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24

item 1

FIELD EXAMINATION OF THE FIVE STAR LEAD PROPERTY,
(Charleston)
EMERALD DISTRICT, CLARK CO., NEVADA

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INTRODUCTION

The Emerald district lies in T. 19 S., R. 55 E., M.D.B. and M., in the west central Spring Mountains approximately eight miles northwest of Charleston Peak. The district is reached by an approximately 15 mile-long, partially improved dirt road from Pahrump, in adjacent Nye County, Nevada.

The writer visited the property October 23-28, 1970, and April 18, 1972.

The Five Star property, located in secs. 7, 8, and 18, is composed of two groups of contiguous unpatented lode mining claims, the whole trending approximately northeast. These are the El Lobo Nos. 1-6 group in the southeast half and the Apex Nos. 1-10 group in the northwest. Both groups are held by the Five Star Mining Company, a Pahrump concern; and Mr. and Mrs. Leon D. Hughes have controlling interest in the company.

The Five Star property apparently embraces the Holmes prospect to which Nolan (1924, p. 109-110) alludes.

The first claims were filed on the property in 1904, but these became delinquent and were taken over by the Hughes family in 1939. With the exception of one brief period, the property has remained with the Hughes up to the present.

Two shipments of selected ore were made from the Five Star mine, itself, in 1950. One of these contained 65 percent lead and some silver.

There are three known occurrences of mineralization on the property. These are:

(1) The Five Star mine on the El Lobo Nos. 1, 2, 4, and 5 claims in the SE 1/4 sec. 7 and the NE 1/4 sec. 18.

(2) A prospect near the NE cor. SW 1/4 sec. 8 on the El Lobo No. 3 claim.

(3) An unnamed prospect approximately 750 feet southwest of the latter.

FIVE STAR PROPERTY

FIVE STAR MINE

Geology (See accompanying surface geologic map.)

The Five Star vein is localized in the footwall of an arcuate east trending cross fault which lies between the Wheeler Pass thrust fault and an ancillary back limb thrust fault. The Wheeler Pass thrust is a major structural feature of Laramide age which transects the Spring Mountains and thrusts upper Precambrian through middle Cambrian clastic sedimentary rocks southward across the Bird Spring formation, an upper Mississippian through lower Permian limestone sequence containing some interbedded clastic rocks.

The rocks in the hanging wall of the Wheeler Pass thrust fault in the vicinity of the Five Star property are the upper Precambrian through early Cambrian Wood Canyon formation, the overlying Zabriskie Quartzite of early Cambrian age, and the middle Cambrian Carrara formation above this. Within this general area the thrust is locally overlain by one or two imbricate back limb thrusts faults which branch and rejoin with the Wheeler Pass thrust and with each other. (All quartzites described herein are of the sedimentary orthoquartzite variety.)

Within the mapped area, the Wheeler Pass thrust fault is demarked by an intermittently outcropping ledge of fine to coarse grained quartzite up to three feet thick. This quartzite, which is an element of the Wood Canyon formation, is strongly fractured and only evinces bedding near the south end of the area. This terminates at the east boundary of the map but resumes as a discontinuous ledge of brecciated quartzite, frequently quite bold, approximately 1,000 feet northeast.

A prominent northward dipping ledge of disoriented blocks of tan dolomite and white quartzite demarks the zone of the Back Limb thrust fault in the vicinity of the Five Star mine. Both types of rocks are altered and brecciated derivatives of that portion of the Wood Canyon formation found in the hanging wall of the Back Limb thrust. This yields to a ledge of normally bedded dolomite approximately 1,000 feet southwest of the mapped area and terminates at the east boundary.

The Cross Fault is probably another back limb thrust fault of imbricate nature within the Wood Canyon formation which thrusts a unit of argillaceous rocks southward over an older sequence composed primarily of quartzite. However, the structural and stratigraphic relations involved here are unclear.

With the exception of the Bird Spring formation southeast of the Wheeler Pass thrust fault, the rocks exposed along a northwestward traverse across the mapped area (for example, along line of section A-A') are successively younger, irrespective of faulting.

The quartzite unit (CW_1) is generally composed of coarse to medium grained white quartzite in beds up to one foot thick with some interlayered fine grained white to pale green quartzite and siltstone and lesser amounts of red siltstone. One six inch wide band of calcareous mudstone (Cw_1c) crops out forty feet N. 85° W. from the portal of the Hughes adit.

The argillaceous unit (Cw_2) consists of red mudstone and siltstone with fine grained red quartzite interbeds.

Both the quartzite and argillaceous units are moderately to intensely sheared. This imparts a phyllitic foliation to the more fissile elements of each. This effect is local within the quartzite unit but appears to be pervasive throughout the argillaceous rocks. Phyllonitization in the latter unit in the vicinity of the Cross Fault originates from very tight chevron folding. Unrecognized somewhat more open folds, such as the one shown as inferred on the map, may be present within either unit.

The ledge of brecciated dolomite and quartzite (Cw_3, Cw_{3-4}, and Cw_4) in the Back Limb thrust fault zone is followed to the north by northward dipping rocks of the upper Wood Canyon formation (Cw_5) and then by the Zabriskie Quartzite (Cz). The slope and ravine immediately north of the ledge are underlain by a fine to medium grained olive green quartzite with argillaceous partings and green mudstone interbeds. This grades upward into paler, more fine grained quartzite. Both types of rocks contain occasional thin interbeds of light brown and dark red siltstone. This sequence is overlain by a low ridge of pinkish gray quartz pebble conglomerate of the basal Zabriskie Quartzite.

The Bird Spring limestone (Pbs) in the footwall of the Wheeler Pass thrust fault is light gray and occurs in beds from six inches to three feet thick. It contains concordant lenses of pale chert up to six inches thick. These rocks generally dip northwest to north; and, by inference from regional geologic studies (Longwell and others, 1965; Vincelette, 1964), are probably overturned as a whole.

The mapped area is lightly covered with two units of Cenozoic alluvium, neither of which are shown. Exotic limestone boulders, probably from the middle to upper Cambrian Bonanza King formation, which underlies the high country to the north, are scattered across the area. No present drainage is transporting these into the area, so these are relics of a Quaternary episode during which the Spring Mountains were buried beneath a deep mantle of their own alluvium. Additionally, the usual complement of recent slope wash and gulley fill are present.

Ore Deposits

The Five Star vein is exposed in three places along a 70 foot interval of the Cross Fault. These are, from west to east, the Hughes incline, a shallow pit, and an old incline, which is approximately 20 feet deep. Mr. Hughes reports that the Hughes incline followed a four to ten foot thick ore body for forty feet down its 45° dip before sloughing of the red phyllonite in the hanging wall forced abandonment of the working. The Hughes adit (see accompanying map of underground geology) is presently being driven for the purpose of intercepting this ore body and to explore west of the Back Limb thrust fault, with the latter objective receiving priority.

The vein terminates westward at the Hughes incline in a flexure in the Cross Fault and against a small shear in the Old Incline to the east. The continuity of the vein within these bounds is not demonstrable at present.

The principle ore mineral throughout the vein is galena. The presence of minor quantities of malachite and azurite throughout the ore as well as blebs of limonite within the galena indicate that small amounts of chalcopyrite and perhaps pyrite were present in the ore before supergene leaching occurred. The gangue is composed of moderate quantities of barite, some glassy vein quartz, and, locally, minor amounts of calcite.

The assay of a composite sample of slightly weathered ore devoid of obvious secondary copper minerals from the Hughes incline stockpiled at the surface gave:

Lead	21.9 percent
Copper	0.09 Percent
Silver	0.22 oz/T
Gold and zinc	None

The host rock of the well mineralized ore is coarse grained white quartzite with an aphanitic white matrix. The ore minerals apparently fill open spaces

between breccia fragments and coat thin fractures within the fault zone. To a lesser extent, the ore minerals also replace the matrix of the breccia fragments and of the fractured quartzite walls of the fault zone. The only macroscopic alteration product is in the matrix of the quartzite and consists of a soft apple green material containing silvery flakes of sericitic mica.

A one foot thick gossan of massive limonite after galena is found at the Old Incline. The vein is not exposed in the pit between here and the Hughes incline, but the dump of the pit contains barite fragments and fragments of quartzite with coatings of black secondary lead minerals.

Black speckles with pebbly colloform surfaces evident under 40X magnification which dot fragments of host rock above and below ground are probably manganian limonite of supergene origin. An assay for manganese 0.4 percent for a piece of this material from the east drift of the Five Star adit partially confirms this identification.

The two drifts of the Five Star adit abut the westward extension of the cross fault beyond the Hughes incline. Veinlets and one inch clots of the brown and black limonitic residue of leached sulfides are moderately abundant in a gougy phyllitic green quartzite in the north rib of the east drift of the Five Star adit. A sample of this leached gouge contained 0.08 percent lead. Small crystals of gypsum occur here and in a similar rock near the face of the north drift.

Several one inch quartz veinlets lie along bedding planes and fractures throughout the quartzite unit (Cw_1) south of the Cross Fault. These contain sparse siliceous galena boxworks and leached casts of possibly other sulfide minerals.

EL LOBO NO. 3 CLAIM

A trench on this claim exposes a small, leached, but formerly mineralized, shear cutting through a clastic horizon within the Carrara formation approximately 500 feet northwest of the extension of the white quartzite ledge which demarks the Wheeler pass thrust fault.

The shear contains two varieties of indigenous limonite derived from the original hypogene minerals: dense, dark brown, pitchy grains apparently derived from chalcopyrite; and earthy, orange brown masses probably after galena. Crusts of malachite and azurite are present on fracture surfaces as well as are dark blotches of what is probably manganian limonite.

Small quantities of vein quartz are also present and the argillaceous rocks are mildly altered to the same sericitic green product observed at the Five Star mine.

Native copper is reported as having been found at this prospect.

The shear trends N. 15° E. and may be an element of another back limb thrust fault. The rocks immediately west of the shear are limestones, and shaley limestones which strike roughly parallel to the shear and dip 30° NW.

UNNAMED PROSPECT

Minor quantities of galena and malachite are found in float and dump material down hill from a shallow pit mined into the white quartzite ledge along the Wheeler Pass thrust fault zone here.

OTHER MINERALIZATION

The Wheeler Pass thrust fault can be traced from the Five Star mine to a point 1.3 miles northeast in the NE 1/4 NW 1/4 sec. 8. Some prominent hematitic staining is present on a ledge of brecciated Zabriskie Quartzite in the fault zone here, and a few thin quartz veinlets are disposed throughout the Carrara formation in the hanging wall for distances up to 500 feet away from the fault zone.

ACKNOWLEDGEMENT

I wish to thank Mr. Hughes for his tour of the property and discussion of its history.

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EXPLANATION

WOOD CANYON FORMATION

$\boxed{\epsilon w_2}$ Red and green phyllonite

$\boxed{\epsilon w_1}$ Quartzite and shaley quartzite - *frequently brecciated or gougy. Some slivers of ϵw_2 near Cross Fault zone.*

40 Fault, slip, or shear, showing dip - *dashed where approximately located.*

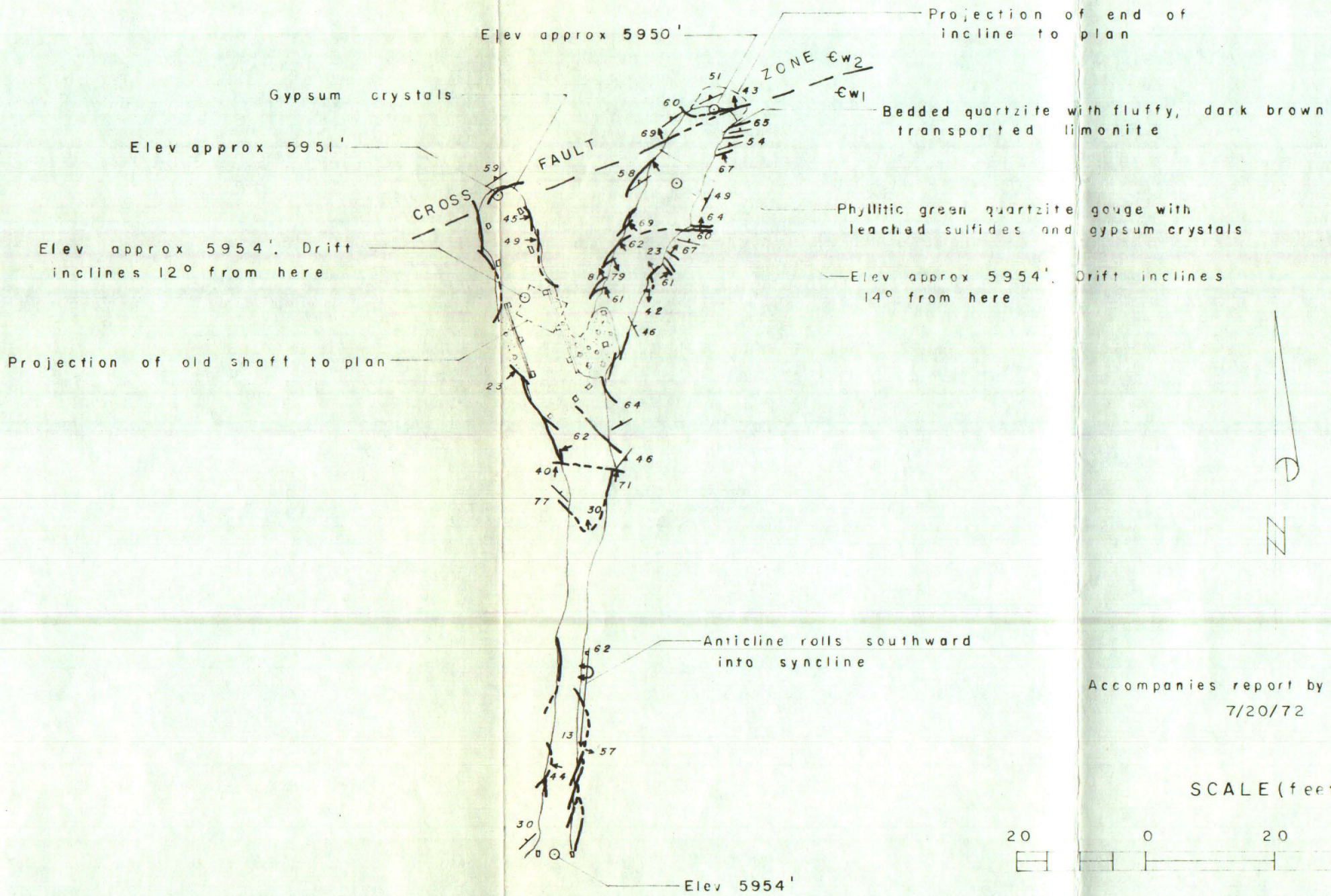
Fold, showing plunge of axis and dip of axial plane.

30 Strike and dip of beds

46 Strike and dip of foliation

Post

Cribbing and fill



Geology by S. W. Ivosevic 1970

Accompanies report by S. W. Ivosevic
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SCALE (feet)

20 0 20 40 60

EMERALD DISTRICT, CLARK CO., NEV.

FIVE STAR MINE

GEOLOGIC MAP OF ADIT

By S. W. Ivosevic 1972

Scale 1" = 20'

24

Item 1 (maps)