

THE BLACK HAWK DISTRICT
Grant County, New Mexico
Preliminary Report

Abstract

This report has been compiled principally from published data, personal communications, and data obtained from two days examining the property. The samples collected consisted of stream sediment, soil, rock chip, and grab samples.

The minor drainages of Black Hawk Canyon plus two soil lines over covered veins were sampled which indicated geochemistry to be an ~~excellent~~ ^{Fair} exploration tool in the District. If a workable agreement can be reached with the property owners, a relatively inexpensive exploration project could rapidly determine the potential of the District.

Sampling initiative involves getting deeper samples perhaps by hand auger. A radon gas sniffer might be ideal in this arid environment
WTE 13 Jan 76

By
William T. Ellis
Exploration Geologist
May 20, 1977

Location & Access

The Black Hawk Mining District lies mostly in Section 20, 21, 22, 28, and 29; Township 18 South; Range 16 West; in Grant County, New Mexico. It is 21 miles by road west of Silver City, half of which is paved road and half of which is unimproved dirt road. The whole district lies within the Gila National Forest.

Ownership

The majority of the District is controlled by four parties. The Black Hawk Consolidated Mines Company, Milwaukee, Wisconsin; U V Industries, Salt Lake City, Utah; Rose Claim, Mrs. Elizabeth J. McCabe, Pasadena, California, and Mrs. Howard Mede, San Francisco, California; Lou Osmere, Silver City, New Mexico.

The Black Hawk consists of patented claims, Trever Harter - President; The Alhambra Good Hope patented and Hobson unpatented, owned by U V Industries, Bob Weagel - General Manager; The Rose claim, Mr. Elizabeth J. McCabe, and Mrs. Howard Mede; Lou Osmere is leasing all of U V Industries claims and has staked all connecting and adjoining ground in the District.

History & Production

Mining began in the District in 1881 and continued until 1893, when the decline in the price of silver and the depletion of high grade ore caused the mines to close. Nearly all the hand sorted ore produced had a high silver content and shipments of ore assaying as much as 15,000 oz/ton are reported. (Jones, 1904, pg 55.)

The silver production from the District before 1893 is estimated to have been between \$1,000,000 and \$1,500,000 (Leach, A. A. 1916). The Black Hawk Mine was the largest producer yielding \$600,000 to \$650,000. The

Alhambra Mine produced about \$400,000, the Rose Mine about \$140,000, and the Hobson about \$40,000. The remainder of the production came from the Good Hope and other properties.

In 1917, a new owner acquired the Black Hawk Mine unwatered and opened the lowermost levels. A.A. Leach (then Geologist for Phelps Dodge Corporation, at Tyrone, New Mexico), examined the mine and recommended further work but shortly thereafter all work ceased.

Interest in the District was revived in 1949, and in 1952 3 DD holes were drilled to a depth of 1000 feet. Only sparse mineralization was encountered which was probably a result of poor spotting of the holes.

The Alhambra Mine was dewatered to the 175 foot level in 1957 by Lou Osmere. Approximately 200' to 300' of drifting was completed in search of additional high grade, but no large bodies of ore were found. The mine was again dewatered to the 325 foot level and additional drifting exposed about 40 feet of high grade ore. Work halted at that point due to lack of finances.

Also in 1974, the Cotter Corporation of Golden, Colorado, did some soil geochemical exploration in the District reportedly indicating an anomalous area to the East of the Black Hawk Mine. Also, a St. Joe Geologist named Leaham, has done some exploration in the District. U V Industries has done limited assessment drilling with no reported results.

Geology

A good description of the Geology may be obtained from U.S.G.S. Bulletin #1009-K, by Gillerman & Whitebred. Briefly, The Black Hawk District is in the Precambrian Burro Mountain Batholith which is a composit

body made up chiefly of granite with inclusions of gneiss schist quartzite and intrusive rocks, many stocks and dikes intrude the batholith. The predominant rock in the District is Precambrian quartz diorite gneiss that intrudes quartzite, schist, monzonite, and quartz monzonite. These rocks are cut by many igneous rocks of Precambrian and younger age, the most common of which is the monzonite porphyry of Late Cretaceous age or early Tertiary age? The Bear Tooth quartzite of Late (?) Cretaceous age overlies the Precambrian rocks. The exact age relationship has not been verified by any age dating of the rocks in the District.

Many faults trending generally north northeast and northeast cut the rocks of the District. Along this general northeast trend, six mining Districts occur over a 50 mile zone indicating a major structural break.

Ore Deposits

The Black Hawk District ores belong to the fissure vein uranium-bearing nickel-cobalt-silver type which are similar to major producing pitchblende-silver deposits at Joachimsthal, Czechoslovakia, and Great Bear Lake, Canada. The veins are pitchblende, native silver, argentite, nickel, and cobalt sulfides and arsenides, pyrite, and small amounts of other sulfides in a gangue of carbonates and some quartz and barite. The ore minerals are chiefly native silver with argentite and nickel and cobalt minerals increasing in abundance with depth.

The vein occurs as two intersecting sets of veins, one trending north to northeast, and the better developed set trending northeast to east. The veins are numerous as zones of many discontinuous parallel and subparallel veins, in an area about 1 mile wide, two to three miles long. Many of the veins can be followed for more than 1000 feet but others are only a few hundred feet long. Most of the veins are only a foot or less in width but

open up suddenly to poddy lense-like ore shoots 3 feet to 10 feet wide. The greatest vertical extent occurred in the Black Hawk vein which has been mined to a depth of 600 feet. The veins in outcrop are inconspicuous and are marked generally by soft limonite-manganese stained carbonates sometimes banded with chert. It should be noted that underground mine development included very little lateral exploration for parallel veins.

Conclusions & Recommendations

The silver production of the District from 1881 - 1893 is between \$1,000,000 and \$1,500,000 primarily from the Alhambra and Black Hawk veins. These veins have a combined strike length of over 3500 feet and were developed for about 1000 feet to a depth of 400 feet and 600 feet respectively. Very little lateral exploration was conducted underground for parallel veins.

The District lies along a major Northeast trending linement that contains no less than six mining camps. The numerous uranium-bearing nickel-cobalt-silver type fissure veins in the District appear to be related to this regional structural trend. The true age relationships of the rock veins and mineralization have not been adequately correlated.

A thorough inquiry to the land owners should be made to acquire access to mining and assay data available. A suite of rocks should be collected for age dating purposes along with constructing a large scale (1" = 500') geology map of the District. A geochemistry soil sample grid should be completed in conjunction with a radiometric survey on the same grid. With this project of approximately one month duration, the potential of the District can be evaluated and may indicate further work to include diamond drilling and dewatering, mapping, and sampling of the District.

Before any work in the District is considered, the Black Hawk Consolidated Mining Company, U V Industries, and Lou Osmere (Leasee), should be approached to see what kind of working agreement if any, can be agreed upon.

William S. Ellis

c1

SUNSHINE MINING COMPANY

ASSAY OFFICE

Name Geology G. E.Date May 22, 1975

Sample Number	Au Ozs.	Ag. Ozs.	Pb. %	Cu. %	Fe %	As. %	Sb. %	Bi %	Zn %	S %	H ₂ O	
GE												
1856	No	0.36										
1857	No	4.14										
1859	No	0.70										
1867	No	1.07										
1883	No	1338.83										
1884	No	0.20		0.1								

Vernon H. Wilhelm

Chief Chemist



MIDVALE OFFICE

ROCKY MOUNTAIN GEOCHEMICAL CORP.

P. O. BOX 337 • 1323 W. 7900 SOUTH • MIDVALE, UTAH 84047 • PHONE: (801) 255-3558

Certificate of Analysis

Page 1 of 2

Date: June 2, 1975

Client: SUNSHINE MINING COMPANY
P.O.Box 1080
Kellogg, ID 83837
attn: Wm. T. Ellis

RMGC Numbers:

Local Job No: 7-5-61-44SL-C

Foreign Job No.:

Invoice No.: M 6090

Client Order No.: Sunshine

Report On: 28 samples

Submitted by: Mr. Ellis

Date Received: May 29, 1975

Analysis: Zinc, Bismuth, Nickel, Cobalt, Lead, Silver & Arsenic

Analytical Methods: Arsenic determined colorimetrically; all others determined by atomic absorption.

Remarks:

cc: Enc.
File (2)

Sample No.	ppm Zinc	ppm Bismuth	ppm Nickel	ppm Cobalt	ppm Lead	ppm Silver	ppm Arsenic
1851	270	35	25	70	110	2	-5
1852	165	45	30	75	20	-1	-5
1853	175	50	30	75	20	-1	-5
1854	240	40	30	80	30	-1	-5
1855	180	40	20	70	20	-1	-5

All values are reported in parts per million unless specified otherwise. A minus sign (—) is to be read "less than" and a plus sign (+) "greater than." Values in parenthesis are estimates. This analytical report is the confidential property of the above mentioned client and for the protection of this client and ourselves we reserve the right to forbid publication or reproduction of this report or any part thereof without written permission.

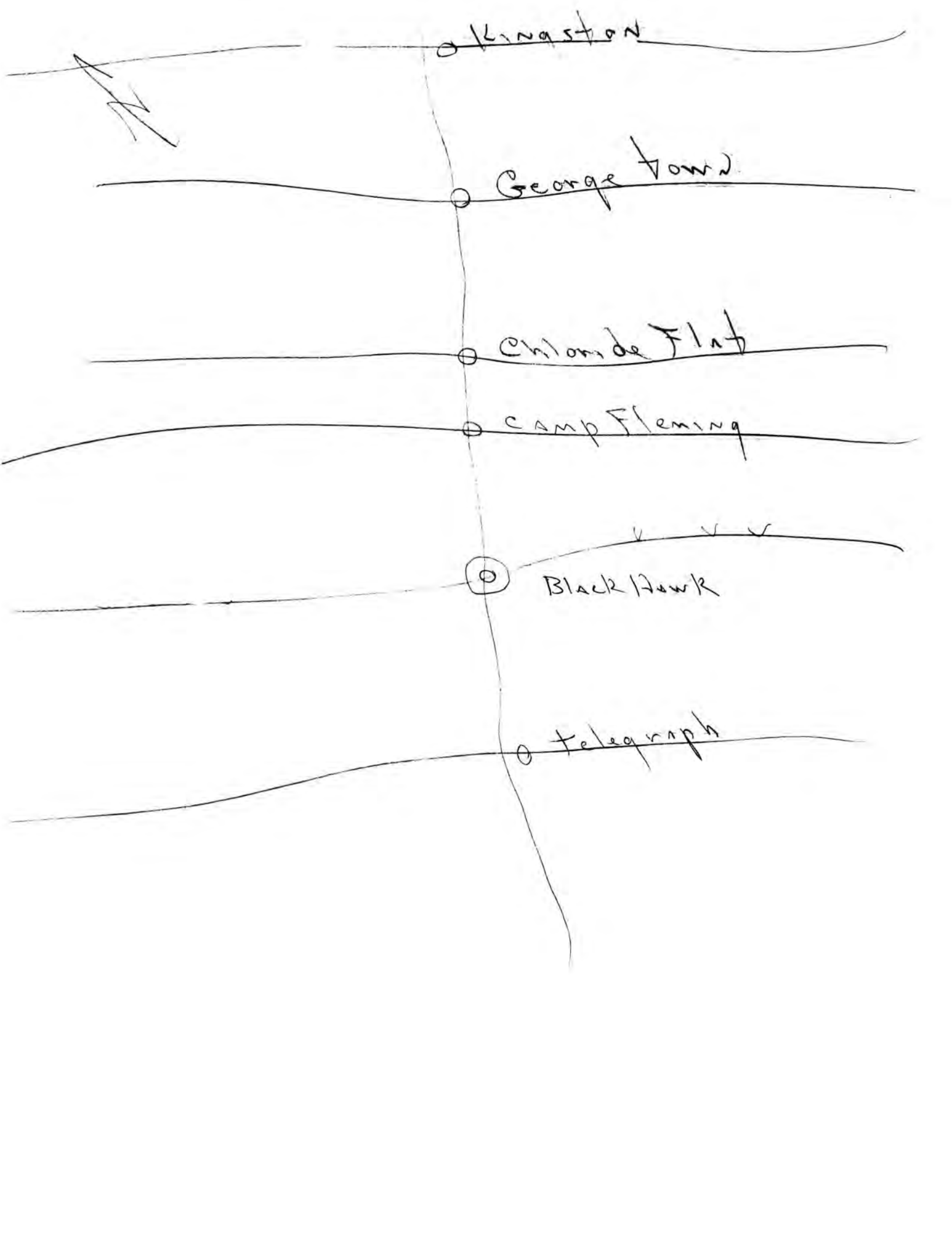
ND = None Detected 1 ppm = 0.0001% 1 Troy oz./ton = 34.286 ppm 1 ppm = 0.0292 Troy oz./ton

Sample No.	ppm Zinc	ppm Bismuth	ppm Nickel	ppm Cobalt	ppm Lead	ppm Silver	ppm Arsenic
1858	425	55	30	75	60	-1	-5
1860	100	40	5	45	20	-1	-5
1861	170	45	10	45	20	-1	-5
1862	250	40	20	75	40	-1	-5
1863	180	35	10	50	70	-1	-5
1864	315	50	30	90	110	-1	-5
1865	355	35	30	85	200	-1	-5
1866	280	45	30	85	100	-1	-5
1868	270	45	30	80	80	-1	-5
1869	445	25	30	75	170	-1	-5
1870	265	40	30	86	50	-1	-5
1871	165	40	30	80	30	-1	-5
1872	180	45	25	90	20	-1	-5
1873	140	35	25	80	30	-1	-5
1874	210	35	25	80	40	-1	-5
1875	230	35	30	80	60	-1	-5
1876	325	45	35	70	110	2	-5
1877	130	40	25	80	30	-1	-5
1878	125	35	30	65	10	-1	-5
1879	295	20	20	55	10	-1	-5
1880	275	15	20	55	20	-1	-5
1881	355	25	25	60	30	-1	-5
1882	370	30	20	65	40	-1	-5


ROCKY MOUNTAIN GEOCHEMICAL CORP.

SALT LAKE CITY, UTAH • RENO, NEVADA • SPOKANE, WASHINGTON • TUCSON, ARIZONA

 By Lawrence R. Reid
 Lawrence R. Reid



Kinaston

George Town

Chlonde Flat

Camp Fleming

Black Hawk

Telegraph

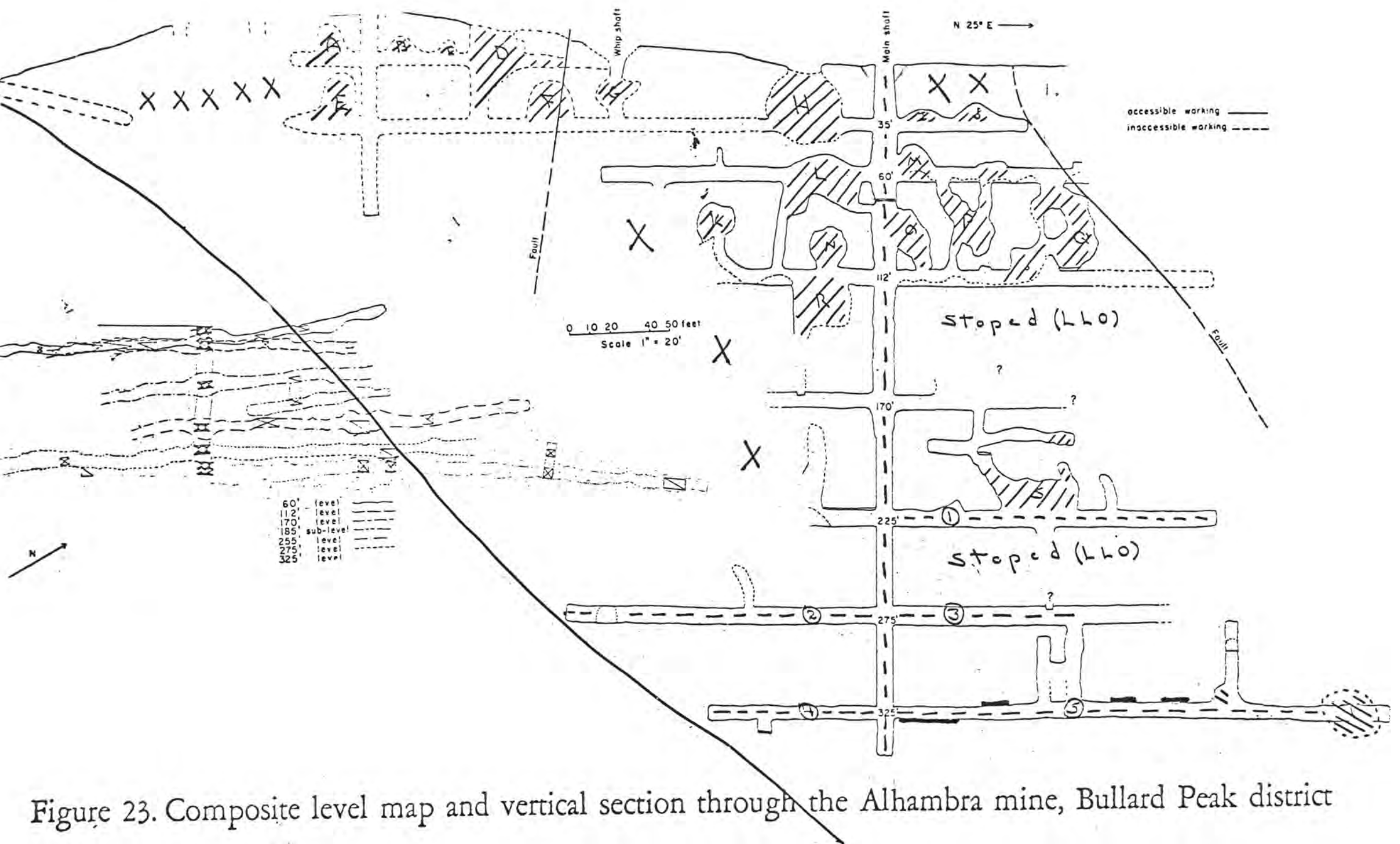
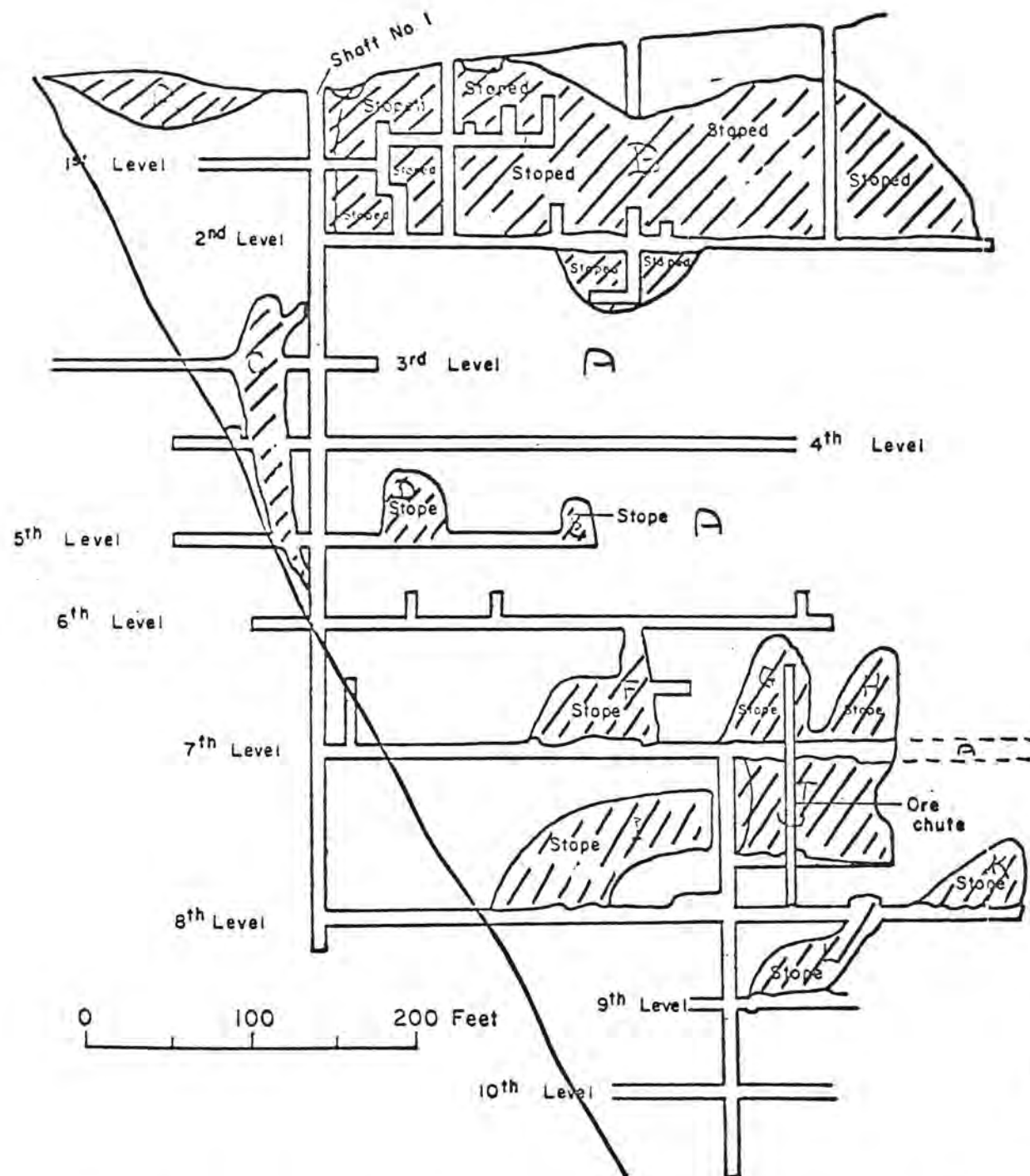
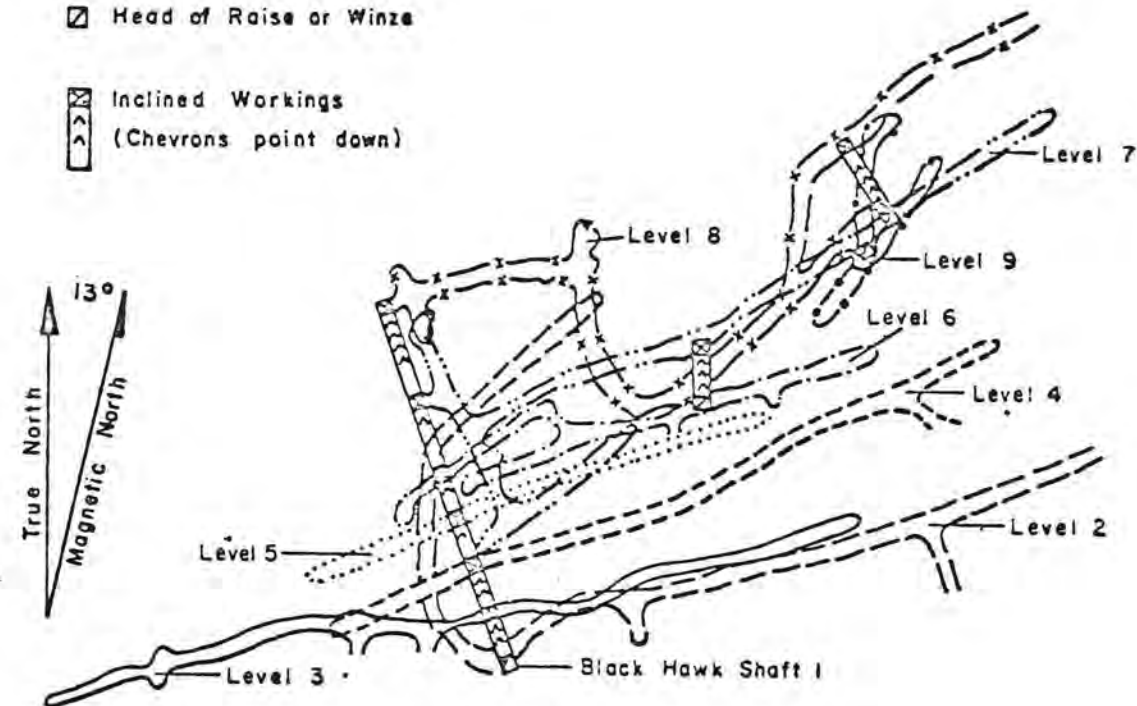


Figure 23. Composite level map and vertical section through the Alhambra mine, Bullard Peak district



- ☒ Shaft
- ☒ Shaft going above and below levels
- ☒ Bottom of Shaft
- ☒ Foot of Raise or Winze
- ☒ Head of Raise or Winze
- ☒ Inclined Workings
(Chevrons point down)



Composite level from private report by W.H. Weed, dated 1917
Vertical section from files of Black Hawk Consolidated Mines Co.,
dated 1916

Figure 24. Composite level map and vertical section through the Black Hawk mine, Bullard Peak district

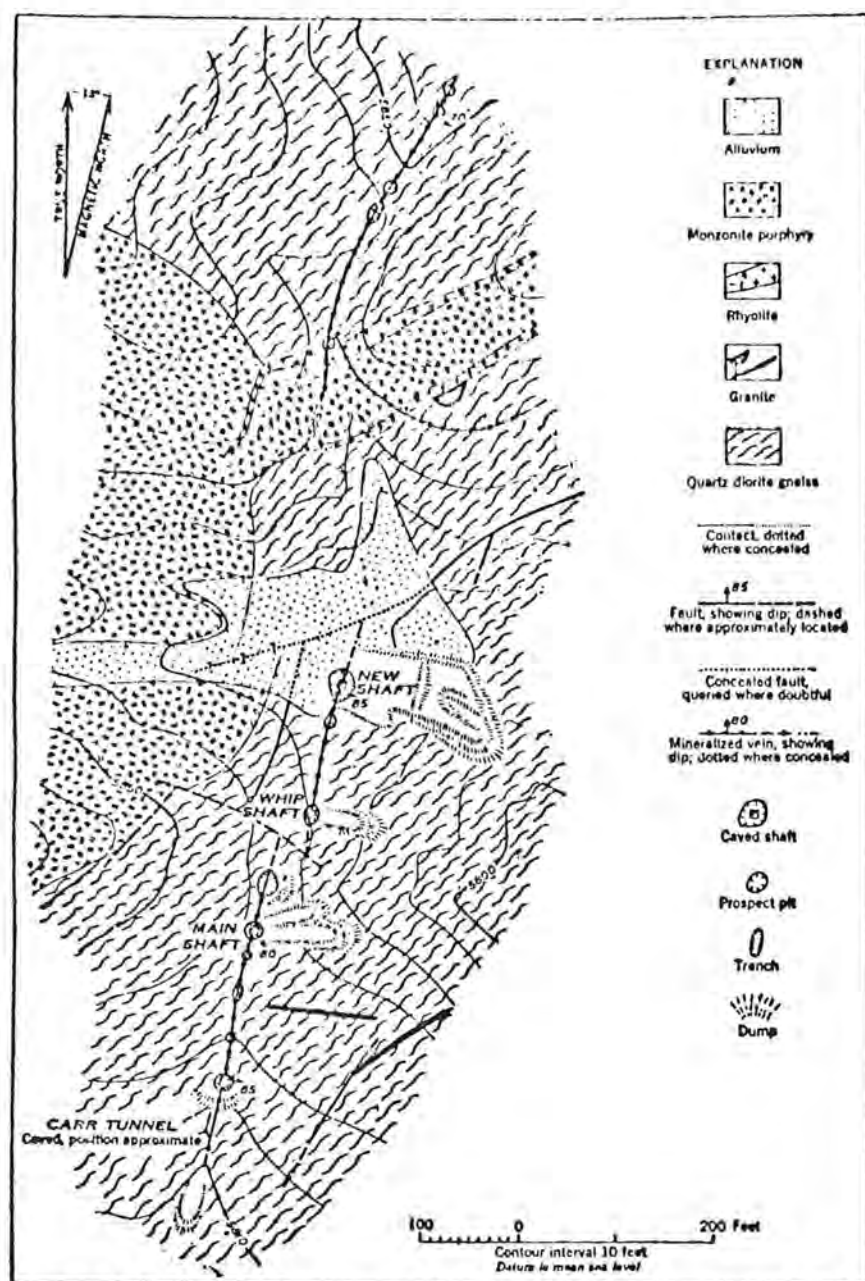


FIGURE 48—Geologic map of the Alhambra mine and vicinity, Grant County, N. Mex.

Both veins at the Ro monzonite porphyry (pl and dips 75° to 80° N. 700 feet east and 400 feet strikes N. 30° E. at the N. 70° E. and is mapped 60° - 75° SE. The veins have well defined hanging

The ore consisted of quartz and carbonate gal large proportion of nickel. On the 200-foot level t proustite, and pyrostilp

Radioactive material shaft and at the portal o

SILVER

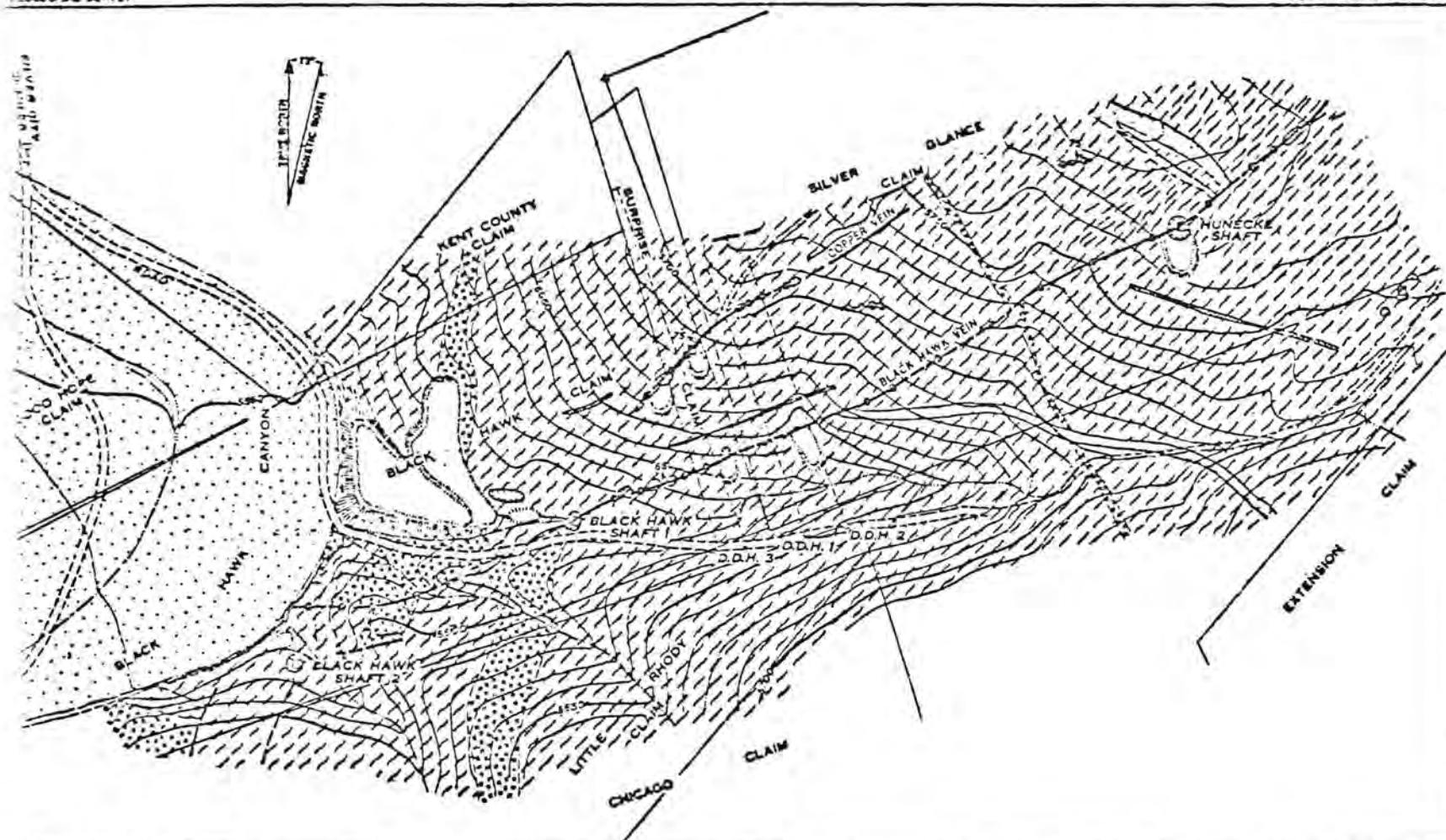
The Silver King mine 1,300 feet north of the I. Holmquist and M. J. Sh worked from an adit 30 n winze about 200 feet extent of the vein. Pa

The vein is along a f NW, and cuts quartz c body of the monzonite feet southwest of the sh dike is along the contac diorite gneiss.

In the adit the vein along a strong shear z along an irregular serie feet. The width varies followed for 300 feet de native silver, was the uranium minerals are r

The Good Hope shal the Black Hawk no. 1 s (1910, p. 325) state tha about 120 feet. The v 65° SE., is in quartz di zonite porphyry stock.





Geology by O. H. Woodworth, May 1952

Geology by Ernst G. Gierke, May 1952

GEOLOGIC MAP OF THE BLACK HAWK MINE AND VICINITY, GRANT COUNTY, NEW MEXICO

100 0 300 Feet
 Contour interval 10 feet
 Elevations in feet above sea level

EXPLANATION



Alluvium



Quartz diorite



Siderite porphyry



Rhyolite



Pegmatite or barren quartz vein



Quartz diorite gneiss

Contact, dashed where approximately located



Fault, showing dip; dashed where approximately located



Vein, showing dip; dashed where approximately located



Shaft



Claim



Prospect pit

D.D.H. 2
Diamond-drill hole, showing location and bearing

Dike

Claim monuments
(claim boundaries are approximate)

ue minerals, in the three
omninance of silver in the
nd cobalt arsenides and
re common to all. Iron

l rocks of pre-Cambrian
ng abruptly into wide,
ts fills open spaces, and

PROSPECTS

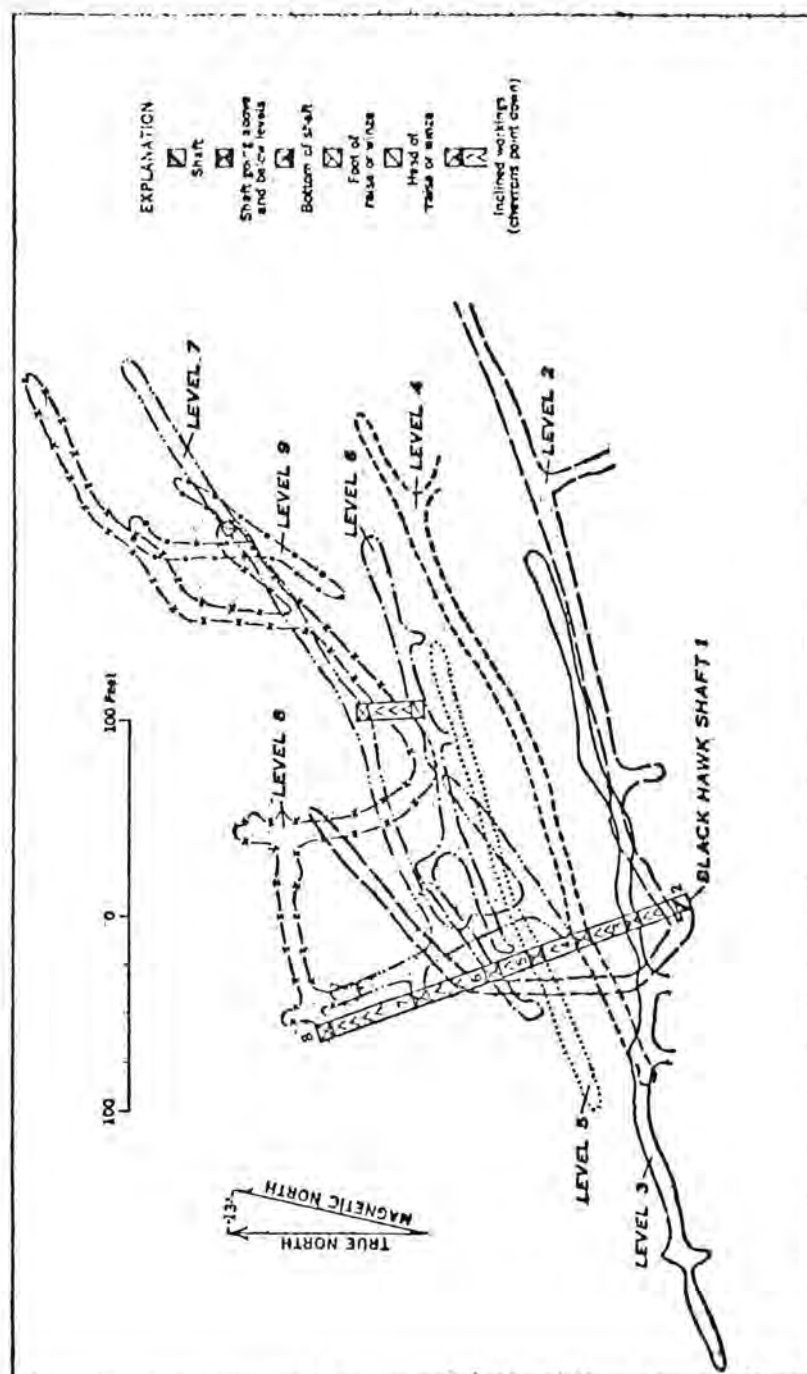
the district, is along the
a the Black Hawk prop-

unaccessible. The Black
ch and is filled with sand
bove the sand show its
workings and the nature
munication from Weed,

principal opening on the
e eighth level, a depth of
and level and is inclined
te of about 3,000 feet of
workings are east of the
winze, inclined about 85°
y. The ninth and tenth
in the winze. A cross-
et north to the copper

filled, is about 300 feet
It is 100 feet deep, with
ably is not on the Black
00 feet northeast of the
awk vein, but is not cons-
s caved and no informa-

and dips 60°-70° NW
with depth. The vein
the surface and has been
fig. 45 and pl. 15). Ore
shaft for about 500 feet



Modified from W. H. Wood, 1917

FIGURE 14.—Underground workings of the Black Hawk mine.

gneiss cut by dikes of
diabase. Pyrite was
gneiss, and narrow calcite
None of the core was
bed with a Geiger-Mueller
and.

vein may have been due
of the underground maps
direction of the drill holes
two carbonate veins, the
vein, attempts to correlate
Black Hawk vein as shown on

ed by at least four shafts
forms and A. A. Leach,
s reported to be 420 feet,
0 feet (fig. 47). A total of
own on old maps. Deeper
are reported. The shaft
a about 40 feet below the

80°-85° SE., and is from
quartz diorite gneiss near
y dike. The vein can be
ut 500 feet. A weakly
o Alhambra vein, is found
followed northeasterly for

ined at the Black Hawk
Alhambra vein. Mr. Alex
e time of abandonment,
and 400-foot levels of the
written communication).
the silver. Pitchblende
ad 3) by the writers, and

of sec. 29, in the south-
The mine has not been
al. High-grade silver ore,

and ore containing nickel and cobalt minerals were reported to remain
in the lower workings when the mine was abandoned. The mine was
worked from a shaft sunk near the intersection of two veins, the Red
vein and the Spar vein, and by an adit driven on each vein. The shaft
is reported to be 200 feet deep, and to have levels at 50 feet and 100 feet
on the Spar vein and levels at 150 feet and 200 feet on both veins.
The most extensive workings were on the 150-foot level.

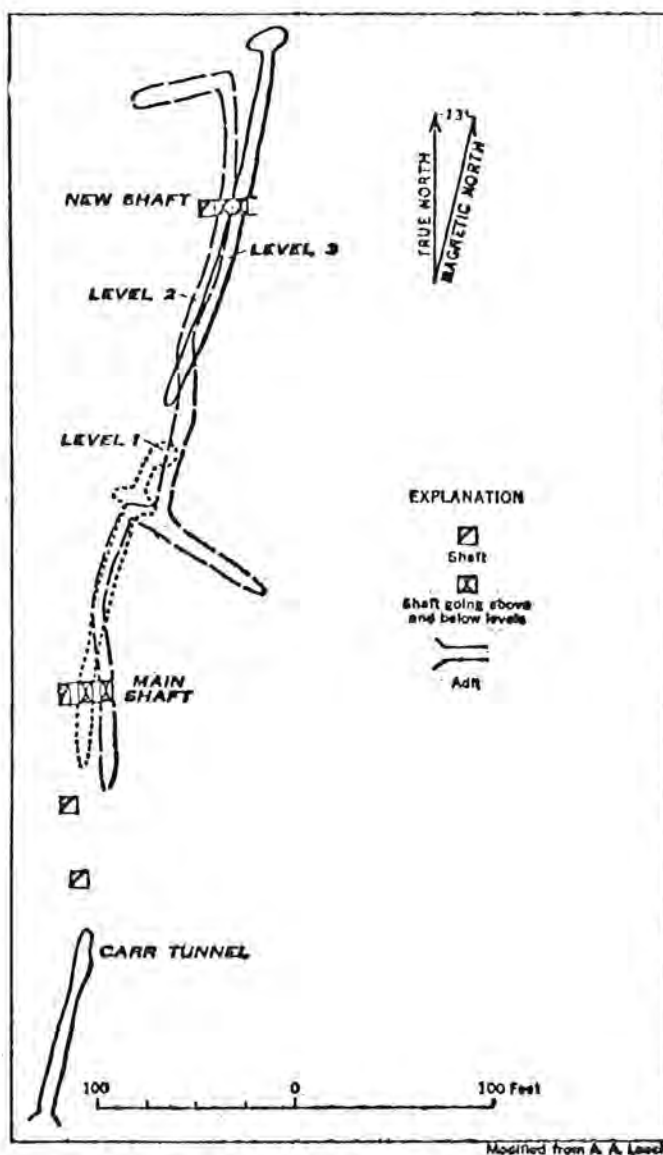


FIGURE 47.—Underground workings of the Alhambra mine.

With every foot of work accomplished upon the disputed Rosa claim at Bullard's Peak, the property shows up to a better advantage. Mullen and Kerr are steadily developing the property.

The promising group of claims purchased by Mr. Schulte, of St. Paul, and others are being opened up systematically. The Pumpkin claim of this group has a fifty foot shaft and the Butternut mine has improved with every foot of work done. At a depth of 65 feet, ore of the same character as that of the Black Hawk has been encountered and the prospect is so promising that a contract has again been let to continue sinking. Upon Mr. Schulte's return from the east, work on an extensive scale will be commenced on this group.

March 7, 1884

A contract to sink fifty feet of a shaft on the Good Hope claim has been let. The shaft will be 4 x 8 feet in the clear, and well timbered from the surface down. Mr. Carpenter, the owner of the Good Hope, will no doubt sink this working shaft until pay mineral is found.

Another ore body of considerable size was struck in the fourth level of the Black Hawk mine. This property is now making water enough to run all the machinery on the ground, and from present indications there will be plenty of water to spare soon.

The Solid Silver mining company of New Mexico had a mill run of a few tons of their high grade ore, which shows how wonderfully rich the ore is. Three tons (net) $\times$ \$33,000; two tons (net) \$36,000; total for five tons, \$69,000. (11)
From all we can learn the Solid Silver mining company has got the richest silver mine in the world. The deepest shaft is now down 25 feet, and the amount of ore of a high grade is almost fabulous.- Mining Review

The Review has always been kindly disposed toward Grant county, but the number of blunders it makes are almost unpardonable. The deepest shaft in the Black Hawk is now over 400 feet, and is still going down. There are also several thousand feet of drifting in the same mine. The Review should post itself up on the mines of Grant county.

March 14, 1884

A rich strike is reported from the Stonewall mine and specimens shown your correspondent are completely covered with flake silver. This is one of the claims bought of Sullivan and others last fall by the late R. G. Pope and others of Minn. The property will be developed now and no doubt another producer will be added to the camp.

April 18, 1884

Mr. D. Jackson, president and general manager of the Bullard's Peak mining company, commenced the shipment of ore to the Black Hawk sampling works. The ore is spar, carrying silver glance or argentite, and copper glance. It is very handsome in appearance and is as good as it looks; the average returns of several mill runs of small lots being, it is stated, over \$1200 in silver per ton, and from 20 to 28 % copper, some of it carried 36% of lead. The ore when sampled will be shipped to Pueblo for treatment.

On the Good Hope mine the men are sinking on the ledge and some very rich silver rock is being taken out and sacked.

May 9, 1884

On the Blue Bell and Good Hope mines, at Bullard's Peak, ore of a superior grade has been struck within the past week.

The new hoisting machinery at the Black Hawk is working to perfection and ore shipments by the Solid Silver mining company will begin in earnest in a short time.

May 16, 1884

The Black Hawk mining company shipped three cars of high grade ore last week.

May 23, 1884

Some very rich ore, containing native silver and argentite has been struck in the Good Hope mine, at Bullard's Peak, owned by H. M. Carpenter, and upon which work is now progressing steadily. The ore is very similar to that of the Black Hawk and occurs in the same formation.

The work of developing the Blue Bell, now owned by the Silver Bell company, is progressing steadily. The main shaft has been squared up and timbered to the bottom, a depth of 95 feet. Another shaft is being sunk 50 feet north-east of the main shaft to connect with two of the lower drifts. Work is progressing in the northeast and southwest extensions of the 35 foot levels; the former of which, at a distance of 80 feet from the main shaft, is in a body of ore full of native silver. At the second level two drifts are being driven along the vein, which is from 24 inches to 3 feet in width. A whim will be erected in a few days.

At the Black Hawk, about 8 tons of exceedingly rich ore were hoisted from the mine on Tuesday last. The ore was full of argentite and native silver, and would average, perhaps, \$1000 per ton. Only a sufficient amount of ore is being taken out at the present time to pay running expenses, as it is the desire

Con. P. Sullivan and John B. Card have obtained a lease on the Good Hope mine at Bullard's Peak, and will immediately proceed to work the same. The mine adjoins the celebrated Solid Silver, and although but slightly developed, has produced a fair amount of the same class of metal. An engine and pump have been purchased and will soon be in operation on the mine. The Good Hope has always been regarded as a fine prospect, and will no doubt become a regular producer.

June 17, 1887

Con Sullivan reports that the water has been hoisted from the Good Hope shaft and that the work of breaking ore will now commence. They have some fine truck to begin on and it is expected that this claim and the Rose will redeem Bullard's Peak district. The right kind of men have the workings of the mines their now to bring them out.

E. M. DeLaVergne was in from the Rose mine this week and reported work to be progressing satisfactorily. He has 8 men employed as is breaking some very fine ore. There is no question as to the merit of this property, and it is generally predicted that Mr. DeLaVergne, since obtaining complete control of the mine, will make a big success of it.

June 24, 1887

We learn that Sullivan and Card have almost 5 inches of almost solid silver ore to start on in the Good Hope mine.

July 3, 1887

James Dodd and Fred Arnold who have a lease on the Black Hawk mine, made a 2-ton shipment of ore last week that turned out very satisfactory, and goes to show that the management of the property in the past throw away thousands of dollars in the waste dump, which could have been properly sorted and saved. The ore netted \$1075 per ton at the Socorro smelter. There is a considerable quantity of such ore mixed in with the waste which the leasers propose to assort out and save. There are other waste dumps in this vicinity that would bear hard sampling, and ~~probably~~ probably turn out as well to practical men as has the Black Hawk to Dodd and Arnold.

July 15, 1887

The second class ore sorted from the dump of the Solid Silver mine will average \$100. Some of the high grade averaged \$900 per ton. It is no wonder that the mine did not pay when such ore was thrown over the dump. It is possible that the leasers may unearth a rich plant of solid silver ore which was cached there in the days when the company was being robbed from soda to hoc.

August 31, 1888

Milton Miller this week shipped another car load of Alhambra ore to El Paso for treatment. The ore will average in value about the same as the last consignment which went \$1000 to the ton.

September 7, 1888

McQuarrie and McGregor made a shipment of Black Hawk ore last week that gave gratifying returns.

September 14, 1888

The owners of the Alhambra mine at Bullard's Peak, have a fine showing of ore in three places in their mine. Development sufficient to determine the fact that the ore shute is continuous to depth of 65 feet has been done in the driving of the tunnel lately finished. The immensely rich ore of which there is about 6 inches will run \$6000 to the ton, and there are several tons in sight to encourage the boys to a continuation of development work.

November 9, 1888

The returns of the last shipment of Black Hawk ore were received last week by McQuarrie and McGregor. It ran very well and was treated at the El Paso smelter. The Black Hawk worked by such level headed practical miners as the present leasers, is bound to make a good showing.

November 16, 1888

A shipment of very rich ore will be made from the Alhambra today. It is worth several hundred dollars per ton.

November 23, 1888

James Winters, one of the owners of the Alhambra, visited the metropolis this week to attend to the shipping of some ore which only needed the eagle bird and "In God We Trust" stamped on it to make it worth its weight in silver. Black Hawk camp beats them all for rich silver ore.

December 7, 1888

A shipment of 7 or 8 tons of ore was made from the Alhambra this week. Nine sacks were shipped by express and were valued at \$3,600, which was not

December 5, 1884

Four car loads of extremely rich ore of the Black Hawk mine has been shipped since Mr. Rich assumed control of it and another car will be shipped on the 8th inst. The mine is looking extremely well, ore of a very high grade having been encountered in the 6th level.

December 19, 1884

The Black Hawk mine is doing exceedingly well, as the regular weekly shipments of ore will attest. The drift on the No. 8 level is being pushed rapidly ahead in order to cut the winze from No. 7, which has been sunk.

January 2, 1885

On Monday last the Solid Silver mining company shipped 13 tons of ore that averaged \$3000 per ton, from this place. The total value of the car load of ore is estimated at \$104,000. The drifts in the lower workings of this mine are piled with ore of fair grade which will hereafter be treated at the concentrator in this city or shipped to one of the upper country reduction institutions which receives most of the ore from this section.

January 9, 1885

A rich strike in horn and native silver was made at Bullard's Peak, while doing the assessment work on a claim owned by M. H. Twomey.

✓ We have been shown some pieces of ore that will weigh about 150 pounds each, and will run 60% silver, taken from the 500 foot level of the Black Hawk mine. The mine is looking better now than ever before.

February 13, 1885

The Black Hawk mine at Bullard's Peak deserves special mention, and the body of ore now exposed on the 8th level has to all appearances the staying qualities which veins of that character and depth usually show.

March 6, 1885

The Rose mine over which there has been so much dispute has finally passed into the hands of parties who will speedily commence development. Bernard McDonald, John Mullen and Barney Kerr have sold their interest to Dr. Culver and John Curr of Colorado Springs. The other half of the property is owned by H. H. Rich and Richard Wellington of Black Hawk. The Rose has always been considered as one of the best prospects in the district, and it has been a matter of regret

the working of the mine. This is only one of the recent strikes made in the vicinity of Silver City. With free exchange, at even a low value upon silver than the old standard, this county would soon, all it needs is a permanent standard of value on its mineral product, to do away with the uncertainty now obstructing the mine owners, who are reluctant under present conditions to make preparation for continuous working without a certainty as to the market price of this product. Many mines similar to the Welcome which are now lying idle would be opened and a season of general prosperity would ensue.

June 17, 1892

The Hobson mine is in bonanza. The chute of native silver which was first discovered at the surface has been followed and developed at a depth of 175 feet. The dip of the ore chute carries it away from the shaft and a drift has been started and is run about 30 feet north and is expected to cut the ore chute within a short distance. This will give a back stop of about 175 feet in virgin ground which will turn out many tons of ore. as the ore is worth from 25 cents to \$2. per pound it will not take many tons to produce a fortune. The company which has developed this property deserves their success. They have labored diligently and intelligently in the work of development. This is only one more instance of a fortune lying idle awaiting a seeker. There are many such properties within the the confines of Grant county.

✓ Later — Since the foregoing was written the drift from the 230 foot level has struck the rich ore chute from above, and another ore chute has been struck in the shaft at 255 feet. Samples of the latter strike now lying on the desk where this is written are more than 50 % pure silver and worth more than \$10,000 per ton. It is hard to appropriately designate the material whether to call it ore or bullion, it is too rich for any plan of reduction but smelting into bars of fine silver.

The Alhambra is showing better with each foot of development. The north drift shows good ore in several places and some rich ore is being found in the south drift. It takes but a small quantity of such high grade ore to make a paying mine and the indications in the Alhambra mine at present are that ore bodies of considerable extent are close at hand, in fact it looks as if the ore bodies just discovered were the apices of large ore chutes.

The Welcome is being worked by John Dodd and Charles Campbell, and there is a large body of ore in sight and being developed. The development work is producing ore enough to pay a handsome profit over expenses without stoping a pound of ore. It is destined to be one of the big mines of the southwest.

June 24, 1892

The Enterprise has positive and very reliable information that a chute of very rich ore was broken into on the 160 foot level of the Alhambra mine on Wednesday morning. The ore was struck in the north drift of the lowest level and from the present indications promises to be larger than any ore body before found in the mine. The ore is of the usual very rich character, native silver

SUNSHINE MINING COMPANY

ASSAY OFFICE

Name Geology G. E.Date May 22, 1975

Sample Number	Au Ozs.	Ag. Ozs.	Pb. %	Cu. %	Fe %	As. %	Sb. %	Bi %	Zn %	S %	H ₂ O	
GE												
1856	No	0.36										
1857	No	4.14										
1859	No	0.70										
1867	No	1.07										
1883	No	1338.83										
1884	No	0.20		0.1								

Vernon H. Wilhelm

Chief Chemist



MIDVALE OFFICE

ROCKY MOUNTAIN GEOCHEMICAL CORP.

P. O. BOX 337 • 1323 W. 7900 SOUTH • MIDVALE, UTAH 84047 • PHONE: (801) 255-3558

Certificate of Analysis

Page 1 of 2

Date: June 2, 1975
Client: SUNSHINE MINING COMPANY
P.O.Box 1080
Kellogg, ID 83837
attn: Wm. T. Ellis

RMGC Numbers:

Local Job No. 75-61-44SL-C

Foreign Job No.

Invoice No. M 6090

Client Order No.: Sunshine
Report On: 28 samples
Submitted by: Mr. Ellis
Date Received: May 29, 1975
Analysis: Zinc, Bismuth, Nickel, Cobalt, Lead, Silver & Arsenic
Analytical Methods: Arsenic determined colorimetrically; all others determined by atomic absorption.
Remarks:
cc: Enc.
File (2)

LRR/llp

Sample No.	ppm Zinc	ppm Bismuth	ppm Nickel	ppm Cobalt	ppm Lead	ppm Silver	ppm Arsenic
1851	270	35	25	70	110	2	-5
1852	165	45	30	75	20	-1	-5
1853	175	50	30	75	20	-1	-5
1854	240	40	30	80	30	-1	-5
1855	180	40	20	70	20	-1	-5

All values are reported in parts per million unless specified otherwise. A minus sign (—) is to be read "less than" and a plus sign (+) "greater than." Values in parenthesis are estimates. This analytical report is the confidential property of the above mentioned client and for the protection of this client and ourselves we reserve the right to forbid publication or reproduction of this report or any part thereof without written permission.
ND = None Detected 1 ppm = 0.0001% 1 Troy oz./ton = 34.286 ppm 1 ppm = 0.0292 Troy oz./ton

<u>Sample No.</u>	<u>ppm Zinc</u>	<u>ppm Bismuth</u>	<u>ppm Nickel</u>	<u>ppm Cobalt</u>	<u>ppm Lead</u>	<u>ppm Silver</u>	<u>ppm Arsenic</u>
1858	425	55	30	75	60	-1	-5
1860	100	40	5	45	20	-1	-5
1861	170	45	10	45	20	-1	-5
1862	250	40	20	75	40	-1	-5
1863	180	35	10	50	70	-1	-5
1864	315	50	30	90	110	-1	-5
1865	355	35	30	85	200	-1	-5
1866	280	45	30	85	100	-1	-5
1868	270	45	30	80	80	-1	-5
1869	445	25	30	75	170	-1	-5
1870	265	40	30	86	50	-1	-5
1871	165	40	30	80	30	-1	-5
1872	180	45	25	90	20	-1	-5
1873	140	35	25	80	30	-1	-5
1874	210	35	25	80	40	-1	-5
1875	230	35	30	80	60	-1	-5
1876	325	45	35	70	110	2	-5
1877	130	40	25	80	30	-1	-5
1878	125	35	30	65	10	-1	-5
1879	295	20	20	55	10	-1	-5
1880	275	15	20	55	20	-1	-5
1881	355	25	25	60	30	-1	-5
1882	370	30	20	65	40	-1	-5



ROCKY MOUNTAIN GEOCHEMICAL CORP.
SALT LAKE CITY, UTAH • RENO, NEVADA • SPOKANE, WASHINGTON • TUCSON, ARIZONA

By Lawrence R. Reid
Lawrence R. Reid

Bul 83 NM by Dr Gillerman
Get Mr Trever Harter res
Black Hawk Kilbourn
UV, Bob Wedgel Gen Mgr St Bank
~ 40,000 tons
~ 80^{oz}/ton

Econ Geol Vol 63 p3
May 1968 Elliot Gillerman

Veins w/ Dk color have higher
values

Veinto so ~ 20' with 150'

1917 ~ Limestone we opened
Black Hawk

UV Drilled ~ 4 years ago
Hobson Alhambra & Black Hawk

Hobson workings ~ 335' depth
~ 1919 Last workings

Leaham ~~from~~ St Joe

~ 1950's Dewatered
Alhambra ^{Drifted ~ 200-300'}

UV Royalites 30%
on Lease

Soil Grid East of Back Hank
Cotter Corp Golden 1974 ^{GP}
Eric Bruner U2O8 ^{COL}

Hermitite stain below ore shoots
Good prospecting indicator

Veins loose ore when they
flatten out prob older faults

400 X 300 X 2.5 ~ 2002 ton
ore mined in 1890's

Hobson shaft ~ 335'

Alt fract Mon Por
Lots of Mg Stain on Drift

Dr ~ 150' Vein 2" to 1"
No stoping above 1st Level

Alhambra
to 175' level in 1937
Dewatered to the 325 Level
in 1974

Drifted back to So. on vein
on the 325 & 175 Level wt no
major veins some narrow one

on the 325 level there is a 40' x 4'
Drifted 40' N of fault wt no veins

Huncke
~~Wibeke~~ Shaft ~ 150'

Easternmost Shaft
on the Black Hawk Structure

Rose Mine 205'

Stopped on 2 veins

Byron Jackson Pump

1000' X 1000 gal

ALL stainless 9 stage
Turbine

9.5' X 12"

Good Corrosion
Resistant

MMW
1048517

Expl Samples fm Black Hawk Mining District

1851—1882 to Rocky Mt Geochem except

1856
1857
1859
1867
1883
1884

} Fire Assay at Sunshine

Black Hawk Consolidated Mining Co
Milwaukee Wis Trever Harter Preso

Alhambra group

→ US Smelting & Refining Co
Good Hope UU Industries Mr Gerwell (local) (Bob Weigel Gen Mgr)

Rose Claims
Mary Shoemaker Corwell
40 BC Corwell Box 1729
ELPASO Texas

silver city 538-2192

T Black Hawk District
Grant County, N. Mexico
Preliminary Rept.

Abstract

This report has been compiled principally from published Data, Personal Communication, and Data obtained from 2 Days examining the property. The samples ^{collected} ~~consisted~~ of Stream Sediment ~~data~~, soil, rock chip & grab samples. The ~~minor~~ drainages of Black Hawk Canyon plus 2 soil lines over covered veins were sampled to test the applicability of geochemistry to detect mineralized veins (See Overlay). The results indicate geochemistry to be an excellent exploration tool in the District. If a workable agreement can be reached with the property owners a ~~small~~ ^{rapidly} relatively inexpensive exploration project could determine the potential of the District.

| including geochemistry & radiometric geophysics

by W.T. ELLIS

20 May 1972

Location & Access

The Black Hawk mining District lies mostly in sect 20, 21, 22, 28, and 29 T18S, R16W in Grant Co N.Mex. It is 21 miles by road west of Silver City, half of which is paved road & $\frac{1}{2}$ which is unimproved dirt road. The whole district lies within the Gila Nat Forest.

Ownership

The majority of the district is controlled by 4 parties. The Black Hawk Consolidated Mines Co, Milwaukee, Wisc. ~~Rock~~

UV Industries, Silver City, N.Mex. ~~Rose~~

Rose Claim Mrs Elizabeth J McCabe, Pasadena Calif & Mrs. Wm Howard Mede ^{SFO Calif}

Lou Osmer ^{Silver City, N.Mex.}

The Black Hawk patented claims president Trever Harter

The Alhambra group ^{consists of} the Alhambra Good Hope & ^{patented} ~~Hope~~ ^{owned} ~~unpat~~ ^{unpat by} ~~Bob Weigel~~ ^{UV Industries} ~~Gen Mgr~~

The Rose claim -

Lou Osmer ~~has tied up all unpatented claims~~ is leasing all of UV Industries claims the has staked all connecting & adjoining ground in the district.

Geology

A good description of the Geol may be obtained from US GS Bul 1009-K by Gillerman & White bred. Briefly The Black Hawk district is in the PE Burna Mt. Batholith which is a composite body made up chiefly of ^{the main} granite inclusions of gneiss schist quartzite & intrusive rocks.

Many stocks & dikes intrude the batholith. The predominant rock in the District is PE Qtz dior gne that intrudes Qtz schist monzonite & Qtz Mon. These rocks are cut by many gne rocks of PE and younger age, the most common of which is the monz por of Late Cretaceous age or early Tertiary age?. The Bear Tooth Qtzite of Late? Cretaceous age overlies the PE rocks. The exact age relationship has not been verified by any age dating of the rocks in the district.

Many faults trending generally NNE & NE cut the rocks of the District. Along this general NE trend 6 Mining districts occur over a 50 mi? zone indicating a major structural break.

History & Production

Mining began in the District began in 1881 and continued until 1893 when the decline in the price of Ag and the depletion of H Grade ore caused the mines to close. Nearly all the ore produced had a high Ag content and shipments of ore assaying as much as 13,000 oz/ton are reported (Jones, 1904 pp 55.)

The Ag production from the district before 1893 is estimated to have been between \$1,000,000 & \$1,500,000 (Leach A.A. 1916). The Black Hawk ^{mine} was the largest producer yielding \$600,000 to \$650,000. The Alhambra mine produced about \$400,000 and the Rose Mine about \$140,000 and the Hobson ~ \$40,000. The remainder of the production came from the Good Hope & other properties.

In 1917 a new owner acquired the Black Hawk mine unwatered & opened the lowermost levels. A.A. Leach (then Geol. for Phelps Dodge Corp at Tyrone N. Mex)

examined the mine & recommended further work but shortly thereafter all work ceased.

Interest in the district was revived ^{in 1949} ~~in 1949~~ and in 1952 3 holes were drilled to a depth of 1000'. Only sparse mineralization was encountered which could have been a result of poor spotting of the holes.

The Alhambra mine was dewatered in 1957 by Lou Osmer. Approx. 2500' of drifting was completed in search of additional H grade but no large bodies of ore were found. The mine was again dewatered ^{to the 175' level} to the 325' level and additional Drifting exposed ~ 40' of H grade ore. Work halted at that point due to lack of finances.

Also in 1974 the Cotter Corporation of Golden, Colorado, did some ^{soil} geochemical Exploration in the district ~~and~~ reportedly indicating an anomalous area to the East of the Black Hawk mine. Also a St Joe Geologist named Leaham has done some exploration in the district. UUI Industries has done Limited ^{Assessment} drilling with no reported results.

Geology

Ore Deposits

The Black Hawk district ores belong to the fissure vein uranium-bearing nickel-cobalt-silver type which have similar to major producing pitchblend-silver deposits at Joachimsthal, Czechoslovakia, and Great Bear Lake, Canada. The veins are pitchblende, native silver, argentite, nickel and cobalt sulfides and arsenides, pyrite, and small amounts of other sulfides, in a gangue of carbonates,

and some quartz and barite. The vein occur as two intersecting sets of veins, one trending north to northeast, and the better developed set trending northeast to east. The veins are ~~numerous~~ as zones of many discontinuous parallel and subparallel veins, in an area about 1 mile wide and 2 to 3 miles long. Many of the veins can be followed for more than 1,000', but others are only a few hundred feet long. Most of the veins are only a foot or less in width but open up suddenly to ~~one~~ ~~short~~ paddy Leuse-like ore shoots 3' to 10' wide. The greatest vertical extent occurred in the Black Hawk vein which has been mined to a depth of 600'. ~~variously~~ The veins in outcrop are inconspicuous and are marked generally by soft ^{limonite-manganese} ~~brown black~~ stained carbonates sometimes ~~marked by~~ banded with chert. ~~It~~ It should be noted that underground The ore minerals are chiefly native silver with argentite ^{and} nickel and cobalt minerals ^(in abundance) increasing with depth.

Mine development included very little lateral exploration for parallel veins.

~~Conclusions & Recommendations~~

The Ag production of the district from 1881-1893 is between \$1,000,000 and \$1,500,000 primarily from the Alhambra and Black Hawk veins. ~~These~~ These veins have a combined strike length of over 3500' and were developed for ~1000' to a depth of 400' & 600' respectively. Very little lateral ~~the~~ exploration was conducted underground for parallel veins.

The District lies along a major ^{NE trending} ~~structural~~ ^(numerous) ~~lineament~~ that contains no less than 6 mining camps. The uranium bearing

Nickel-cobalt-silver type fissure veins in the district appear to be related to this ^{regional} structural trend. The true age relationships of the rocks, veins and mineralization have not been adequately correlated.

A thorough inquiry to the ~~owner~~ land owners should be made to acquire access to Mining & Assay Data Available. A suite of rocks ~~should~~ be collected for Age dating purposes along with constructing a large scale (1" = 500') Geology Map of the district. A geochemistry soil sample grid should be completed in conjunction with a Radiometric survey on the same grid. With this project of approx. 1 month duration the potential of the District can be evaluated and may indicate further work to include D Drilling and dewatering, mapping, and sampling of the District.

Before any ~~work~~ work in the district is considered the ~~major~~ ~~owner~~ Black Hawk Consolidated Mining Co., U.V. Industries, and Lou Osmer (Leasee) should be approached to see what kind of working agreement ^(if any) can be ~~arranged~~ agreed upon.