sites on all of them. To prospect, by shallow holes at first, the near surface potential of low-to intermediate silver mineralization in sufficient quantitites to perhaps establish a reserve for a processing plant, is the immediate objective.

The data available on the areas now known will now be provided. These preliminary samples are all selected, and correlate with petrographic samples.

VERMILLION AREA

This area of silicification, comparing favorably in type with the Indigo area of Claim Chris 7, is partially obscured by alluvium and may be considerably larger than the mapped extent. For drilling, a map on a 1" to 20 foot scale is being prepared and will be added to the map section in time.

The preliminary assay results of the first sample taken from the surface were as follows:

SAMPLE 2B Chris 1 So. Quartz:

Gold: 0.01 oz Silver: 1.73 oz Copper: 0.27 % Lead: 1.06 % Zinc: 2.35 % For a surface sample that was very encouraging, drill sites and access roads were prepared, which was easily done because the area is easily accessible, and shallow drilling to evaluate the near-surface extent and continuity of the mineralization will be accomplished under the recommended program of exploration. Good sample results lead to drill sites.

The value of the material assayed would exceed \$10.00 per ton. The minimum value that material would have to have to be included in a reserve will ultimately depend on the size and type of operation that imerges. A large enough operation with ore of this or better grade, provided it was open pit, would be attractive. Open pit gold-silver mines are operating on ores of \$4.00 to \$7.00 values at present, but require large tonnages and processing of at least 1000 tons per day. Thus, some idea of the objectives of the exploration work in the region can be developed.

The Vermillion area is now ready for preliminary drilling. The first drill hole would ascertain the thickness of the silicified zone and then the drilling program could be planned in more detail. Good results lead to extensive drilling.

ELAN AREA

A small incline had been dug on this exposure many years before. The zone seems to be a structure occupying approximately the attitude of the beds, and may be a bedding replacement up to 5 foot thick. The area will be the subject of detailed mapping as exploration continues.

A sample from this area, mainly from the stained rocks on the dump assayed:

SAMPLE CHRIS-1 ROCK FROM DUMP SO. WASH:

Gold: 0.01 oz Silver: 0.91 oz

With the evidence of some silver and small amounts of gold, this area will be studied and an exploratory drill hole planned to prospect the zone down dip to the west at a depth of about 200 feet to see what increments there may be in values with depth, will be drilled.

Material containing 1 oz of silver per ton or more, may have some value at a later date should the price of silver increase as it is now speculated. At least a record will be kept of such areas, they could be important later if they contain large tonnages.

EL VODA AREA

This area comprises a north striking vein that dips 58° to the west and a number of altered areas, some brecciated, veined, and bedded, that seem to be associated with widespread alteration and mineralization that will have to be evaluated by detailed mapping and some shallow drilling. The beds in the area also dip west, about 23°, the veins are steeper in dip than the beds so cut across them. There may be a larger relationship between the structures of this area and those in the immediate locality. Drilling and detailed mapping will no doubt shed light on the relationships and merit at depth.

Samples from the mineralized areas were assayed and yielded the following:

SAMPLE 1B-12-30-69 CHRIS-1 58°:

Taken from the footwall side of the structure this sample assayed:

Gold: 0.01 oz

Silver: 0.26 oz

Copper: 0.053 %

Lead: 0.45 %

Zinc: none

There is limited mineralization in the footwall side of the structure that is now exposed.

SAMPLE 4A CHRIS-1:

This sample was taken from the vein where some lead was visible as galena. It assayed:

Gold: 0.01 oz Silver: 1.31 oz Copper 0.04 % Lead: 3.54 % Zinc: 1.34 %

Vein ore having these constitutents would have an intermediate value of more than \$10.00. However, there is higher grade ore in the vein which is 1.5 to 3 foot thick.

SAMPLE 3A-CHRIS-1:

This sample represents the vein material more completely and assayed:

Gold: 0.02 oz

Silver: 7.67 oz

Copper: 1.33 %

Lead: 2.73 %

Zinc: 0.37 %

The three samples evaluated the vein and adjacent material and the value of the above sample would be more than \$35.00 per ton, and would provide a target value for the exploration of the vein area. Acess roads have been prepared to a drill site that is now ready for the drilling, to intercept the vein at about 150 feet. The drill hole will then permit the vein to be evaluated, if increments occur or if values remain about the same, then drilling can continue to depth and laterally along the slightly northwest strike of the vein. There are enough sites for four drill holes to be drilled along the strike should the preliminary drill hole have good results.

Near the drill sites, down-dip on the slope of the hill and west of the vein outcrop, there are bedding areas that contain mineralization, and irregular brecciated areas which are in the hanging wall portions of the vein system. They may be related to more intense mineralization at depth. Samples were taken from these zones.

SAMPLE 2A-CHRIS-1:

This sample was taken from near the drill sites below the vein area and will be accurately located on a map being prepared on the EL VODA area. The assay results were:

Gold: 0.02 oz

Silver: 6.75 oz

Lead: 6.86 %

Copper: 0.81 %

Zinc: none

There are similarities in ratios of this sample to the actual vein, and the value of this brecciated area in the limestone, without accompanying silicification, would be more than \$35.00. This enhances the potential of the drilling planned for the El Voda Area.

SAMPLE 4B CHRIS-1:

A small pit had been dug about 150 feet down the hill from the vein outcrop in a brecciated and stained limestone area, which showed visible mineralization. A sample was taken for assay:

Gold: 0.02 oz

Silver: 2.56 oz

Copper: 1.68 %

Lead: 0.25 %

Zinc: none

The value of this ore would be more than \$20.00, and provides additional targets for further evaluation with expectations of some high grade ore.

The El Voda offers a good prospecting area, it is quite accessible, and access roads and a number of drill sites have been prepared for near-surface and shallow drilling. The preliminary drilling results will then dictate the future exploration activity in this area.

ARGUS AREA

Loc

Some 300 feet or more northwest of the El Voda Area, there are extensive calcitization and brecciated limestone areas, covering a rather large area, not shown entirely as to size on the BRS-C-l Map, or MAP-3. Evaluation of this area has been considered important because the mineralization here is not accompanied by the usually associated silicification. In the Taylor Mining district, very high grade ore has been found associated with intense calcitization and recrystallization of Member-C of the Guilmette Formation. The Argus area, named after the Taylor Argus mine could perhaps offer a similar possibility and shallow drilling will explore this. Samples from the area are of very good grade.

Access roads have been prepared in this area, dozer work has stripped off some of the cover to expose the brecciated and calcitized area, and drill sites have been prepared for some shallow preliminary drilling. It is ready for prospect drilling.

SAMPLE LA CHRIS-1:

Gold: 0.02 oz

Silver: 8.03 oz

Copper: 0.94 %

Lead: 7.61 %

Zinc: 1.17 %

Ore having this tenor would have a value in excess of \$40.00 per ton. Thus, drilling in this area does have a target potential of higher grade ore. Preliminary drilling will permit an evaluation of the zone and hopefully, some results will be obtained that may indicate the presence of an ore body near-surface or at shallow depth.

1.5 CHRIS CLAIM NO. 2:

The Claim Map Map-3 shows two major altered and mineralized areas on Claim Chris 2. These are the Pluma Area, and the Argentine Area. They were found later in the course of field work and after the dozer had completed the certification work on the claim group, so access roads and drill sites have not as yet been prepared for these areas.

ARGENTINE AREA

Next to the INDIGO AREA, the Argentine Area is one of the largest and shows more widespread mineralization that is apparent and exposed in small pits and cuts. A series of samples have been taken from this area and indicate the area is worth shallow prospect drill holes.

SAMPLE 2C CHRIS-2:

This sample taken about 100 feet south of the location monument which is in the center of the claim, represents a proposed drill site area. It assayed:

Gold: 0.02 oz

Silver: 2.10 oz

Copper: 0.031 %

Lead: 0.33 %

Zinc: 1.86 %

to richer ore at depth and would add to a tonnage reserve for a large mill even at this grade.

SAMPLE 1D-CHRIS-2:

This sample was taken from the southwest edge of the central portion of the mineralized area. It assays as follows:

Gold: 0.01 oz

Silver: 6.07 oz

Copper: 1.29 %

Lead: 5.06 %

Zinc: 4.96 %

Ore of this content would be worth more than \$40.00, and suggests that this area be planned for shallow drilling. The area is associated with brecciation, silicification, and some bedding replacements and would lend itself to evaluation by shallow drilling.

SAMPLE 2D CHRIS-2:

This is a second vein eastward near the east edge of the altered and mineralized Argentine Area. The veins dip about 45° to the west, and in part are associated with brecciated areas and bedding replacements that dip less steeply. Thus shallow drill holes can evaluate these structures and widespread alteration and mineralization associated with them.

Gold: 0.01 oz

Silver: 1.65 oz

Copper: 0.141 %

Lead: 0.75 %

Zinc: 2.60 %

The material would be classed as intermediate value, having more than \$9.00 value per ton.

SAMPLE 3D-CHRIS-2:

On the west wall of a small 4-5 foot cut, a sample of altered limestone was taken for assay.

Gold: tr

Silver: 0.48 oz

Copper: 0.018 %:

Lead: 0.49 %

Zinc: none

The altered limestone, unsilicified would be considered subgrade material, but does indicate some mineralization has occurred in the altered limestone areas as well.

Associated with this altered limestone there was a brecciated limy area on the southwall of the pit:

SAMPLE 4D- CHRIS-2:

Gold: tr

Silver: 1.26 oz

Copper: 0:176 %

Lead: 0.88 T

Zinc: none

This would be low grade material approaching \$5.00 in value, and would represent the lower limits of acceptable material to be included in any reserve. However, it is associated with higher grade material nearby and would be removed with it.

SAMPLE 5D-CHRIS-2:

Gold: tr

Silver: 6.06 oz

Copper: 1.53 %

Lead: 2.50 %

Zinc: none

This material would be classed as good ore and would have a value more than \$30.00 per ton. Thus the region sampled in this area would be worthwhile drilling and shallow holes would be recommended.

In the Argentine Area there is less gold and less zinc than in the other areas sampled on the Chris Claim Group, this may suggest a difference in the genetical source, or episodes of mineralization; certainly there has been a partition and variation created by the distinctive mineralization in this area. There may also be differences in the structural zones of the Chris No. 2 Claim, there are more complex alterations; calcitiziation, silicification and mineralization in this area than in any of the other areas.

It will be noted that the primary objectives of the exploration will be silver and with the consistant high copper content of most of the samples, copper will rank as the next most important constituent with accessory values in lead-zinc-gold.

The copper content of most ore zones is noteworthy, and may have other geological implications that will be investigated during the course of drilling and future geological work in the area.

Drill sites and access roads will have to be prepared for the ARGENTINE AREA, which is located on the top of a small ridge and relatively flat on its surface where the mineralized outcrops occur. The area could be a large-near surface ore body of low to high grade values. Drilling will seek to establish this since here an open pit would be easily operated and could produce a very large tonnage. Volume, depth, and grade need to be established; the purpose of drilling.

PLUMA AREA

This area, on the north end of the Chris Claim No. 2 has two small pits and some old workings, apparently part of the pre-1873 activity.

How the Pluma, Argentine, and El Voda Areas may be related is not known, but the picture may clear as detailed mapping and geological work is completed on the Chris No. 1 and 2 claims.

Samples were taken from one of the mineralized areas north of the location monument of Chris No. 2; one of the samples in altered limestone showed little value: 0.005 gold, and 0.16 oz silver, in the northwest corner area. The other taken in the main Pluma area was good in results.

Some more work will have to be done in this area before a drilling program could be recommended, but the samples taken so far suggest this area will be drilled eventually as well.

SAMPLE 1C- CHRIS-2:

The second sample from the northern area, or Pluma Area, assayed as follows: Taken about 50 feet north of Location Monument.

Gold: 0.02 oz

Silver: 2.88 oz

Copper: 0.39 %

Lead: 0.97 %

Zinc: 2.97 %

Such material would have a value of more than \$15.00 per ton, and if in large volume could be added to a reserve for a large operation, so the area should be mapped and studied in greater detail and then some shallow drilling accomplished.

For the Pluma area, as well as the others, the preliminary drilling should be shallow but deep enough to make sure that any silicified zones or calcitized zones are been penetrated. After the shallow drilling has been evaluated, zones of richer mineralization can then be prospected with deeper holes, or perhaps sub-surface results willpermit some projections to be made of trends in the mineralization that deeper drilling can evaluate. Thus, results of each phase can guide subsequent phases of drilling.

1.6 CHRIS CLAIM NO. 4:

Only limited surface work has been done on the Chris Claims No. 3, 5, 6, and 8. There is an altered zone on the Chris No. 3, but it has not been mapped or sampled as yet, and as yet Claims 5 and 6 have not been examined in detail. So occurrances of alteration and mineralization on these claims may yet be made as work proceeds.

On the Chris Claim No. 4 there are two areas, one of these was subject to some petrographic evaluation as described earlier in this report. Some quantitative data is available for the mineralized areas and will now be submitted.

AZURE AREA

Again, this is a fissured and altered area that extends for more than 600 feet, and has been traced further to the south than at present mapped. The area is quite accessible; drill sites have been prepared along the strike of the structure which is up to 8 feet wide in places, and where silicification has taken place may have 20 foot widths. So it is a good structure to evaluate and study. Access roads along it have been prepared, and it is ready for shallow prospect drilling.

SAMPLE 5B CHRIS-4:

This sample was taken from a small pit area near the center of the structure along the north south trend as now mapped. It assayed:

Gold: 0.02 oz

Silver: 8.58 oz

Copper: 0.52 %

Lead: 13.28 %

Zinc: 2.85 %

The richer lead and zinc values in association with copper as well, and fair silver, suggests the structure may be a feeder and have some depth to it as well as length. The value of the ore would be more than \$45.00 per ton. The structure does offer a good drilling target and will be prospected accordingly.

A prospective drill site area more than 50 foot south of this sample was also assayed.

SAMPLE 6B CHRIS-4:

Gold: 0.01 oz

Silver: 0.87 oz

Copper: 0.04 %

Lead: 0.20 %

Zinc: 5.84 %

While of low grade value, less than \$10.00 per ton, the significant zinc content of this area which is east of the main vein in a brecciated zone associated with the structure suggests possibilities of replacement deposits of base metals in the area. There is more zinc in this area than most of the other areas, and less copper on a relative basis. Again suggesting zoning and a more profound relationship between all of the area which at later date deeper drilling wish to explore.

SAMPLE 6D-CHRIS-4:

Another sample on the southern end of the structural zone as now mapped, but not on its now known end since further field work has been done but not yet incorporated into Map revisions. In time these revisions will be accomplished, the maps are not as yet complete because the field work has not been completed. The field work is a continuing program.

The sample assayed:

Gold: tr

Silver: 1.30 oz

Copper: 0.075 %

Lead: 0.98 %

Zinc: 6.26 %

Note the persistant zinc values going south; decreasing copper and gold content as well as decreasing silver-lead values. The material would have a value of more than \$10.00, but would have to occur in great quantity to be of merit. This does imply the possibility of replacement base metal sulfide deposits in the area and at depth, and drilling for the higher grade portions of the structure may well reveal other objectives at depth.

With the drill sites and access roads ready for exploration on this area, the next step is to arrange for the actual drilling and to get on with the evaluation and drilling work.

OTHER AREAS ON CHRIS-4:

Another small area, sampled as 3C on the Map, on the Chris-4 claim was also sampled. It was assayed but did not indicate much, but will be examined in detail during the extensive geological mapping that the area will require.

SAMPLE 3C:

Gold: tr

Silver: 0.24 oz

Except for an anomalous silver content, the sample did not provide enough encouragement at this time to do more work in that area, so it will be left to a time when all other more favorable areas have been checked out.

1.7 CHRIS CLAIM NO. 7:

As mentioned above, the Chris Claim No. 7 is host to the extensive silicified area essentially designated the INDIGO AREA, as mapped on MAP-6 in the packet series.

Some quantitative data has been obtained from this area as well as other localities on this claim. These will be included as follows:

SAMPLE 7B-CHRIS-7:

This sample was taken from galena-bearing quartz veins on the north end of the INDIGO AREA. It assayed:

Gold: 0.01 oz Silver: 0.77 oz Copper: 0.04 % Lead: 1.41 %

Zinc:

This sample provided some data to interpret the petrographic data in the area. It is low grade, but could lead to higher grade material. It would approach \$5.00 per ton value.

none

SAMPLE 7-CHRIS-7:

This sample was taken from the west corner of the Jasper area where no mineralization except the silicification was observed. It assayed:

Gold: 0.02 oz

Silver: 0.44 oz

The gold-silver content is an anomalous amount and will be evaluated as drilling, beginning in the center of the INDIGO AREA evaluates the zone. This area may be merely a large low grade area, but if large enough and containing enough silver content locally, it would be attractive.

On the Chris 7 claim there are several other areas of alteration, a brecciated zone in the wash south of the INDIGO area was sampled, it assayed:

SAMPLE 8B-CHRIS-7:

Gold: 0.01 oz

Silver: 0.73 oz

Copper: tr

Lead: 0 20 %

Zinc: 1.70 %

The zinc zoning noted, and anomalous values in other previous metal values, suggests more work, mapping and some further evaluation would be worthwhile in this area, so at some future date, this area can be studied.

SAMPLE 9B-CHRIS-7:

On the south end of the Chris-7 claim there are some areas, brecciated and silicified, found while posting the claim, little work has been done in this area but some might be since there is a small amount of silver mineralization in the sample obtained from the locality:

Gold: tr

Silver: 0.52 oz

The prime area on the Chris 7 Claim is the INDIGO AREA and this will receive attention in the preliminary drilling program recommended for the Claim area.

1.8 CHRIS CLAIM NO. 8:

Only limited work has been done on this claim, but initial samples are encouraging and so more work will be done. While the samples are favorable, insufficient work, as of this writing, has been done to select an area for drilling, though two likely areas are being investigated as work proceeds.

SAMPLE 7D-CHRIS-8:

This sample was taken from a small dump near the location monument of the claim, Except for alteration of the limestone no mineralization was present and the sample was of no value.

Gold: none Silver: tr

Another sample from a brecciated and veined area 150 feet northwest of the location monument where there was apparent mineralization assayed somewhat better:

SAMPLE 8D-CHRIS-8:

Gold: tr

Silver: 3.91 oz

Copper: 0.41 %

Lead: 1.67 %

Zinc: none

This would be attractive low grade and intermediate grade ore, having a value of more than \$12.00 per ton, so it will be mapped and the area incorporated into the preliminary drilling program.

Another fair sized silicified area is present on the Chris No. 8 claim, on its eastern border, as mapped on BRS-C-1. However, this area has not yet been sampled or studied, but will be included in future field work, since there may be some relationship to the INDIGO area of Claim Chris-7, which lies to the south.

ASSAY CERTIFICATES:

Assay certificates for all of the assaying done on the Chris claim group to date are included in the file packet on ASSAYS.

MAP REVISIONS:

A revised map is being prepared for the Claim Group, which will show more of the locations of the sampled areas, and a separate map is being prepared for each of the areas of interest.

Beginning with the INDIGO AREA, MAP 6, these will constitute a series of maps useful in guiding drilling, and will be assembled into revised future studies of the district.

As new data are obtained, the body of every section of this report will require revision. Until all of the field work and preliminary drilling has been completed, revisions will be a constant requirement.

SAMPLING:

It should be realized, that the sampling reported in this SECTION is mainly of areas that showed alteration and or mineralization. Such sampling is selective, because of the nature of the polished and thin sections studies made from the material. Reject portions of the samples are then assayed for correlative data to permit interpretation of the petrographic results and to help establish those areas where detailed sampling will be most productive. Detailed sampling can now be conducted in each of the areas found to have merit. Such sampling activities can include trenching and channel sampling. This work can be conducted concurrent with the drilling that is recommended in each of the areas. The results of the drilling will determine volume and grade factors for each ofthe areas.

The primary purpose of the work to date was to find and isolate areas of merit in which detailed work could be done. The results turned out very good, and many areas now require attention and exploration activities of various kinds.

SECTION 12

MIKE CLAIM GROUP

AND

SUB-SECTION 3

SECTION 12

12.1 MIKE CLAIM GROUP

12.1 GENERAL:

In this SECTION and its Sub-Section 3, the data available on the MIKE CLAIM GROUP is submitted. The data is being revised and updated and will constitute an additional revision to this PRELIMINARY REPORT at a later date.

12.2 PROPERTIES:

The MIKE CLAIM GROUP is comprised of 11 claims, all unpatented, as shown on MAP T-1 and IM-M-1. The claims are the:

MIKE CLAIM GROUP 1-11 inclusive

Assessment work on these claims is now being done for the 1972-1973 year and will be filed by the end of 1972.

11.3 MAPPING:

Maps are in progress on the Mike claim group, including the area drilled by two exploratory drill holes. When completed they will be included within this report.

11.4 DRILLING:

Two shallow holes have been drilled on the Mike Claim Group these were drilled in 1970 and intercepted silver-lead-copper-zinc mineralization at 4 feet. See the two logs that accompany this report for details. The holes indicate some mineralization has occurred in the Mike altered areas, and further holes may intercept richer values. It should be noted that zoning prevails in this area, with increased lead-zinc values and lower gold-silver values as one goes southeast.

11.5 RECOMMENDATIONS:

It is recommended that the entire Mike Claim area be examined in detail and other mineralized areas located and these drilled by 2 to 5 holes to evaluate them. The present zone of mineralization could also be drilled by a series of 4 or 6 off-set holes to ascertain any increments in values and the direction that further drilling might take to delimit this zone.

11.6 MINERALIZED ZONES:

The following mineralized areas are known on the Mike, but most of the Mikeclaims have not been evaluated or examined, or studied as yet. Many of the altered areas may have as yet not been found.

ASTRAL

MERLE SOUTH Helen deposit 2 holes

Areas to the east of the drilled area have yielded silver values just less than an ounce at the surface, and constitute a favorable area for exploration drilling.

3.1 MINERALOGY AND GEOCHEMISTRY

1.1 GENERAL ECONOMIC GEOLOGY:

The geochemical anomaly map on page 3.2 prepared by Drewes indicates how extensive the region is in terms of dispersed values, which all may reflect centers if important mineralization such as at Taylor and Nevada mining districts once they have received exploration and drilling has been done in them.

The mining districts of the region were mainly producers of silver, with some gold-lead-zinc-copper. Tungsten and beryllium have been produced only locally. Production was not large except in the Taylor district. Some manganese was also produced south of the Nevada district and may have some implications since the deposits are peripheral to the Nevada district and may reflect a buried intrusic source. Extensive exploration is being conducted by Phillips Petroleum in the region, at Taylor, Copper's Wash, and at Ward, all within 12 miles of the Nevada District, and their success suggests reasonable success for the exploration currently underway on the Nevada areas of mineralization.

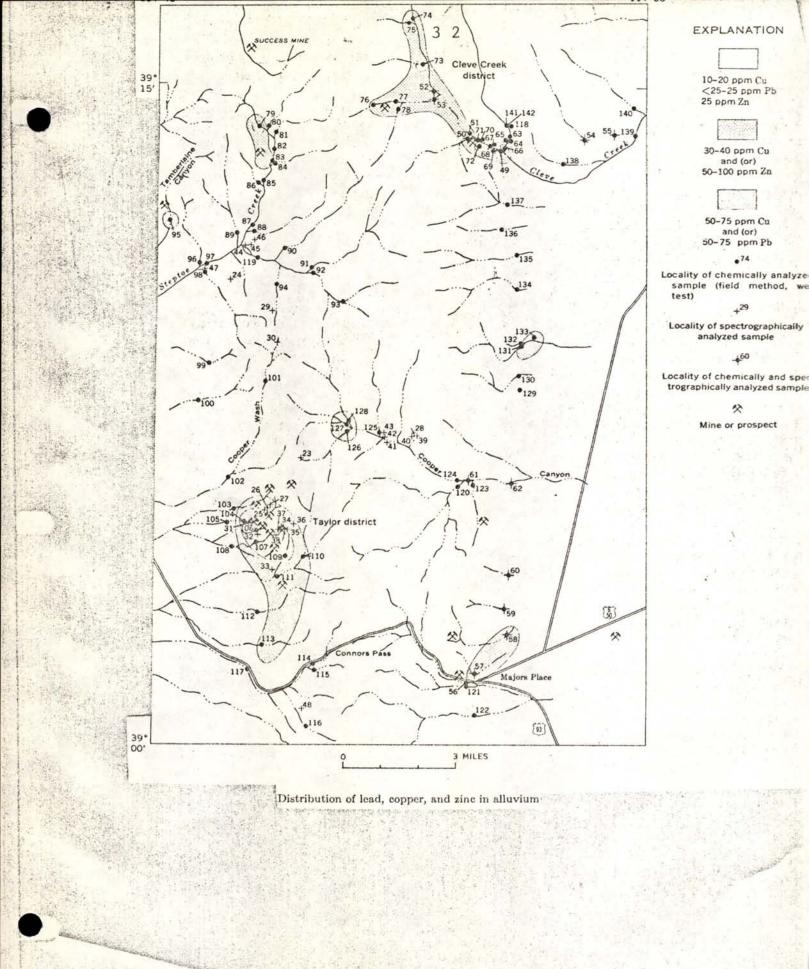
The Guilmette Formation is the most important formation and is host to silver deposits throughout the region. It contains stringers, sheets, pods, and large irregular bodies of silicified rocks, calcitized areas that contain silver and base metal values.

The important silicified areas form dark-brown todark grey reddish areas often ledges and ribs that project above the level of the surrounding limestone. The altered and mineralized bodies are often alined along north-northeast trending zones, or beddings that dip westward and strike north-south.

Mineralization of better grade ore is often associated with late quartz zones, in the paragenetic sequence, the later quartz seems associated with silver and other values.

Silica has preferentially replaced the limestones, so brecciated, silicified areas, become prime targets and on the Mike claim group there are a number of such zones, in addition to structural zones heavy with hydrothermal calcite which have excellent silver potential.

There are no mapped igneous rocks, as yet, in the district, the ore source is therefore unknown and a center has not been established. Thus, exploration work has prime targets and the great potential to work towards.



ORE MINERALS:

The ore minerals so far identified are the common primary sulfides of the base metals:

Galena Chalcopyrite Sphalerite

and their oxides:

Cerussite
Willemite
Malachite
Hematite.

Discrete silver minerals have not as yet been identified on the Mike Claims, but more than 95 % of the Mike claim area has yet to be examined, so the work to be done will be quite productive.

MINERALIZATION PERIODS:

It is as yet unknown in the Nevada district whether or not the mineralization is associated with the Nevadan Orogeny, and thus the Schell Creek Thrust Fault may have beheaded the deposit, or the Laramide Orogeny with its new discovery area at Ward.

The district seems to have been mineralized in the late Mesozoic, and siliceous solutions seem to have been derived from a magmatic source, egressing to the host rocks along faults and dilational or tensional structural systems in part created by the igneous activity and resultant faulting. The solutions carrying the silver and base metal values egressed to their present position from some source, and the silver may represent the more remote zones of the mineralization which may go to considerable depth.

Geochronological dates may be desired to date the deposit which would help in the structural interpretation.

EASTERN NEVADA MINING DISTRICT:

In the Tamberlaine Canyon area, a number of small adits and shafts exploited outcrops of silver mineralization during the early days. Most of these workings are in pods of silicified limestone in Members B and C of the Guilmette Formation. These seem to be controlled by the major system and normal fault which extends westward from the main system and trends northwestward across the canyon and continues beyond the west boundary of the mapped area as shown on MAP-4.

Quartz replaces limestone along northeast-trending fracture zones within a sort of main east-west trending zone, some of the quartz is brecciated and sheared and contains later silica as petrographic evidence shows, and along with some manganese oxide, and some other oxides, comprise the deposits in Tamberlaine Canyon. More details are included under petrography below.

As elsewhere, mineralization is associated with the brecciated later quartz silicification in limestone areas.

PETROGRAPHY

1.2 GENERAL:

The polished section studies of ore from Tamberlaine Canyon and the western side of the district follow the general pattern of a two quartz generation activity with discrete sulfides introduced with or slightly later than the second quartz generation.

Sulfides consist of isolated galena and sphalerite grains in a quartz gangue.

The sphalerite shows no chalcopyrite exsolution and is an iron-poor variety, thus the mineralization occurred below 354.5 °C. and fairly remote from the source. Heat and close proximity to the source would have resulted in an iron rich sphalerite and some mesozonal or katazonal alteration would have been present.

Galena is slightly replaced by covellite and then thickly rimmed with anglesite-altered in turn to cerussite.

Chalcopyrite is sometimes present and oxidizes to malachite and chrysocolla.

Mimetite and other oxides are often present. Except for argentite, the silver minerals are yet to be identified, but then, very few samples have been worked on as yet, so in the future more paragenetic information and mineralogical details will be added. Such information is important for guiding drilling and establishing zoning and targets at depth.

MIKE CLAIM NO. 4:

Mineralization from the east side of the Mike No. 4 Claim has been studied. This area will be one that will require drill sites and access roads for initial drilling activities.

The sample consists of rod-like alpha quartz which appears to be due to replacement of limestone, rather than vein filling.

Innumerable tiny calcite blebs are enclosed in the quartz subhedra.

Veins of calcite may cut the fabric, and are cut again by later quartz veins. This sequence, paragenetically, is important:

Doming

Fracturing

Silicification

1st Generation

Healing

Fracturing

Calcite veining

Healing

Fracturing

Quartz

2nd Generation

Sulfide mineralization

What has now been fairly well established will help in exploration. Altered zones without the late quartz will have little attraction. Petrographic samples will disclose favorable areas to drill.

Sulfides in the samples are disseminated in the quartz, and are only partly altered or oxidized.

Blebs of Fe-rich sphalerite are partly replaced by hematite and granular willemite.

Galena is wholly altered to cerussite and mimetite.

MINERALIZATION HAS BEEN EPIZONAL-low temperature, so the roots are below and at depth, and offer the full potential of any district, such as Ward where major deposits with less show at the surface than the Nevada district produced great ore bodies near-surface and down to depths as great as 1600 feet. More than 200 million dollars worth of ore have been blocked out in the Ward district in the past three years. So the potential is great.

Minerals present include:

Quartz 84 %

Calcite 12 %

Sphalerite 0.05 %

Mimetite 0.05 %

Cerussite 0.05

Hematite 2 %

Galena tr

Chalcopyrite tr

The area now requires detailed surface mapping, access roads, and drill sites. The alteration, brecciation, and zones of mineralization are rather extensive in the area sampled.

The increase in zinc to the south from other deposits in the District suggests zoning and all that that implies.

1.3 QUANTITATIVE ASSAYING:

During the posting of the claims some samples were collected from various area and a few of these reflect mineralization that wills have to be checked out and these include:

SAMPLE 2B:

From the east side of Mike 4:

Gold: 0.01 oz

Silver: 0.89 oz

Copper: 0.026 %

Lead: 0.10 %

Zinc: none

This anomalous occurrance of values may reflect a near surface zone of importance, and so will be mapped and studied in detail.

An extensive altered zone on MIKE I mainly of calcite and stains will be prospected by the certification drilling, and if any-thing of merit shows up will be added to this report.

1.4 DATA:

Assay data on various areas sampled is contained in the assay file accompanying this report. Most samples from altered zones containing only calcite were barren, it is very clear that the late quartz is a necessary association for ore to have been introduced.

The Mike claims are so new that time has not permitted detailed work to be done, and with the balance work yet to be accomplished, this report will require revision in most respects.

Work done on adjoining and other property groups in the district does point out the merit of the region, and as work has progressed on other areas extensive altered and well mineralized zones have been found and many of these will have ore deposits associated with them, some of quite high grade ore.

While the Mike Claims have considerable potential, and one good area to start work on, as soon as the field work has been completed, there will no doubt be many more excellent drill target areas.

SECTION 4

4.1 ORE DEPOSITS AND RESERVES

1.1 GENERAL:

While there are no known or blocked out ore bodies on the Mike claim group, there are zones as mentioned, that deserve exploration work, and such areas may yield good ore deposits. More than 95 % of the Mike claim area remains to be prospected, mapped and studied, so more good areas will no doubt be found as such work proceeds.

OBJECTIVES:

Exploration work will seek to block out and discover a minimum reserve of ore to justify an operation in the area. Such a reserve would have to exceed 500,000 tons, and approach I million tons of a profitable grade ore, depending on whether or not it was mined open pit or underground: the grade of ore differring as to grade and value as may required by the method utilized to exploit it.

Ore that will provide a profit after mining and milling from open pit or underground production will be the objective of drilling. A reserve in excess of 1 million tons would justify a milling operation of more than 500 tons per day capcity.

ORE CONTROLS:

Both structural and stratigraphic control of the localization of ore bodies will be important in the Mike area, as it is in the Nevada district. But details of the controls will be only ascertained as one or more ore bodies are found and discovered and delineated. The zone of attractive mineralization on the Mike Claim group is associated with brecciation and evident structural control in a portion of the favorable Guilmette Formation.

The abundant accessory values in lead-copper-zinc and abundant zonc in the Mike areas, suggest deep seated base metal sources for the ore zones. The silver content suggesting remote mineralization with the source somewhere at depth, perhaps east of the claim group.

Much of the Nevada district remains to be explored, so much is not known at this time, that preliminary conjectures can only deal with the potential as the work in the district indicates is there. The district has a very large potential, and work is fully justified in going ahead with an exploration program.

Drilling Record

HOLE NO. M.Ke 1

rface Elev	vationSample Length Z Plugged	:		Т	otal Deptr	1
ologist	ECE. Driller H.B. Drilling					
DEPTH	LITHOLOGY	Au	Ag	Pb	Cu	Zn
0-2	Dense-Silicitied Linestone-Guilnette	Αυ	~~			
4	Stained with Hematite Milor Cakile			.10	. 02	1.52
6		.005	.30	.10	.02	1.52
8	Veing	.005	.22	.10	,02	1.52
	n	.01	D.57	.10	.02.	1.52
10		.015	1.67	.41		1.75
12	- 1 Cl 1 licetone locally	.015	1.69	,41		1.75
5000	Pink. Stained Linestone Locally	.01	.60			7
16	Silicties with traces of Minetite	.01	.7/			
18	on fenctures					
20		.005				
22	"	.005				
24	1/	.005	.01			
26	" " " " " " " " " " " " " " " " " " " "					,
28	No Minetite					
30						
		-			-	
			-			-
			-	-	-	-
					-	-
				-	-	+
			-	-	-	-
		-			+	-
,				-	-	-
			-	-		-
						-
- 11						

Drilling Record

HOLE NO. M.Ke 2

DEPTH LITHOLOGY 1 Au AO PD CU 2 Mixed-Pink-uncrystallized Linestone-Guillette .39 .108 /. 4 feox stained Silicitied Linestone Some .005 .55 .39 .108 2. 6 Vein 9tz with interstitial malachite .01 1.46 .39 .108 2. 8 And Chrysoculla01 1.00 .32 .122 2. 10 ".005 .43 .21 .25 /. 12 Clern partly Recrystallized Linestone to .09 .07 to 14 ". to .13 .13 .023 to	ASSAYS %. Cu Zn .108 1.56 .108 2.01 .108 2.27 .122 2.08			ĵ	000	
DEPTH LITHOLOGY AU AO PB CU 7-2 Mixed Rink-uncrystallized Linestone Gullnitte 4 feox Stained Silicitied Linestone Some 6 Vein 9tz with interstitial malachite 10 1.4L 39 .108 2. 8 AND Chrysocolla. 10 0.5 .43 .21 .25 /. 12 Clern partly Recrystallized Linestone. to .09 .07 to 14 16 17 to .03 to 18 20 " to .03 to 22 " to .03 to 24 Sane as above with interstial Clay 26 And feox 28 "	Cu Zn .108 1.54 .108 2.01 .108 2.27 .122 2.08	Pb			Co Driller H-B Drilling	eologist .
0-2 Mixed-Pink-uncrystallized Linestone-Guilnette	.108 1.56	Pb			LITHOLOGY	DEPTH
4 feox stained Silvertied Linestone Some .005 .55 .39 .108 2. 6 Vein 972 with interstitial malachite .01 1.46 .39 .108 2. 8 And Chrysocolla01 100 .32 .122 2. 10 ".005 .43 .21 .25 /. 12 Clean partly Recrystallized Linestone to .09 .07 to 14 ". to .12 .13 .023 to 18 ". to .03 20 ". to .03 21 Sane as above with interstial Clay 22 And fe Ox 23 " 24 Sane as above with interstial Clay 25 26 And fe Ox	.108 2.01		Ag			
6 Vein 972 with Interstitut Malachite .01 1.46 .39 .108 2. 8 And Chrysocolla01 1.00 .32 .122 2 10 "005 .43 .21 .25 /. 12 Clean partly Recrystallized Limestone to .09 .07 to 14 "	.108 2.27					
8 And Chrysocolla	./22 2.08		20. 000000	.005	feox stained Silicitied binestone some	4
10 " .005 .43 .21 .25 /. 12 Clean partly Recrystallized Linestone to .09 .07 to 14 " to .13 .13 .023 to 16 " to .02 18 " to .03 20 " to .03 22 "		.39	1.46	.01	Vein 9/2 with interstitiAL malachite	6
10 "	1 100	.32	1.00	.01	AND Chrysocolla.	8
14	.25 1.97	.21	.43	.005	"	10
14	7 t .09.	.07	.09	t	Clean MARtly Recrystallized Limestone	12
16 "	.023 t	.13	.13	ti	"	
18 "	.023 t	.13	./2	te		
20 " to .03 22 "			.03	to		
22 " h07 24 Same as above with interstial Clay 26 And fe Ox 38 " 30 "				ti	"	
24 Same as above with interstial Clay 26 And fe Ox 38 " "				,	"	
26 AND FEDX 28 " 30 "			,		Commented the start of Class	- U-07-19-1
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SECTION 13

TAMAR CLAIM GROUP

AND

SUB-SECTION 3

SECTION 13

13.1 TAMAR CLAIM GROUP

13.1 GENERAL:

In this SECTION and its Sub-Section 3, the available data on the TAMAR CLAIM GROUP is submitted. The data is being revised and updated for inclusion in a more complete geological report on the district.

13.2 PROPERTIES:

The TAMAR CLAIM GROUP consists of eight claims, the TAMAR 1-8 inclusive, and all are unpatented lode claims staked and located as shown on MAP T-1 and IM-T-1.

The required assessment work on these claims is completed for the 1972-1973 year.

13.3 MAPPING:

The mineralized areas on the Tamar claims have been mapped and revisions are being prepared of these maps for inclusion in this report. At least eight zones are known on the Tamar, and as yet only about 30 % of the claim area has been examined and geologically studied. So many more will no doubt be found outcropping at the surface and provide immediate drilling targets for exploration.

13.4 DRILLING:

Two shallow holes were drilled in the Merle area, and what seems to be the northern edge of the Merle deposit found on the Mike claims must extend into the Tamar Claims. Drill sites and roads into several of the mineralized areas have been prepared and the project is now ready for drilling. Several pits, inclines and shallow workings were operated on the Tamar claims during the early days, it was one of the most mineralized and prospected claims at that time.

13.5 RECOMMENDATIONS:

It is recommended that additional roads and sites be prepared on the known mineralized zones and shallow drilling be conducted. On those zones for which drill sites and roads have already been prepared, shallow holes not more than 100 feet deep, are recommended. Prospecting of the remaining unknown surface area of the claims is also recommended and can be accomplished concurrent with the drilling of the known areas.

11.6 MINERALIZED AREAS:

The following mineralized areas have been found on the Tamar Claim groups, and these have been mapped and studied and will be the subject of the drilling program and exploration work outlined for the district.

WEST AREA PAT 1 GLANCE VISTA	LVER ZONE	NAME O	F DEPOSIT	HOLES
VALLEY	INCLINE MERLE VEST AREA GLANCE VISTA VISTALA		E NORTH	2

The Champion patented claim partly overlaps on the Tamar Claim area and the mineralized area found on the Cahmpion claim may extend into the Tamar area as well, and provide a drilling target north of the Pat zone.

SECTION 3

3.1 MINERALOGY AND GEOCHEMISTRY

1.1 GENERAL ECONOMIC GEOLOGY:

The geochemical anomaly map, prepared by Drewes, for the region is on page 3.2, and shows the areas that could be interest to prospect, and the relative importance of the Taylor Mining District.

Tamberlaine Canyon, the eastern portion of the Nevada District, was included in this survey, but the wester portion where the Tamar Claims are staked was not. Thus, attention has not been brought to the western area until recently.

The mining districts of the region were mainly producers of silver, with some gold-lead-zinc-copper production. Tungsten and Beryllium have been produced elsewhere in the region, as well as some manganese at the mouth of Steptoe Creek. Taylor was the most productive, and has been the site of recent important high grade silver discoveries. Phillips Petroleum is conducting exploration in that district where the writer first made some discoveries in 1961.

The Guilmette formation is the most important formation, and is host to silver deposits throughout the region. It contains stringers, sheets, pods, and large irregular bodies of silicified rocks, calcitized areas, and altered areas that contain the silver and base metal values.

The important silicified areas form dark-brown to dark grey reddish areas often ledges and ribs that project above the level of the adjacent and surrounding limestone. The altered and mineralized bodies, are often alined along north-northeast trending fault zones, or beddings that dip westward and strike north-south.

Mineralization of better grade or is often associated with late quartz zones, in the paragenetic sequence, the later quartz seems associated with silver and other values.

Silica has preferentially replaced the limestones, so brecciated, silicified areas, become prime targets, and on the Tamar Claim group there are a number of such zones, in addition to structural zones which have excellent silver mineralization.

There are no mapped igneous rocks, as yet, in the district. The ore source for the district has not as yet been found or established. Thus, exploration work has prime targets to work towards.

ORE MINERALS:

The ore minerals are both primary and secondary, depending on the oxidization history of the outcrop sampled.

SULFIDES:

The sulfide present include:

Galena
Sphalerite
Chalcopyrite
Argentite

Other primary silver minerals may be present, but have not as yet been identified.

SECONDARY OXIDES:

The following are present:

Bindhemite
Chrysocolla
Hematite
Malachite
Cerussite
Willemite
Conichalcite
Zincian malachite
hemimorphite
rosasite

The TAMAR claim area and its mineralized zones have a varied suite of minerals, and reflect the possibilities of interesting and important zoning, and sampling in the future, in conjunction with detailed mapping will seek to detail the zoning and its implications for drilling and exploration.

More polished section work will be done to develop a full understanding of the paragenesis and sequence of mineral emplacement.

MINERALIZATION PERIODS:

Then the actual mineralization occurred, has not been established, but it will be important for deeper targets and exploration in the district to arrive at some detailed knowledge of the period or periods of mineralization.

The district seems to have been mineralized in the late Mesozoic, perhaps related to the Laramide activities. Siliceous solutions seem to have been derived from magmatic sources, egressing to the host rocks along faults and dilational or tensional systems, in part perhaps created by the igneous activity, and by resultant faulting. The solutions carrying the silver and base metal values egressed to their present position along structures that may go to depth and offer drilling targets themselves.

Solutions rich in silver retained mobility longer, and thus ascend a little higher and further from the source, this leads one to anticipate ore going to considerable depth in the Tamar area.

But the mineralization could have been derived from the older Nevadan mineralizing episode, or a later Tertiary episode, and the precise interpretation will have important influence on the exploration approach and tools and methods utilized.

Some geochronological dates may be obtained from the galena to date the deposit, this may be done as work progresses in the area.

EASTERN NEVADA MINING DISTRICT:

In the Tamberlaine Canyon area, a number of small adits and shafts were worked that produced the silver during the early days. Most of these workings are in pods of silicified limestone in Members B and C of the Guilmette Formation. These seem controlled by the major normal fault zone that extends westward from the main system and trends northwestward across the canyon and continues beyond the west boundary of the mapped area as shown on MAP-4.

Quartz replaces limestone along northeast-trending fracture zones within the main east-west trending zone, some of the quartz is brecciated and sheared and contains later silica as petrographic evidence shows, and along with some manganese oxide, and some unidentified oxides, comprise the deposits in the Canyon.

As elsewhere, mineralization is associated with the brecciated later quartz silicification, in limestone areas.

TAMAR GROUP:

There are some sixteen mineralized areas on the Tamar Claims, so far found during the reconnaissance field work accomplished in the field. More will undoubtedly be found as detailed mapping covers the entire claim area.

The Tamar Group is located in the western portion of the district and the structural and stratigraphic controls of the ore have not as yet been worked out in detail, nor have the individual mineralized zones been mapped as yet.

No drilling has as yet been done, but drill sites and roads are ready for some preliminary drilling.

The mapping of each altered and mineralized area will no doubt reveal more important aspects of the zones than this limited report will be able to submit because of the lack of completed work at this stage of the program.

With the deep discoveries being made at Ward and Taylor, there are increased expectations for the Nevada District which seems more favorably located with respect to the main centers and regional picture.

The individual areas have not as yet been named or planned for detailed work, so each claim will be discussed in the group and samples and other analytical data obtained from work on the claims will be submitted below.

TAMAR CLAIM 1

There are four areas on this claim of merit, and the claim has not been prospected in detail, nor have the areas been mapped in detail. The important Indigo mineralized area of the Chris Claim group adjoining the Tamar on the west extends into the common west corner of the Tamar No. 1 and No. 2 claims. Drill sites have been prepared for part of the area in this corner area, and some certification drilling in this area may provide some interesting results, if so, then another report will be submitted, or this report will be revised.

AREA 1B:

In this area of sample 1B, the following assays were obtained:

Gold: none

Silver: 0.04

The area represents alteration 25 feet south of the location monument, but it is not exposed well, some dozer work may be done at a later date here and reveal something interesting.

AREA 2B:

This is an important altered and mineralized area, but access roads and drill sites have not as yet been prepared for this area. Assays were as follows

Gold: 0.02 oz Silver: 6.30 oz Copper: 2.70 % Lead: 1.92 % Zinc: 5.80 %

Ore having this content would be worth about \$45.00. The area is about 100 feet northwest of the side center monument. Roads could be prepared without to much difficulty.

AREA 3B:

From the same area as the above sample, another sample was taken:

Gold: 0. oz Silver: 0.60 oz

And while shows of a small anomaly are present, the mineralization seems confined to the altered and silicified zone, little values go out into the adjacent limestone.

AREA 4B:

Another favorable area, probably associated with Area 2B, but 100 feet more to the north assayed:

Gold: 0.02 oz Silver: 8.12 oz Copper: 1.18 % Lead: 9.54 % Zinc: 7.20 %

Ore of this content would have a value of more than \$50.00 per ton. If would be the objective in this area and its adjacent 2B area to try to find some volume of this grade of ore. Rich ore solutions seem to have entered this particular area and justify further work and some drillling.

TAMAR 2

On the Tamar No. 2 claim there is only the extension of the silicified one and mineralization in the northwest corner of the Indigo zone found on the Chris claims west of the Tamar group. Most of this claim has not been examined or prospected, little is known about it, so future work could disclose areas of merit.

TAMAR 3

This claim is one of the more important of the group and has important exposures of mineralization, and some of the richest found in the western portion of the Nevada District.

AREA 3A:

Just north of the discovery monument this area is of interest because of the general aspects of the area which suggest strong fissuring, alteration, and replacement on the Tamar No. 3 Claim.

This sample assayed:

Gold: 0.01 oz

Silver: 5.95 oz

In silver and gold alone, this sample is worth more than \$10.00 per ton, and with other values it would be good ore. It occurs in a little mapped and studied area south of the main zones to be drilled, and so at some future time this area should be studied in detail and some drilling planned.

AREA 1A:

The lower most of a series of small pits worked a strong fissure zone and bedding replacement that has merit for future prospecting and drilling. Drill sites have been prepared for this area which includes samples 2A and 4A.

SAMPLE 1A:

Gold: 0.01 oz

Silver: 29.01 oz

Copper: 4.35 %

lead: 7.88 %

Zinc: 8.99 %

Ore of this value would be worth more than \$130.00 per ton, and offers a good target for exploration and possible replacement ore bodies. The base metal mineralization suggests strong possibilities of rich ore at depth and the major potential of the Tamar Group.

AREA 2A:

This sample was taken from workings just northeast of the rich 1A sample. Drill sites have been prepared for this area, and access roads make this and the associated areas accessible.

Gold: 0.01 oz Silver: 10.23 oz Copper: 2.59 % Lead: 4.55 % Zinc: 5.70 %

The ore, having a value of more than \$65.00 per ton, shows distinctly that the silver follows the copper, and the ratio of copper to silver is close to that of the higher grade sample above. Under the petrographic portion below, samples from this area have been studied microscopically and provide additional information on the nature and character of the mineralization.

AREA 4A:

This sample was taken from altered lime outcrops northeast of the main altered and sampled area. It showed no values in gold or silver, so the mineralization is generally restricted to the silicified portions of the limestone, or calcitized and brecciated and mineralized areas.

The Tamar Claim No. 3 has been prepared for initial exploration. Access roads and drill sites to prospect the main silver and metallized zones have been prepared. Mapping of the area in detail will assist in the geological interpretation of the mineralization and its control and essential features and permit the drilling to be controlled.

Essentially, the first exploration on the Tamar can be commenced in this area.

TAMAR 4

Several areas have been examined during the reconnaissance work on the Tamar claim group. Sample 12A was taken from an appreciably altered and silicified area which remains to be studied in detail.

SAMPLE 12A:

Gold: tr

Silver: 1.66 oz

Copper: 0.029 %

Lead: 1.31 %

Zinc: 1.36 %

Ore of this grade, if in great quantities, would constitute a low grade deposit and would have values in excess of \$9.00. This area should be prospected, mapped, sampled, and then drilled since it could offer an appreciable target. An access road is nearby, but no roads or drill sites have been prepared on this locality as yet.

TAMAR 5

This claim has not been checked out, prospected, or examined as yet, and so its potential is completely unknown, it is recommended that detailed mapping for the entire claim group be completed, this will no doubt show many other favorable mineralized areas.

TAMAR 6

This claim shows brecciated areas, some veining and minor silicification, but extensive work not as yet completed, will show some important mineralized areas.

SAMPLE 5A:

From small seams in the limestone:

Gold: tr

Silver: 0.08 oz

While not impressive, the seams show that some silver has migrated into the minute fracturing in the claim area, and so detailed work will probably show a favorable prospecting area on this claim.

TAMAR 7

This claim is also one of the most important of the Tamar group, and has important areas of mineralization on it.

AREA 9A:

This is a small silicified area outcropping northwest of the discovery monument. It assayed:

Gold: tr

Silver: 0.14 oz

This slight anomaly is believed to be peripheral mineralization to the larger zone around sample 6A.

AREA 8A:

This sample is from limestone that is altered northeast of the important 6A silicified zone, and across which drill sites and roads would have to come.

Gold: 0

Silver: 0.08 oz

Copper: 0.49 %

Lead: 0.25 %

Zinc: 0

The value of this material would be more than \$5.00 and while low grade, indicates perhaps that the unit of mineralization exists below it some 5 to 10 feet, and so a drill location would be placed at this point.

AREA 6A

This sample was taken from the mineralized and silicified zone outcropping on the ridge at this sampled point:

Gold: 0.01 oz

Silver: 10.45 oz

Copper: 1.82 %

Lead: 6.36 %

Zinc: 4.90 %

The values are good, the ore would be worth more than \$60.00 per ton. The unit seems to be more than 12 foot thick, and to have considerable dimension, and would be easily drilled and prospected.

There are no drill sites or access roads to this locality as yet, but they could easily prepared, and would open up the area to the east as well.

Red jasper associated nearby with the main silicified area assayed:

SAMPLE 7A:

Gold: 0.01 oz

Silver: 1001 oz

The jasper contains over one ounce of silver, and could be followed.

An extensive brecciated and altered area exists just south of the AREA 6A locality, and may also be important in the interpretation of this area. Fluorite with some quartz is also found east of the area, so the region has underground tectonic fracturing and mpneralization, and may have subsurface targets of ore of major proportion, and the values of the main ore zone are very good.

SAMPLE 10A:

Near area 6A, in manganese stained material, ore assayed as follows:

Gold: 0.01

Silver: 7.59 oz

Along with the visible lead-copper values, this would be very good ore. Thus, the entire AREA 6A should be planned for prospecting and drilling.

Altered limestone at the sampled point 11A did not yield values in gold or silver.

TAMAR 8

This claim also has important mineralization, and should be considered for early drilling and geological investigations.

A small shaft has prospected the main area on this claim at sampled site TAMAR 8, series of 1968. Ore from this shaft area assayed:

Gold: 0.02 oz

Silver: 18.56 oz

Lead: 0

Manganese was associated with this ore.

The ore was sampled and metallurgical testing done on samples from it. The results are discussed in the section dealing with Metallurgical consideration below.

Another sample from the dump of altered limestone assayed:

Gold: none Silver: 1.68

The alteration in this area carries more silver values than elsewhere, so possibilities for replacements nearby or at depth are very good.

Altered limestone away from the shaft area showed very little value, so more petrographic work will be done on the alteration types, some must be directly associated with silver bearing solutions, others note, so this opens some possibilities for further research and application when details are known.

AREA 5B:

This area is 300 feet south of the Discovery monument in a little studied area which needs detailed work now that the results of initial sampling were favorable.

Assay results were:

Gold: 0.01 oz

Silver: 4.14 oz

Lead: 3.43 %

The ore would have a value approaching \$20.00 with the zinc and copper added but not assayed for.

There is a nearby access road that needs improving and then drill sites can be prepared for this area. Much work remains to be done on this particular claim.

AREA 6B:

This sample was taken from altered zones 75 feet East of the west side center monument on the claim and also indicates another area that will require investigation. It assayed:

Gold: 0.01 oz

Silver: 1.58 %

This suggests good possibilities in this area, and will be recommended for mapping and field work, eventually perhaps some drilling and exploration work.

SAMPLED AREA 7B:

This sample came from an altered and mineralized area 125 feet north west of the location monument of Tamar 8. It assayed:

Gold: 0.01 oz

Silver: 1.28 oz

This area also poses a possible exploration and drilling area. Such areas as this could lead to near surface ore bodies that could be open pitted, or to replacement ore bodies at depth that might be rich enough for underground exploitation. All areas that assay more than 1 oz of silver should be examined in great detail.

The TAMAR GROUP of Claims therefore, has many favorable localities for exploration, some very good, with high grade ore possibilities, and some are ready for drilling, others will require access roads and drill sites. Less than 20 % of the area has been prospected and studied, so there are very good possibilities of many more favorable areas, and the more there are, the better zoning and other aspects of ore control and localization can become known.

PETROGRAPHY

1.2 GENERAL:

Samples taken for petrographic analysis are few, so far, but others are being taken for such detailed study and so this report will need revision very soon.

TAMAR CLAIM 7:

From the area of sample 6A a sample was taken for petrographic analysis and the results are herewith submitted:

SAMPLE TAMAR -7:

The ore, which assayed more than 10 ounces of silver, consists of granular vein quartz showing evidence of repeated mild brecciation during crystallization with wide spread distribution.

Vuggy portions, where quartz is euhedral, are filled with

coarse calcite anhedra. Calcite also veins the fabric and heavily impregnates certain patches which may be originally Member A limestone or Simonson Dolomite, fragments in the quartz. Since the fragments are limestone, the Member A identification is considered most likely.

An abundance of supergene minerals are present and derived from original galena, sphalerite, and chalcopyrite.

Supergene chalcocite and covellite replaced galena. Most abundant is willemite which freely replaces quartz.

Patches of cerussite, probably after galena in situ, surround cerussite-malachite intergrowths, to give the rock its bluish greenish vuggy appearance.

Later chrysocolla and bindheimite vein the fabric.

Alteration has been spizonal, but intense and suggests that this is the top of the order of mineralization and the system may have considerable depth.

Minerals were present in the following amounts:

Quartz 40 % Willemite 30 % Cerussite 6 % Calcite 20 % malachite 0.5 % bindheimite 0.5 % chrysocolla 2 % Hematite 1 %

This area will be a good one to include in a drilling program, and will provide a certain amount of open tonnage, ore that can be exploited by an open pit on the ridge where the ore is exposed.

SAMPLED AREA TAMAR-1:

A sample of the vein quartz zone in association with the sampled areas of better grade ore on Tamar Claim No. 1 showed the sample to be vein quartz with minor calcite and supergene minerals.

Most of the present minerals are supergene, oxides after original sulfides and include:

Cerussite
Conichalcite
Zincian malachite
Rosasite

Below the zone of oxidization the minerals will be sulfides.

In certain leached and oxidized outcrops there may a zone of enrichment as well where higher grade silver may occur. However, the general geochemistry seems to indicate that for the most part, most of the supergene alteration is after sulfides in situ and therefore will represent the mineralization at the surface fairly well with on surficial leaching.

1.3 GENERAL:

The assay data is included in the assay file with this report. Assays were processed by White Pine Assay.

It is clear from the work available to date, and assembled on the basis of limited field work so far, that the Tamar Claims have a considerable potential, and in part offer several very good target areas for immediate drilling and exploration, and a considerable unprospected area yet to be investigated.

Drilling Record

HOLE NO. Her-1 San Francisco District Date June 1972 Claim Rover 2 Location Hercules Gap co. Ingot Mines, Surface Elevation See Map Sample Length 4 Plugged 0 Total Depth 1nc. 300 Geologist ECE Driller MONTAIN Time Rate Footage Ib ounces DEPTH LITHOLOGY Pb Au Ag 0-4 .28 Cambrian-Eldorado limestone Bleached white. .28 1.06 12 1.06 16 1.01 20 Min0x. Minor malachite-chrysocolla noted 18.84 .61 023 4.24 34 ,22 49.84 6.05 1.43 28 .019 Granular Crystalline limestone some portions heavily stained with goethite 102 1.62 32 1.34 36 ,02 3.84 40 .01 1.95 44 48 .18 .36 52 .36 56 .28 60 64 ,24 68 ,24 72 ,22 76 ,24 80 .18 84 ,18 .12 92 .20 96 ,16 100 ,02



P. O. BOX 286.

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Name _ EINER ERICKSON

Date March 10, 1972

			oz. p	er ton	%	%	%		
SAMPLE			Au	Ag	Cu	Pb	Zn		
Carrie Ann	Ber-6	4	0.02	2.86					
	н	8	0,02	2.54					
н	68	12	0.02	2.62		0.02			
		16	0.03	7.79		0.04	none		
		20	0.03	7.95		0.02	none		
•	11	24	0.02	2.28		0,02			
H .	**	28	0.02	3.70		0.02			
"	**	32	0,01	1.01					
	**	36	0.01	1.07					
	**	40	2 30	0.46		-			

CERT. # 3 - 16

CHARGES \$46.50

Lary Stewart CHEM



WHITE PINE ASSAY CO.

P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Name EINER ERICKSON

Date March 10, 1972

una vera de a cue de la cu			oz. p	er ton	%	%	%			
SAMPLE			Au	Ag	Cu	Pb	Zn		 1	1
Carrie Ann	Ber-5	4	0.005	1.22						1
"	ti .	8		0.70						1
н	**	12	0.02	4.40		0.02				-
"	**	16	0.05	9.23		0.02	none			+
"	**	20	0.03	4.54		0.02				1
"	**	24	0.02	1.26					-	-
	88	28	811	0.60						_
11	ti	32		0.60	i.				-	+
0	11	36	0.02	1.16						+
		40		0.66						

CERT. # 3 - 15

CHARGES \$41.00

Hary Stewart

CHEMIST



P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Name EINER ERICKSON

Date March 10, 1972

			oz. I	er ton	%	%	%	=			
SAMPLE		100	Au	Ag	Cu	Pb	Zn				
Carrie Ann	Ber-7	4		0.64							
H H	11	8		0.46							
	"	12	0.02	2.45							
- "	"	16	0.04	6.42		0.07	none				-
"	11	20	0.02	3.94		0.04					
11	"	24	0.02	2.02					-		
11	H	28		0.82		100					
	11	32	0.01	1,11						-	
	n	36		0.34							-
	**	40		0.16		-					

CERT. # 3 - 17

CHARGES \$40.00

Stery Stewart

CHEMIST



WHITE PINE ASSAY CO.

P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Name EINER ERICKSON

Date March 6, 1972

0,01	0.08	Cu	Pb	Zn			
0.01	0.08						
0.01							
0.01	1.01	0.023	0.90				
0.01	0.83	Tr.	0.05				
0.01	0.73	0.013	0.50				
0.02	4.92	0.026	1.49				
0.02	7.88	0.023	1.06				
0.01	1,91	0.010	0.20				
	0.74					- 4	
					a del		
	0.01 0.02 0.02	0.01 0.73 0.02 4.92 0.02 7.88 0.01 1.91	0.01 0.73 0.013 0.02 4.92 0.026 0.02 7.88 0.023 0.01 1.91 0.010	0.01 0.73 0.013 0.50 0.02 4.92 0.026 1.49 0.02 7.88 0.023 1.06 0.01 1.91 0.010 0.20	0.01 0.73 0.013 0.50 0.02 4.92 0.026 1.49 0.02 7.88 0.023 1.06 0.01 1.91 0.010 0.20	0.01 0.73 0.013 0.50 0.02 4.92 0.026 1.49 0.02 7.88 0.023 1.06 0.01 1.91 0.010 0.20	0.01 0.73 0.013 0.50 0.02 4.92 0.026 1.49 0.02 7.88 0.023 1.06 0.01 1.91 0.010 0.20

CERT. # 3 - 9

CHARGES \$42,50

Hary Stewart

CHEMIST



P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Name EINER ERICKSON

Date March 26, 1970

SAMPLE	oz. p	er ton Ag	% Cu	% Pb	% Zn			
Eagle Roost H G - S	0.01	24.22						
" " 6		0.36						
					-			
The second second								
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								-
					E		*	

CERT. # 3 - 2

CHARGES \$7.00



WHITE PINE ASSAY CO.

P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Date__ Apr. 6, 1971

		er ton	%	%	%		
SAMPLE	Au	Ag	Cu	· Pb	Zn		
Eagle Roost Clift	A CONTRACTOR OF THE CONTRACTOR	305.74					
# # 8 P		1.76					
и и 9		0.16					
** ** 10		1.62					
				A.F.			
	14/70						
The state of the s			MAG			1	

CERT. #_

CHARGES

\$8.00

to trenent



P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Name EINER ERICKSON

Date Oct. 19, 1971

SAMPLE	S .			oz. p	er ton Ag	% Cu	% Pb	% Zn		
Queva	Queva - Kathy H.G.		-	None	3.86	0.167	1.68			
0	n	2	1350	Trace	15.46	0.462	3.68	18.96		
"		3		None	0,18	0.051	0.216			
11	**	4.		None	0,14	0,118	0.489			
							K			
	-									
	Tour .		C.						 	 -

CERT. # 10 - 13

CHARGES \$32.00





WHITE PINE ASSAY CO.

P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Name EINER ERICKSON

Date Oct. 22, 1971

SAMPLE	oz. p	er ton	% Cu	% Pb	% Zn		
Queva - Upper - 1			0.027	0.036	Trace		
" - 2				2.92			
" - 3 V	None	0.92	0.140	0.244	0.04		
Käthy - H C	None	206.1	5.17	40,81	0.65		
" East	None	303.9	19.8	12.6	4.90		
" Ore	None	53.8	1.17	26.10	16.00		
" 2.5 ft.	None	20.9	0.61	15.00	9.25		
" 3 ft.	None	81.84	1.59	23.52	5.20		
" - 1 - 30 ft.	None	4.98	0.253	3.14	2.33		
		4 7				1	4

CERT. # 10 - 18

CHARGES \$94.50

Lang Stoward



P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

Name EINER ERICKSON

CERTIFICATE OF ASSAY

Date March 26, 1970

	was to see			and the same	oz.	per ton	%	%	%	pe			\top
SA	MPLE				Au	Ag	Cu	Pb	Zn	pr	3n		
Bat	State	Top Ve	ein -	N	None	4.71	0.817	2.27	0.34				
14	41	Vein	H.G.		None	183.24	5.19	31.13	3.70				
10	11	Upper	Vein		None	173.61	3.66	3,99	5.50				
te .	N		**	N	None	107.36						-	
tr	**		11	N - 2°	None	12.41	0.213	2.360	2:385	0.36	0.30		
61	ti	Upper	Bed		None			11.10					
tt	И	Stock	Pile		None	3.68	0.111	0.21	0,17				+
	-					-							+
													+
	2 1		- 10										

CERT. # 3 - 5

CHARGES_ \$59.50

Sary Stewart

CHEMIST



WHITE PINE ASSAY CO.

P. O. BOX 286

PHONE 289-2803

EAST ELY, NEVADA 89315

CERTIFICATE OF ASSAY

Name _ HINER ERICKSON

Date Aug. 3, 1972

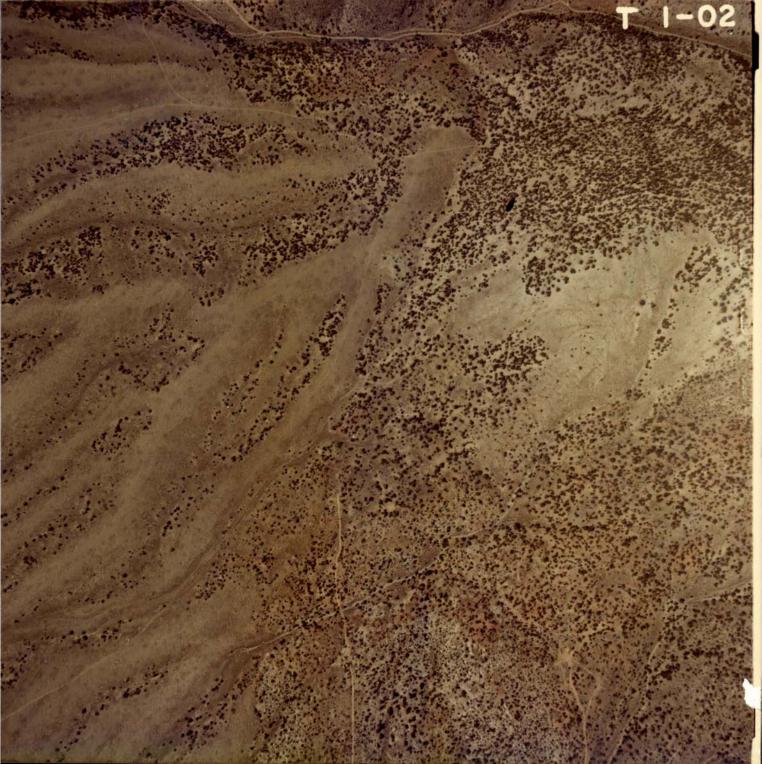
		per ton	%	%	%			
SAMPLE	Au	Ag	Cu	Pb	Zn	 	TT	-
Herr # 1 24	0,08	18,84	0.023	0.61	4.24	-		-
" 28 A	0.22	49.84	0.019	1.43	6.05			-
" 28 B	0.20	46.24	0.102	1.06	5.88	-	 	_
								_
	17.3							
								T

CERT. # 6 - 51

CHARGES Pd.

Lany Stewart

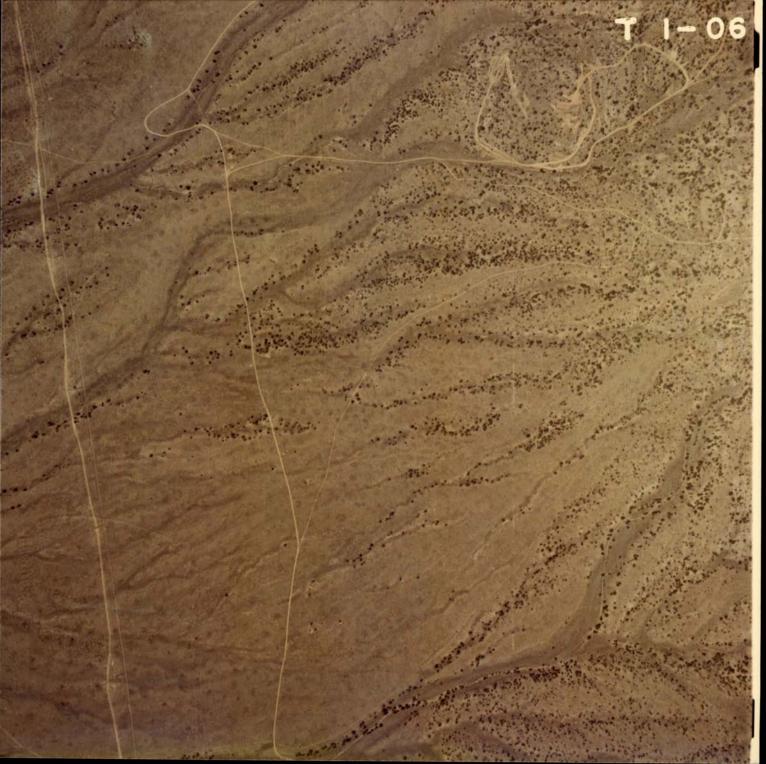
CHEMIST











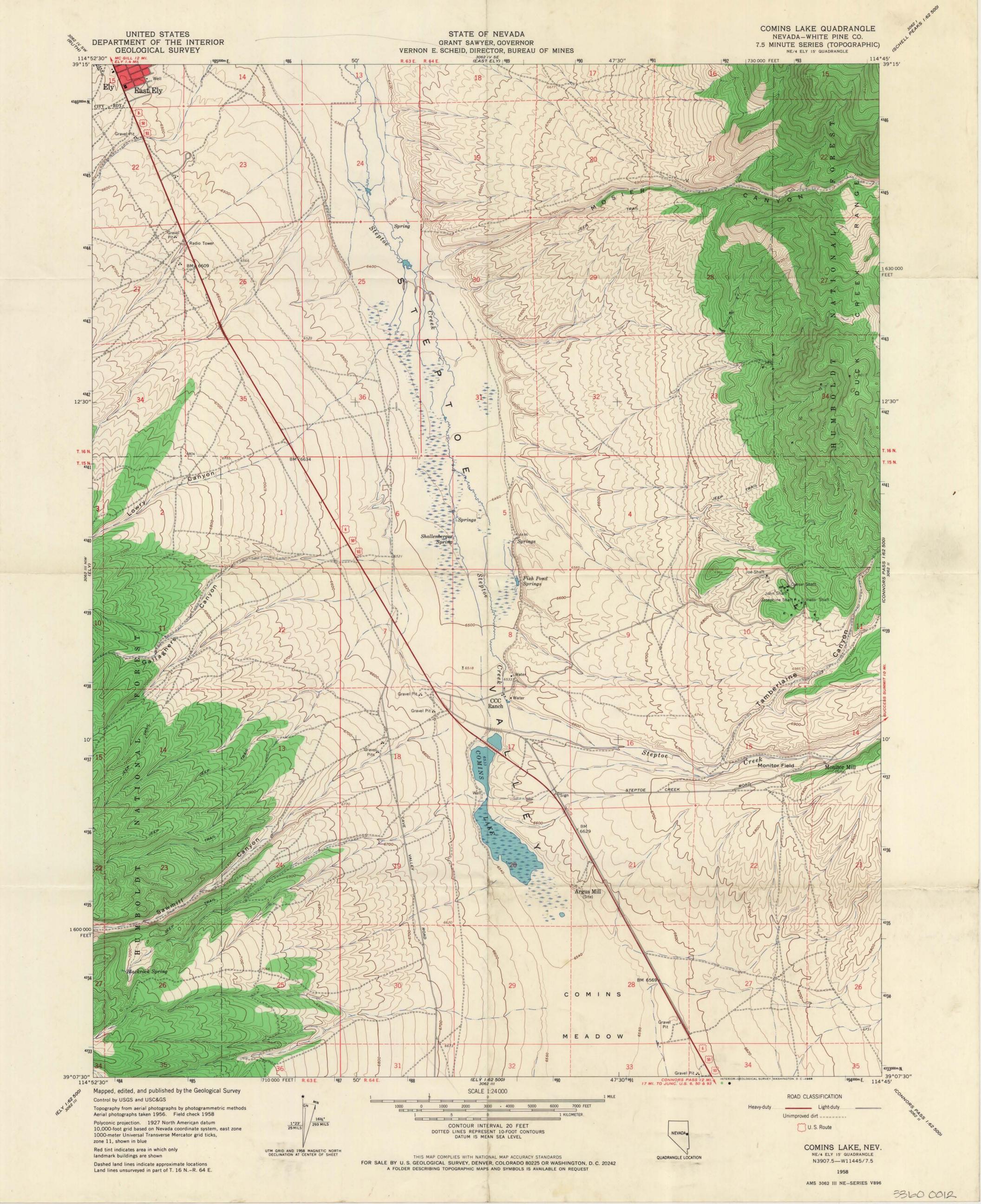


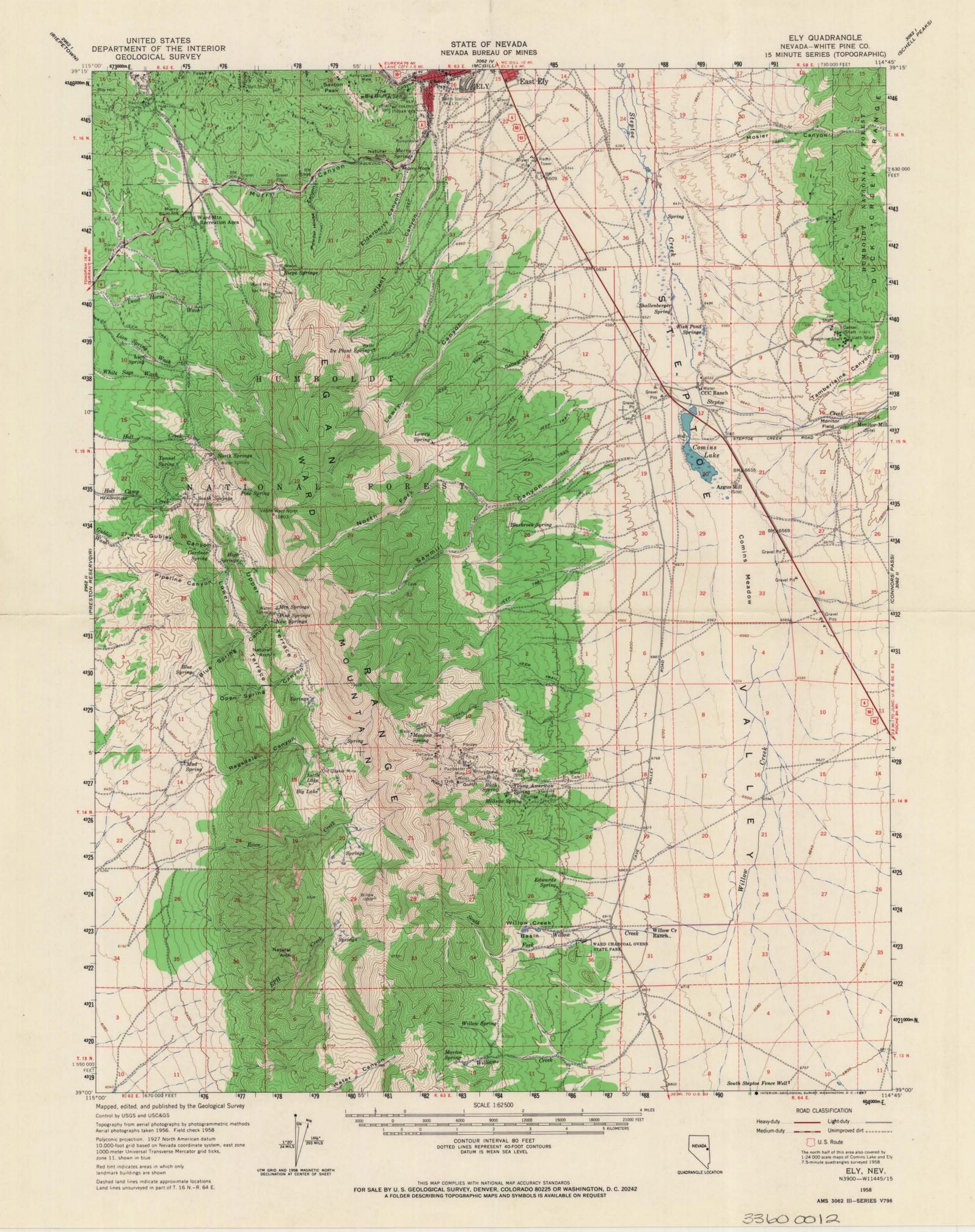


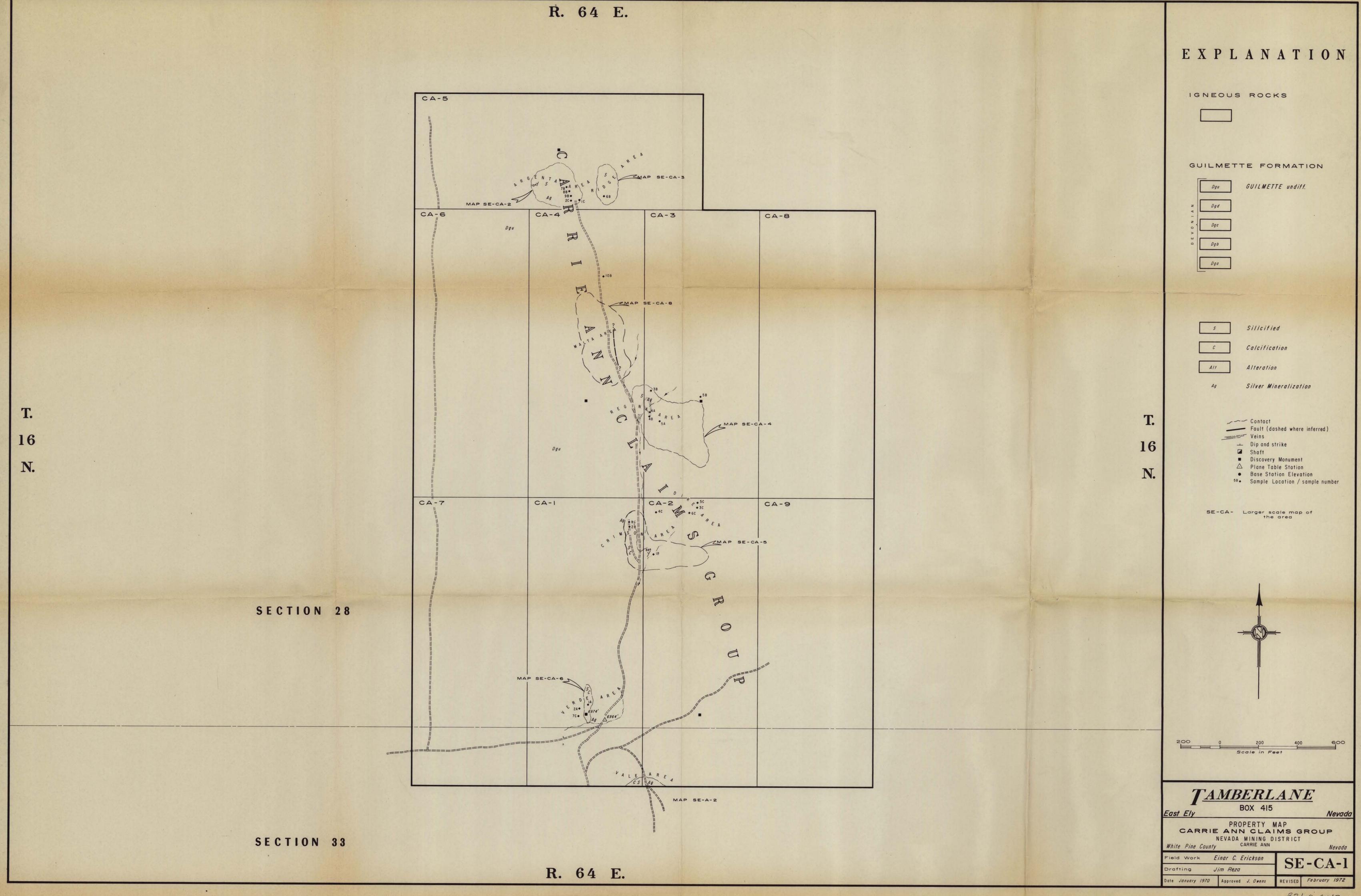


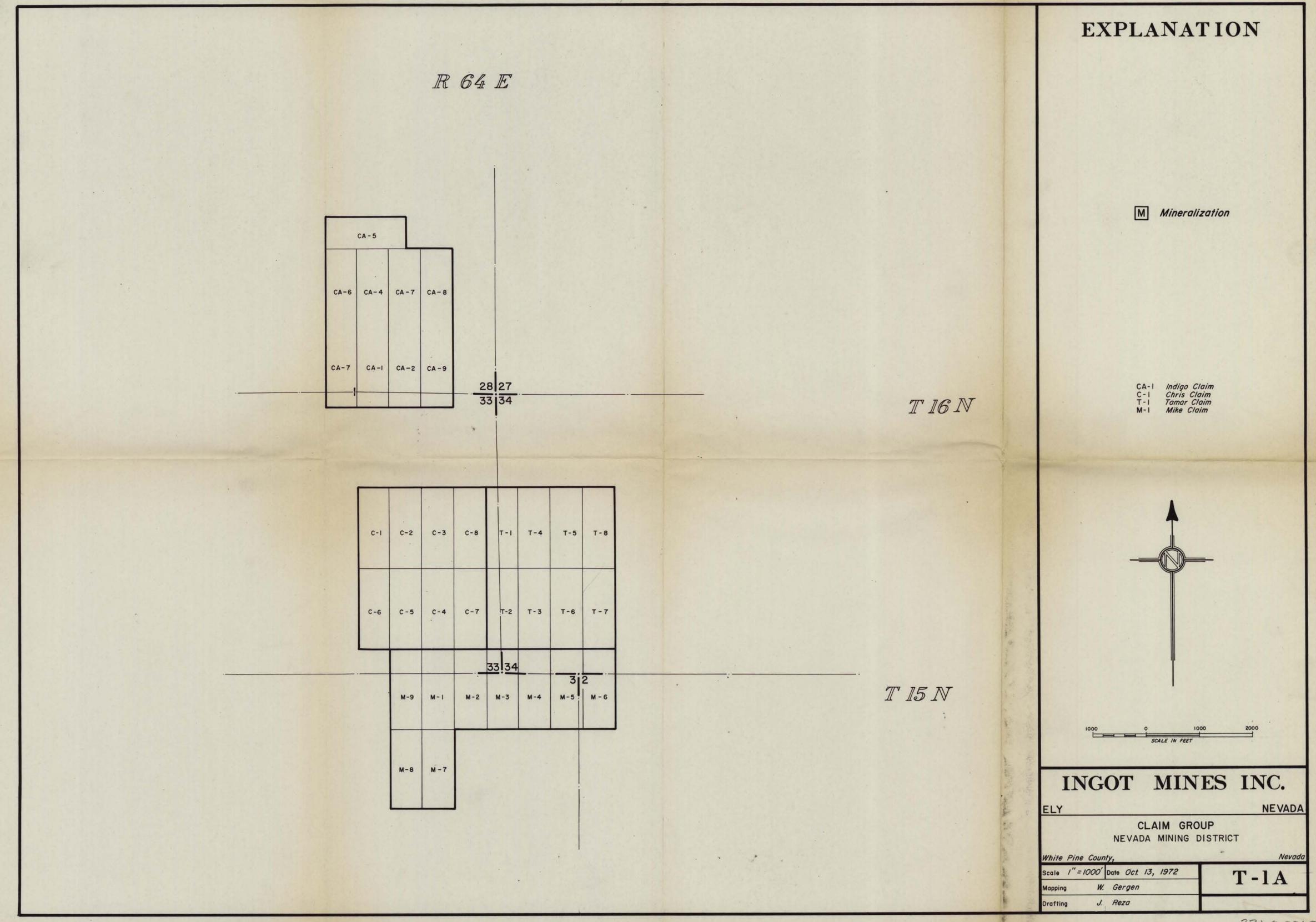
Banfrie Chris.

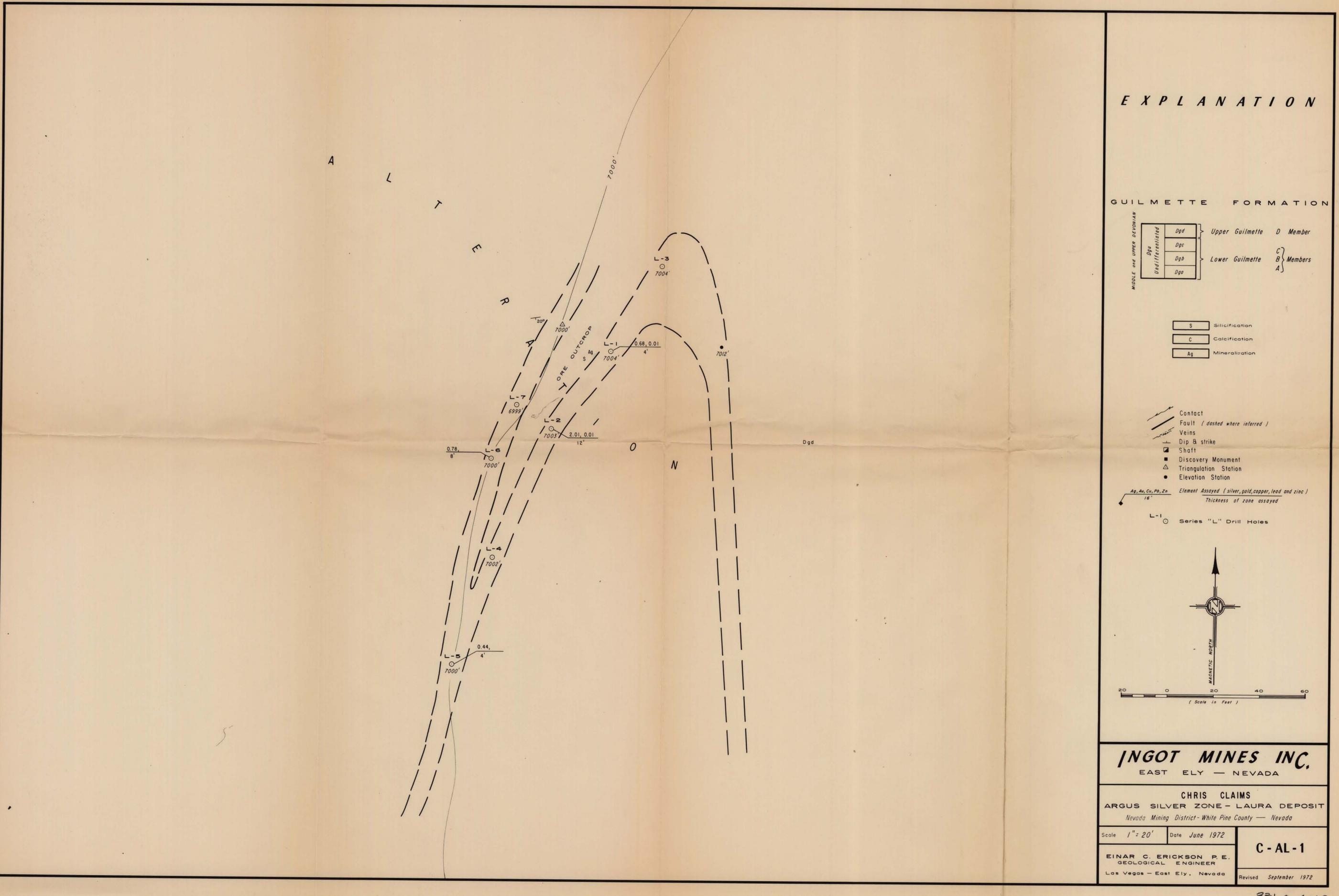


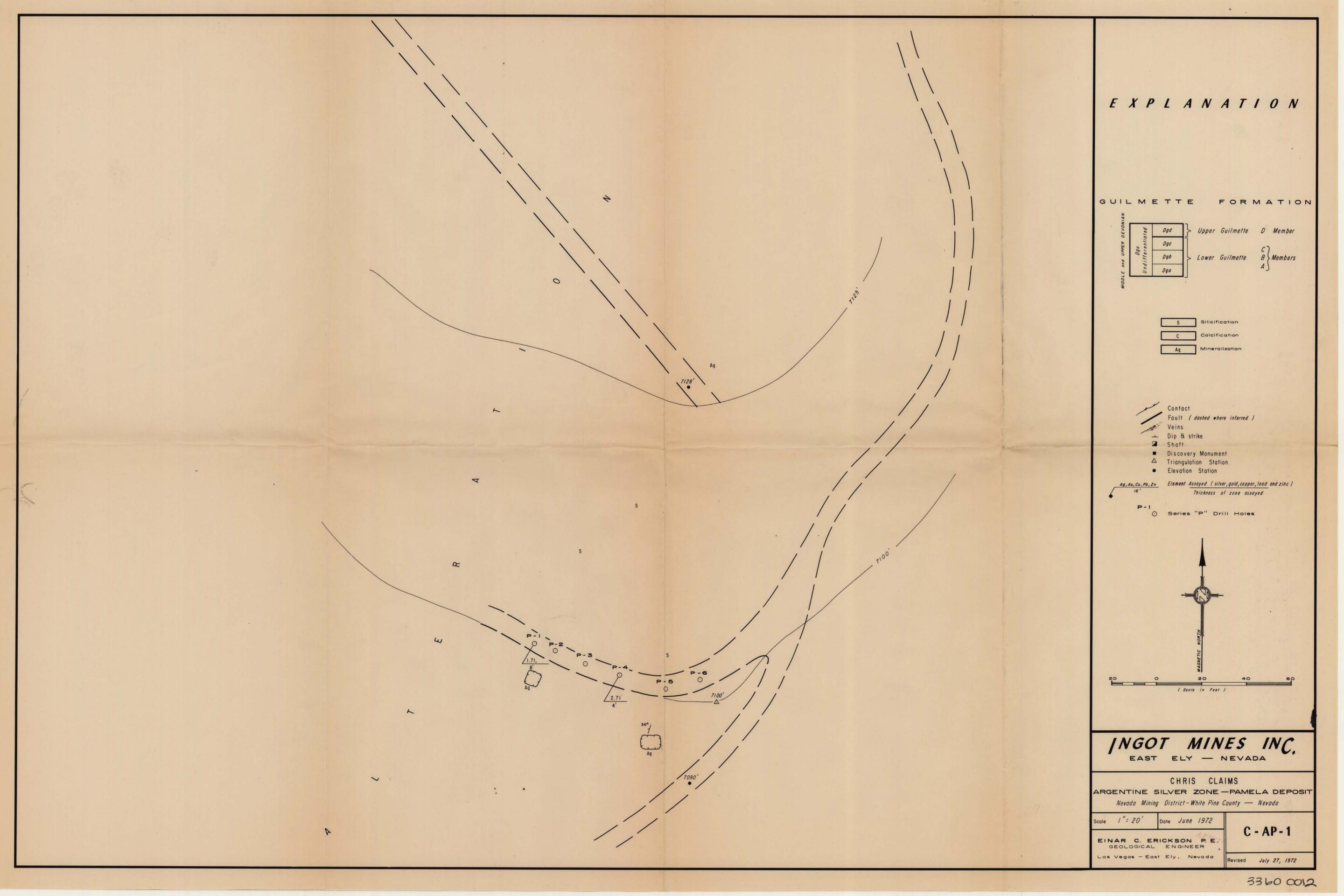


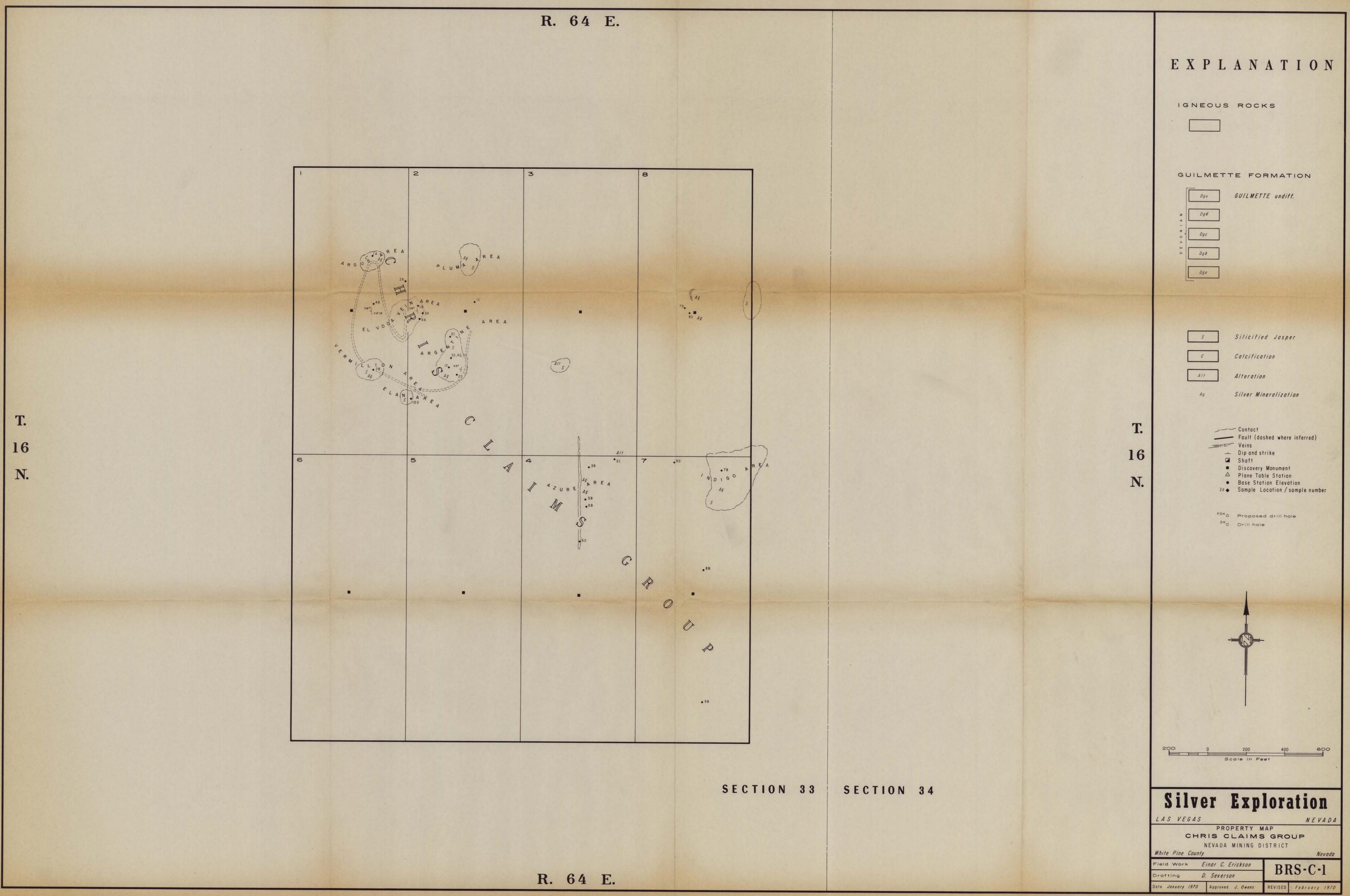










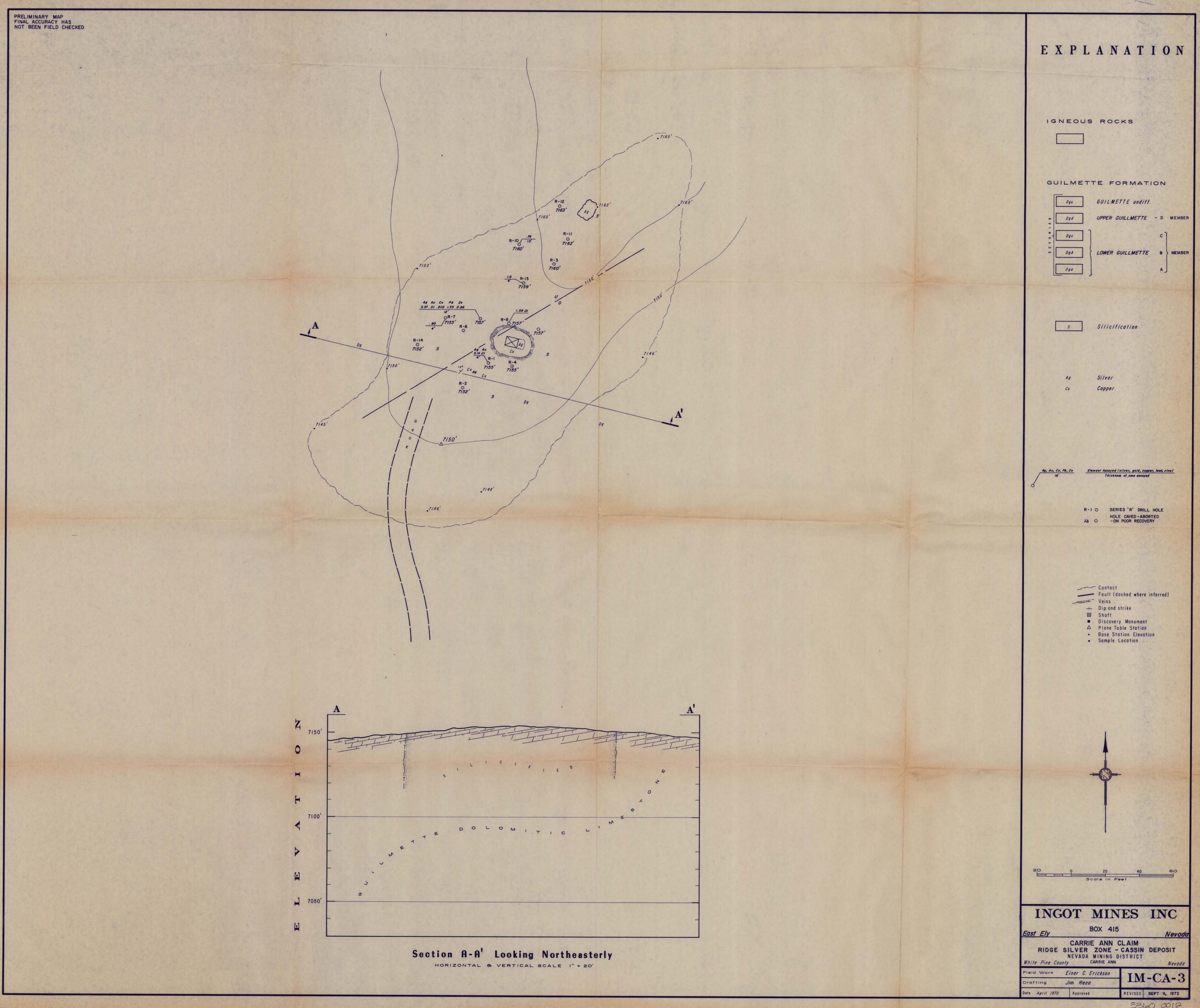


EXPLANATION Ag Mineralization Contact
Fault (dashed where inferred)
Veins
Dip & strike
Shaft ■ Discovery Monument
△ Triangulation Station
• Elevation Station Ag, Au, Cu, Pb, Zn

Element Assayed (silver, gold, copper, lead and zinc)

Thickness of zone assayed B-I
O Series "B" Drill Holes INGOT MINES INC. CARRIE ANN CLAIMS ARGENTA SILVER ZONE - SUE ZONE Nevada Mining District - White Pine County - Nevada Scale /" = 20' Date June 1972 CA - AS - 1 EINAR C. ERICKSON P. E.
GEOLOGICAL ENGINEER Revised December 1972 Las Vegas — East Ely, Nevada

3360 0012



3360 0012

