Copy

CLEAR MEMORIES OF RED CLOUD MINE

DESERT CENTER

With one hand clasped around a bit, the other holding a sledgehammer, Alfredo Figueroa chiseled a pattern of holes inside a tunnel. Lit by lights atop his hard hat, the teeth of the star-shaped iron bit ate away at walls made of desert rocks and hard-packed soil.

After several inches bore into the wall, sticks of dynamite were packed in. Wooden matches lit each fuse.

"I did my last mining two years ago," Figueroa said. "We are the only family on the Colorado River basin with a mining history dating back to 1862."

If the tunnels reached 100 feet, it could take up to four hours for the toxic fumes to dissipate, he said.

For Figueroa, rewards of the family business lie buried in quartz cavities deep inside the Chuckwalla mountain range.

The 70-year-old Blythe resident remembers his father's stories of toil and strife in the deep caverns of the Red Cloud Mine, near Desert Center.

Danuario Figueroa worked the Red Cloud Mine from 1931 until he died at age 64 in 1966. Three of his sons took over the business in his honor. The Dan Figueroa and Sons enterprise mined the Palen, McCoy and Maria mountains near Blythe. They owned the 94-acre Red Cloud Mine from 1970 to the present.

Gold was brought from one of the main shafts, the White Wing Attic, which remained under development into the 1980s. A report from 1983 said nearly one ounce of gold existed for every ton of earth. Gold was $800 an ounce at the time.

Wooden A-frames remain eight miles in from where Red Cloud Road meets Interstate 10. The rugged dirt road is passable with a four-wheel drive vehicle, Figueroa said.

DESERT TALES

Paul DeCarlo

With both large and small mine operations, the Figueroa company searched for other precious metals: Copper, lead and manganese.

"The small-mine operator had to do everything," Figueroa said. "We had to know how to put timber around the shafts for safety. We had to be part machinists to know how to fix the drill."

By 1951, the Figueroas gained jackhammer and air-compression technology.

But serious safety issues continued.

Steve Lech, author of "Along the Old Roads" and assistant park planner for the Riverside County Regional Park and Open-space District, said when enough space existed, a stamp mill was used to pound ore into gold.

"Think of an engine without the engine block," Lech said. "It made a heck of a racket. Apparently, people who worked with these things often went deaf in the first day."

The perils of the mining profession have made their mark on the Figueroas. Several men in the family have died of silicosis, a lung disease stemming from inhaled quartz particles.

"We never worked eight hours," Figueroa said. "It was too much."

Figueroa said he can recall listening to his father struggle for each breath for the last few years of his life.

"You could hear him gasping," Figueroa said.

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Indio News
3-18-79

Red Cloud Mine once tapped desert wealth

PAUL WILHELM

Mines in the desert have a life of their own, as well as a beginning, and in most cases, an end. Here is the story of the Red Cloud Mine southeast of Indio, first mentioned by the State Mineralogist in his 1888 report:

"The summit of the Peninsular Range is clothed with forests of oak and pine. Not so on the desert declivity of the mountains where are found mighty chasms. Some of these canyons, with walls three thousand feet high, contain scenery that for beauty and grandeur would rival even the Yosemite. Groves of queenly Washington palms, growing with tropical luxuriance beside quiet brooklets, rival in beauty the giant sequoia groves of our State.

"During June and July of this year, the writer explored that portion of the Colorado Desert wherein are the Chuckawalla Mountains, where the Pacific Mining District has been organized, the main object, the examination of various gold, silver, and lead mines which have been discovered.

"The mining district lies about 30 miles north of the Southern Pacific Railway. The nearest railway station is Salton. As organized, the district is 12 by 26 miles in extent, but the mineral-bearing region is not thus limited. Perhaps no other region in the State possesses as large bodies of ore as high an average grade as are found here. A broad arroyo furnishes an excellent road from the railroad. Good ironwood, mesquite, and palo verde wood can be cut and hauled to the mines at an average cost of $1 per cord. And abundance of good water has been developed by blasting in the rocks that form the bedrock of arroyos. I examined leading mines in the district and will mention claims on which work has been done with encouraging results.

"The Sunnyside Mine has ore yielding by assay as high as $25,000 per ton, and is said to average $50 to the ton in gold and silver. The ore is very promising in character -- iron-stained quartz, with an admixture of lead ores. The mine is the property of Hendsch & Frederick of San Diego. The Opulent Mine is an extension of the last. The Golden Rule Mine has a new shaft sunk to the depth of 50 feet. Malachite and chrysocolla occur in this mine. The Great Western Mine has a ledge 50 feet in width that has been traced for miles, yields $20 per ton in gold. The Keystone, Blackbird, and Monarch Mines have similarly large veins. The Red Cloud Mine is named from the abundance of cuprite; a 30 foot shaft has been sunk, and a tunnel commenced on the property; it yields both gold and silver in paying quantities."

1940 reports on the Red Cloud Mine by the office of Mineral Resources of Riverside County tell the rest of the story. "The Red Cloud Mine comprises eleven claims known as Great Western, Red Head and White Wings, totaling 82 acres, situated about 45 miles southeast of Indio, owner, J. D. Hooper of Los Angeles.

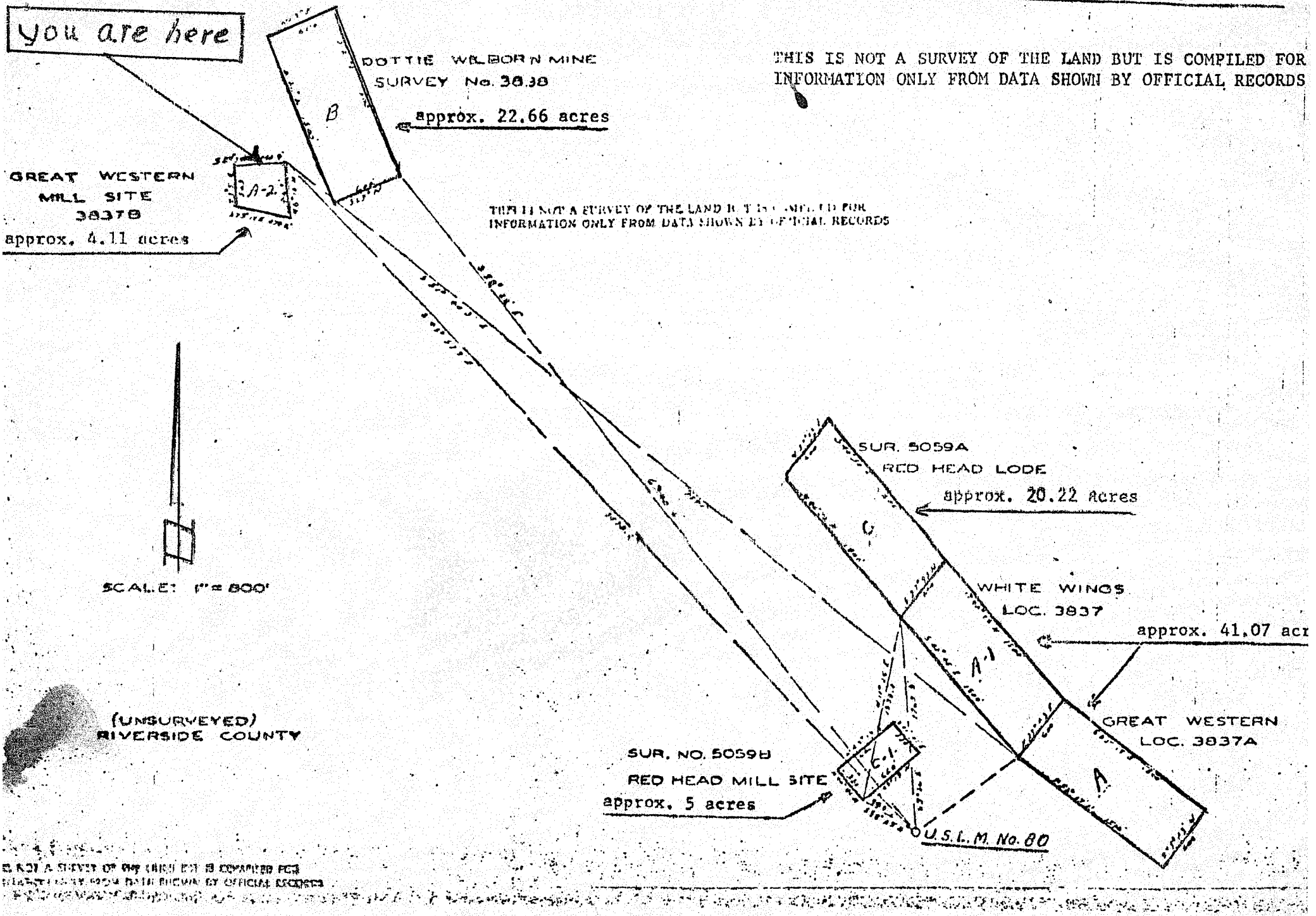
"The property was intermittently (from 1898 to 1900) by Red Cloud Mining Company, J. M. Hooper, secretary, during which time the White Wings shaft was sunk on the vein to a depth of 267 feet and the Great Western shaft sunk to a depth of 480 feet. On the Red Head, from a tunnel was driven north 250 feet. Ore was hauled to a 5-stamp mill at Corn Springs and milled, and is reported to have had an average value of $12 per ton in gold. The property was idle until 1931 when it was leased by Charles Gerage and associates of Los Angeles who installed an amalgamation plant. The ore milled was from the Red Head tunnel level, and were reported to average $20 per ton in gold. The concentrates shipped to U. S. Smelting Company, Midvale, Utah, had an average value of $100 per ton in gold. Operations were suspended in 1935.

"In 1934 the S & W Mining Company secured an option on the property until 1936. The production of this company was $30,000 in bullion and concentrates. In 1937 the mine leased to Cecil Smith who shipped 300 tons of ore stated to have averaged 1.43 ounces per ton in gold. From 1938 to 1940 the property was under option to Frank Ahlberg and Mark Jones of Los Angeles.

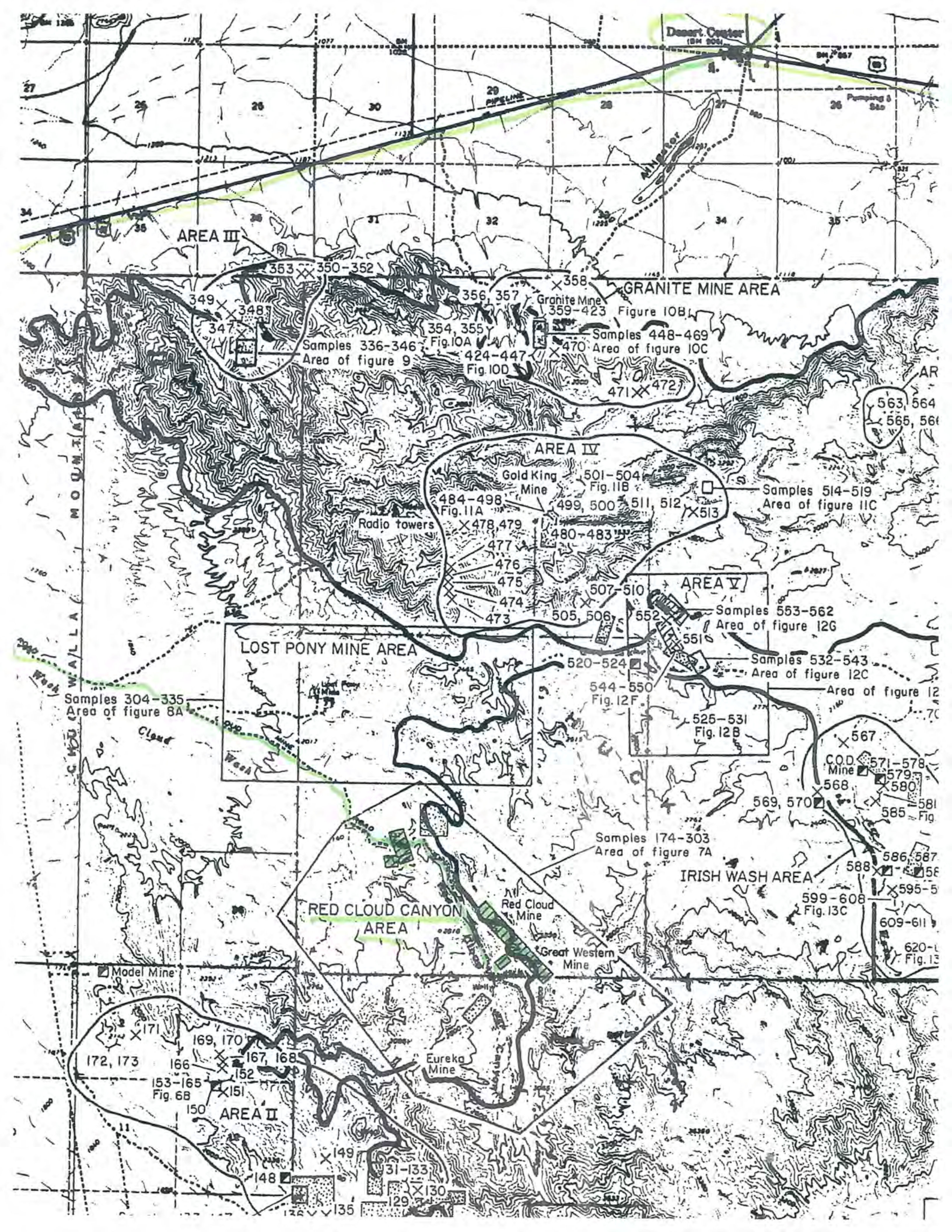
"All recent work at the Red Cloud has been confined to the Red Head shaft, which has been sunk on the vein to a depth of 810 feet, with levels at 100, 200, 275, and 300 feet. In sinking this shaft to the 100-foot level, the orebody was 12 feet wide and 50 feet in length, and averaged $15 per ton in gold. From the 200-foot level to the 300-foot level, the lens of ore was 30 feet in length, 4 feet wide and reported to average $50 per ton in gold. The ore shoot was cut off by a fault striking east between the Red Head shaft and the White Wings shaft. The vein quartz of this orebody showed coarse gold.

"Total production of the Red Cloud property is reported to have been over $100,000. Operations were suspended in 1940 and all equipment has been removed from the property."

Red Cloud Mines Private Property



THIS IS NOT A SURVEY OF THE LAND BUT IS COMPILED FOR
INFORMATION ONLY FROM DATA SHOWN BY OFFICIAL RECORDS



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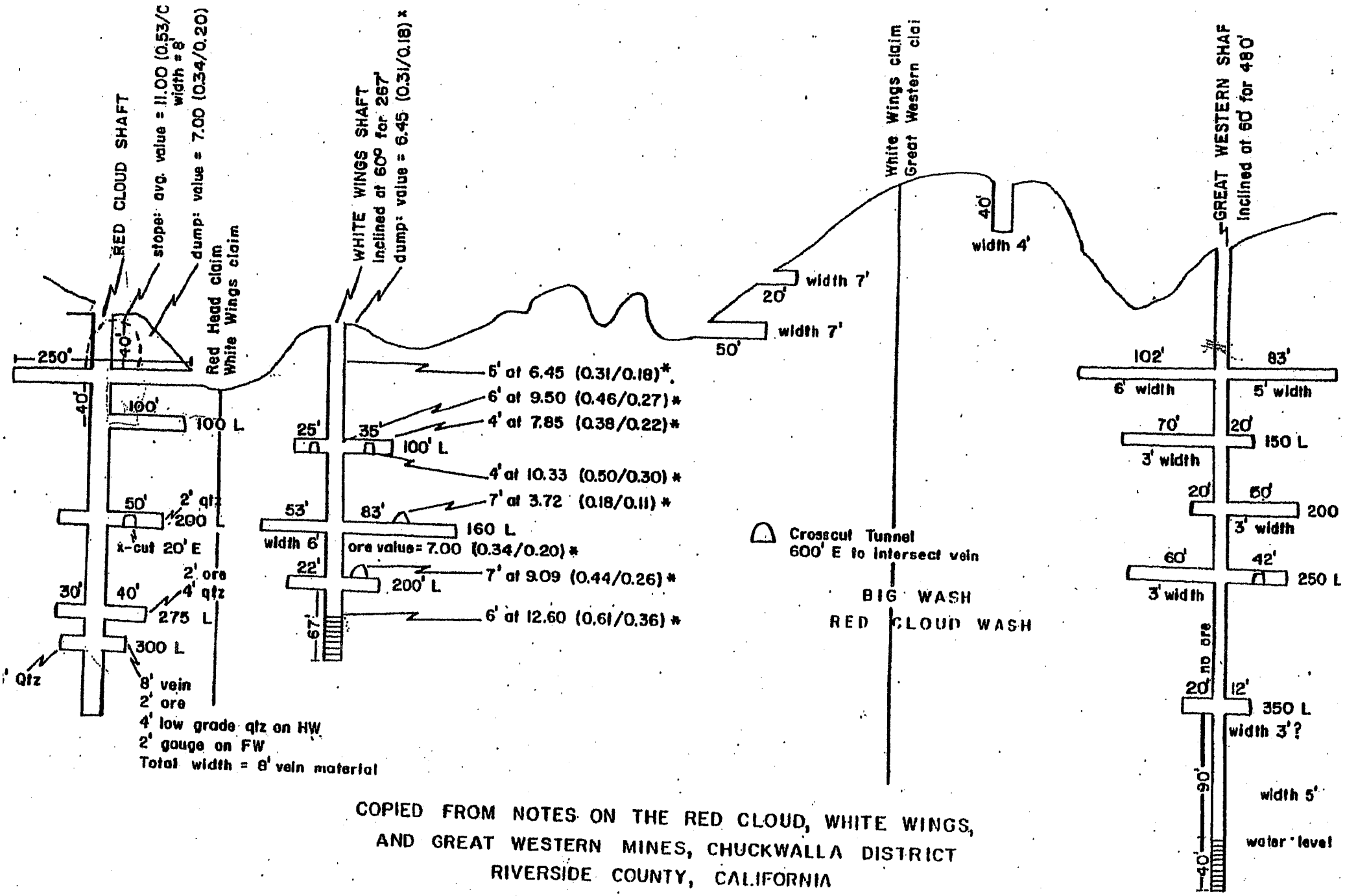

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AND GREAT WESTERN MINES, CHUCKWALLA DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

date and author remain unknown

– NOTE EXAGERATED SCALES –

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* values recalculated in terms of oz/ton Au and listed at (20.67/oz Au, 35.00/oz Au) respectively

Fig. 3

RED CLOUD PROJECT REPORT
CHUCKWALLA MOUNTAINS
RIVERSIDE COUNTY
CALIFORNIA

June 1988

Prepared for Norgold Resources Inc.

by Tench C. Page
Exploration Manager
Norgold Resources (US) Inc.

SUMMARY OF PREVIOUS WORK

In early 1987 Norgold Resources Inc. leased 4 patented mining claims and 7 unpatented lode mining claims in the Chuckwalla Mountains of southern California; an additional 16 lode mining claims (Nor #1 through Nor #16) were located to cover fractions that occur between the unpatented lode mining claims and to cover new ground that contained indication of mineral potential.

There is little known concerning the history of mining in the district but it is believed that the mines were first worked in the 1880's. Production was mainly from small shoots or pockets that contained moderate to high grades of gold spatially related to quartz veins. Footwall quartz ore adjacent to the Red Cloud shaft reportedly averaged $50/ton Au (1.43 oz/ton @ $35.00 per ounce) and hanging wall ore "heavily mineralized with cube pyrite" averaged $15/ton Au (0.43 oz/ton @ $35.00 per ounce) (Tucker and Sampson, 1945). No suitable estimate of tonnage produced can be made from the data available although totals are believed to be small. Total production from within the area of the patented claims is reported to have exceeded $100,000 (Tucker and Sampson, 1945) and suggests that Au production from the Redhead, White Wings, and Great Western claims was in the range of 3,000 to 5,000 ounces. There are no records to indicate substantial production from the area of the Nor #1 through Nor #16 claims.

Geologic mapping combined with surface and underground sampling within the Red Cloud Project area suggested that further investigation of the properties was warranted. The generally continuous, well-developed mesothermal quartz veins found on both sets of claims were found to contain erratic concentrations of Au, Ag, W, and Cu. However, mineralized/altered pyrite-bearing rock found within the Red Cloud mine crosscut contained Au concentrations that were more evenly dispersed (e.g. 0.034 oz/ton Au over 35 feet or 0.085 oz/ton Au over 10 feet). Above this zone similarly altered rocks are found over an extensive area (roughly 2400 feet in strikelength and as much as 200 feet in width). It was recommended that Phase 1 drilling be designed to determine if there is sufficient lateral and vertical extent and overall average grade within these altered hanging-wall rocks to justify continued exploration on the patented claims. The program simultaneously allowed drill investigation for additional shoots, faulted segments, etc. of high grade quartz vein material similar to that previously mined and located on the main mineralized structure. In addition, zones of altered rock found within the area of the unpatented mining claims (Nor #1 through Nor #16) locally contain anomolous amounts of gold and were delineated for further investigation by trenching and exploratory drilling.

PHASE 1 RESULTS

The Phase 1 program which included clearing and building access roads and drill pads, drilling of 6 reverse circulation drill holes, excavation of a 180 foot trench, and sampling was completed during the months of March and April of 1988.

A total of five drill holes were completed on the patented claims. Four holes (CH - 1, CH - 2, CH - 4, and CH - 5) were drilled to either side of the Red Cloud workings to test altered rock of the hanging wall and to test for lateral extensions to previously mined high grade lodes. The best intercepts obtained from these holes included 0.021 oz/ton Au over 5 feet (0.01 oz/ton Au over 20 feet) in CH - 1, and 0.026 oz/ton Au over 5 feet (0.007 oz/ton Au over 45 feet) in CH - 2. Drill hole CH - 3 was completed over 400 feet to the north and along strike of the Red Cloud mineralized zone; although significant amounts of highly-altered rock were intersected geochemical results indicate the presence of only a small amount of Ag (to 0.31 oz/ton Ag over a 5 foot interval) and nearly negligible Au. The results of this drilling program suggest that minable grades of gold may occur only within horizontally restricted shoots and immediately adjacent hanging-wall alteration; failure to intersect higher grades of gold within the larger area of altered rocks suggests that Au-bearing rocks within the area of the patented claims are unlikely to meet Norgold's criterion for mine development. For this reason it is recommended that Norgold withdraw from their obligations related to the patented claims.

The Phase 1 program completed within the area of the Nor #1 through Nor #16 unpatented claims on BLM ground concentrated on exploration of a north-south-trending zone of alteration that was partially covered. This program included drilling of an exploratory drill hole (CH - 6) and excavation and sampling of a 180 foot long trench about 500 feet south and along strike of the drill hole location. Geochemical results from drill and trench samples confirmed the presence of low amounts of Au within this zone (0.002 oz/ton Au over 10 feet in CH - 6, and 0.010 oz/ton Au over 10 feet in the trench). It is recommended that 'proofs of labor' (assessment) for these claims (Nor #1 through Nor #16) be filed for 1988; this in turn allows Norgold to complete additional low-cost geochemical sampling prior to recommending continued exploration or withdrawal from this claims area.

LOCATION

The Red Cloud Project properties are located about 45 air miles [72 km] east of Indio, California in the Chuckwalla Mountains of Riverside County, California (Fig. 2). They occur in unsurveyed Sections 32 and 33 of Township 6 South, Range 15 East, and in unsurveyed Sections 4 and 5 of Township 7 South, Range 15 East of the San Bernardino Meridian. Approximate coordinates are 115° 26' West longitude and 33° 36' North latitude. Elevations on the properties are generally from 2,400 to 3,000 feet above sea level and topography is moderate to steep (Fig. 1).

PROPERTY AND OWNERSHIP

Norgold's land holdings in the district include 4 patented lode claims, 2 patented millsite claims, and 8 unpatented lode claims. The patented claims are leased from the Figueroa family of Blythe, California and the unpatented lode claims are leased from Donald Myers of Covina, California. Another 16 lode mining claims have been located and are held by Norgold Resources Inc.; these claims ensure continuity between the 8 lode claims held by Myers and incorporate other BLM land into Norgold Resources' holdings. The claim groups are listed below:

Figueroa patented claims:

1) Great Western lode claim (surv. #3837A)
2) White Wings lode claim (surv. #3837)
3) Red Head lode claim (surv. #5059A)
4) Dottie Welborn lode claim (surv. #3838)
5) Great Western millsite claim (surv. #3837B)
6) Red Head millsite claim (surv. #5059B)

Donald Myers unpatented lode claims:

1) Earlene #1 through #4 lode claims
2) D - 2 through D - 4 lode claims
3) Goldylocks lode claim

Norgold Resources Inc. unpatented lode claims:

1) Nor #1 through Nor #16 lode claims

A map showing the location of Norgold Resources' lode claims and the patented Great Western, White Wings, and Red Head lode claims is given in Fig. 1.

HISTORY

Mines of the Red Cloud Project area were probably first worked in the 1880's, and then intermittently from 1900 until the present day. Much of the following is excerpted from Tucker and Sampson (1945).

Properties that included both the Red Cloud and Great Western mines were operated by the Red Cloud Mining Company from 1898 to 1900. During this time the White Wings shaft was sunk to a depth of 267 feet, the Great Western shaft to a depth of 480 feet, and a tunnel was driven 250 feet to the north on the Red Head claim at the present site of the Red Cloud (a.k.a. Red Head) shaft. Ore was reported to have had an average value of about $12 per ton (0.6 oz/ton Au @ 20.67/oz Au; 0.34 oz/ton Au @ 35.00/oz Au).

In 1931, Charles V. Craig and associates of Los Angeles installed a small amalgamation plant and milled ore from the Red Head tunnel level; the milling heads reportedly averaged $20.00 per ton in gold (0.97 oz/ton @ 20.67/oz Au; 0.57 oz/ton Au @ 35.00/oz Au). This operation was suspended in 1933.

From 1934 to 1936, the S & W Mining Company sank an incline shaft (the Red Cloud shaft) on the Red Head claim to a depth of 200 feet. A high grade shoot of oxidized ore is reported to have occurred on the footwall of the vein. Total production was reported to be $30,000 in bullion (857 oz Au @ 35.00/oz Au).

By 1937 the property was under lease to Cecil Smith who shipped 300 tons of ore said to average 1.43 oz/ton Au.

In 1938 and 1939 the property was leased by Frank Ahlberg and Associates of Los Angeles. These operators sank the Red Cloud shaft to 300 feet and installed a crude 25 ton amalgamation and cyanide plant.

From 1939 to 1940 the property was under lease to Super Products, Inc. of Los Angeles.

In April of 1983, Kenpan Ltd. leased the patented claims and drove 142 feet of drift (the White Wing adit) on the White Wings claim south toward the White Wings shaft and workings but failed to develop more ore.

Very little is known concerning the development of the properties outside of those on the patented claims. It is assumed that exploration began in the late 1800's and it is reported that the claims were worked in the 1930's and 1950's. It is reported that Emerau Mining Company was preparing to excavate quartz veins on these properties in 1982 (Powell, et al., 1985).

DESCRIPTION OF MINE WORKINGS

The location of prospects, mine shafts, and other workings are shown on Plates 1, 2, and 3 (in pocket) and occur throughout the claims area. Only the larger shafts and workings are described here.

Development work in the patented claims area is shown in Figure 3 and includes:

1) The Great Western shaft was sunk on the vein to 480 feet of depth with levels at 100, 150, 210, 250, and 350 feet for a total of 480 feet of horizontal development. Near the surface this shaft is inclined at 45° to 50° NE and appears to be clear of obstruction. The shaft was driven along the footwall section of the main quartz vein. As of 1985, the BLM reports that the Great Western mine has 365 feet of accessible workings.

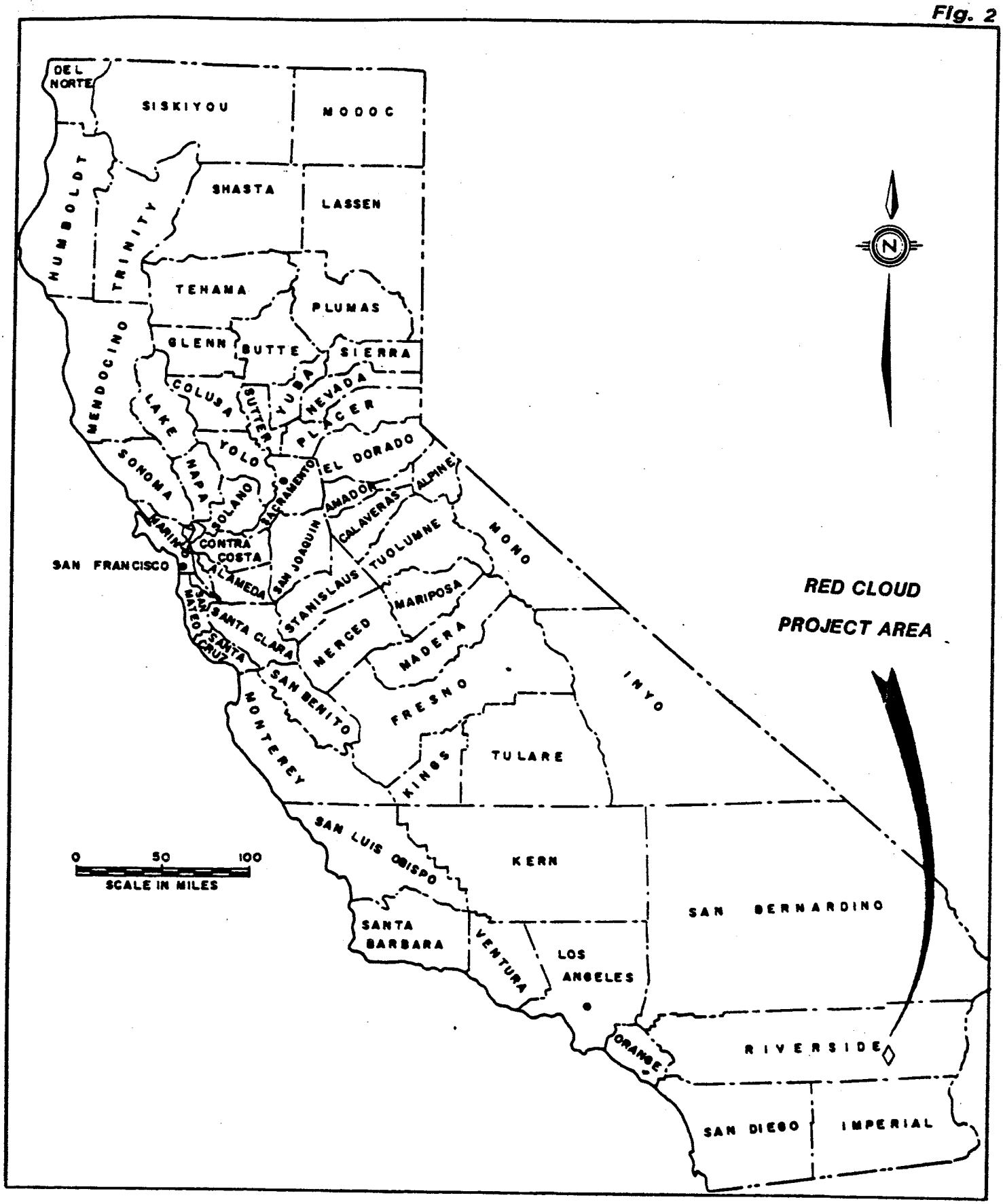
2) The Great Western adit (not shown on Fig. 3) was driven for about 250 feet in a NW direction along the main quartz vein and in the adjacent silicified and brecciated rock; there is little evidence of significant production. It was driven towards the White Wings claim from the draw that occurs just north of the Great Western shaft.

3) The White Wings shaft was sunk on the vein to 267 feet of depth with levels at 100, 160 (also reported as 180), and 200 (also reported as 220) feet for a total of about 240 feet of horizontal development. The shaft was driven on a quartz vein, iron-oxide stained shear, and diorite dike that is inclined at 60° to 75° to the NE. It is jammed at a depth of about 20 feet.

4) The White Wings adit is located between the Red Cloud and White Wings shafts (not shown on Fig. 3); it was driven about 140 feet south towards the White Wings shaft from the intervening draw in an effort to develop the vein along strike and to intercept the White Wings shaft and workings. The project was abandoned before the shaft was reached.

5) The Red Cloud (a.k.a. Red Head) shaft was sunk on the vein to 310 feet of depth and is reported to be inclined at an average of about 60° NE with levels at 100, 200, 275, and 300 feet for a total of about 560 feet of horizontal development. A glory hole, containing iron-oxide stained and pyrite-bearing argillic and silicified rock, brecciated quartz vein, and minor diorite was mined between surface and the tunnel level; the hanging wall of the shaft is heavy and partially collapsed below the tunnel level. The tunnel level is accessible along its 250 feet of length. Recent drilling indicates that other workings (e.g. the 150 level or stope) also exist. As of 1985, the BLM reports that the Red Cloud Mine has 360 feet of accessible workings.

Fig. 2


DEL NORTE
SISKIYOU
MODOC
HUMBOLDT
TRINITY
SHASTA
LASSEN
TEHAMA
PLUMAS
MENDOCINO
GLENN
BUTTE
SIERRA
COLUSA
SUTTER
YUBA
NEVADA
LAKE
PLACER
SONOMA
NAPA
YOLO
EL DORADO
SOLANO
SACRAMENTO
AMADOR
ALPINE
MARIN
CONTRA COSTA
CALAVERAS
SAN JOAQUIN
TUOLUMNE
MONO
SAN FRANCISCO
ALAMEDA
STANISLAUS
MARIPOSA
SAN MATEO
SANTA CLARA
SANTA CRUZ
MERCED
MADERA
SAN BENITO
FRESNO
INYO
MONTEREY
KINGS
TULARE
SAN LUIS OBISPO
KERN
SAN BERNARDINO
SANTA BARBARA
VENTURA
LOS ANGELES
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RIVERSIDE
SAN DIEGO
IMPERIAL
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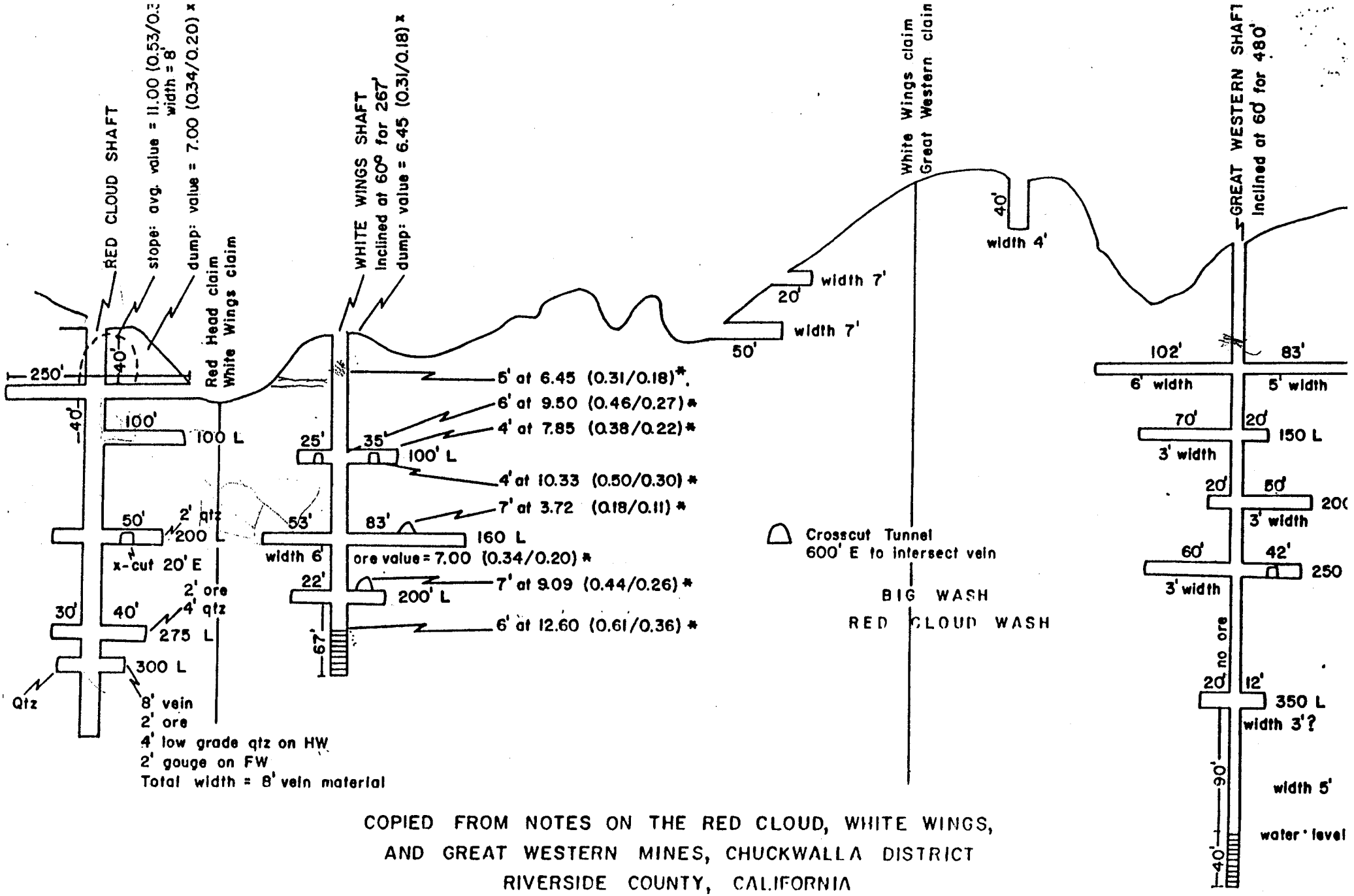
SCALE IN MILES
RED CLOUD
PROJECT AREA



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RIVERSIDE COUNTY, CALIFORNIA

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– NOTE EXAGERATED SCALES –

* values recalculated in terms of oz/ton Au and listed at (20.67/oz Au, 35.0')/oz Au) respectively

Fig. 3

Development work in the unpatented claims area includes several shafts and adits, and numerous pits, trenches, etc. most of which are located on Plates 1, 2, and 3. Much of the information concerning these workings was provided by Donald Myer of Covina, California. Workings include:

1) The Goldylocks shaft that was sunk along a east-northeast-trending, nearly vertical 2.5 foot quartz vein that is known to contain significant Au and Ag; this shaft is about 50 feet deep and a drift is reported to have been driven on this level to the west. The shaft is located on the Nor #9 claim.

2) An unnamed adit that is driven 48 feet north along a prominent, nearly vertical, north-trending quartz vein that has been prospected over much of its strikelength; there is no evidence of significant production either from the adit or surrounding pits. The adit is located on the Nor #5 claim.

3) An unnamed shaft sunk to a depth of about 35 feet on a nearly vertical, north-trending, sheared, 3 foot quartz vein (not the same vein as at 2) and diorite dikes. This shaft is located on the Nor #4 claim.

4) An unnamed shaft sunk along a nearly vertical, north-trending quartz(?) vein. This shaft is reported to be 40(?) feet deep with a drift to the north in high grade vein material; all vein material from either side of the shaft has been stripped from the country rock and there is little evidence of either grade or width of the mined material. The shaft is presently closed near the surface where talus has filled the collar. This shaft is located on Donald Myers' Earlene #1 claim (leased by Norgold Resources Inc.)

RECORDED PRODUCTION

Past production from mines and workings of the Red Cloud Project area is difficult to estimate since many of the workings are inaccessible, no production records are available, and because much of the ore was sent to custom mills outside of the Red Cloud area.

Production is known from the Red Cloud shaft and workings where two ore bodies were reported:

1) a sulfide ore body that contained cube pyrite and that occurred in the hanging wall of the main vein between the tunnel level and the 100 foot level; it was reported to be 12 feet wide and 50 feet long and to contain $15.00 per ton in Au (0.43 oz/ton Au @ 35.00/oz Au).

2) an oxidized quartz lens that occurred on the footwall side of the main vein between the 200 and 300 foot level; this was reported to be 4 feet wide and 30 feet long and averaged 50.00 per ton in Au (1.43 oz/ton Au @ 35.00/oz Au). This shoot was reported to be cut off by an east-bearing fault that occurred between the Red Cloud and White Wings shaft.

Total production from the patented properties is reported to have exceeded $100,000 (Tucker and Sampson, 1945) and suggests that Au production was in the range of 3,000 to 5,000 ounces Au.

Production records from the US Bureau of Mines (Powell, et al., 1984) show the reported recovery from ores of the Red Cloud mine for the following years:

1899 to 1901 - 140.29 oz of gold
1932 to 1940 - 1329.25 oz of gold
and 425 oz of silver

Total reported recovery = 1469.54 oz of Au and 425 oz of silver

There are no known figures on production from any of the other mines within the immediate Red Cloud Project area.

REGIONAL GEOLOGY

A part of the Salton Sea quadrangle that shows the geology of the Chuckwalla Mountains and surrounding ranges is given in Fig. 4.

The geology of the Chuckwalla Mountains is described by Powell, Watts, and Lane (1984) in their report on the Chuckwalla Mountains Wilderness Study Area (1984). A geologic map of the Chuckwalla Mountains prepared in conjunction with the study is given in Fig. 5. The regional geology is summarized here:

1) within the area, the San Gabriel terrane of Precambrian metasedimentary gneiss and orthogneiss is superimposed upon the Joshua Tree terrane of Precambrian granite and orthoquartzite along the regional Red Cloud thrust.

2) the Red Cloud thrust is inferred to have formed as the result of east-northeast thrusting, then to have been folded about north-northeast trending axes. Later thrusting 'with some component of westward movement' then produced a stacking of the crystalline thrust plates, and renewed or continued folding overturned the section toward the southwest. This occurred from 1195 to 165 m.y. ago.

3) batholithic rocks that include gabbro-diorite, granodiorite, monzogranite, and quartz monzonites intruded both Precambrian terranes and the Red Cloud thrust system in the Jurassic and Cretaceous periods.

4) swarms of felsic, intermediate, and mafic dikes formed along a regional fracture set oriented approximately west-northwest, north-northwest, and/or northeast partly in response to regional dilation.

5) basalts and andesites were extruded in the southernmost Chuckwalla Mountains in Upper Oligocene and lower Miocene time.

6) east-west left-lateral strike-slip faults that have cumulative displacement of about 30 miles occur to both the north and south of the northern block of the Chuckwalla Mountains and occur in the northern part of the range. These faults are Cenozoic in age.

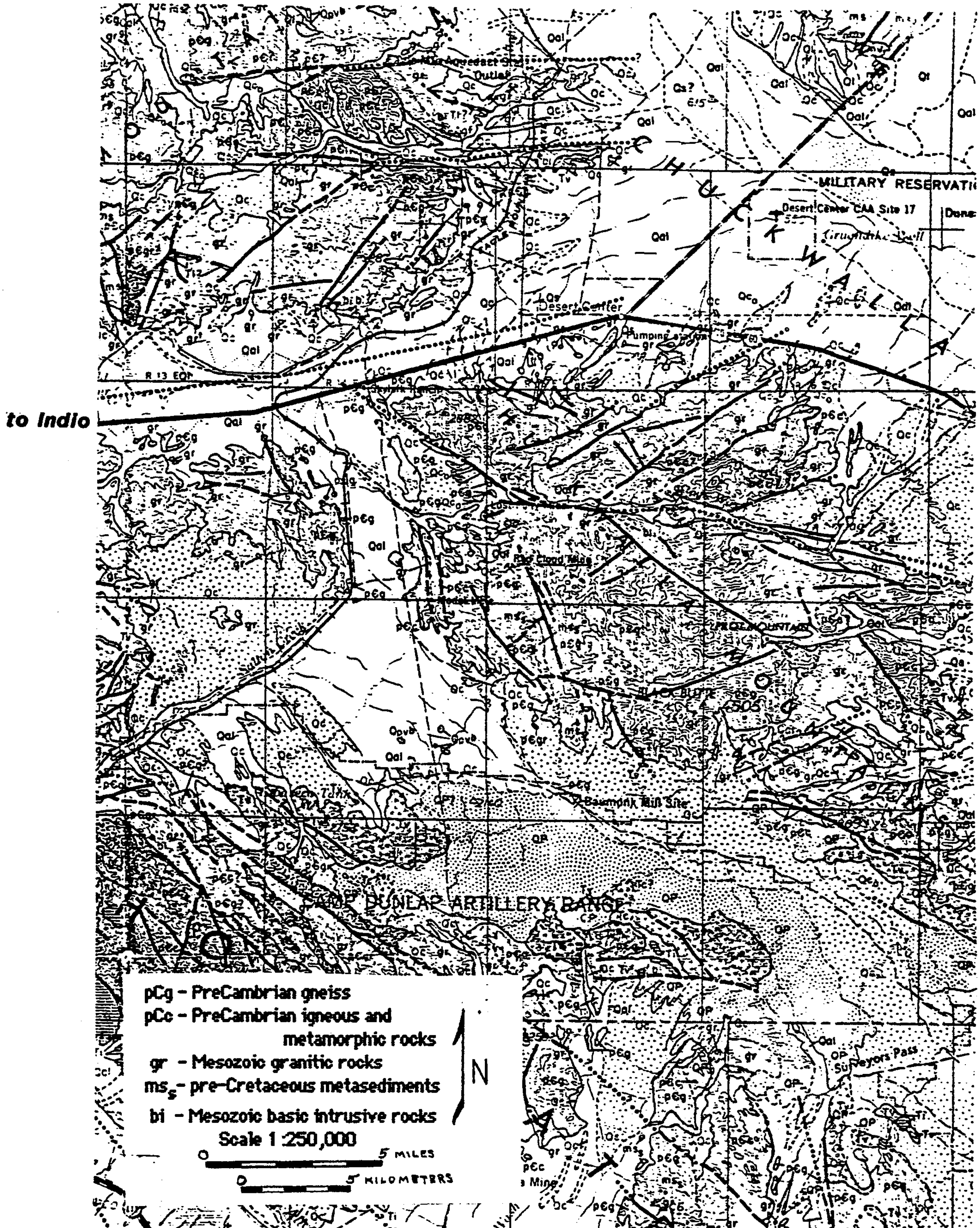
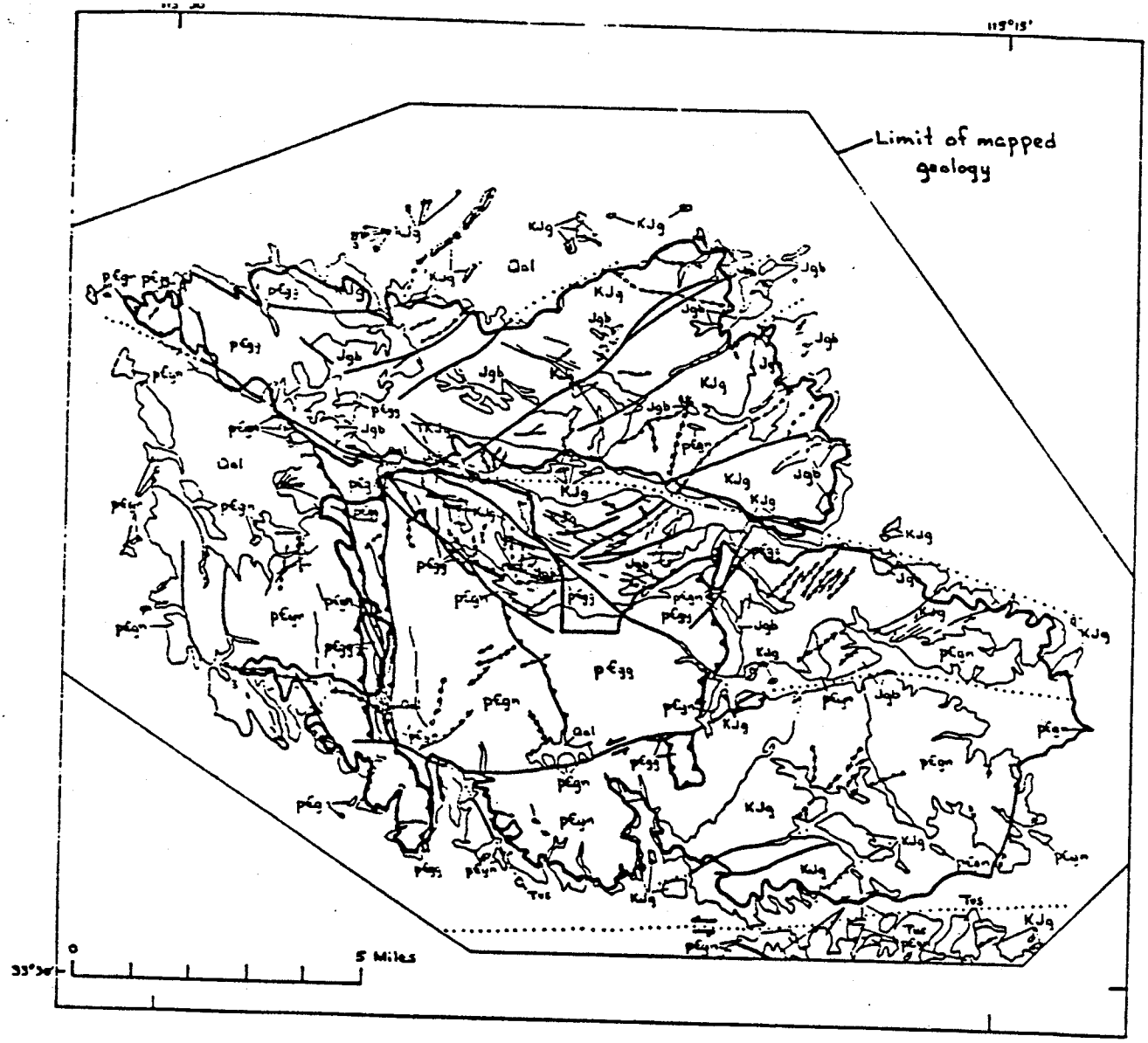

to Indio
MILITARY RESERVATI
Desert Center CAA Site 17
Desert Center
CAMP DUNLAP ARTILLERY RANGE
Surveyors Pass
pCg - PreCambrian gneiss
pCc - PreCambrian igneous and metamorphic rocks
gr - Mesozoic granitic rocks
ms$_s$ - pre-Cretaceous metasediments
bi - Mesozoic basic intrusive rocks
Scale 1:250,000
0 5 MILES
0 5 KILOMETERS
N

FIG. 4



EXPLANATION

Qal	Alluvium (Quaternary)
Tvs	Volcanic and sedimentary rocks (Tertiary)
KJg	Granitic rocks (Cretaceous and (or) Jurassic)
Jgb	Gabbro and diorite (Jurassic)
pCgn	Gneiss and plutonic rocks of San Gabriel terrane (Precambrian)--Metasedimentary gneiss, orthogneiss, and syenite-mangerite-jotunite
pCgg	Granite gneiss of Joshua Tree terrane (Precambrian)

FELSIC DIKES (Tertiary, Cretaceous, and (or) Jurassic)

MAFIC DIKES (Tertiary, Cretaceous, and (or) Jurassic)

CONTACT

HIGH-ANGLE FAULT OR FRACTURE--Dotted where covered; arrows indicate relative movement

RED CLOUD THRUST FAULT--Sawteeth on upper plate

APPROXIMATE BOUNDARY OF WILDERNESS STUDY AREA

Figure 5.--Geologic map of the Chuckwalla Mountains Wilderness Study Area, Calif.

GENERAL GEOLOGY

Rocks found within the immediate Red Cloud Project area are primarily Precambrian gneisses, whose protoliths appear to be silty sandstones, and sandy siltstones. No attempt was made to differentiate gneisses observed within the field area as they are all grossly similar; they are for the most part believed to be the granite gneisses, lineated quartzites, and schists of the Joshua Tree terrane that are exposed throughout Red Cloud Canyon (Fig. 5).

Rocks that were observed within Precambrian gneisses of the Red Cloud Project area include:

1) small pods of both mafic (primarily dark gray to green, fine-grained) and felsic (ranging from pegmatite to aplite to quartz) differentiates that are enclosed within and help to define foliation within gneissic rocks and that probably are the result of metamorphosis of the original rock.

2) small dike- and vein-like intrusions of felsic rock (aplite, quartz-feldspar veins, and possibly pegmatite(?)) that crosscut gneissic foliation. Larger masses of possibly related rock are seen in the highlands west of the main prospect areas but have not been examined in the field.

3) dikes and sills of fine-grained, generally dark-green chloritically-altered rock of dioritic composition. Although these dikes and sills are not abundant, they are generally fairly continuous. They are found along north-trending subvertical structures (e.g. as shown in Trench A), northwest-trending northeast-dipping structures (e.g. locally along the main Red Cloud/Great Western fault), and as nearly horizontal sills (e.g. 1600 feet east of the Goldylocks shaft. Dioritic dikes and sills range in width from less than 1 foot to more than 10 feet in thickness and generally erode easily. Diorite dikes and sills are commonly associated with mineralized rock although they also occur independent of mineralization.

4) small amounts of rhyolitic or dacitic rock are found just south of the claims area; the occurrence is believed to be sill-like and hypabyssal (near surface) in character.

5) quartz veins and alteration that are described in the section on mineralization.

STRUCTURAL GEOLOGY

Structures observed within the project area are shown on Plate 1 and include:

1) The Red Cloud/ Great Western fault that strikes northwest and dips at about 60° to the northeast. This structure is the main mineralized structure on the patented claims and is locally marked by a prominent quartz vein ledge that is as much as 15 feet thick (e.g. in the area of the Great Western mine). Both quartz vein and country rock are commonly broken, sheared, altered, and recemented along the structure. Separation/rotation between lower-plate and upper-plate rocks is evident near the Red Cloud mine where: 1) structures of the upper plate are not present in the lower plate, and 2) gneissic foliation of the upper plate is oriented differently from gneissic foliation of the lower-plate.

2) North- and northwest-trending subvertical fractures that occur in the hanging wall of the Red Cloud/Great Western fault; these are commonly oriented at N 5 to 15° W and at N 20 to 30° W. Hanging-wall alteration occurs over a large area that occurs to the north-northwest and east of the Red Cloud mine (Plate 1), is predominantly controlled by these structures and possibly formed as mineralized solutions moving along the Red Cloud/Great Western fault flowed into these higher angle structures.

3) nearly horizontal fractures are also found within upper-plate rocks; they are most notable in the altered zones where they may be iron-oxide stained.

4) Major north-trending subvertical faults that: 1) controlled mineralized solutions resulting in formation of both quartz veins and altered areas (e.g. as explored by both CH - 6 and Trench A) and that 2) have offset mineralization (ie. northwest of the Red Cloud mine and 2,000 feet east of the Goldylocks shaft).

5) Northeast to east-northeast subvertical to steeply northwest-dipping fractures.

6) Northwest- to west-northwest-trending subvertical structures that occur north of the Red Cloud mine. The northernmost structure shows major displacement. Offset of both quartz veins and alteration suggests right-lateral separation for this fault; it may also have displaced rocks and mineralization down to the south although this relationship is more conjectural.

MINERALIZATION

General description: Mineralized rocks of the Red Cloud Project area have been mapped and are shown on Plate 1. Mines of the district include the Great Western, the White Wing, and the Red Cloud mines that occur within a strikelength of about 2500 feet [750 m] along the Red Cloud/Great Western fault; available sketches of the underground workings (Fig. 3) and historical reports suggest that production came primarily from horizontally restricted intervals or shoots that occurred along or adjacent to quartz veins or alteration associated with the structure. A large zone of alteration occurs in the hanging wall of the main mineralized structure and extends to theeast and north-northwest from the area of the White Wing and Red Cloud mines. This alteration is moderately well developed where exposed on the surface and averages about 200 feet [60 m] in width throughout some 1200 feet [350 m] of strike; in total, some 2500 feet [750 m] of strike contain variably developed alteration of this type. Another north-trending mineralized structure occurs at a distance of one to two thousand feet [300 to 600 m] to the southwest of these mines, includes variable amounts of both quartz vein and altered rock, and has been prospected along some 2400 feet [725 m] of strike. Parallel veins and structures are also mineralized and sporadic prospecting occurred along them. A northeast-trending vein was developed by the Goldylocks shaft although it is not known if there was any significant production.

Character of mineralization: Gold mineralization is known to occur both within quartz veins and within zones that are silicified and argillically and/or sericitically altered.

Quartz veins are locally 15 feet [4.5 m] or more in width and may average more than 5 feet [1.5 m] in width over hundreds to a thousand feet of strikelength; their continuity and widths suggest that they were derived from a strongly-developed hydrothermal system. The coarse, massive nature of the quartz, lack of banding, lack of wallrock alteration that can be attributed directly to this quartz, and general geochemistry all suggest that the most prominent quartz veins are mesothermal in character. Minerals observed or reported to be contained within the veins include pyrite, arsenopyrite, chalcopyrite, galena, scheelite, fluorite, wulfenite, hematite, goethite, other limonites, chrysocola, malachite, and manganese-oxide (pyrolusite?); they typically occur either within pockets (or vugs) within the vein or along fractures. Some of the gold produced from quartz veins is coarse in character and gold has been panned from crushed vein material (Alfredo Figueroa, pers. commun., 1987).

Geochemical results both from the Bureau of Mines investigation (Lane, Michael E., Mineral Investigation of the Chuckwalla Mountains Wilderness Study Area, California Desert Conservation Area, Riverside County, California, USBM open-file report - MLA 4-85 [WSA #348], 148 pp.) and from sampling by Norgold Resources personnel suggest that gold and silver distribution in the major quartz veins is erratic and suggest that the major quartz veins are barren of precious metals over certain strikelengths. In general, there is a positive correlation between the presence of sulfides and oxides in the vein material and precious metal content. Both erratic gold distribution and the coarse character of the gold derived from these veins complicate evaluation of the quartz vein targets.

Altered zones, as described previously, may be more than 200 feet [60 m] in width, and quite continuous; they are generally composed of silicified, sericitically-altered, and/or argillized rocks that contain both iron-oxides and sulfides. Alteration east andnorth-northwest of the Red Cloud and White Wing mines is best developed where thin (approx. 1 to 3 mm), generally continuous veinlets of quartz that locally contain sulfides, and sporadic veinlets of calcite and siderite, occur throughout a wide zone of fracturing that is developed within the hanging wall of the main Red Cloud/Great Western fault. Immediately adjacent to these veinlets (ie. within several centimeters) wallrock is silicified and may contain disseminated pyrite ± calcite ± Mn-oxides (pyrolusite?). Where observed on the surface altered zones may form silicified knobs (topographic highs) that are heavily iron-oxide stained along fractures. Two main sets of subvertical fractures are oriented @ N 5 to 15° W and @ N 20 to 30° W and commonly control quartz veinlets; subsidiary fractures include both low-angle and northeast-trending fractures that are only locally developed but that also may contain quartz-carbonate-sulfide veinlets. Fracture density is locally high and may be on the order of 6 to 8 per square foot. The overall appearance of this altered zone is similar to that seen within stockwork deposits, but lacks the wide diversity of fracture orientations common to most stockworks.

Within the Red Cloud workings a crosscut exposes 35 feet [9 m] of hanging-wall alteration that occurs just above and east of the main mineralized structure; this zone is pervasively silicified and contains from 1 to 6% disseminated pyrites (mostly cubic in form) that are locally, though rarely, as large as a centimeter across, calcite and siderite veinlets, and pods and disseminations of heavy Mn-oxide (Fig. 6). Geochemical sampling of this zone indicates that significant Au content occurs within the altered area in the underground (ie. 0.034 oz/ton

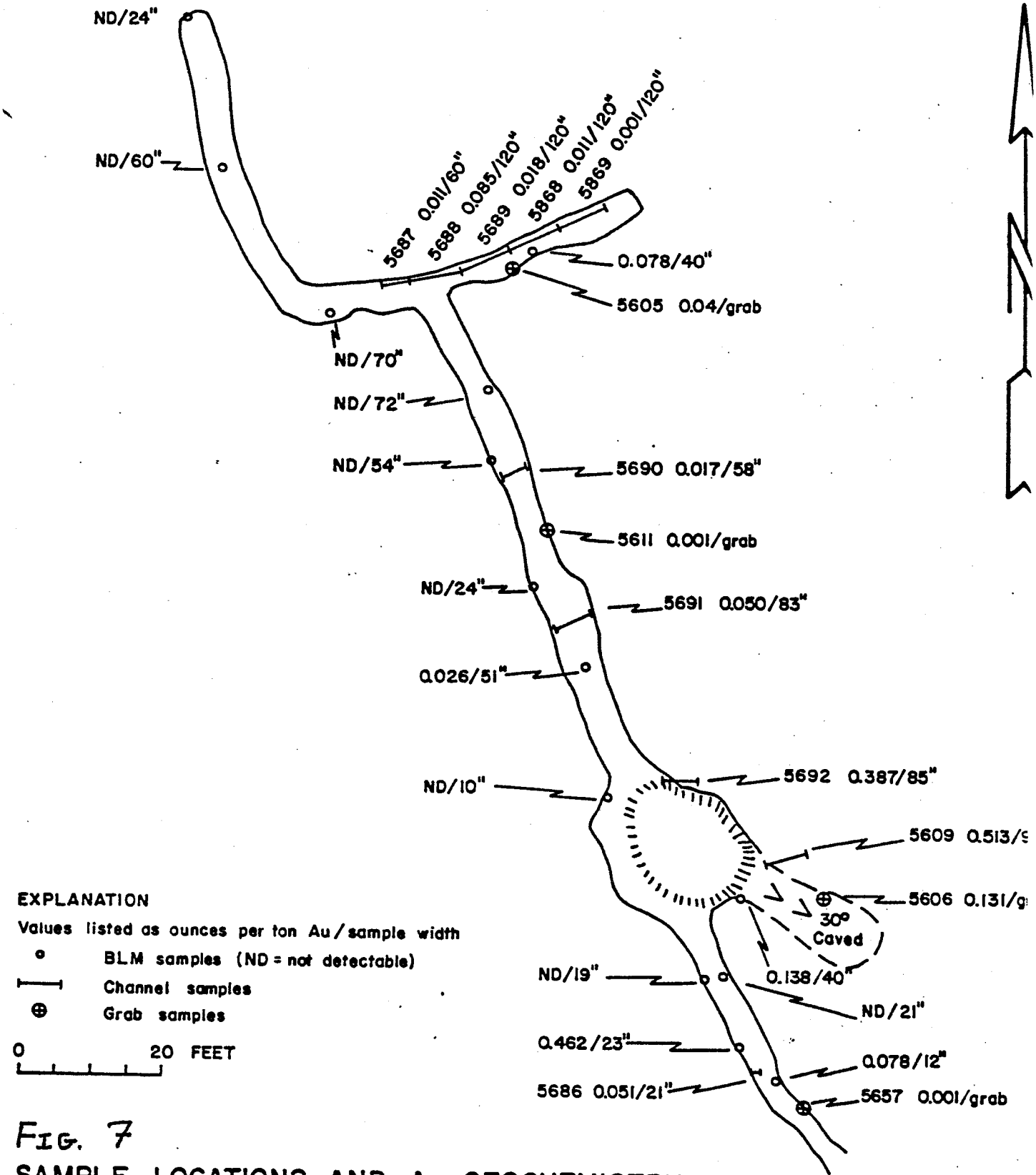


FIG. 7

SAMPLE LOCATIONS AND Au GEOCHEMISTRY OF THE RED CLOUD MINE - 00 LEVEL

SAMPLED BY M. PHILPOT & T.C. PAGE 5/87

Au over 35 feet or 0.085 oz/ton Au over 10 feet) (Fig 7). In addition, this zone is similar in description to ores mined from the hanging wall adjacent to the Red Head shaft; these ores reportedly averaged 0.43 oz/ton Au (Tucker and Sampson, 1945). The larger target presented by pervasive alteration and quartz-carbonate-sulfide veinlets above and locally along the Red Cloud/Great Western structure was of especial interest to Norgold's geologists. This provided a focus for further exploration in the area of the patented claims and was investigated by drill holes CH-1 through CH-5.

Other altered zones that locally contain gold are found along north-trending structures and along northeast-trending structures (Plates 1 and 2) within the area of the unpatented Nor #1 through Nor #16 claims. One of the north-trending structures, though intermittently covered by alluvium, is altered along some 1200 feet of strike and may locally be as much as 150 feet in width (ie. just east of the Goldylocks shaft - Plate 1). Both the suggested width of the altered zone, and Au-geochemistry of samples taken peripheral to this zone indicated that further evaluation was warranted. This zone was investigated by drill hole CH-6 and Trench A. The continuity and extent of most other altered zones is in question due to wide areas of talus cover that occur throughout this part of the district; some of these (e.g. 900 feet northeast of the Goldylocks shaft) merit further surface sampling.

GEOCHEMISTRY

Sampling of both quartz vein material and areas of alteration within the project area was completed in May of 1987; greater than 120 geochemical analyses from this sampling program are available and reported on Plates 2 and 3, in Fig. 7, and are listed in the appendix. Every sample was analyzed for Au and Ag. Thirty-eight of these were analyzed for a geochemical suite that included Mo, Cu, Pb, As, W, and Hg. An additional fourteen of the 120 were analyzed by ICP analysis for Mo, Cu, Pb, Sr, W, As, Sb, Bi, Ge, Se, and Te, and checked for coarse gold content.

Sampling procedure was to collect a uniformly representative chip sample (about 8 lbs.) perpendicular to controlling structures and to record widths to the nearest inch; sample widths ranged from 20 inches to 20 feet and are recorded on the assay sheets found within the appendix. Character samples were taken locally and recorded as grab samples.

In general, coarse quartz vein material showed elevated Mo (to 34 ppm), Cu (to 669 ppm), Pb (to 1211 ppm), As (to 84 ppm), W (to 38 ppm), Sb (to 15 ppm), Bi (to 668 ppm), Te (to 71ppm), Se (to 7 ppm), and variable Au and Ag.

Fine-grained chalcedonic quartz vein material contained significant Mo (to 52 ppm), Cu (to 882 ppm), Pb (to 101 ppm), As (to 25 ppm), W (to 883 ppm), and Au [Sr, Sb, Bi, Ge, Se, and Te were not analyzed for any of these samples].

Altered rock from within the Red Cloud workings showed elevated Cu (to 612 ppm), Pb (to 140 ppm), W (to 10 ppm), As (to 127 ppm), Hg (to 230 ppb), Bi (to 10 ppm), Te (to 10 ppm), and significant Au content (see Fig. 7). Altered rock north-northwest and east of the Red Cloud workings contained generally uniformly elevated Cu (to 163 ppm), and W (to 164 ppm), and local traces of Au. [Sr, Sb, Bi, Ge, Se, and Te were not run on any of these samples]. Au: Ag ratios found in altered rocks are generally much higher than those found in quartz veins.

There is a positive correlation between Au and As content in the rocks analyzed from within the project area. None of the samples checked for coarse gold content indicated that assay discrepancies related to this problem would occur.

DRILL RESULTS

Six drill holes (CH-1 through CH-6) amounting to 1450 feet of reverse circulation drilling were completed on the Red Cloud Project properties during the month of April of 1988. Five of these were drilled on the patented claims and one other was drilled on the Nor claims. All holes were drilled with a Chicago pneumatic reverse circulation drill rig that utilized 4.5" drill pipe. Every hole encountered substantial amounts of moderately to highly altered (silicified, sericitic, and/or argillic) and/or quartz vein (silicic) rock (Plates 4 and 5) with variable amounts of pyrite and other sulfides, iron-oxide, manganese oxide, and carbonate; intervening material was also mildly or variably altered. Recovered chips and dust from every five foot section were taken and then split into two samples that each averaged about 8 lbs. One sample from each five foot section was submitted to Chemex Labs for analysis of Au and Ag content and the other was retained as a backup.

Drill locations and access roads are shown on Figures 8 and 9 and drill sections are found on Plates 4 and 5. Complete geochemical results are found within the appendix. Drill notations indicate drill hole number and final footage (e.g. "CH-2 055" is the sample from 50 to 55 feet of depth in drill hole CH-2). A summary of the drill program and geochemical results is given below:

CH-1: CH-1 was drilled in a N 48° E direction at an angle of 80° to a depth of 75 feet. Geochemical results showed 0.021 oz/ton Au over one five foot section within a broader 20 foot section that averaged 0.01 oz/ton Au. CH-1 was terminated when the drill hammer sheared off from the drill pipe and could not be recovered from the hole.

CH-2: CH-2 was drilled in a N 48° E direction at an angle of 60° to a depth of 295 feet. Geochemical results showed 0.026 oz/ton Au over one five foot section within a broader 45 foot section that averaged 0.007 oz/ton Au. Samples from 0 to 70 feet averaged 0.005 oz/ton Au with the exception of one sample that showed no detectable Au. The interval from 95 through 125 feet contained anomalous Ag that averaged 0.038 oz/ton Ag with only minor associated Au. A third mineralized zone was encountered at 275 to 290 feet of depth and averaged 0.006 oz/ton Au.

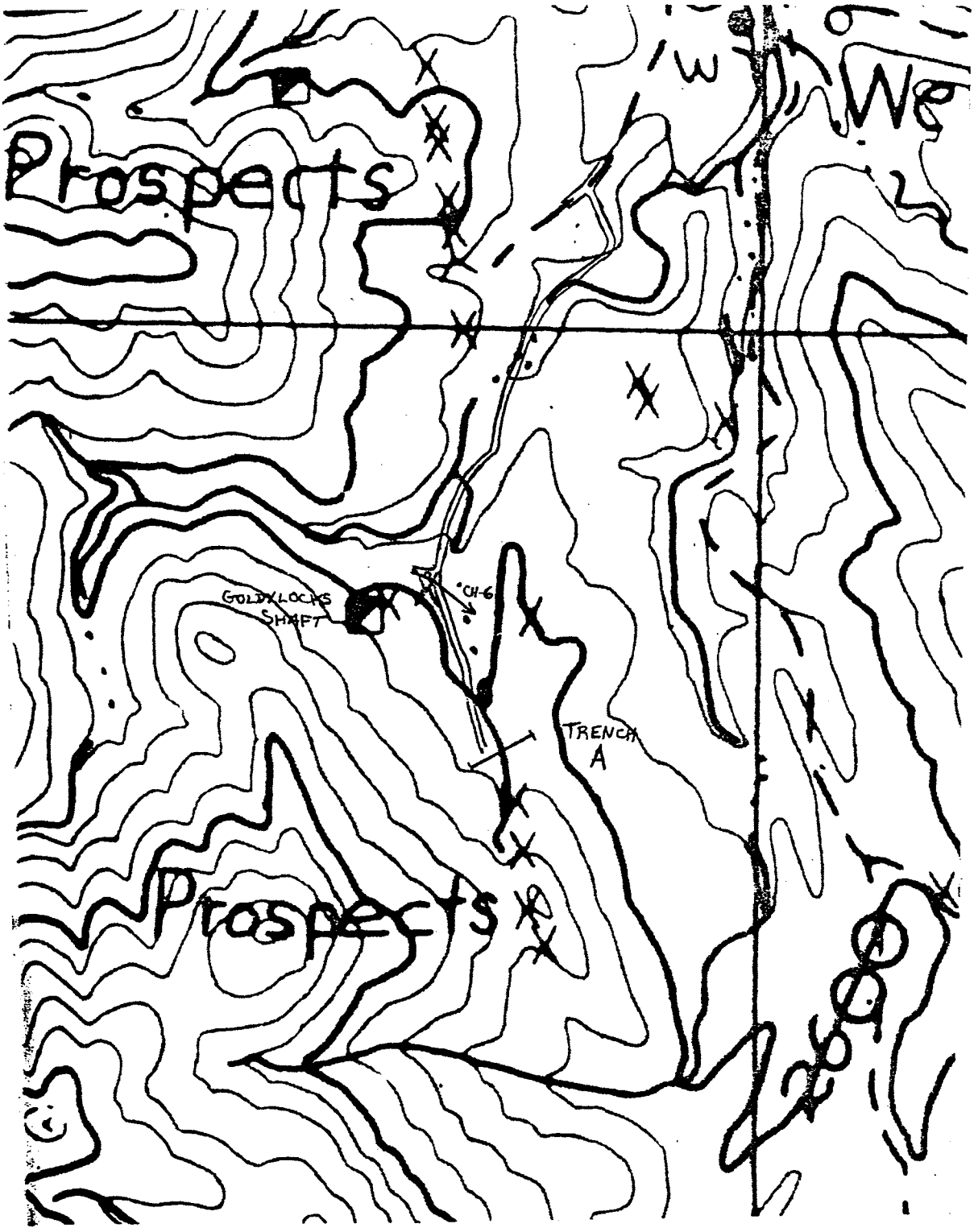


FIG. 9: Location map showing CH-6, Trench A, and access roads.

CH-3: CH-3 was drilled in a S 48° W direction at an angle of 75° to a depth of 245 feet; the drill hole was collared at approximately 425 feet to the N 12° W of drill sites CH-1 and CH-2. Only slight traces of Au (0.001 oz/ton) were found within samples taken from this hole. Small amounts of Ag including 10 feet that averaged 0.23 oz/ton Ag were found sporadically and at depth in this hole. Water was encountered at about 220 feet of depth.

CH-4: CH-4 was drilled in a S 48° W direction at an angle of 65° to a depth of 167 feet. This drill hole was collared to the south of the Red Head workings at 200 feet to the S 62° E of drill holes CH-1 and CH-2. The hole encountered mine workings from 150 to 158 feet of depth; this tunnel would correspond with the 150 Level of the Red Cloud mine and indicates that exploratory workings beyond those reported exist. The only samples containing Au were found immediately adjacent to these workings and suggested concentrations of less than 0.01 oz/ton Au. Traces of Ag were also found in altered rocks above this zone. Water was encountered above the mine workings at 145 feet of depth and drilling was terminated when clays in the hole prevented circulation and recovery of a suitable sample.

CH-5: CH-5 was collared at the same site as CH-4 and drilled vertically to a depth of 298 feet. Only sporadic traces of Au (to 0.002 oz/ton) and Ag (to 0.07 oz/ton) were found from samples from this drill hole. Water was encountered at a depth of 150 feet.

CH-6: CH-6 was drilled in a S 52° E direction at an angle of 60° to a depth of 270 feet; this drill hole was collared in the area of the Goldylocks shaft on the Nor #9 claim; Trench A is located nearly 500 feet to the south of this site. This drill hole was designed to investigate the intersection of a north-trending zone of alteration and the structure that controlled mineralization explored by the Goldylocks shaft and workings. Although wide zones of highly altered rock with traces of Au (to 0.002 oz/ton) were encountered, no substantial precious metals content was found.

CH-1 through CH-5 have effectively explored the primary target delineated wthin the patented claims area. Results suggest a low probability of finding a suitably large Au reserve of sufficient grade to meet Norgold's criterion for mine development.

Results from CH-6 are generally negative but may not reflect potential found within other altered zones within the Nor group of claims.

TRENCH RESULTS:

Trench A was excavated with a D-8 bulldozer during the month of April of 1988. The 180 foot trench lies within the Nor claim group, and was geologically mapped and sampled along 165 feet. The west end of Trench A is located about 500 feet S 14° E of drill site CH-6 and explores the same altered north-trending structure as the drill hole. Samples were uniformly chipped along 10 foot sections of the trench wall except for one five foot sample that was taken of a mafic dike found within the altered zone. In addition, three character samples of distinct mineralogies were also taken. A map showing the sample sites and the geology in relation to the geochemical results obtained from analysis of these samples is given in Fig. 10. The trench was filled in and recontoured to the original topography following the sampling and mapping program.

Trench A results indicate that the north-trending zone of alteration has a true width of about 120 feet at this point. The rock throughout this zone is moderately to pervasively silicified and variably sericitized and/or argillized, is variably brecciated, and is cut by several fine-grained dark green mafic dikes that parallel the structure. Clay and carbonate are found both along seams and in breccias. Hematite, goethite, other limonites, and manganese-oxides (including pyrolusite) are common along fracture surfaces and admixed with clays in breccias, but are also locally disseminated through the altered rock. Character samples were taken from a 0.5 foot quartz vein with carbonate and iron-oxide (77018) that occurs in the vicinity of the mafic dikes, from rocks near the west end of the trench that contained a yellow-green secondary mineral (77019), and from a persistent hematite-clay breccia seam (77020) found near the east end of the trench.

Geochemical results from the trench indicate that both low levels of Au (0.010 oz/ton over 10 ft or 0.004 oz/ton Au over 40 ft) and low levels of Ag (0.09 oz/ton over 10 ft or 0.055 oz/ton over 20 feet) occur independent of each other within the trench. The anomalous Au (0.004 oz/ton Au) contained within the hematite-clay breccia sample and the anomalous Ag (0.04 oz/ton Ag) contained within the quartz vein suggest that each of these occurrences may be responsible for the anomalies found within their respective proximities.

The trenching program confirmed the presence of low amounts of precious metals within altered zones of the Red Cloud Project area yet failed to delineate any targets of sufficient potential to warrant further drilling. Exploration of other altered zones on the Nor #1 through #16 claims should be confined to low cost surface sampling; identification of targets of suitable grade and size potential is necessary to justify further exploration.

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California Division of Mines and Geology, 1978, Geologic Map of California (Olaf P. Jenkins edition) - Salton Sea Sheet: California Division of Mines and Geology, 1:250,000.

Lane, Michael E., 1985, Mineral Investigation of the Chuckwalla Mountains Wilderness Study Area, California Desert Conservation Area, Riverside County, California: US Bureau of Mines open-file report MLA 4-85 (WSA #348), 148 pp.

Powell, R. E., Watts, K. C., and Lane, M. E., 1984, Mineral Resource Potential of the Chuckwalla Mountains Wilderness Study Area (CDCA - 348), Riverside County, California: US Geological Survey open-file summary report 84 - 674, 25 pp.

Tucker, W. B., and Sampson, R. J., 1945, Mineral Resources of Riverside County: California Journal of Mines and Geology, vol. 41, no. 3 (reprinted by the Chuckwalla Press, Thermal, California, in 1983), p.141 -143.

US Geological Survey, 1986 provisional edition, Red Cloud Canyon Quadrangle, Riverside County, California: US Geological Survey 7.5 minute topographic series, 1:24,000.

RED CLOUD MINERALOGIST REPORT

In 1934, the S & W Mining Company, B. F. Schmidt, President, secured an option on the property and operated until December 1936. This company sank an incline shaft on the vein on the Red Head claim to a depth of 200 feet. In the development work they encountered a high-grade shoot of oxidized ore on the footwall of the vein. The production by this company was $30,000 in bullion and concentrates. The concentrates produced are stated to have carried from 20 to 26 ounces in gold per ton.

In January 1937, the property was under lease to Cecil H. Smith, who operated it until June 1937. He shipped 300 tons of ore stated to have averaged 1.43 ounces per ton in gold. In January 1938, the property was under option to Frank Ahlberg and associates of Los Angeles, who operated until September 1939, during which time a 25-ton amalgamation and cynide plant was installed on the property. The Red Head shaft was sunk to a depth of 300 feet. In October 1939 the mine was under lease to Super Products, Inc. Mark F. Jones, President, Los Angeles, and operated until 1940.

Development: Exploration was centered at the southeast end of the claim near a campsite and the road. It consists of a 50-foot vertical shaft in gneiss on the north side of the canyon and an adit driven 20 feet southeast into the south wall of the canyon. The claim appears to have been used primarily as a camp site and possibly as a mill site.

Production: Undetermined. (1960).

References: None.

R.B.S. 2/8/60

PROPERTY REPORT (OF CDMG)

STATE MINING BUREAU
FIELD REPORT

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Supplementary

COUNTY Riverside CLASS Lode MINED FOR GOLD

Name of property RED CLOUD MINE
Formerly known as Great Western Mine
Owners Red Cloud Mining Co.
Name of Company
Name of President J. M. Huston Secretary
Home Office 237 S. Irving Blvd., Los Angeles Tel: Wh 4729*
Staff

Location, Mining Dist. Chuckawalla, Sec. 6, Twp. 7S., Range 15 E., Merid. S.B.B.
Post Office Mecca Nearest Town 40 mi. E. of Mecca
R. R. Station (distance and direction) 40 mi. E. of Mecca, a station on S.P. RR
Roads, trails (condition) Mecca-Blythe Highway to Hayfield, a distance of 36 miles; then 7 miles south over desert road
On Forest Reserve or not Not
Reports on Mine (by whom) W. S. Shannon, E.M. of Los Angeles
Elevation 2000' Timber None
Streams and water supply Red Cloud Canyon; well in wash; 8' deep; also water in White Wings shaft.
Character of surface On west slope of Chuckawalla Mts.

Year discovered, closed, reopened (reasons, owners) 1898. Worked from 1898 to 1900 when operations were suspended. Under lease to C. V. Craig, Mar., 1932.
Claims, names, date located (underline Pat. claims) Red Head, White Wings and Great Western (patented claims)

Total area 60 acres Length along lode 4500'
Country rock Granite gneiss Faults, dikes
Character of deposit Fissure vein on contact of granite gneiss and granite; on Red Head vein occurs in contact of granite & porphyry intrusion.
Veins, number, name Red Cloud vein
Character of vein Quartz and porphyry
Character of vein filling Quartz & porphyry
Character of ore (base, free, analysis) On White Wings & Great Western claims oxidized quartz stained with iron; on Red Head porphyry mineralized with pyrite
Character of footwall (rock, swelling) Granite gneiss
Character of hangingwall (rock, heavy) Granite & porphyry
Width of vein (max. and av.) 15'; av. wd. 6'
Strike (course) N. 20° W.
Dip (from horizontal) 60° E.
Length proven on surface 4500'
Length and av. width of pay-shoot 100'; av. wd. 6' (Western shaft 480'
Greatest depth on vein (shaft, tunnel) Red Head tunnel 250'; White Wings shaft 287'; Great /
Greatest vertical depth below outcrop 480' (Great Western tunnel 250'
Length driven on vein 250'
Levels White Wings shaft; 100', 180', 220', Great Western Shaft 100', 150', 310' / (250', 350'
Drifts on each level, feet
White Wings shaft; 100' level S. 33' and N. 25'; 180' level S. 83' and N. 53; 220' level S. 33' & N. 23'; Great Western shaft; 100' level S. 33' N. 10:
Crosscuts, raises, winzes, feet 150' level S. 20' & N. 70'; 310' level S. 50' & N. 15'; 350' level S. 43' & N. 60'; 350' level S. 12' & N. 20'.
In Red Head tunnel there is 150' of crosscuts & winze 50' deep.

Red Head - Sunk to depth of 307 feet on incline of 60' with levels at 50', 100', 200', 275' and 300'. 300' level = N 10', S 12'
50' level drifts S 100' - 100' level drifts S [illegible] 200' level drifts S 50' 275' [illegible]

Foot Level

opes, length, width, height: Stope above winze 50' in length by 40' high & 7' wide. Stope from winze 40' deep by 40' long by 8 to 13' in width.

re reserves (tons and value): Red Head ore $10 to $15 per ton; White Wings & Great Western ore $7 per ton.

ethod of mining: Stull & fill

ource of power and cost: Gasoline engines

ine equipment: 35 h.p. Foos gas engine hoist; one drill compressor

eduction equipment: 20-ton Herman ball mill, Wilfley table, driven by 20 h.p. Fairbanks-Morse gas engine.
Red Head ore porphyry gangue with 3% to 5% iron pyrite.
(large cubes crushed to 10-mesh & concentrates shipped)

isposition of tailings: Stored for future treatment

umber of men: Top 1, Mine 2, Mill 1, Total 4

ross Production ($ and tons): Daily $ 20 tons per day, Monthly $

roduction: Yearly, To date

osts (per ton): development, mining, treatment, general

oss in treatment per ton $, % extraction, tailing $

otal operating cost per ton, per month $

et operating profit per ton, per month $, Concentrates % and $

osts, power, labor, timber, transportation

djoining mines: American Eagle to northeast

emarks: Property being operated under lease by Charles V. Craig & associates of 2414 Fourth Ave., Los Angeles. All ore treated in mill is mined from Red Head tunnel, reported to average $15 to $20 per ton. The ore is heavy pyrite in porphyry gangue. Concentrates recovered reported to carry from $75 to $100 per ton. Concentrates hauled to Blythe and shipped to U.S. Smelting, Refining & Mining Company's smelter at Midvale, Utah. On Red Head Claim ore occurs along contact granite gneiss and porphyry intrusion which is several hundred feet wide and about 500' in length. Principal mineralization occurs along fault fractures in the porphyry which strike N. 30°W. and dip 50' E. Ore occurs in lenses along these fault fissures. Ore shoot developed is 100' north of portal of tunnel and is 100' in length and about 13' wide.

Red Head Shaft Workings:- On 200' Level drift S 50', face drift shows 2½ feet oxidized ore on footwall, with 2 ft of gouge between quartz and footwall and 4 ft of low grade quartz.

On 275 + 300 Foot Levels - In South drift. Vein 2 ft of ore 2 ft of gouge and 4 ft of low grade quartz. Total width = 8 ft vein.

nformation from: Personal observation and Mr. Huston

o. of report: 119

ate: Jan. 14, 1933

Report by: W. B. Tucker, Field Assistant

Red Cloud Group (Red Head Group)

Location: Sec. 5 (?), T. 7 S., R. 15 E., S.B.M., U. S. Army Corps of Engineers Chuckwalla Mountains quadrangle, 15', 1945; on the northeast side of a northwest-trending canyon 9 miles by dirt road southeast from U. S. Highways 60 and 70 and 8 miles south-southwest of Desert Center (fig. __/).

Ownership: J. D. Huston, P.O. Box 3667 Terminal Annex, Los Angeles 54.

History: These patented claims, the Red Head, White Wings, Great Western, and Dottie Welborn (see herein), (fig. __/), were located prior to 1886. Possibly the earliest report of the property was published in February 1886 but no details were given (Mining and Sci. Press, 1886, vol. 52, p. 100). The claims were worked by the Red Cloud Mining Co., Salton, from 1899 to 1901. The Red Cloud appears to have been idle from 1901 to 1932. In 1932 it was worked by Red Cloud Mines, Los Angeles and from 1935 to 1940 by S. & W. Mine Development Co., 2250 Crenshaw, Los Angeles (U. S. Bureau of Mines records).

Geology: The Red Cloud Group is in an area of gneissic rocks which have a northwesterly structural trend. A quartz vein as much as 15 feet in thickness is well exposed in an outcrop about 4,500 feet long. It strikes N. 20° to 40° W. and dips 60° NE. The vein appears to lie in the plane of a fault on which continued movement has sheared both the vein and the surrounding country rock. The resulting zone of broken and mixed material reaches a maximum width of 10 feet on the Red Head Claim. The hanging wall has been altered through a zone as much as 200 feet wide. It forms a bold outcrop of buff-colored, iron stained rock in which the gneissic banding is still evident. As with the fault zone, this alteration is most extensive on the Red Head Claim (figs. __/, __/). The shearing and alteration of the country rock yields an uneven mixture of gangue material but the vein appears to consist primarily of quartz containing pockets and veinlets of iron oxides and pyrite. Fluorite is common in the dump of the Red Head but its distribution throughout the body of the deposit was not determined. Small proportions of secondary copper minerals form crusts and stains in the vein material. Scheelite has been reported present in the deposit (Elmer E. Tubbs, personal communication). The ore contains free gold but both smalgamation and cyanide were used to achieve maximum returns.

Development: The workings on the Red Cloud Group comprise three inclined shafts, one on each of the claims, from which considerable drifting and stoping was accomplished (fig. __/). The crosscut adit, shown below the White Wings Adit was intended to run northeastward some 600 feet from the Red Head Mill Site (fig. __/) to serve in part as a drainage channel but it was only about 200 feet long when operations ceased.

Production: Compiled by the U. S. Bureau of Mines and published with permission of the owner.

Year	Crude ore (tons)	Recoverable Metals			
		Gold (ounces)	Silver (ounces)	Copper (lbs.)	Lead (lbs.)
1899		43.54			
1901		96.75			
1932	212	17.33	6		
1935	788	430.76	142	984	
1936	1,033	403.16	93		
1937	1	2	1		
1938	2,064	386	166	306	300
1939	185	71	17		
1940	57	19			

References: Mining and Sci. Press, 1886, vol. 52, p. 100; Orcutt, 1890, p. 900-901; Merrill and Waring, 1917, p. 539; Tucker and Sampson, 1929, p. 486-487; 1940, p. 51-52; 1945, p. 141-142.

R.B.S. 1/21/60.

United States Department of the Interior

BUREAU OF MINES

1605 EVANS AVENUE

RENO, NEVADA 89505

April 1, 1975

Mr. Gilbert Figueroa
326 N. Carlton Avenue
Blythe, California 92225

Dear Mr. Figueroa:

Reference is to the 60-pound sample of gold ore you had taken from the Red Cloud Mine near Blythe, California, and submitted to the Bureau for a heap-leach amenability test.

The sample consists mainly of feldspars that had undergone partial hydrothermal alteration, and minor amounts of quartz. The ore fragments contained several pseudomorphs of pyrite, that is, pyrite which has been replaced by chemical oxidation to iron oxides. Some manganese and copper oxides stains were also observed. The heads assayed 0.08 ounce gold per ton, and 0.1 ounce silver per ton. Screen analysis of the ore crushed to one inch indicated that the gold was uniformly distributed throughout the sized fractions.

A preliminary cyanide percolation leach test was conducted to determine if the ore was amenable to heap leaching. Forty-four pounds of ore crushed to a nominal one inch was mixed with 4 pounds of burnt lime per ton of ore and packed loosely into a plexiglass column, 5-1/2 inches inside diameter, to make a bed about 3 feet in height. Twenty pounds (2.5 gallons) of solution containing 1.0 pound NaCN per ton was pumped through the charge, controlling the rate so that the solution trickled slowly downward through the bed of ore at 0.083 gallons per square foot of area per minute. The gold was removed from the pregnant effluent by carbon adsorption, as it flowed through three small columns containing 15 grams of 6x16 mesh activated carbon, manufactured from coconut shells, and hooked up in series. The barren solution was recycled for leaching. The percolation leach was conducted for three weeks, maintaining a pH of about 10.5. Half way through the test, the leach solution was fortified with 0.5 pound NaCN per ton and 2.0 pounds of CaO per ton. The test feed assayed 0.078 ounce gold per ton, and the tailings 0.042. Gold extraction was 46.2 percent. This

represents a recovery of 0.036 ounce gold per ton of ore. Reagent consumption was 5 pounds CaO and 0.5 pound NaCN per ton of ore.

A wet screen analysis test was conducted on the leached cyanide residue. Gold distribution is shown in table 1.

TABLE 1. - Screen analysis and gold distribution of percolation leach residue

Size	Weight percent	Gold oz/ton	Gold % distribution
+1/2 inch	30.7	0.07	51.8
-1/2 +1/4	23.1	0.03	16.6
-1/4 +10 mesh	19.8	0.03	14.2
-10 +20	9.8	0.03	7.0
-20 +35	4.8	0.03	3.5
-35 +65	3.4	0.03	2.4
-65 +100	2.0	0.03	1.4
-100 +200	1.8	0.03	1.2
-200 +325	1.2	0.04	1.2
-325	3.4	0.01	0.7
Composite	100.0	0.0415	100.0

These preliminary results indicate about half of the gold contents of your ore is recoverable by leaching one inch feed with dilute cyanide solution. Results of above screen analysis of the leached residue indicate that the gold extraction could be increased to about 60 percent by leaching 1/2 inch crushed ore.

As per instruction of your letter of December 3, 1974, we are sending Mr. Paul Skinner a copy of this report.

We trust that this report will prove helpful to you in evaluating your gold property.

Sincerely yours,

Harold J. Heinen

Harold J. Heinen
Metallurgist

cc: Mr. Paul Skinner

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PRELIMINARY EVALUATION OF MINING PROPERTY
"Checklist"

Where is your property located ? Chuckawalla Mining Dist.

How many acres on your property ? 93 How many tons of ore ? 3-5 million Tons

Is your mining property on private or government land ? Private

Is your mining property a lode or placer property ? Lode

Do you hold a deed or do you have recorded claims ? Deed

Do you have geologist's or mining engineer's report for your property ? Yes

(Please attach a copy of the geologist's or engineer's report)

Do you have assay reports on ore samples taken from your property ? Yes

(Please attach copies of all assay reports for each metal of value)

Has your mining property ever been "worked" in the past or is it a "virgin" property ? Worked in the past.

(Please attach copies of any mining records if available)

Do you have a flow sheet for the possible processing and extraction of metal(s) or mineral(s) from your ore ? No If so, for which metal(s) or mineral(s) ? Partial for gold

Is water readily available on or near the mining property ? Yes on property.

Is electricity readily available at or near the mining property ? No

How close is the mining property to a road ? A Dirt road up to property.

How close is the mining property to a railroad ? Approx. 8 miles.

Would you be interested in a Joint Venture ? (a Joint Venture is when the investor puts up the necessary money for the purchase of equipment and the operation of the mining) (You would receive a percentage of the production profits)

____ (Yes) ✓ (No)

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