CONTACT INFORMATION
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Arizona Geological Survey
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Phoenix, AZ 85007
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08/08/91

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: LELAN DIVIDEND

ALTERNATE NAMES:
LELAND PATENT MS 1522

YAVAPAI COUNTY MILS NUMBER: 1059B

LOCATION: TOWNSHIP 13 N RANGE 1 W SECTION 25 QUARTER SE
LATITUDE: N 34DEG 28MIN 27SEC LONGITUDE: W 112DEG 19MIN 01SEC
TOPO MAP NAME: POLAND JUNCTION - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
GOLD
COPPER
SILVER
LEAD

BIBLIOGRAPHY:
ADMMR LELAN DIVIDEND FILE
YAVAPAI MAGAZINE MAR. 1918 P 4-6 SHARLOT HALL MUSEUM PRESCOTT, AZ
WILSON, W.D. ETAL. AZ LODE GOLD MINES AZBM BULL 137 1967 P 38
GUITERAS, J.R. GOLD MINING AND MILLING IN BLACK CANYON AREA USBM IC 6905 P 48
USGS BULL 782, P 132-133

LELAN-DIVIDEND GOLD MINES YAVAPAI COUNTY

KAP WR 7/29/83: Tony Gentile, President, A.G.B. Corporation, 4 Normandy Drive, Wintersville, Ohio 43952, explained he has obtained a position on the Lelan-Dividend Mine, Big Bug District. He is contracting with Venture Management Corporation, 661 E. 32nd. Street, Yuma, Arizona 85364, to de-water the mine at a projected cost of $76,000-$100,000. They then plan to survey, sample and, if feasible bulk sample the old workings to verify a potential deposit hypothesized in a report by Willard Pye. A copy of the report was provided for the file.

LeLAN-DIVIDEND GOLD MINES CO. 13N, 1E

YAVAPAI COUNTY
BIG BUG DISTRICT.

See: "JESSIE MINE" (file)

Gold

See: - A.B.M. Bull. #137, p. 38
U.S.G.S. Bull. 782, p. 133, 132
A.B.M. Bull. #140, p. 101

Production to 1931 $700,000 major metal gold - J.W.Still's figures (correspondence file)

SEE: IC 6905 p. 48 (gold)

LELAND DIVIDEND F.YAU.

Oh

Symbol: CRON Date:

08/14/1996 06:13P **CRONUS CORP. ACQUIRES BLACK DIAMOND MINING CORP. >CRON**
CRON, I/MNG, N/DJN, N/TNM, M/BSC, P/DMM, R/AZ, R/NME, R/US, R/USW

TUCSON, ARIZ. (DOW JONES)--CRONUS CORP. (CRON) ACQUIRED BLACK DIAMOND MINING CORP., A CONGLOMERATE OF 15 MINING CLAIMS IN YAVAPI COUNTY, ARIZ.

TERMS WERE NOT DISCLOSED.

IN A PRESS RELEASE, CRONUS SAID BLACK DIAMOND MINING HAS APPRAISED ASSETS OF $35 MILLION INCLUDING THE LELAN-DIVIDEND MINE GROUP WITH ESTIMATED ORE RESERVES WORTH $256,535,000.

CRONUS SAID IT IS RELOCATING ALL THE MINERAL BEARING ORE LOCATED IN THE DUMP SITES OF THE OLD WORKING MINES, PRIOR TO MINING THE MAIN VEINS IN THE ARIZONA MINES.

CRONUS SAID IT PROJECTS THAT THERE ARE OVER 100,000 TONS OF MINERAL BEARING ORE IN THE DUMP SITES WITH AN ASSAY OF ABOUT 0.20 OUNCES PER TON OF GOLD.

CRONUS ACQUIRES, DEVELOPS, PROCESSES AND MARKETS NATURAL RESOURCES.

(END) DOW JONES NEWS 08-14-96
6:13 PM

Lelan - Dividend (File)
Yavapai County

STATE OF ARIZONA
DEPARTMENT OF MINES AND MINERAL RESOURCES
ARIZONA MINING AND MINERAL MUSEUM
Phone (602) 255-3791 1-800-446-4259 (IN ARIZONA ONLY)
FAX (602) 255-3777 Tucson Field Office (602) 628-6340

December 30, 1991

Mr. Aage Nost
ABN Enterprises
4428 Center Street
Omaha, NE 68105

Dear Mr. Nost:

Your letter to Governor Symington has been referred to the Arizona Department of Mines and Mineral Resources for response. As always, your interest in developing a new mining project in Arizona is appreciated.

It is my understanding from our engineering staff, that both you and your partner have been provided with data from our files on your client's Arizona properties. They have also given you lists of mining companies who are actively pursuing both exploration and producing projects. Our Chief Engineer, Mr. Phillips, has outlined for you the usual procedure that is successfully followed with prospects similar to yours. A non-operating owner of a past producer or new prospect almost always has to provide detailed verification of ore reserves and potential profitability before any serious and knowledgeable mining investor would take an interest.

The information you have provided to ADMMR on the Lelan-Dividend and the Black Diamond suggest that both properties need and deserve thorough evaluation by some private enterprise entity who has the interest and know-how to do that evaluation. There are a large number of companies from the U.S. and Canada (and a few from overseas) that are looking for viable projects. Some have their primary interest in speculative ventures at relatively low up-front cost. Others are willing to put up the big bucks for proven profitable or already producing properties. While your client's properties show promise, quite frankly they fit into the speculative category. An effort to enter into an agreement for drilling, evaluation and engineering to bring the properties to that proven category would have a better chance for success. There may very well be a potential large return to your client, but only after an initial thorough study and positive result by someone well qualified in mine evaluation and engineering.

If you wish to proceed on that basis, our agency can most certainly be of help in bringing you in contact with one or more companies who might have an interest.

-continued-

ABN ENTERPRISES
4428 Center St.
Omaha, NE 68105
(402) 558-0108

Leland-Dividend file
Yavapai County

November 25, 1991

Terry Stevenson
Director of Bus. Developement
Kennecott Corporation
10 East South Temple
Salt Lake City, UT 84147

Dear Sir,

I represent the owner of a group of 20 contiguous mining claims, 14 of which are patented. This is the Leland-Dividend Group, Yavapai County , Arizona. These claims cover proven ore, averaging 650 feet x 2,000 feet x 6 feet.

During contact with the Arizona Department of Mineral Resources, I acquired your company's name and address as a firm that may be interested in receiving a submittal of this opportunity.

The geology of the property has been described in various geologic reports. These separate reports that span over many years give very similar results.

The property has been mined by several operators during the years, but has been idle since the 1930's. The ore production prior to 1923 was probably 10,000 tons, which contained to 1/2 to 3 ounces of gold per ton.

The mine could be reactivated, dewatered and in production within 60 days of its capitalization.

Confirmation of this report can be obtained from the Arizona Department of Mineral Resources.

The purchase price, payment, lease terms etc. are open. However, the owners are interested in a relatively short term arrangement.

The owner would be happy to show you the property at your convenience. Please feel free to contact me with any questions or to discuss the property further.

Kind Professional Regards,

Geir Simonsen

Geir Simonsen

Enclosure

CREDIT INTERNATIONAL CORPORATION

Head Office registered in Stateline - Nevada - USA

TELEFAX MESSAGE

T13N R1W Sec 25 SE

POLAND JCT 7.5

YAVAPAI Co.

To: Department of Mines and Minerals
Attn. Mr Nwal Niemuth
Fax No. (602) 255 3777

From: Credit International Corporation
Fax No. (415) 296 2574

June 2, 1995

Dear Mr Nwal Niemuth,

we would like to thank you for your help on our phone conversation.

As we already told you on the phone, we would like to know if the " Lelan Divident Group" has a mineral permission in the State of Arizona. We need to have this information, as our company needs to know if there is a mine in the surrounding area of Prescott.

This mine has been shown to our company as a guarantee for a financial situation .We are sure that you can understand how important is for us to be sure of the existence of this mine for first, and second, to verify the belonging of this mine to the "Lelan Divident Group", in order to protect our company's name, and, of course, to entreat any risk of fraud.

Let us thank you again in advance for any help you will be able to offer to our company.

Sincerely,

Credit International Corporation

Administration Office:
Credit International Corporation
388 Market Street, Suite 500
San Francisco, CA 94111
Tel. (415) 296 2572 • Fax (415) 296 2574

European Office:
Credit International Corporation, Ltd.
35 Piccadilly, London W1V 0JY - UK
Tel. (44) 171 734 7282 • Fax (44) 171 734 3919
Registered in England No 2862506 Duke Street, St. James, London SW1Y 6BJ

CONFIDENTIAL

PRELIMINARY EVALUATION

LELAN-DIVIDEND MINES
BIG BUG MINING DISTRICT
YAVAPAI COUNTY ARIZONA

George D. Hennessey
Geological Consultant
September, 1996

FROM : Docu-Tax, Inc. PHONE NO. : 602 970 9033 Sep. 24 1996 09:43AM P1

OUTLINE

PRELIMINARY EVALUATION

Re: Lelan-Dividend Mines
Big Bug Mining District
Yavapai County Arizona

FROM : Docu-Tax, Inc. PHONE NO. : 602 970 9023 Sep. 24 1996

INTRODUCTION

The Lelan-Dividend mines consist of several patented mining claims located in the he Prescott National Forest approximately 12 air miles southwest of Prescott and 3 ½ miles south of Highway 69 from the Iron King Mine turn-off. The property is accessible by improved dirt road.

Production in the district dates back to the 1860s when placer gold deposits were discovered. Actual production figures forma the mines are unknown and have been incorporated into district-wide estimates. U.S. Mineral Resources has recorded figures of $1,000,000 recovered values in gold, solver, copper, lead and zinc from 1901 to 1931. This amount reflects dated prices from that period.

GEOLOGY

Stratigraphy

Regionally the Lelan-Dividend property lies within the transition zone between the Basin and Range province to the south and the Colorado Plateau to the north. The general geological setting in proximity to the mines is underlain by lower Precambrian, Yavapai series rocks of the Spud Mountain member. Precambrian granites and Tertiary age intrusives of grandodiorite. The Yavapai schist consists primarily of rocks composed of argillaceous phyllite varying to slate, mica-schist and chlorite-schist. Local features of greisses, hornfels, migmatites, diorite, rhyolite, greenstone, epidote-hornblende-schists and cherts have also been noted. Numerous quartzite beds are intercalated with the schist strata.

The typical phyllite as developed in the great body of Yavapai schist is a finely foliated, blue or silvery series consisting chiefly of quartz and the form of muscorite-mica known as sericite. The foliation is pronounced, but the surfaces of the parting are not plane, so that nowhere are truly cleavable slates found. The rock seems soft owing to the abundance of mica scales on all of its surfaces, but on closer examination it is found to consist largely of quartz in angular grains, closely interlocking, producing a structure that may be termed mosaic-granular, the sericite being woven in between the grains or forming layers wrapped about individual grains. Occasionally single large rounded grains of quartz are seen, their edges granulated with the mica plates curving like flow structures about them. Grains of plagioclase feldspar occur very sparcely mingled with the quartz and calcite, epidote, pyrite and magnetite are often found in scattered grains. The present structure of these rocks is almost wholly the result recrystallization; there is reason to believe, however, that the layer rounded quartz grains have their original form of water rounded pebbles and that their occurrence is positive evidence of the sedimentary nature of the schists. This derivation is confirmed by the occurrence in the series of extensive lenses of quartzite which are conformable in attitude with the schist and differ from it in composition solely in the much greater preponderance of quartz.

Facies of the schist series were noted with in general conform to the above description, but show abundance of feldspar. The feldspar is both microcline and albite, and is sufficient in amount and of such a form as to indicate that the schits containing it were probably derived from acid igneous rocks, such as granite-porphyry or the like. The fact that such feldspathic facies of the schists are rate, strengthens the conviction that the great bulk of the phyllite formation is of sedimentary origin.

FROM : Doon-Tax, Inc. PHONE NO. : 602 970 9033 Sep. 24 1996 08:44AM P3

Structure

The major structural grain in the district strikes northeast. Two major, high-angle, southeast dipping, normal faults dominate the off-sets in the general area - the Chaparral and Spud faults. These features appear to be controlling factors relative to the emplacement of the Tertiary intrusives and thus confine the schist belt between the Precambrian granite on the west and the Tertiary grandiorite on the east. Several sympathic shear zones have incorporated "slivers" of schist rocks into the body of the Tertiary stock. The major faults appear to be contemporaneous with Teritary intrusions.

Some older, Precambrian fault structures were noted which suggest displacement at a time when the sedimentary sequence was relatively flat-lying. At its current high angle dip, the metasediments, defining the foot wall and hanging wall rocks may be deceptive, as the faults are now at a low-angle attitude and may in fact be overturned and thus a mis-designation of off-setting movement is very possible. Failure to recognize paleo-faulting and its relationship in subsequent folding of the Precambrian sediments was the major reason the continuation of the massive sulfide deposits on the 1900-foot level of the United Verde Extension mine was never found in the foot wall of the terminal fault zone.

These older fault structures may represent the "plumbing system" through which mineral-rich solutions traveled prior to their deposition.

Intrusives

The oldest intrusive rock units in the district are believed to be the Mount Union belt of granite immediately west of the property. In addition, several mappable units of rhyolite tuff and diorite rocks are conformably bedded as sills in the schist sequence.

The Tertiary granodiorite stock situated along the east boundary of the Lelan-Dividend property is, in some places, superficially covered by basaltic flows. The granodiorite intrusive displays a silicious margin when in contact with the metasediments. Some silica flooding is noted where allied to this boundary in proximity to shear zones.

Several rhyolite-porphyry dikes were noted in the metasediments and appear to be compositionally similar to those features reported in the Jerome mining district.

Wall Rock Alteration

Rock alteration within the bulk of the schist units consists of internal, syngenetic, ferromagnesian minerals which have, in part, gone to chlorite and accompanying feldspars have converted to sericite. Alteration in the proximity to mineral-bearing quartz veins is primarily a weathering phenomena which has changed the iron-bearing minerals to hydrous ferric oxide which gives the outcrops their characteristic reddish color.

Alteration by weathering has been an important factor in the formation of numerous ore bodies. Many disseminated deposits owe their value to changes resulting from weathering which has solubilized metals, remobilized, and redeposited valuable minerals at the water table. The secondary enrichment is responsible for the massive sulfide deposits in the Jerome mining district.

FROM : Docu-Tax, Inc. PHONE NO. : 602 970 9033 Sep. 24 1996 08:43AM P4

ORE DEPOSIT

The mineralized structures at the Lelan-Dividend mines are a series of NNE and NE trending quartz veins. The veined features are, for the most part, conformable with the bedding of the schists. The vein system consists of several subparallel, somewhat complex structures, and forms a loosely developed cymoid appearance. On plan view, the quartz units are boutanague laterally and ellipsoidal down-dip.

The attitude of the veins are near vertical or with a high-angle southeast dip (75-85°). They are narrow, ranging from a few inches to 5 or 6 feet but average around 3.5 feet. From longitudinal cross-sections of previous workings, the stopping pattern distinguishes a 70° southwesterly rake. There is strong evidence which indicates several stages of post-mineral remobilization in the veins as well as the attendant foot wall and hanging wall rocks.

The mineralogical composition of the quartz veining systems noted gangue minerals of calcite, quartz, dolomite and ankerite. Make-up of sulfides are variable, consisting of pyrite, marcasite, arsenopyrite, galena, chalcopyrite, and sphalerite. Limonite and hematite are common oxides, primarily obvious along fractures and within veins of the quartz. Gold values associated with segments of the veins are dependent upon the propositions and type of sulfides. Higher grades of gold are commonly associated with pyrite-marcasite-chalcopyrite assemblages while lower grade gold content, with accompanying higher silver values are found with the galena-sphalerite assemblage.

The presence of disseminated oxide and sulfide minerals within the enclosing schist beds, coupled with a strong indication of loading phenomenon relative to the mating surfaces between the wall rocks and the veins suggest a syngenetic emplacement of sulfides (precipitated from submarine vulcanogenic-hot spring activities) with subsequent "sweating-out" and remobilization of the metals along with fluid silica. Remobilization to areas of lesser pressure -- along bedding planes and into faults and fractures – occurred at a time when the bedding units were relative flat lying – pre-uplift – and were deposited deep in the sedimentary pile.

STRATABOUND DEPOSIT POTENTIAL

A massive thickness of phyllitic-schists outcrop on the property. Interbedded with the phyllites are quartzite beds, cherts, migmatites and a dense black schist. The black schist resembles the lithologic description of the beds intimately associated with a massive sulfide (strataform) deposits at the Iron King mine. In addition, similar reports are noted at the United Verde, Blue Bell, Boggs and Schist Belt mines.

Statified oxide and sulfide minerization associated with the schist-phyllite units have been observed in several locations on the property. These occurrences are manifest in bands which mimic the bedding and as discrete grains disseminated throughout the strata. Their thickness and lateral extent have not been determined, however their existence is of important significance. This occurrence may be diagnostic of a stratabound deposit, highly weathered and superficially depleted by weathering of some of the mineralization.

FROM : Docu-Tax, Inc. PHONE NO. : 602 970 9033 Sep. 24 1996 08:46AM P5

Surface laxivation of ore-bearing minerals and subsequent, down-dip migration and redeposition at the water table would constitute a viable target for a supergene enriched, mineralized zone. Some of the more definitive factors to support such a concept are summarized as:

Precambrian Terrace
A proven ore-producing district
Favorable host rocks, black schists, phyllites, quartzites, conglomerates
Extensive permissive area
Widely disseminated sulfides (and oxide-filled vugs)
Evidence of massive sulfides (Fe-rich)
Evidence of contemporaneous mineral and sediment deposition
Bedded breccia
Beds of ferrugineous chert and compatibly banded red jasper

The existence of these elements are compelling features which warrant further investigation.

CONCLUSIONS

To re-enter the existing workings would require rehabilitation of a vertical shaft which would entail:

1. Installation of hoisting facility
2. Re-timbering the shaft
3. De-watering the workings below the water table
4. Conditioning or impounding the discharge water
5. Installation of air, water and ventilation lines
6. Hoisting waste muck from the shaft
7. Tramming and hoisting waste muck from the working headings
8. Re-timbering and/or bolting haulage drifts, and
9. Establishment of complimentary surface infrastructure -- compressor, dry, water tanks, vent fans, fuel storage and other

However, there does appear to be other more attractive targets on the property and in proximity to the previous mining activities. There are sufficient indicators to suggest a strong possibility of discovering a stratabound, multi-metal deposit. These types of occurrences are of significant size and are major producers in many parts of the world.

RECOMMENDATIONS

A reasonable body of evidence exists which indicates a good likelihood for the presence of a stratabound deposit. In order to investigate this possibility, it will be necessary to conduct an extensive exploration program. The undertaking would consist of:

I. Base Map Preparation
   A. Surface Surveying
   B. Panel Control Points to Establish Horizontal and Vertical Control
   C. Aerial Photography
   D. Establishment of Coordinates
   E. Generation of Topographic Map 1" - 200' with 5' Contour Intervals

FROM : Docu-Tax, Inc. PHONE NO. : 602 970 9033 Sep. 24 1996 08:46AM P6

II. Geologic Mapping
Coverage Area - three square miles

III. Geochemical Sampling
Soil and/or R_X Chip

IV. Geophysical Survey
A. Induced Potential (IP)
B. Ground Magnetics
C. Pulse - EM

V. Additional Land Acquisition

The summation of these efforts should produce viable targets for a drilling program.

I would recommend that a contract, consulting firm be retained to provide the services as outlined. This independent evaluation will carry a great deal of weight in the event that anomalous areas are defined. This impact will provide strong support in justifying a drill program.

BUDGET

Contract Consulting Group:	
Surveying	
Mapping	
Geochemical Sampling	
Assaying	
Geophysical Traverses	
Reporting	
Supervision	$250,000
Diamond Core Drilling (*if justified*)	100,000
Total (includes 10% contingency)	$350,000

GEORGE D. HENNESSEY
GEOLOGICAL CONSULTANT
September, 1996

FROM : Docu-Tax, Inc.

ADDENDUM

Re: Lelan-Dividend Mines
Big Bug Mining District
Yavapai County Arizona

To further illustrate the significance of the intended target as described under "Stratabound Deposit Potential", *page 5*, it would be appropriate to recite some of the production records of similar geological environments within the "Jerome-Phoenix Mineralized Schist Belt."

One of the more prolific production centers has been the Jerome (United Verde) area. In addition to an impressive production record of copper, lead, zinc and silver, the district has a reported past account of 1,579,000 ounces of gold extracted.

At the time of its closure in 1967, the Iron King Mine, located approximately 3.5 miles NE of the Lelan-Dividend had mined 500,000 tons of ore and had attained the distinction of being Arizona's second leading producer of zinc, as well as third in lead, third in gold and fourth in silver production.

The Magma-Santa Fe-McCabe mine lies two miles NE of the Lelan-Dividend site and has recorded gold production in excess of 500,000 ounces. Mining activities at the McCabe has centered around a series of NE-trending quartz veins. This sub-parallel pattern is on strike with similar structures observed at the Leland-Dividend mines and probably represents the extension of these zones.

Total reported gold production from the "Mineralized Schist Belt" is in excess of 3.5 million ounces. The recommended pre-feasibility data gathering noted on *page 6* is designed to pursue and define the same geological settings that have hosted these massive sulfide, supervene-enriched and stratabound occurrences as well as access the viability of the veining systems. Therefore, with the given parameters of the permissive area, the scope of the undertaking is to define a 500,000-to-one million ounce gold deposit with significant credits in copper, silver, lead and zinc.

GEORGE D. HENNESSEY
GEOLOGICAL CONSULTANT
September 23, 1996

FROM : Docu-Tax, Inc. PHONE NO. : 602 978 9033 SEP. 24 1996 03:44PM P3

Prescott, Arizona,

March 30, 1923.

Mr. James E. O'Brien,

Mayer, Arizona.

Dear Sir:

I am unable to furnish you with an engineer's report of the mining property I present to you.

The owners have acquired and developed the property with a view of investment and operating it for themselves, so I only give to you in our way what we know of it and our impressions, and, though it may not be the detailed information you desire, it is practical, all the same.

The properties of the Lelan-Dividend Gold Mines Co. are situated in the Big Bug Mining District, Yavapai County, Arizona, two and one-half miles from the railroad and six miles from the Southwest Metals Company smelter at Humboldt.

Good wagon roads are into and onto the property; the natural facilities for cheap mining are good.

The company's holdings are quite extensive, consisting of nineteen (19) claims, approximately 325 acres, in a contiguous group, and also water rights and millsite, adjoining the smelting plant at Humboldt. The title to the property is perfect.

The climatic conditions are such that the property

can be worked and milling done to advantage during the entire year. The elevation is 5300 feet.

The general geological formation of the mineral belt covered by these mining claims, as we are given to understand it, is granite, quartz diorite and diabase dikes; also reefs of schist and insertive porphyry dikes. The strike of the formation is northeasterly and the dip to the south about 70°.

The ore occurs principally in the quartz diorite and is often accompanied by diabase dikes, showing a true fissure vein.

The geological conditions are for permanency, both for the length of ore deposition and for the ore to go to a great depth. This condition has been proved in the district to a depth of 1100 feet in other mines.

There are several workable veins or ledges that pass through the property, proven to a moderate extent on all the claims by various openings made along the veins, but the greatest amount of work has been done on the Lelan claim. There has been done upon this claim approximately 3000 feet of development work, consisting of crosscuts, shafts, drifts and tunnels. The workings are equipped with a 25 H.P. electric hoist, air compressor, ten stamp mill, living, bunk and boarding houses, blacksmith shop, assay office, etc. All equipment is up to date and in first-class shape.

The Lelan vein is considered the Mother Vein of this

district. The walls are regular and permanent, and from eight to thirty feet apart.

The ore is largely siliceous or of quartz character, and occurs in a series of lenses of irregular length and thickness, but very permanent and regular. These lenses of ore vary in thickness from a few inches to many feet - in some places 20 feet; see map. The principal values come in the sulphides of iron and lead - very little zinc.

There are several strong veins that can be reached in depth and worked from the Lelan shaft.

To the west of the present underground workings, many of the surface veins have merged into the main vein, which should not only give an added gold value, but should make much larger ore bodies.

The conditions demand very extensive exploration in depth, as well as along its course.

There are approximately twenty thousand tons of ore exposed, yet only a portion of the mineralized zone has been explored by the present work and much undiscovered ore is directly available.

A mill test run of 1600 tons was made from ore from all parts of the mine, and the mint returns gave us $13,394.68 in gold and $168.03 in silver; and the smelter returns from 49.138 tons concentrates $4967.85, the concentrates

$100.00 per ton, making a total of $18,530.56.

There was also shipped to the United Verde Copper Company at Jerome 1210 tons of ore. This was used as convertor lining and required not less than 84% of silica; to furnish this per cent of silica enabled the mine to ship its lowest grade of ore or most barren quartz. As yet, only a very moderate amount of stoping has been done in proportion to the amount of ground opened up.

There has been expended on this property in exploitation, development and for operating purposes upwards of $300,000.00.

This is strictly a development proposition, and, should you care to investigate further, all maps such as we have, and other data, will be placed at your disposal.

Yours very truly,

Edmund W. Wells

COMMODITY INFORMATION

COMMODITIES PRESENT C10: AU, AG, PB, CU, ZN
ORE MINERALS C30: GOLD, ARGENTIFEROUS — ENG, CHALCOPYRITE, SPHALERITE
COMMODITY SUBTYPES C41:
GEN. ANALYTICAL DATA C43:
COM. INFO. COMMENTS C50:

SIGNIFICANCE

		PRODUCER
MAJOR PRODUCTS	MAJOR	AU
MINOR PRODUCTS	MINOR	AG, PB, CU
POTENTIAL PRODUCTS	POTEN	ZN
OCCURRENCES	OCCUR	

NON-PRODUCER
MAIN COMMODITIES PRESENT C11:
MINOR COMMODITIES PRESENT C12:
OCCURRENCES OCCUR:

*PRODUCTION

PRODUCER
PRODUCTION (YES) (circle) PRODUCTION SIZE (SML) MED LGE (circle one)

NON-PRODUCER
PRODUCTION UND NO (circle one)

EXPLORATION OR DEVELOPMENT

STATUS

PRODUCER
STATUS AND ACTIVITY A20: 4

NON-PRODUCER
STATUS AND ACTIVITY A20:

DISCOVERER L20:
YEAR OF DISCOVERY L10: 1860'S — *NATURE OF DISCOVERY L30: B — *YEAR OF FIRST PRODUCTION L40: 1906 — *YEAR OF LAST PRODUCTION L45: 1937
PRESENT/LAST OWNER A12:
PRESENT/LAST OPERATOR A13: SOUTHWEST EXPLORATION COMPANY (1930'S)
EXPL./DEV.COMMENTS L110:

DESCRIPTION OF DEPOSIT

DEPOSIT TYPE(S) C40: VEIN
DEPOSIT FORM/SHAPE M10: TABULAR
DEPTH TO TOP M20: — *UNITS M21: — *MAXIMUM LENGTH M40: — *UNITS M41:
DEPTH TO BOTTOM M30: 500 — *UNITS M31: FT — *MAXIMUM WIDTH M50: 500 — *UNITS M51: FT
DEPOSIT SIZE M15(SMALL) M15(MEDIUM) M15(LARGE) (circle one) — *MAXIMUM THICKNESS M60: 8 — *UNITS M61: FT
STRIKE M70: N60E TO N70E — *DIP M80: 80 SE
DIRECTION OF PLUNGE M100: — *PLUNGE M90:
DEP. DESC. COMMENTS M110: DEVELOPED ON 5 LEVELS

DESCRIPTION OF WORKINGS

*Workings are: SURFACE M120 UNDERGROUND M130 BOTH M140 (circle one)
DEPTH BELOW SURFACE M160: 500 — *UNITS M161: FT — *OVERALL LENGTH M190: — *UNITS M191:
LENGTH OF WORKINGS M170: — *UNITS M171: — *OVERALL WIDTH M200: — *UNITS M201:
DESC. OF WORK. COM. M220: 500 FT SHAFT INCLINED AT 80 DEGREES — *OVERALL AREA M210: — *UNITS M211:

GEOLOGY

AGE OF HOST ROCK(S) K1: L,C,R,E,T,-,T,E,R,T,Y, K/AR APPROXIMATELY 72-76 MILLION YEARS FOR GRANODIORITE
HOST ROCK TYPE(S) K1A: GRANODIORITE, RHYOLITE
AGE OF IGNEOUS ROCK(S) K2: L,C,R,E,T,-,T,E,R,T,Y, AS LINE K1
IGNEOUS ROCK TYPE(S) K2A: GRANODIORITE, RHYOLITE
AGE OF MINERALIZATION K3: L,C,R,E,T,-,T,E,R,T,Y,
PERT. MINERALS (NOT ORE) K4:
ORE CONTROL/LOCUS K5: FAULTING, SHEARING
MAJ. REG. TRENDS/STRUCT. N5: FOLIATION IN PRECAMBRIAN COUNTRY ROCKS TRENDS N25E
TECTONIC SETTING N15:
SIGNIFICANT LOCAL STRUCT. N70: VEINS TEND TO PARALLEL FOLIATION
SIGNIFICANT ALTERATION N75: NONE
PROCESS OF CONC./ENRICH. N80: OXIDATION AT NEAR SURFACE
FORMATION AGE N30:
FORMATION NAME N30A:
SECOND FM AGE N35:
SECOND FM NAME N35A:
IGNEOUS UNIT AGE N50: L,C,R,E,T, AS LINE K1
IGNEOUS UNIT NAME N50A: GRANODIORITE = BIG BUG PLUTON
SECOND IG. UNIT AGE N55: L,C,R,E,T,-,T,E,R,T,Y,
SECOND IG. UNIT NAME N55A: UNNAMED RHYOLITE PORPHYRY DIKES
GEOLOGY COMMENTS N85: DEPOSIT IS VEIN AND/OR DIKE-VEIN OF RHYOLITE PORPHYRY WHICH CUTS GRANODIORITE PLUTON

GENERAL COMMENTS

GENERAL COMMENTS GEN:

* GENERAL REFERENCES

REFERENCE 1 F1 < USGS GQ MAP 99 >

REFERENCE 2 F2 < USBM - AB6MT FILE DATA >

REFERENCE 3 F3 < AZ DEPT MIN. RESOURCES FILE DATA >

REFERENCE 4 F4 < USBM BULL 137, p. 38 >

F5 < USGS BULL 782, p. 132-133 >

F6 < USBM I.C. 6905, p. 48 >

F7 < USGS BULL 1336, PLATE 1 >

U.S. CRIB-SITE FORM

RECORD IDENTIFICATION

*RECORD NUMBER B10 <>

*RECORD TYPE B20 <X, 1, M>

DEPOSIT NUMBER B40 <>

*REPORT DATE G1 <8, 1, YR, MO.>

*INFORMATION SOURCE B30 <1, 2>

*FILE LINK IDENT. B50 <USBM - 004 025 1276>

*REPORTER(SUPERVISOR) G2 < DEWITT, ED > ( )
(last, first, middle initial) (last, first, middle initial)

*REPORTER AFFILIATION G5 < AB6MT >

*SITE NAME A10 < LELAN - DIVIDEND MINE >

*SYNONYMS A11 < LELAN, DIVIDEND >

LOCATION

*MINING DISTRICT/AREA A30 < TICONDEROGA DISTRICT >

*STATE A50 <AZ>

*COUNTRY A40 <U.S.>

*COUNTY A60 < YAVAPAI >

*PHYSIOGRAPHIC PROV A63 <12>

*LAND STATUS A64 <0, , ( )>

*DRAINAGE AREA A62 <15,07,10,02>

*QUADRANGLE NAME A90 < POLAND JUNCTION > (1975)

*QUADRANGLE SCALE A100 <24000>

SECOND QUAD NAME A92 < > ( )

SECOND QUAD SCALE A91 <>

*ELEVATION A107 <5660 FT>

UTM

*NORTHING A120 <3851530>

*EASTING A130 <379070>

*ZONE NUMBER A110 <12>

*ACCURACY

ACCURATE (ACC) (circle)

ESTIMATED EST <>

GEODETIC

*LATITUDE A70 < - - N >

*LONGITUDE A80 < - - W >

CADASTRAL

*TOWNSHIP(S) A77 <013N>

*RANGE(S) A78 <001W>

*SECTION(S) A79 < 25 >

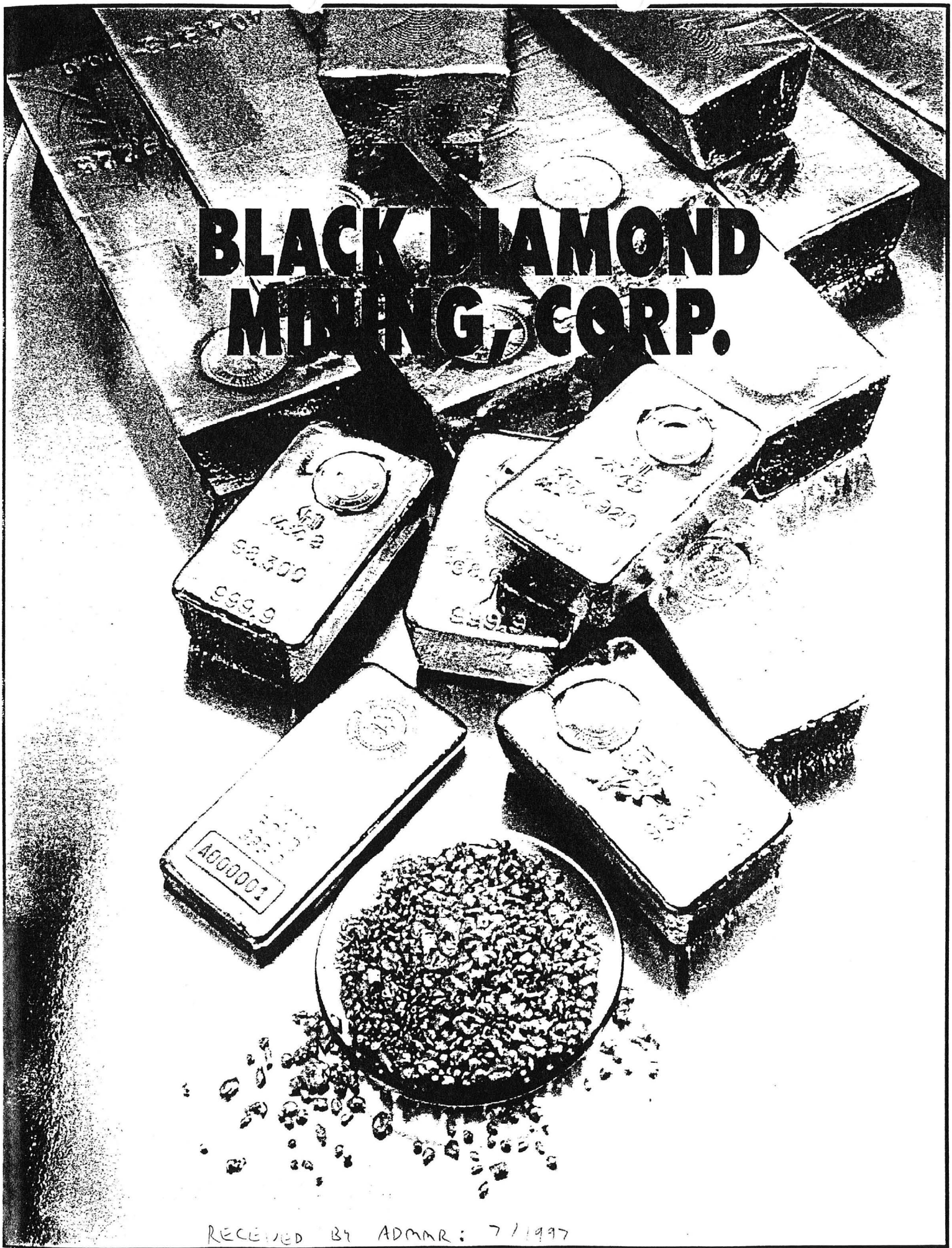
*SECTION FRACTION(S) A76 < SE OF SE OF SW AND SW OF SW OF SE >

*MERIDIAN(S) A81 < GILA AND SALT RIVER >

*POSITION FROM NEAREST PROMINENT LOCALITY A82 < 3.2 MILES NORTHEAST OF POLAND JUNCTION, ARIZONA >

*LOCATION COMMENTS A83 < LELAN SHAFT ON GALENA CLAIM. DIVIDEND SHAFT ON DIVIDEND GENERAL CLAIM. DIVIDEND SHAFT IS 650 FT NE OF LELAN SHAFT. UTM COORDINATES TO DIVIDEND SHAFT >

* ESSENTIAL INFORMATION
+ ESSENTIAL SOMETIMES OR HIGHLY RECOMMENDED



RECEIVED BY ADMMR: 7/1997

BLACK DIAMOND MINING, CORP.
(602) 371-9001
10220 N. 31st Ave • Suite 110
Phoenix, Arizona 85051

The property is located on the east slope of Mount Elliot, approximately six miles southwest of Humboldt, Yavapai County, Arizona and is a patented mining claim containing approximately 241.75 acres.

The subject property was appraised by Schnepf Ellsworth Appraisal Group on November 9, 1996. Estimated ore reserves are stated at $291,200,000, estimated production costs at $34,665,000, with a net potential ore reserve of $256,535,000. The stated land value, according to the appraisal, was $35,450,000. The appraisal was signed by Larry D. Schnepf, MAI.

Phelps Dodge Mining Company has entered into a contract with Black Diamond Mining, Corp. for the delivery of up to 6,000 tons per month of Precious Metal Bearing Flux Ore to its Hidalgo Smelter in New Mexico.

The Magma-Santa Fer - McCabe mine lies two miles NE of the Lelan-Dividend site and has recorded gold production in excess of 500,000 ounces. Mining activities at the McCabe has centered around a series of NE-trending quartz veins. /the sub parallel pattern is on strike with similar structures observed at the Lelan-Dividend mines and represents the extension of these zones.

Total reported gold production from the "Mineralized Schist Belt", according to the geology report, is in excess of 3.5 million ounces. The recommended pre-feasibility data gathering is designed to pursue and define the same geological settings that have hosted these massive sulfide supervene-enriched and strata bound occurrences as well as access the viability of the veining systems. Therefore, with the give parameters of the permissive area, the scope of the undertaking is to define a 500,000-to-one million ounce gold deposit with significant credits in copper, silver, lead and zinc.

Black Diamond Mining corporation is an Arizona Company. It's main purpose is to mine and deliver precious Metal Bearing Ore to the Phelps-Dodge smelter.

MSHA #
6495452

This is not a solicitation to buy or sell.

ARIZONA BUREAU OF MINES

542 5971 INSPECTOR
255 3791 MINES & MINERALS

The Lelan mine is on a ridge southwest of the Jessie. This deposit was discovered in the sixties. Browne's report for 1868 states that 60 tons of ore from the Dividend mine, treated in the Big Bug (Henrietta) mill, yielded $20 per ton in free gold.[35] According to Lindgren, the Lelan and Dividend were worked more or less from 1900 to 1914, and during part of that time were equipped with a 10-stamp mill. He states that their ore production prior to 1923 was probably at least 10,000 tons which contained from a half to 3 ounces of gold per ton, together with a little silver, copper, and lead.[36] In 1932 and 1933, the property was operated by the Southern Exploration Company with a force of about twenty-five men. This company erected a 100-ton flotation-concentration plant and produced concentrates during part of 1933. Operations were suspended at the end of the year.

The vein, which is a continuation of the Union, strikes northeastward and dips steeply southeastward. It is opened by a 500 foot shaft inclined at 80 degrees, with development on five levels. Most of the recent production is reported to have come from the fourth level. The vein is rather lenticular ranges up to several feet in width. Its filling consists of massive, shiny white quartz with irregular masses, seams, and disseminations of pyrite, chalcopyrite, spharlerite, and galena. The gold occurs in the sulphides.

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[33] History compiled by J.B. Tenney
[34] Work cited, pp. 132-33
[35] Brown, J. Ross, Mineral resources of the states and territories west of the Rocky Mountains. 1868.
[36] Work cited, p. 133.

ENGINEERING DOC. RESERVE CALCULATION

WIDTHS & GRADES OF SAMPLES

AZ LOAD GOLD MINES & GOLD MINING
ED WILSON PG. ✱ 38
J B CUNNINGHAM
GM BUTLER
ROBERT MUSIC 371-9001

SCHNEPF ELLSWORTH APPRAISAL GROUP

October 29, 1996

File No. 95276

Mr. James Ashpole
Black Diamond Mining, Inc.
8026 W. Aster Dr.
Peoria, Arizona 85345

RE: Lelan-Dividend Mine Group
a patented mining claim located on the
east slope of Mount Elliott
approximately six miles southwest of
Humbolt, Arizona

Dear Mr. Ashpole:

In accordance with your request and authorization for a Limited Appraisal Summary Report of the *Market Value* of the above referenced property, we hand you a narrative appraisal that describes and identifies methods of approach and valuation. The ownership, legal description, and identification of the property is set forth in the following report.

The property appraised is located on the east slope of Mount Elliott, approximately six miles southwest of Humbolt, Yavapai County, Arizona and is a patented mining claim containing approximately 241.75 acres. The purpose of this appraisal is to estimate the Market Value of the *As Is* Fee Simple Interest of the subject property as of October 20, 1996. The date of inspection of the property was October 20, 1996. The function of this appraisal is to provide a preliminary valuation basis for internal accounting purposes. The value estimates are subject to the Underlying Assumptions and Contingent Conditions as well as Special Assumptions and Conditions outlined in this report on page 8.

This report details those pertinent physical and nonphysical factors relevant to the subject property. Information about the region in which the property is located, the subject neighborhood, site, highest and best use, and valuation methods and techniques are discussed in detail in the report that follows.

Further, the value(s) reported are intended to conform with Code of Ethics and Standards of Professional Practice of the Appraisal Institute; the Uniform Standards of Professional Appraisal Practice (USPAP) as promulgated by the Appraisal Standards Board of the Appraisal Foundation and the Appraisal Institute ***for a limited appraisal assignment with departure provisions of USPAP Standards 22 and as outlined in Standards 14*** and regulatory guidelines as published by various federal agencies, including OCC's Rule/Policy 12 CFR Part 34 pertaining to federally chartered banks.

It is prepared for the above stated purpose and function and is not to be used, given, sold, transferred, or relied upon by any other person or persons than the client without the prior express written permission of the authors. The reader is also directed to the fact that the report is under copyright and any use, in whole or part, by anyone except the addressee is expressly prohibited.

Market Value, as defined in the Uniform Standards of Professional Appraisal Practice (USPAP), 1995 Edition, is included in the body of the report on pages 15 and 16. *As Is Value* is defined in the body of the report on page 16.

> ***The value of mining interest are heavily contingent upon geological studies and report from experts in this field. The appraisers relied upon expert opinions in this area and made no warranty's or representations regarding their accuracy. The appraisers assume the accuracy of the studies provided by the client and reserve the right to adjust the value estimate herein upon the completion and availability of additional studies.***

The appraisers assume the accuracy of the Floyd Hanly & Associates report), EMTEC, Inc. reports (May 1995 and November, 1995), and George D. Hennessey Preliminary Evaluation report (Geological Consultant, September, 1996); but do not accept any responsibility or liability of any information included within the report. The appraisers are not experts in this area and highly recommend additional studies from qualified professionals in the field of geology and related fields in order to provide additional professional opinions regarding the ore content, quality, accessibility, quantity and value. Should additional reports exist or be provided to the appraisers, we reserve the right to modify our opinion. The appraisers have advised the client on our limited experience in this area and so advised the client prior to accepting this assignment. We have sought the advise of others familiar with mining properties and reviewed published literature in appraisal publications regarding appropriate valuation techniques.

On the basis of data in the body of the report, our conclusions, subject to stipulations, if any, in the report, as of October 20, 1996, (with an inspection date of October 20, 1996) was:

Market Value of the *As Is* Fee Simple Interest of the Subject Property:
THIRTY FIVE MILLION FOUR HUNDRED FIFTY DOLLARS
$35,450,000

Respectfully submitted,
Schnepf Ellsworth Appraisal Group

Larry D. Schnepf
Certified Arizona General Real Estate Appraiser
Certificate # 30284

Schnepf Ellsworth Appraisal Group 95276
P.O. Box 2829 Mesa, AZ 85214 voice (602) 497-1113 fax (602) 892-7390

Geology:

Taken from the Floyd Hanly & Associates report.

The subject is characterized by prominent quartz outcroppings of numerous veins. These occur in and at the contact of a belt of sericite schist formations between quartz diorite on the east and massive Bradshaw granite or the west. Several basic dykes traverse the schist and quartz diorite. There is a great similarity in the different outcroppings and in the vein contents and the mineralization underground.

There are five main veins, the Galena, Lelan-Dividend, Independence, Ticonderoga and Union. They have a lateral extent of several thousand feet and converge in a Southwesterly direction in the western half of the Galena Claim. All dip, more or less, steeply to the south. There are several other less pronounced outcroppings in the western portion of the Group.

The average width of the main veins is about five feet and they vary from two to ten feet. The foot and hanging walls are well defined. The filling consists of massive white quartz. The ore shoots are lenticular in form. The pinching and swelling lenses sometimes overlap or are lying alongside of each other and separated by schistose sericilic gangue material. The lenses vary in thickness from two to ten feet or more and from twenty to seventy five feet in the lateral extent. Gold bearing sulphides, principally pyrite are irregularly distributed through the quartz lenses. Small amounts of lead and zinc sulphides are also present. Below the oxidized zones, mineralization commences at or below he 170 foot level with depth, more sulphides and better values are encountered. The gold is decimated in the sulphide in microscopic particles.

The Lelan shaft is 436 feet deep with workings on five levels. On the 120 foot level drifts extend 60 feet east and 140 feet west, with a crosscut from the end of this drift, 365 feet to the surface.

On the 170 foot level, drifts extend 120 feet east and 280 feet west.

On the 256 foot level, drifts extend 180 feet east and 220 feet west.

On the 346 foot level, drifts extend 150 feet east with a north crosscut 243 feet long and 400 feet or more west with a south cross cut 160 feet long.

On the 436 foot level, drifts extend 150 feet east, connecting with the old Dividend, and 40 feet west driven from this level 270 west of the shaft.

The Dividend shaft is probably carried some distance below the lowest 477 foot level Drifts were driven on four levels.

On the 145 foot level, drifts extend 40 feet east and 50 feet West.

On the 270 foot level, drifts extend 40 feet east and 50 feet west.

On the 352 foot level, drifts extend to an undetermined footage east and 100 feet west.

On the 477 foot level, drifts extend 200 feet east and 100 feet west.

Early Operations:

Taken from the Floyd Hanly & Associates report.

The property is the result of a number of consolidations. Available records of the early operation and production are fragmental and incomplete. It appears, however, that the claims on which the two mines are located were originally owned and operated separately and that the development and operation of the various claims has been carried on more or less intermittently since considerably before 1877, when the Dividend and Galena Claims were patented and while no definite records of production prior to 1901 are available, it is probably that the ore deposits known to have been mined before that time yielded a considerable amount of gold from the oxidized zones.

Mining Requirements:

Taken from the Floyd Hardy & Associates report.

In consideration of gold mining properties, it must be recognized that the point of view has been considerably altered not only by the increased price of gold, but by the greater economy of operation and recovery of values made possible by modern methods of mining and milling.

Even before the price of gold had increased, improvements in the methods of recovery were making possible the resumption of operations of old mines that had long been idle, and even the profitable workings of old dumps.

With the price of gold at $380.00 per oz., compared with the old price of $35.00, an actual recovery of values from the sulphide ore of the Lelan are 98% compared with the 60% to 65% by the old methods of amalgamation and table concentrations: therefore, a much lower grade of ore can be profitably mined and milled than was possible at the old price and old mining methods.

INCOME:

This portion of the report seeks to derive the Effective Gross Income for the subject property.

Operating History:

The subject is a patented mining claim. Historical operations of mining activities are summarized in the addenda.

Potential Gross Income:

The next step in the Income Approach is the estimating of the Potential Gross Income. The Potential Gross Income is largely determined by what the open market will pay. ***The potential inventory of ore is estimated by geologist and the appraisers are not qualified to make this estimate.*** The Floyd Hanly report previously quoted in the Site analysis section is requoted here.

Estimated Ore Reserves and Values "Gold Bug Group" (Floyd Hanly & Associates report)

Definitions:

PROVEN ORE: Measured Blocked out ore; is determined from exposure in outcrops, cuts, pits, shafts and mine workings, drill holes or otherwise where measurements are so closely spaced that the computed tonnage will have a high degree of accuracy.

INDICATED ORE. Probable; is computed upon observable data which is projected for a reasonable distance of the basis of geological evidence and the tonnage computed is reasonably assured but not absolute.

INFERRED, POSSIBLE ORE: is computed largely on broad knowledge of the geological environment and the character of the mineralization. Few measurement are available. The computed tonnage is a reasonable estimated rather than a quantitative amount.

Basis:

It is determined from the above DEFINITIONS, and previous mining activity on the Gold Bug Group and or adjoining mines as described in the reports attached, as a reasonable length, depth, thickness and grade factor based on geologic evidence, as defined as factors used by the U.S. Bureau of Mines and the U.S.G.S. to signify dependability of information (see history attached).

Depth	Length	Thickness	Grade
200' to 1100'	Several thousand feet	3 1/2' to 10'	1/2 to 3 oz.

Average of the Above
Gold price $375.00
650' deep x 2,000' long x 6 1/2' thick = 8,320,000 cubic feet

8,320,000 cu. feet divided by 12 cu. feet per ton = 693,300 ton

AVERAGE ORE GRADE = 1.2 ounces per ton x $375.00 = $420.00 ton

ESTIMATED COST TO PRODUCE ORE MINE, MILL. SALES = $50.00 ton

VALUES				
GROSS VALUE TON	$420	X	693,300 TON = TOTAL	$291,000,000
PRODUCTION COST	$50	X	693,300 TON = COSTS	$34,665,000
NET POTENTIAL	$370	X	TONS	$258,535,000

*"All estimates herein have no intent to imply or guarantee accuracy".

The above descriptions and estimates were taken from the Floyd Hanly & Associates report. The appraisers have only repeated the information supplied by the client and assume no responsibility for its accuracy. A full copy of the Hanly report, as provided to the appraisers is Included In the addenda.

Mr. James Ashpole indicated the existence of two additional assay reports. One by Phelps Dodge with the following test results for gold.

1.4 oz/ton
1.2 oz/ton
0.63 oz/ton
0.27 oz/ton

The other report was prepared by Skyline Labs of Tucson and indicated a gold content on average of 0.83 oz/ton.

Phelps Dodge's Purchase Contract for the ore:

The appraisers are in receipt of a purchase contract date January 2, 1995 between Phelps Dodge Mining Company and James Ashpole (Black Diamond Mining Corporation) where by Phelps Dodge agrees to process ore delivered F.O.B. to the Hidalgo Smelter by Black Diamond. A full copy of the contract is included in the addenda. The main portions of the contract are summarized as follows:

Material:	Siliceous Fluxing Ore
Delivery:	F.O.B. to the Hidalgo Smelter
Payments:	
Gold:	Deduct 0.03 tr. oz. per dry ton or 10% of the gold content, which ever is greater, and pay 95% of the balance at the weekly average Handy and Harmon quotation in Metals Week for the week ending Friday in which the shipment is received.

George Hennessey, Geological Consultant, Preliminary Evaluation, September 1996

A Preliminary Evaluation report of the Lelan-Dividend Mine, prepared by George Hennessey, Geological Consultant, dated September 23, 1996 was provided to the appraiser by Mr. Ashpole. A reasonable body of evidence exists which indicates a good likelihood for the presence of a stratabound deposit. The report further makes recommendations for an extensive exploration program.

This report includes the production records of similar geological environments within the "Jerome-Phoenix Mineralized Schist Belt."

"The Magma-Santa Fe-McCabe mine lies two miles NE of the Lelan-Dividend site and has recorded gold production in excess of 500,000 ounces. Mining activities at the McCabe has centered around a series of NE trending quartz veins. This subparallel pattern is on strike with similar structures observed at the LelandDividend mines and probably represents the extension of these zones."

"Total reported gold production from the "Mineralized Schist Belt" is in excess of 3.5 million ounces. The recommended prefeasibility data gathering noted on page 6 is designed to pursue and define the same geological settings that have hosted these massive sulfide, supervene-enriched and stratabound occurrences as well as access the viability of the veining systems. Therefore, with the given parameters of the permissive area, the scope of the undertaking is to define a 500,000-to-one million ounce gold deposit with significant credits in copper, silver, lead and zinc."

The DCF previously presented calculated 687,000 ounces of gold production.

George Hennessey

Employment Record (1960-1977)

Congdon & Carry (CoCa Mines) Project Manager
ASARCO, Inc. Project Manager
Bear Creek Mining Company (Kennecott) Project Manager
Kennecott Copper Corp. Senior Mine Geologist
Sunshine Mining Co. Mine Geologist
KerrMcGee Corp. Mine Geologist

Past Personal Business Ventures:

Precision Custom Milling (Co-Owner).

Continental Nuclear, Inc. (Co-Owner). Discovered, developed and mined a uranium deposit in Utah, selling ore to Atlas Mineral.

Spokane Bullion Corp. (Co-Owner) Buyers, sellers and refiners of precious metal concentrates, scrap and ore.

Geo-Visual Systems, Inc. (Owner) Provided consulting and contracting services of geotechnical and environmental nature to mining and power companies.

Sandpiper Technologies, Ltd. (Current) Consultant providing unique drilling contract services.

Geological Consultant (1977-Present)

- Consultant for several major and Junior mining companies including Kennecott, Montoro Gold, U.S. Borax & Chemical, ASARCO, Zortman Mining, Landusky Mining.
- Arranged Joint Venture between major mining companies
- Overseas consulting assignments
- Contributions in consulting/contracting capacities; Making property acquisitions; Supervised the technical data gathering; Provided preliminary mine-mill design sequences; Provided economic evaluation, baseline data for preliminary and final feasibility studies; Liaison and agency between U.S. Companies and foreign governments.
- Environmental Contamination Assessments.

Lelan-Dividend Mine

PRODUCTION POTENTIAL

In the 1920's, this mine was actively producing 30 ounces of gold per day at an average $12.70 per ounce. There have been four studies on this mine, that I have in my possession, dating from 1915 and they all give similar information that has been verified independently by different parties over the past 40 years.

The estimated cost per ton to operate this mine is around $60 per ton to produce a minimal 1 ounce of gold per ton. The neighboring mine is producing closer to 2 ounce of gold per ton width modern mining techniques.

Start up costs are estimated at about $2,000,000 to reactivate the mine and to re-open the existing mining shafts and start production. This figure would vary, mainly on the downward side, depending on the size of mining operation the owners desire.

This proven gold mine could be reactivated and in production within 60 days from it capitalization. The mine is well known to mining consultants and engineers in the region. The claims have been duly recorded and perfected. The property has been surveyed, and survey maps are on file with the proper stated and county officials.

PROFIT POTENTIAL

The neighboring "Stan West Mine" is also well known, and it is producing today, over 100 tons per day, at probably close to 3 ounces of gold per ton, at a cost of $60 per ton and a gross profit at today's estimated gold price of $390 per oz.; this would mean $330 profit per ounce.

On the "Lelan Dividend Mine", using the old production "pick & shovel" level of 30 oz. per day, this could mean a yearly gross profit after mining costs of $3,000,000.00 plus.

10 yr Projection - Leland-Dividend Mine - 675,000 tons total production

Potential Gross Income:

Net Proceeds

Tonnage in dumps

Grade in Ore		Spot Price (10/28/96)		Net per ton
0.20	oz/ton	Gold	$383.20 per oz.	$76.64
4.00	oz/ton	Silver	$4.92 per oz.	$19.69
15.00	lb/ton	Cooper	$1.00 per lb.	$15.00

Tonnage in shafts

Grade in Ore		Spot Price (10/28/96)		Net per ton
1.12	oz/ton	Gold	$383.20 per oz.	$429.18
4.52	oz/ton	Silver	$4.92 per oz.	$22.25
20.00	lb/ton	Cooper	$1.00 per lb.	$20.00

Total Potential Gross proceeds in dumps and shafts

Less: Expenses

Operating Expenses

Mining from shaft	$50.00	per ton

Total Reserves net of mining cost

Smelting Charges	15.00%	of spot $
Loading/Crushing	$8.00	per ton
Hand Sorting (of dumps)	$30.00	per ton
Hauling	$25.00	per ton
Reclamation	$1.00	per ton
Cost to Improve the road	$15,000	
Power	$125,000	
Water	$10,000	
Telephone	$7,000	
Permits	$125,000	
Exploration	$300,000	

	Per year expense	Estimated Project life (yrs)
Management	2.50%	10
Utilities	$25,000	10
Legal	$50,000	10
Miscellaneous	$50,000	10
Fixed Expenses		
Real Estate Taxes	$20,000	10
Insurance	$20,000	10
Reserve	$200,000	10

Total Expenses

Net Income

Net Present Value at

30.00%	$42,410,194
35.00%	$35,455,844
40.00%	$30,020,394

Year 1	2	3	4	5	6	7	8	9	10	Sum
Projected tons										
45,000	30,000	0	0	0	0	0	0	0	0	75,000
$3,448,800	$2,299,200	$0	$0	$0	$0	$0	$0	$0	$0	$5,748,000
$885,960	$590,640	$0	$0	$0	$0	$0	$0	$0	$0	$1,476,600
$675,000	$450,000	$0	$0	$0	$0	$0	$0	$0	$0	$1,125,000
$5,009,760	$3,339,840	$0	$0	$0	$0	$0	$0	$0	$0	$8,349,600
Projected tons										
0	24,000	72,000	72,000	72,000	72,000	72,000	72,000	72,000	72,000	600,000
$0	$10,300,416	$30,901,248	$30,901,248	$30,901,248	$30,901,248	$30,901,248	$30,901,248	$30,901,248	$30,901,248	$257,510,400
$0	$533,939	$1,601,816	$1,601,816	$1,601,816	$1,601,816	$1,601,816	$1,601,816	$1,601,816	$1,601,816	$13,348,464
$0	$480,000	$1,440,000	$1,440,000	$1,440,000	$1,440,000	$1,440,000	$1,440,000	$1,440,000	$1,440,000	$12,000,000
$0	$11,314,355	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$282,858,864
$5,009,760	$14,654,195	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$33,943,064	$291,208,464
Est. total tonnage										
45,000	54,000	72,000	72,000	72,000	72,000	72,000	72,000	72,000	72,000	675,000
$0	$1,200,000	$3,600,000	$3,600,000	$3,600,000	$3,600,000	$3,600,000	$3,600,000	$3,600,000	$3,600,000	$30,000,000
$5,009,760	$13,454,195	$30,343,064	$30,343,064	$30,343,064	$30,343,064	$30,343,064	$30,343,064	$30,343,064	$30,343,064	$261,208,464
$751,464	$2,198,129	$5,091,460	$5,091,460	$5,091,460	$5,091,460	$5,091,460	$5,091,460	$5,091,460	$5,091,460	$43,681,270
$360,000	$432,000	$576,000	$576,000	$576,000	$576,000	$576,000	$576,000	$576,000	$576,000	$5,400,000
$1,350,000	$900,000	$0	$0	$0	$0	$0	$0	$0	$0	$2,250,000
$1,125,000	$1,350,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$16,875,000
$45,000	$54,000	$72,000	$72,000	$72,000	$72,000	$72,000	$72,000	$72,000	$72,000	$675,000
$15,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,000
$125,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$125,000
$10,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,000
$7,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,000
$125,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$125,000
$300,000										$300,000
$125,244	$336,355	$758,577	$758,577	$758,577	$758,577	$758,577	$758,577	$758,577	$758,577	$6,530,212
$12,000	$12,360	$12,731	$13,113	$13,506	$13,911	$14,329	$14,758	$15,201	$15,657	$137,567
$50,000	$51,500	$53,045	$54,636	$56,275	$57,964	$59,703	$61,494	$63,339	$65,239	$573,194
$49,500	$50,985	$52,515	$54,090	$55,713	$57,384	$59,106	$60,879	$62,705	$64,586	$567,462
$20,000	$20,600	$21,218	$21,855	$22,510	$23,185	$23,881	$24,597	$25,335	$26,095	$229,278
$20,000	$20,600	$21,218	$21,855	$22,510	$23,185	$23,881	$24,597	$25,335	$26,095	$229,278
$177,400	$182,722	$188,204	$193,850	$199,665	$205,655	$211,825	$218,180	$224,725	$231,467	$2,033,692
$4,667,608	$6,809,251	$12,246,966	$12,257,434	$12,268,216	$12,279,321	$12,290,760	$12,302,542	$12,314,677	$12,327,176	$109,763,951
$342,152	$7,844,944	$21,696,098	$21,685,630	$21,674,848	$21,663,742	$21,652,304	$21,640,522	$21,628,387	$21,615,888	$181,444,513

phelps dodge
Mining Company

January 2, 1995

Mr. James A. Ashpole
Black Diamond Mining Co.
8026 W. Aster Dr.
Peoria, Arizona 85381

Dear Mr. Ashpole,

Please find attached two copies of our agreement to purchase up to 6,000 tons per month of your precious metal bearing flux at our Hidalgo Smelter, located near Playas, New Mexico, following successful completion of a 1,000 ton test shipment.

Please sign and date both copies of this agreement and return one original copy to me.

Once we have received the signed agreement you will need to coordinate delivery directly with Mr. Bill Mitchell, Hidalgo Smelter Superintendent, or Mr. Byron Belew, Hidalgo General Foreman. Hidalgo's telephone number is (505)436-2211.

Very Truly Yours,

D. K. Farquhar
Raw Materials Director
Phelps Dodge Mining Company

attachments
cc: WJM
RC

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER

310- 33131

phelps dodge Corporation

PLAYAS, NEW MEXICO 88009

62-26 / 311

252-09

DATE	CHECK NO.	NET AMOUNT
11/14/96	31033131	******2,187.59

PAY

TWO THOUSAND ONE HUNDRED EIGHTY SEVEN AND 59/100 DOLLARS

TO THE ORDER OF

BLACK DIAMOND MINING CO
JAMES A ASHPOLE
8026 W ASTER DR
PEORIA AZ 85381

PHELPS DODGE CORPORATION
OPERATING ACCOUNT

AUTHORIZED SIGNATURE

CHEMICAL BANK DELAWARE
919 MARKET STREET
WILMINGTON, DELAWARE 19801

THE BACK OF THIS DOCUMENT CONTAINS AN ARTIFICIAL WATERMARK – HOLD AT AN ANGLE TO VIEW

⑈31033131⑈ ⑆031100267⑆ 630140 2529 509⑈

Certification

As a result of a request for a Limited Appraisal Self-contained Report assignment of the property, legally described in the body of the report, at:

Lelan-Dividend Mine Group
Located on the east slope of Mount Elliott
Approximately six miles southwest of Humbolt, Arizona

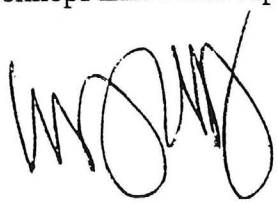
We certify to the best of our knowledge and belief:

The statements of fact contained in this report are true and correct [S.R. 23, USPAP, 1995].
The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, unbiased professional analyses, opinions, and conclusions [S.R. 23, USPAP, 1995 Edition].
We have no present or prospective interest in the property that is the subject of this report, and we have no personal interest or bias with respect to the parties involved [S.R. 23, USPAP 1995 Edition].
Our compensation is not contingent upon reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result, or the occurrence of a subsequent event [S.R. 23, USPAP 1995 Edition].
Our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice (USPAP) published and copyrighted by the Appraisal Foundation and the Arizona Appraisal Board and the standards and reporting requirements of the Code of Professional Ethics and the Standards of Professional Practice of the Appraisal Institute. [S.R. 23, USPAP 1995 Edition].
Larry D. Schnepf has made a personal inspection of the property that is the subject of this report. [S.R. 23, USPAP 1995 Edition].
No other persons than those listed herein provided significant professional research assistance to the persons signing this report.
The use of this report is subject to the requirements of the Arizona Appraisal Board and the Appraisal Institute relating to review by its duly authorized representatives.
Mr. Larry D. Schnepf is currently certified under the State of Arizona's Appraisal Board mandatory appraiser licensing and continuing education program [A.R.S. Section 323601].
The appraisers have reviewed the Competency Provision of the USPAP and are in full compliance with this provision [Competency Provisions USPAP 1995 Edition].
The appraisal assignment was not based on a requested minimum valuation, a specific valuation, or the approval of a loan [Ethics Provision Management, USPAP 1995 Edition].
We certify that, to the best of our knowledge and belief, the reported analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and the Standards of Professional Appraisal Practice of the Appraisal Institute [S.S.R. 21, Appraisal Institute SPAP].
We certify that the use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives [S.S.R. 22, Appraisal Institute SPAP].
As of the date of this report the appraisers are/have completed the requirements of the continuing education program of the Appraisal Institute [S.S.R. 23, Appraisal Institute SPAP].
The undersigned hereby acknowledges that he/she/they has/have the appropriate education and experience to complete the assignment in a competent manner. The reader is referred to the appraisers' Statement of Qualifications.

Further, the value reported is based upon cash in U.S. dollars or in terms of similar financial arrangements.

The value(s) reported are intended to conform with Code of Ethics and Standards of Professional Practice of the Appraisal Institute; the Uniform Standards of Professional Appraisal Practice (USPAP) as promulgated by the Appraisal Standards Board of the Appraisal Foundation and the Appraisal Institute for **a limited appraisal assignment with departure provisions of USPAP Standards 22 as outlined in Standards 14(a) through (i)** and regulatory guidelines as published by various federal agencies, including OCC's Rule/Policy 12 CFR Part 34 pertaining to federally chartered banks.

Respectfully submitted,
Schnepf Ellsworth Appraisal Group



Larry D. Schnepf
Certified Arizona General Real Estate Appraiser
Certificate # 30284

Brief Review of the Lelan-Dividend Mine

LOCATION

The property is twelve air miles south east of Prescott. By road it is 25 miles from Prescott and 6 miles from Humbolt. It is reached from Prescott by taking Highway 69 to a short distance beyond Humbolt, then taking a side road to the right through the Iron King property.

The group of claims is situated on the head waters of the Galena and Ticonderoga Gulch on the east slope of Mr. Elliot in the Big Bug Mining District, Yavapai Count, Arizona

THE DISTRICT

The Big Bug Mining District is on the North Eastern slope of the Bradshaw Mountains and extends from Big Bug mesa to the Agua Fria Valley. It ranges in altitude from 4,500 to 7,000 feet.

Placer gold was discovered in the Big Bug region in the 1860's, and it is understood that all of the gulches paid well. This lead to the discovery of numerous veins and the subsequent working of the oxidized zone was reached. Although the continuing suphides often held values that steadily increased with depth, they could not profitably be received by amalgamation. No estimates of early production are available. The Arizona Bureau of Mines bulletin #37 states, that during some days, some of the Big Bug deposits yielded a considerable amount of gold and silver from the oxidized zones. From 1901 to 1931 inclusive, the production of the district, as recorded by the U.S. Mineral Resources, amount to approximately $17,000,000.00 in copper, silver, lead and zinc. Nearly $4,000,000.00 of this amount was in gold, of which the amount of $30,000.00 came from placers. Gold at this time was only $12 to $15 an ounce.

The mines in the immediate vicinity of the Lelan-Dividend group have good production records. The adjoining properties are the Union and Little Jessie, which are now consolidated and known as the "Union-Jessie". Both became known in the late 1960's. From about 1890 to 1898, it was worked by J.S. Jones and Lessees. Their mill is reported to have produced about $750,000 worth of bullion and concentrates chiefly from the Little Jessie. The combined production recorded of the Union Jessie is $1,400,000.00. The next adjoining properties are the McCabe and Gladstone on the Galena Gulch. Arizona Bureau of Mines Bulletin #37 states, regarding the McCabe Gladstone, "During the seventies, this deposit yielded considerable amounts of rich oxidized ores." The property then remained practically idle for many years. It was worked continuously from 1898 to 1913 by the Ideal Leasing Company, with reported production of $2,500,000.00 to $3,000,000.00; and at this time gold was under the $35 per oz. mark. The McCabe Gladstone property is now the Stan West Mine, which lies approximately one mile from the "Lelan-Dividend Mine".

Inga A. Cortright
Certified Public Accountant

INDEPENDENT AUDITOR'S REPORT

I have audited the accompanying balance sheet of Black Diamond Mining, Corp. as of May 31, 1997. This financial statement is the responsibility of the Company's management. My responsibility is to express an opinion of this financial statement based on my audit.

I conducted my audit in accordance with generally accepted auditing standards. Those standards require that I plan and perform the audit to obtain reasonable assurance about whether the balance sheet is free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the balance sheet. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall balance sheet presentation. I believe that my audit of the balance sheet provides a reasonable basis for my opinion.

In my opinion, the balance sheet referred to above presents fairly, in all material respects, the financial position of Black Diamond Mining, Corp. as of May 31, 1997, in conformity with accounting principles used in the preparation of modified cash basis statements.

Inga A. Cortright

June 16, 1997

9421 West Bell Road, Suite 108
Sun City, AZ 85351
(602) 815-1877
Facsimile (602) 815-1877

Black Diamond Mining, Corp.

Balance Sheet
May 31, 1997

ASSETS

Current Assets:	
Cash	$ 20,011
Property (Note 2)	
Patented mining claims	25,500,000
Other Assets:	
Organization costs	17,700
Total Assets	$ 25,537,711

LIABILITIES AND STOCKHOLDERS' EQUITY

Current Liabilities:	
Payable to stockholders	$ 37,711
Long-term debt (Note 3)	25,000
Total Liabilities	62,711
Stockholders' Equity:	
Common Stock, $0.001 par value per share: Authorized 25,000,000 shares; Issued and Outstanding 8,100,000	51,000
Additional paid in capital (mining claim)	25,424,000
Total Stockholders' Equity	25,475,000
Total Liabilities and Stockholders' Equity	$ 25,537,711

The accompanying notes are an integral part of this financial statement.

Black Diamond Mining, Corp.

Notes to Financial Statement
May 31, 1997

1. Summary of significant accounting policies and organization

Organization

Black Diamond Mining, Corp. (the Company) was incorporated on March 18, 1994, under the laws of the State of Arizona. The Company has chosen December 31 as its fiscal year end.

Recapitalization

In June 1996, the Articles of Incorporation of Black Diamond Mining, Corp. were amended to increase the number of shares of common stock authorized from 100,000 shares to 25,000,000 shares at $0.001 par value. As a result of the recapitalization, James A. and Catherine Ashpole received 8,000,000 shares of the split, a new common stock, in exchange for the original shares held by them.

Method of accounting

Assets, liabilities and stockholders' equity are recognized on a modified cash basis for financial presentation purposes.

Income taxes

No provision for income taxes has been made as of the balance sheet date.

Use of estimates

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements. Actual results could differ from those estimates.

2. Property

Patented mining claims have been contributed to the Company by its stockholders. The property held by Black Diamond was acquired by James A. and Catherine Ashpole for $25,500,000. According to an affidavit dated November 15, 1996, the Leland-Dividend Mine was acquired from Omni Star, Inc. in exchange for other property. During 1996, improvements were made to the Leland-Dividend property (see Note 5).

The subject property was appraised by Schnepf Ellsworth Appraisal Group on November 9, 1995. Estimated ore reserves are stated at $291,200,000, estimated production costs at $34,665,000, with a net potential (estimated) ore reserve at $256,535,000. The stated market value, according to the appraisal, was $35,000,000. The appraisal was signed by Larry D. Schnepf, MAI.

Black Diamond Mining, Corp.

Notes to Financial Statement
May 31, 1997

3. Phelps Dodge contract

Phelps Dodge Mining Company has entered into a contract with Black Diamond Mining, Corp. for the delivery of up to 6,000 tons per month of Siliceous Fluxing Ore to its Hidalgo Smelter in New Mexico. The contract is opened ended "until terminated by Phelps Dodge Mining Company." The contract can be terminated with a thirty day written notice.

4. Long term debt - recorded lien on patented mining claims

A deed of trust, dated October 18, 1993 and recorded in Yavapai County, Arizona on September 13, 1994, was given to secure an indebtedness in the original principal amount of $ 25,000. The named trustor is Omnistar, Inc.; the named trustee and beneficiary is Betty Davis.

Since neither Black Diamond nor James Ashpole was a party to the transaction resulting in the deed of trust, the terms for repayment are unknown and have, therefore, not been included in these financial statements.

5. Other transactions

On March 31, 1996, Black Diamond entered into an agreement to sell the Leland-Dividend Mine Group and other property to Cronus Corporation, a publicly held and traded corporation. Subsequently, Black Diamond entered into a Reorganization and Stock Exchange Agreement, which was signed May 23, 1996. While this agreement was in effect, the parties formulated a second merger agreement in July 1996, in the form of a reverse triangular merger, for tax purposes. In October 1996, certain properties of Black Diamond, including the Leland-Division Mine Group were acquired by Cronus. Cronus subsequently provided capital to improve the road to the Leland-Dividend property, and constructed limited mining operations.

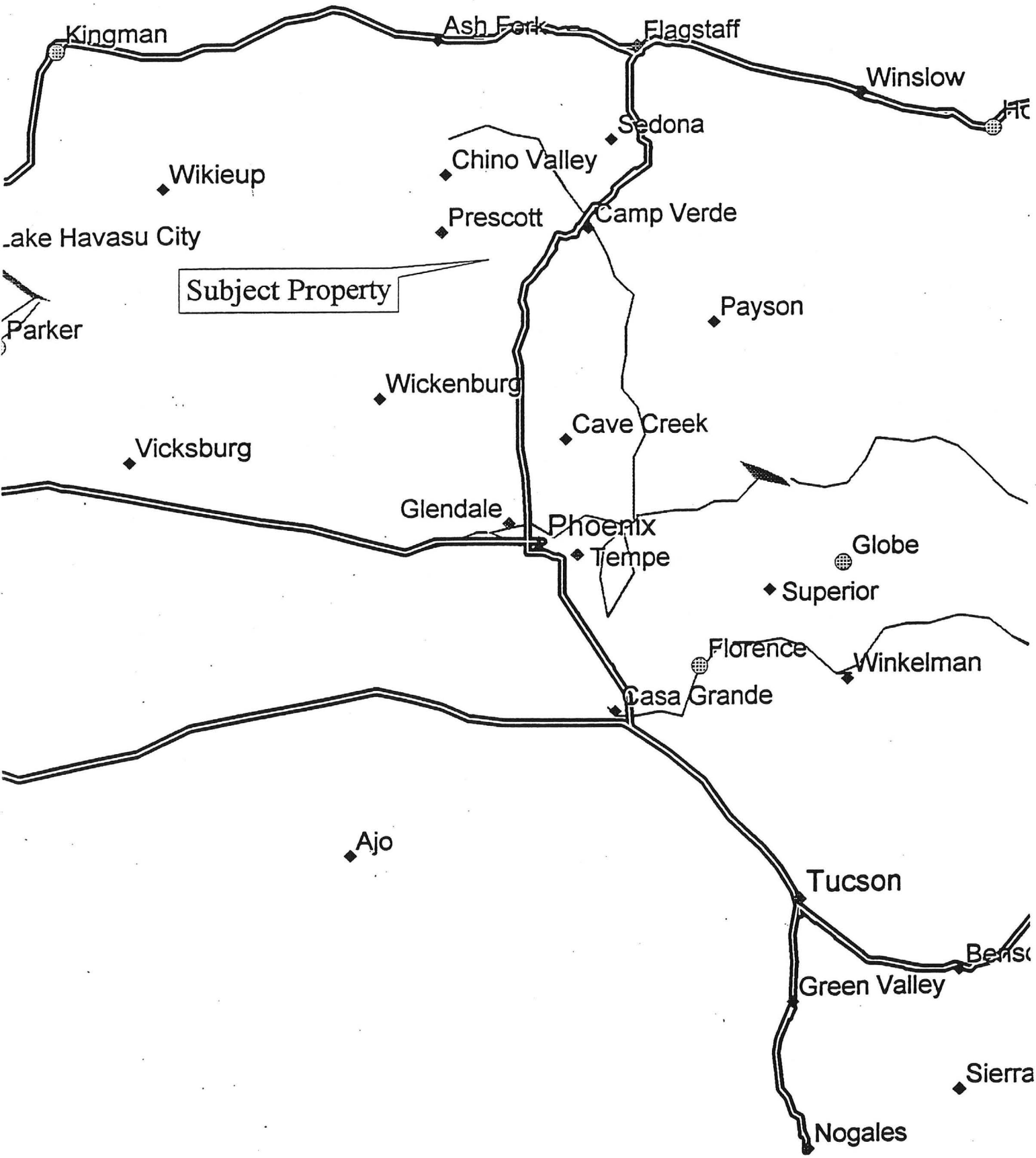
In December 1996, the agreements between Black Diamond and Cronus were terminated by mutual agreement.

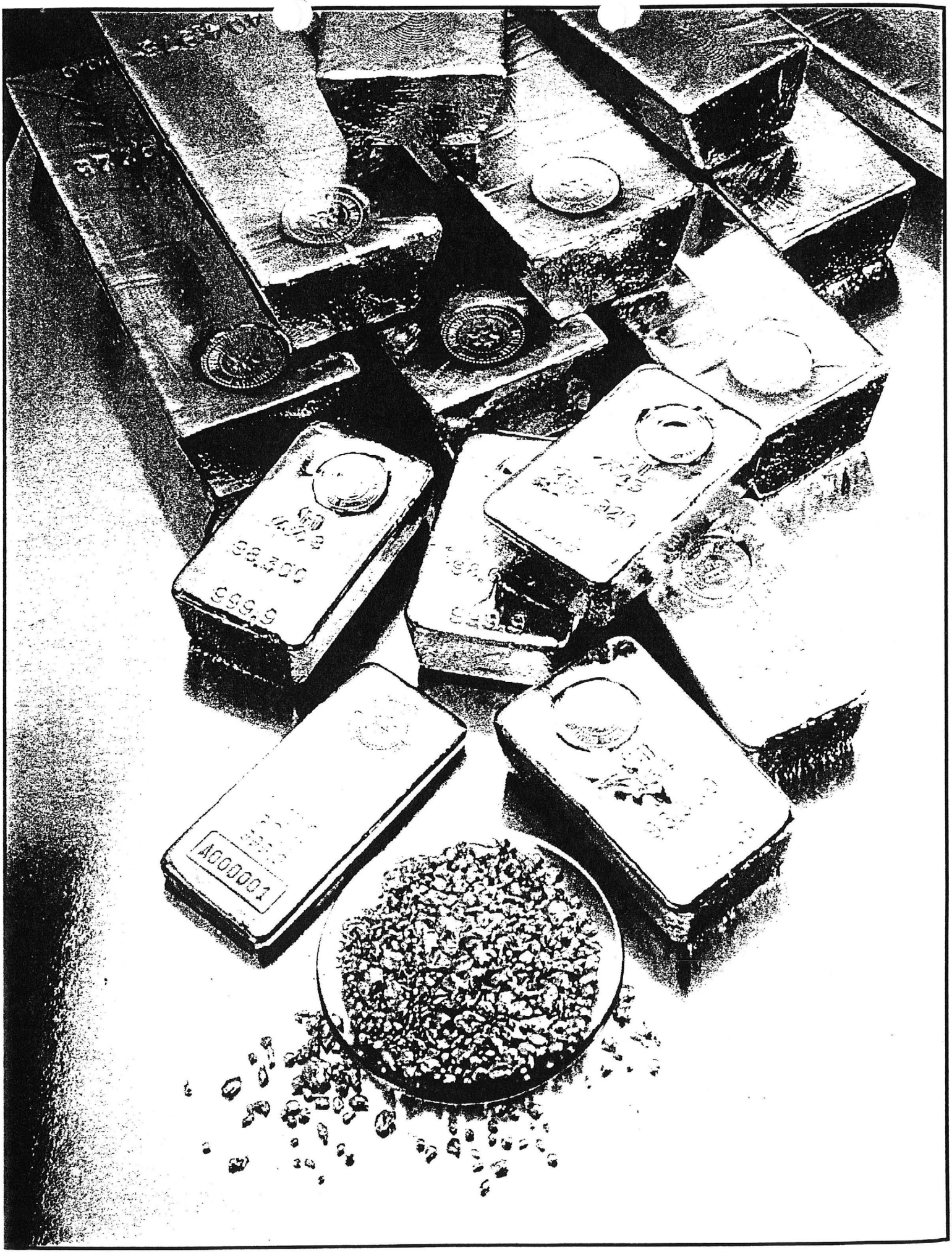
6. Contingencies

During 1995 and 1996, real estate located in Yavapai County, Arizona, known as the Leland-Dividend Mine, was used as bid performance security for unrelated construction projects. The construction contracts were completed by Lewis Construction for the Bureau of Indian Affairs and other governmental entities. As projects were bid, real estate liens were filed against the mine property. As contracts were completed, liens were released. As of June 1997, the recording of all related lien releases has not been completed. The President of Black Diamond has represented that all contracts have been completed and that all liens are released.

7. Related party transactions

James and Catherine Ashpole have provided working capital to Black Diamond. The cash and organizational costs shown on the balance sheet were paid out of this working capital. The offsetting account payable is due to the Ashpoles.


Kingman
Ash Fork
Flagstaff
Winslow
Sedona
Chino Valley
Wikieup
Prescott
Camp Verde
Lake Havasu City
Subject Property
Payson
Parker
Wickenburg
Cave Creek
Vicksburg
Glendale
Phoenix
Tempe
Globe
Superior
Florence
Winkelman
Casa Grande
Ajo
Tucson
Green Valley
Sierra
Nogales


A000001

Leland - Dividend File
(Yavapai)

FLOYD HANLY & ASSOCIATES

Some material is new to the AOMMR file while some is not
1991

Consultants - Exploration - Geology - Drilling

Blasting - Claim Staking - Location Work

Assessment Work

Phoenix, Arizona

&

Salinas, California

BRIEF REVIEW

OF

"THE LELAN DIVIDEND MINE"

Yavapi County, Arizona

Leland - Dividend file
(Yavapai)

Some material is new to the ADMMR file while some is not.
1991

FLOYD HANLY & ASSOCIATES

Consultants - Exploration - Geology - Drilling

Blasting - Claim Staking - Location Work

Assessment Work

Phoenix, Arizona

&

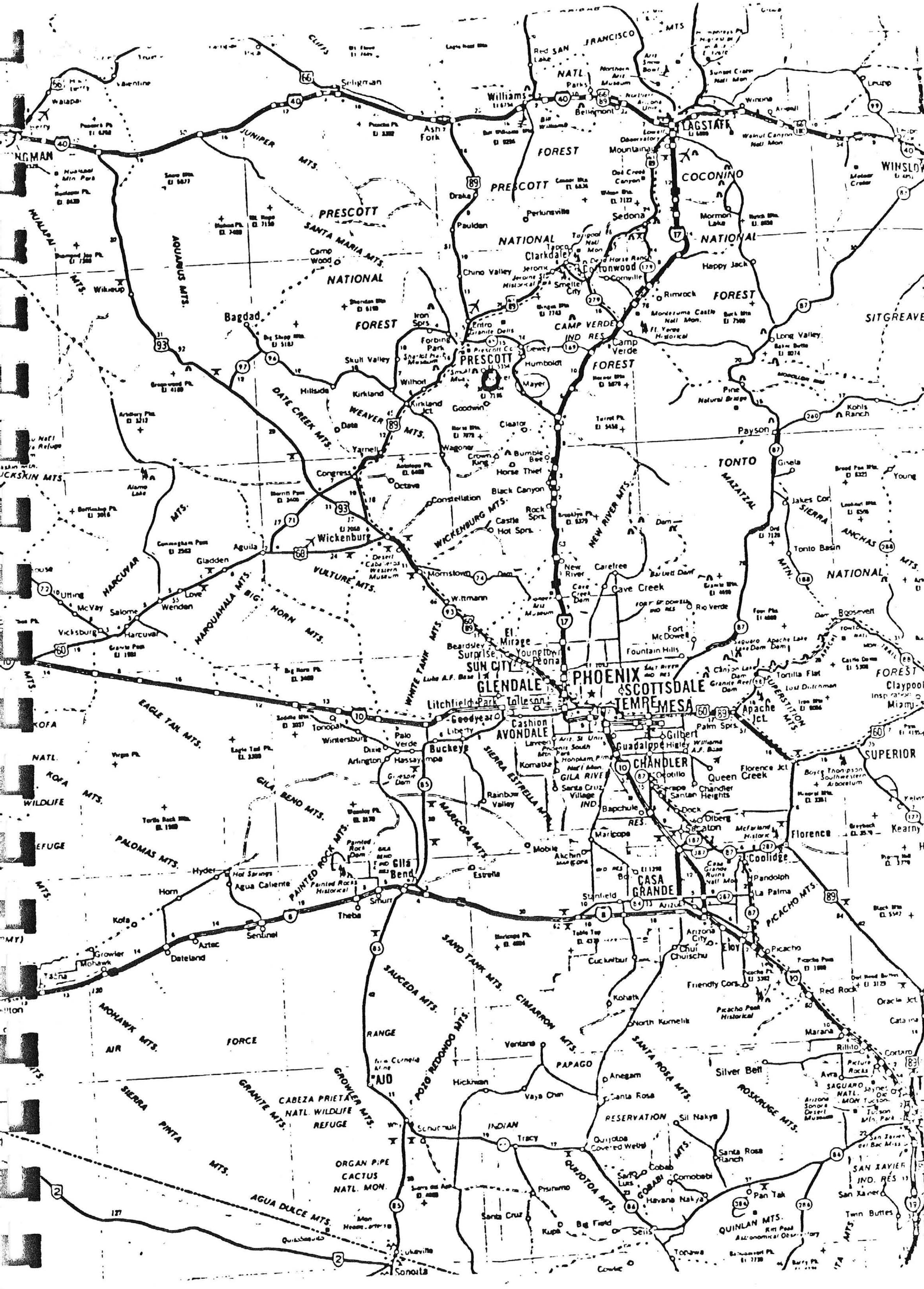
Salinas, California

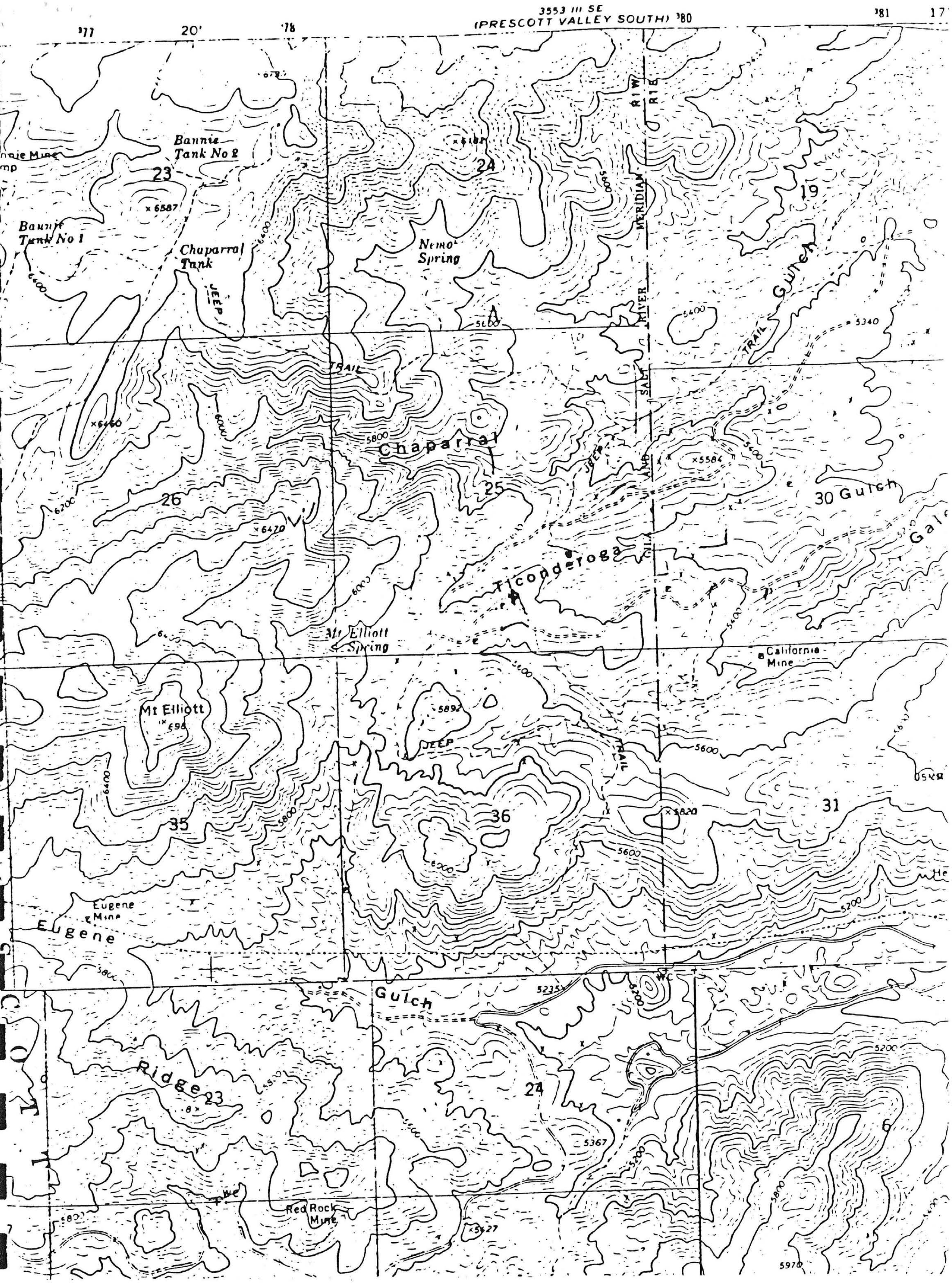
BRIEF REVIEW

OF

"THE LELAN DIVIDEND MINE"

Yavapi County, Arizona


Kingman
Walapai
Seligman
Ash Fork
Williams
Bellemont
Flagstaff
Winona
Winslow
Meteor Crater
Walnut Canyon Natl. Mon.
Sunset Crater Natl. Mon.
San Francisco Mts.
Coconino
Natl. Forest
Juniper Mts.
Prescott National Forest
Santa Maria Mts.
Hualapai Mts.
Aquarius Mts.
Wikieup
Camp Wood
Drake
Paulden
Chino Valley
Perkinsville
Sedona
Oak Creek Canyon
Mountainaire
Mormon Lake
Happy Jack
Clarkdale
Jerome
Cottonwood
Cornville
Rimrock
Montezuma Castle Natl. Mon.
Camp Verde
Camp Verde Ind. Res.
Bagdad
Iron Spgs.
Prescott
Humboldt
Dewey
Mayer
Skull Valley
Kirkland
Kirkland Jct.
Hillside
Wilhoit
Goodwin
Date Creek Mts.
Weaver Mts.
Yarnell
Congress
Octave
Wagoner
Crown King
Bumble Bee
Cleator
Horse Thief
Black Canyon
Constellation
Rock Spgs.
Castle Hot Spgs.
Wickenburg Mts.
New River Mts.
Wickenburg
Aguila
Gladden
Harcuvar
Salome
Wenden
Love
Vicksburg
McVay
Utting
Morristown
Wittmann
Harquahala Mts.
Big Horn Mts.
Vulture Mts.
White Tank Mts.
New River
Carefree
Cave Creek
Rio Verde
Fort McDowell
Fountain Hills
Pine
Natural Bridge
Payson
Kohls Ranch
Tonto
Mazatzal
Gisela
Young
Jakes Cor.
Sierra Anchas
Tonto Basin
Roosevelt
Long Valley
Sitgreaves
Forest
El Mirage
Surprise
Youngtown
Peoria
Sun City
Glendale
Phoenix
Scottsdale
Tempe
Mesa
Apache Jct.
Superstition Mts.
Litchfield Park
Tolleson
Goodyear
Cashion
Avondale
Tonopah
Wintersburg
Palo Verde
Buckeye
Liberty
Arlington
Hassayampa
Gilbert
Higley
Guadalupe
Chandler
Queen Creek
Florence Jct.
Superior
Claypool
Miami
Komatke
Gila River Ind. Res.
Sierra Estrella Mts.
Rainbow Valley
Maricopa
Maricopa Mts.
Mobile
Gila Bend
Gila Bend Mts.
Painted Rock Mts.
Eagle Tail Mts.
Kofa Natl. Wildlife Refuge
Palomas Mts.
Hyder
Agua Caliente
Horn
Kofa
Sentinel
Aztec
Dateland
Growler
Mohawk
Tacna
Theba
Estrella
Stanfield
Casa Grande
Coolidge
Florence
Kearny
Sacaton
Randolph
La Palma
Arizona City
Eloy
Picacho
Picacho Mts.
Red Rock
Marana
Rillito
Cortaro
Silver Bell
Avra
Saguaro Natl. Mon.
San Xavier Ind. Res.
Twin Buttes
Sand Tank Mts.
Sauceda Mts.
Cimarron Mts.
Santa Rosa Mts.
Roskruge Mts.
Papago
Indian Reservation
Ventana
Anegam
Santa Rosa
Sil Nakya
Santa Rosa Ranch
Ajo
Hickiwan
Vaya Chin
Why
Tracy
Quijotoa
Cobabi
Comobabi
Havana Nakya
Pan Tak
Sells
Big Field
Kupk
Santa Cruz
Quinlan Mts.
Growler Mts.
Granite Mts.
Cabeza Prieta Natl. Wildlife Refuge
Mohawk Mts.
Air Force
Range
Sierra Pinta Mts.
Organ Pipe Cactus Natl. Mon.
Agua Dulce Mts.
Lukeville
Sonoita
Topawa


3553 III SE
(PRESCOTT VALLEY SOUTH)
Bannie Tank No 2
Bannie Tank No 1
Chaparral Tank
Nemo Spring
JEEP
TRAIL
MERIDIAN
RIVER
R1W
R1E
Chaparral
Ticonderoga
Mt Elliott Spring
Mt Elliott
California Mine
30 Gulch
Gulch
Eugene Mine
Eugene
Gulch
Ridge
Red Rock Mine
×6587
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×6420
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×5892
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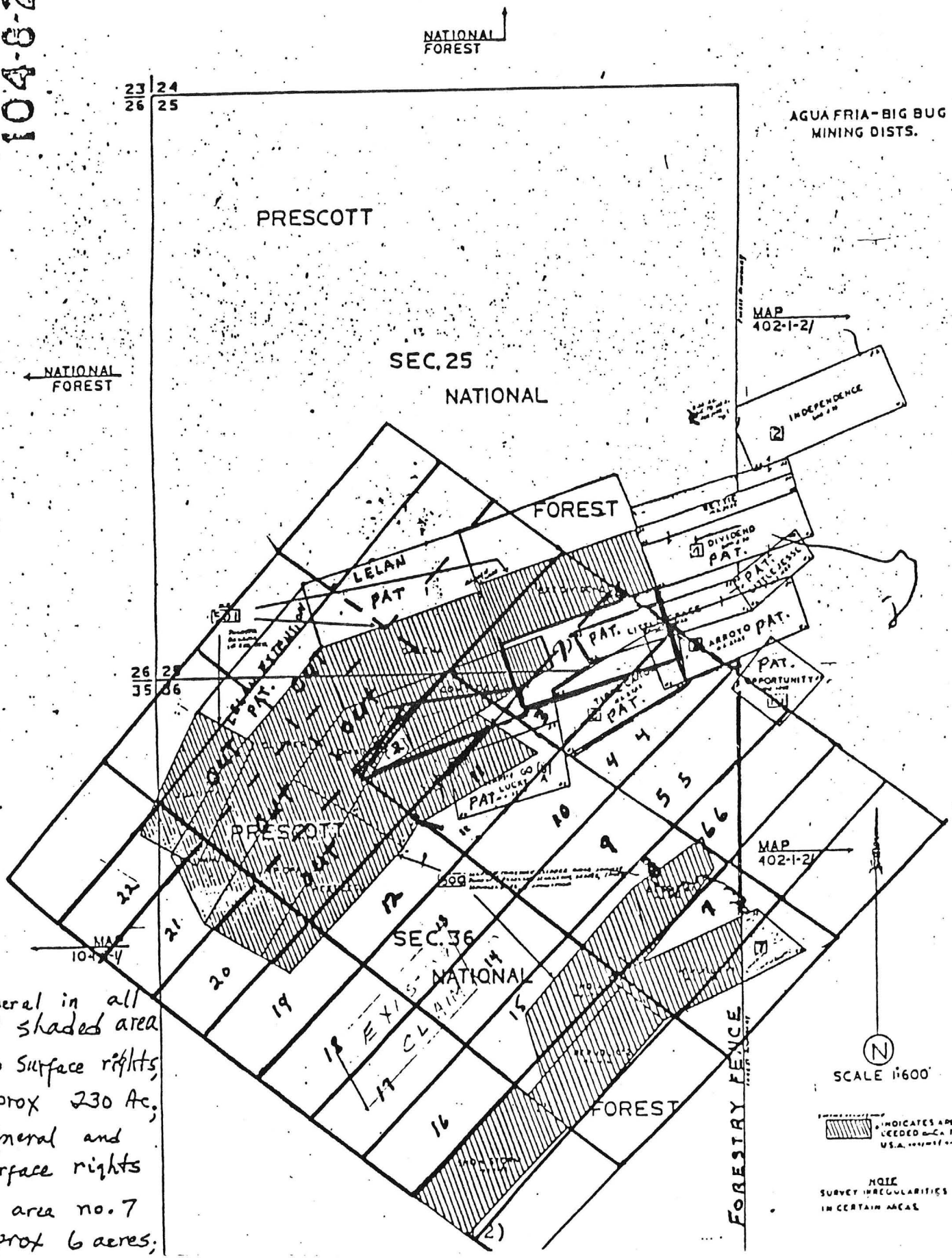

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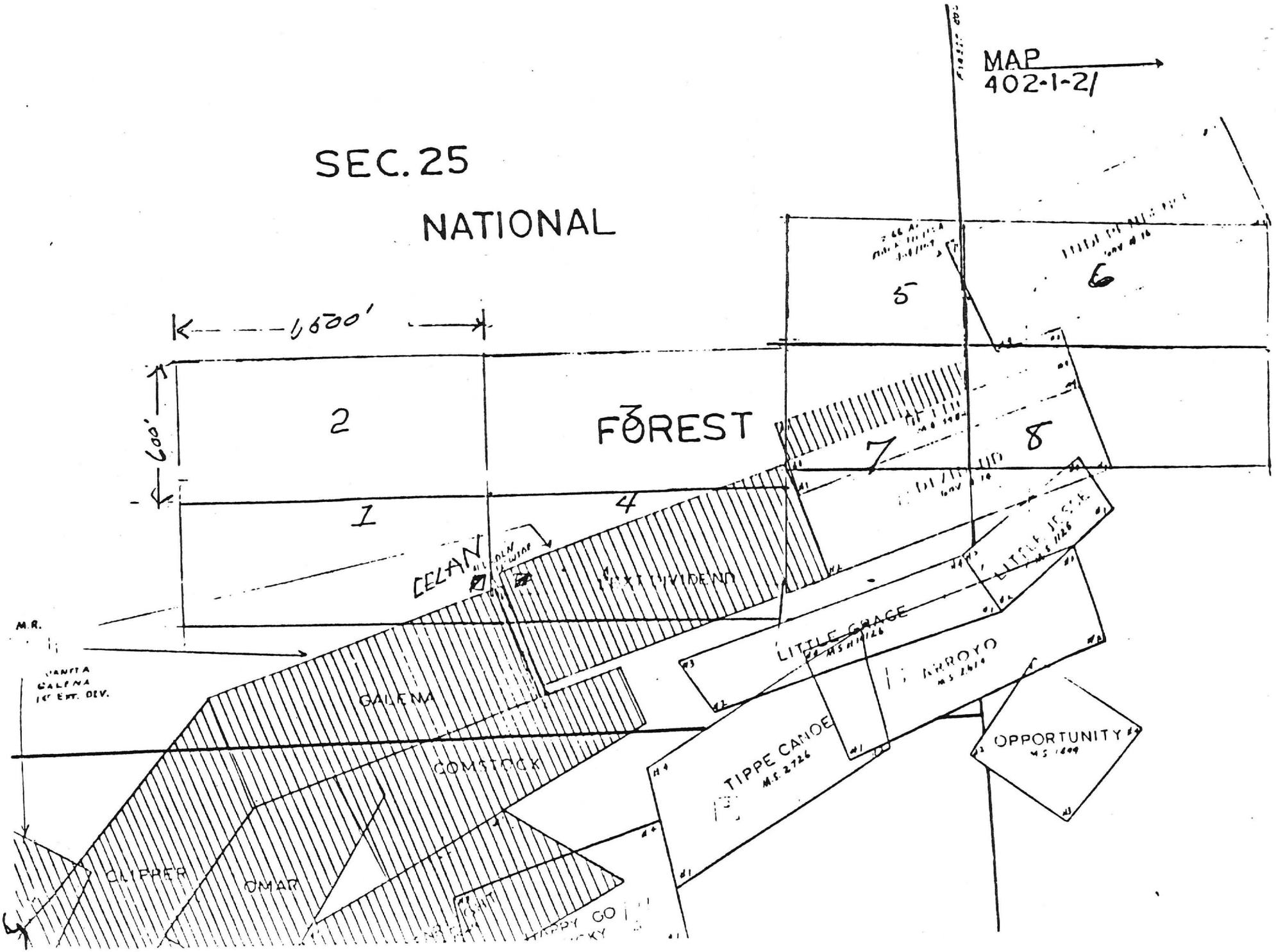
pprox 6 acres,


MAP
402-1-21
SEC. 25
NATIONAL
1600'
600'
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FOREST
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8
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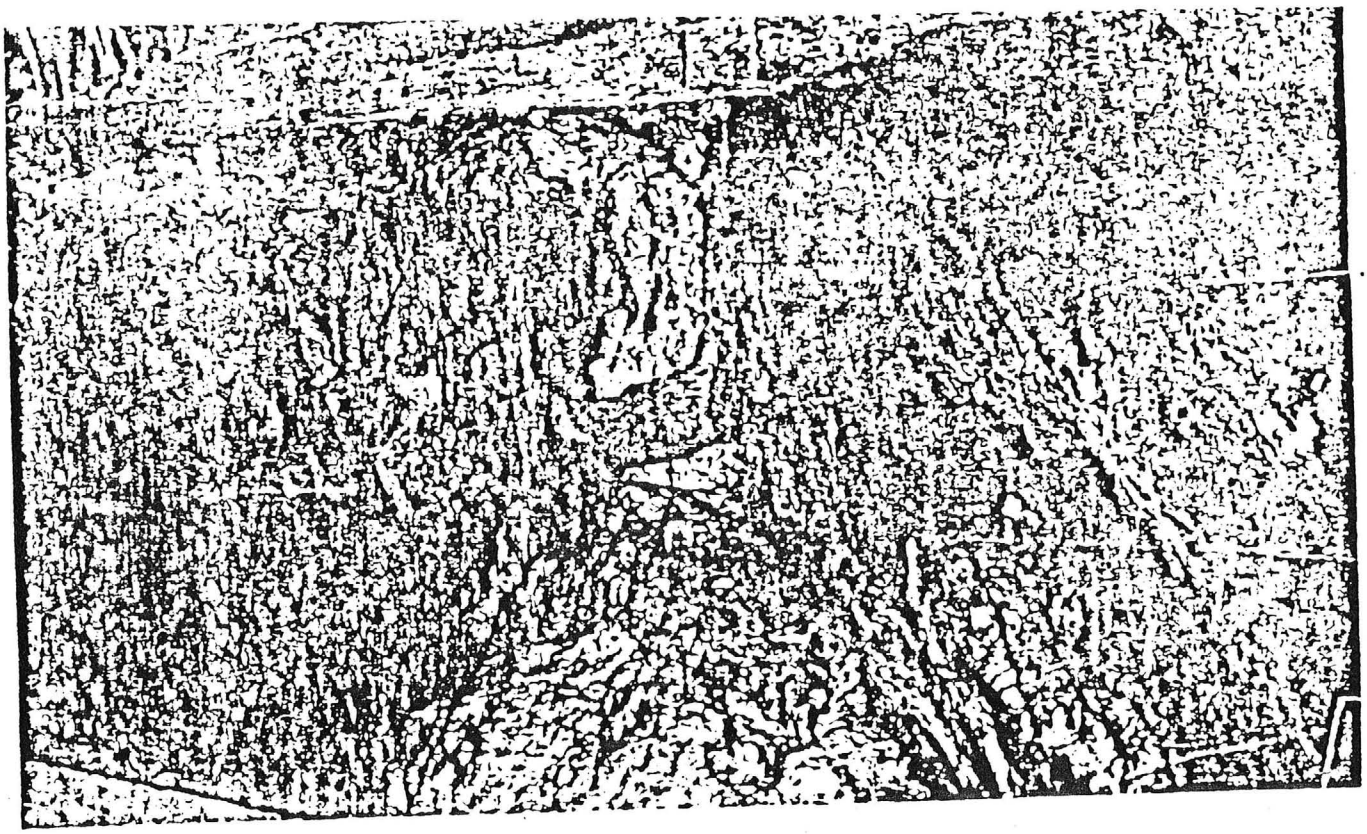
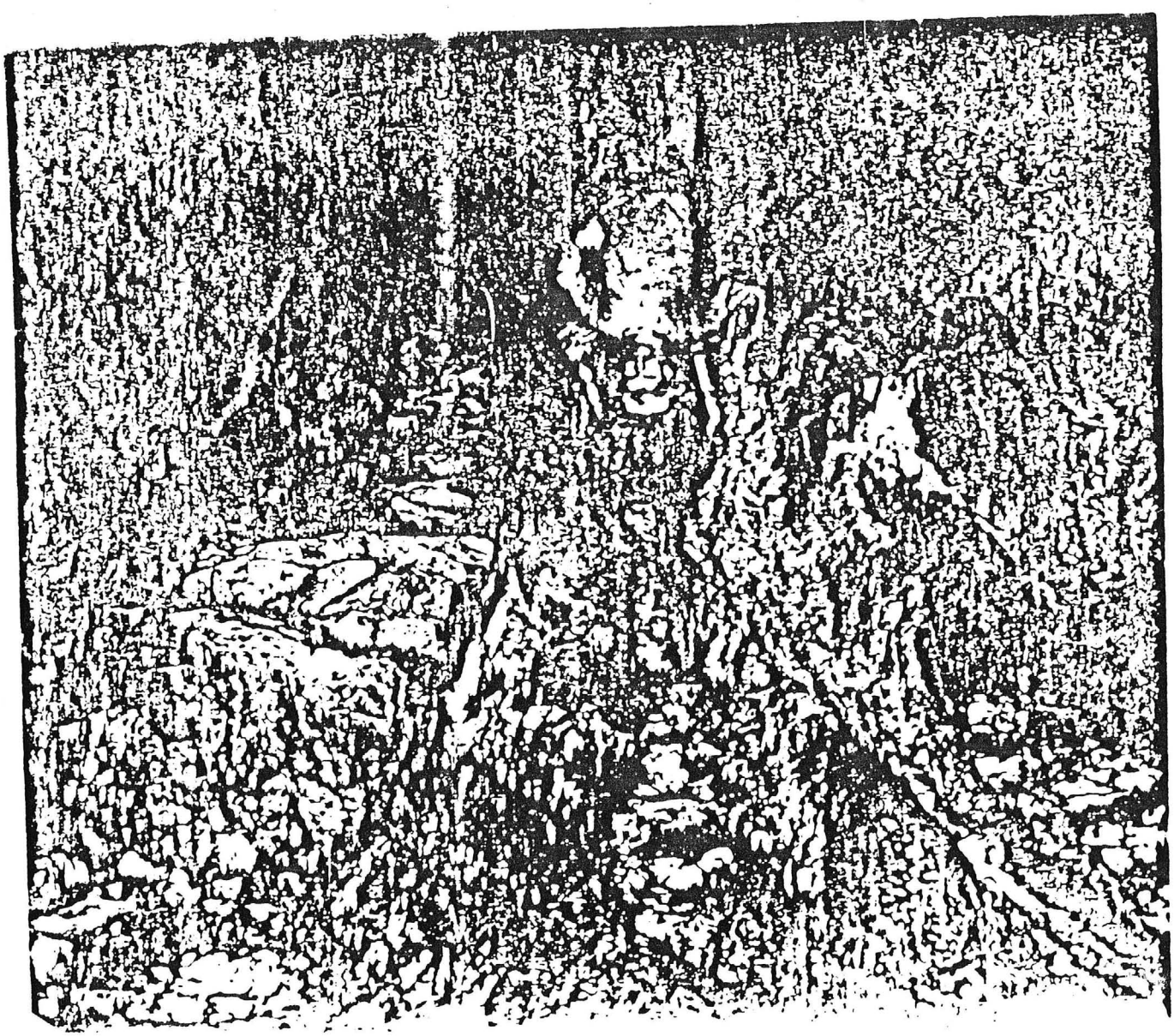
CELAN
DIVIDEND
LITTLE GRACE
M.S. 11126
ARROYO
M.S. 2616
M.R.
SANTA
GALENA
1ST EXT. DEV.
GALENA
COMSTOCK
TIPPE CANOE
M.S. 2726
OPPORTUNITY
M.S. 1699
CLIPPER
OMAR





LELAN DIVIDEN MINE

Gold was $20.67/Tr oz throughout the 1920's

PRODUCTION POTENTIAL

In the 1920's, this mine was actively producing 30 ounces of gold per day at an average $12.70 per ounce. There have been four studies on this mine that I have in my possession dating from 1915, and they all give similar information, that has been verified independently by different parties over the past 40 years.

The estimated cost per ton to operate this mine is around $60.00 per ton, to produce a minimal 1 ounce of gold per ton. The neighboring mine is producing closer to 2 ounces of gold per ton with modern mining techniques.

Start up costs are estimated at around $350,000.00 to dewater the mine, reopen the existing mining shafts, and start production. This figure would vary, mainly on the downward side, depending on the size of mining operation the owners desire.

This proven gold mine could be reactivated and in production within 60 days from its capitalization. The mine is well known to mining consultants and engineers in the region. The claims have been duly recorded and perfected. The property has been surveyed, and survey maps are on file with the proper state and county officials.

PROFIT POTENTIAL:

The neighboring "Stan West Mine" is also well known, and it is producing today, over 100 tons per day, at probably close to 3 ounces of gold per ton, at a cost of $60.00 per ton and a gross profit at todays estimated gold price of $390.00 per oz.; this would mean $330.00 profit per oz.

On the "Lelan Dividen Mine", using the old production "pick & shovel" level of 30 oz. per day, this could mean a yearly gross profit after mining costs of $3,000,000.00 plus.

VERIFICATIONS:

The attached reports, charts,&maps are only compiled to lay out the history of the mine, the potential of the mine, and allow a potential investor to familiarize himself with the situation before actually visiting the area or retaining an independent mining consultant for a separate opinion or appraisal.

I. Brief review of the "Lelan Dividend Mine"

Location

District

Geology

Early Operations

Requirements

II. Recorded Mining Claims & Maps

State Map of General Area

Topographic Map: Prescott Valley South

Sectional Map of Claims

Mine Shaft Map

III. Estimated Costs to Activate Mine

Dewater & sample at 600' level

Equipment Rental

Headframe cost & Crane cost

Estimated time-- Ore sample

IV. Existing Studies on"Lelan-Dividend Mine Group".

E.W. Wells, Prescott, Arizona, Nov. 20, 1915

Max Stockder, Tuscon, Arizona Feb. 29, 1916

T.J. Sparkes, Prescott, Arizona, Sept. 22-23, 1923

I. Brief review of the "Lelan Dividend Mine".

LOCATION

The property is twelve air miles south east of Prescott. By road it is 26 miles from Prescott and 6 miles from Humbolt. It is reached from Prescott by taking Highway 69 to a short distance beyond Humbolt then taking a side road to the right through the Iron King property.

The group of claims is situated on the head waters of the Galena and Ticonderoga Gulch on the East slope of Mt. Elliott in the Big Bug Mining District, Yavapi County, Arizona.

THE DISTRICT

The Big Bug Mining District is on the North Eastern slope of the Bradshaw Mountains and extends from Big Bug Mesa to the Agua Fria Valley. It ranges in altitude from 4,500 to 7,000 feet.

Placer gold was discovered in the Big Bug region in the 1860's, and it is understood that all of the gulches paid well. This lead to the discovery of numerous veins and the subsequent working of of the oxidized zones. In the early days, mining stoped when the limit of the oxidized zone was reached. Although the continuing sulphides often held values that steadily increased with depth, they could not profitably be received by amalgamation. No estimates of early production are available. The Arizona Bureau of Mines bulletin #37 states, that during some days, some of the Big Bug deposits yielded a considerable amount of gold and silver from the oxidized zones. From 1901 to 1931 inclusive, the production of the district, as recorded by the U.S. Mineral Resources, amounts to approximately $17,000,000.oo in copper, silver, lead and zink. Nearly $4,000,000.oo of this amount was in gold, of which the amount of $30,000.oo came from placers. Gold at this time was only $30.oo to $35.00 an oz.

The mines in the immediate vicinity of the Lelan-Dividend group have good production records. The adjoining properties are the Union and Little Jessie, which are now consolidated and known as the "Union-Jessie". Both became known in the late 1960's. From about 1890 to 1898, it was worked by J.S. Jones and Lessees. Their mill is reported to have produced about $750,000.oo worth of bullion and concentrates chiefly from the Little Jessie. The combined production record of the Union Jessie is $1,400,000.oo The next adjoining properties are the McCabe and the Gladstone on the Galena Gulch. Arizona Bureau of Mines Bulletin #37 states, regarding the McCabe Gladstone, "During the seventies, this deposit yielded considerable amounts of rich oxidized ores." The property then remained practically idle for many years. It was worked continuously from 1898 to 1913 by the Ideal Leasing Company, with reported production of $2,500,000.oo to $3,000,000.oo; and at this time gold was under the $35.oo per oz mark. The McCabe Gladstone property is now the Stan West Mine, which lies approximately one mile from the "Lelan-Dividend Mine". (See insert for further information on Stan West Mines)

GEOLOGY

It is characterized by prominent quartz outcroppings of numerous veins. These occur in and at the contact of a belt of sericite schist formations between quartz diorite on the east and massive Bradshaw granite on the west. Several basic dykes traverse the schist and quartz diorite. There is a great similarity in the different outcroppings and in the vein contents and the mineralization underground.

There are five main veins, the Galena, Lelan-Dividend, Independance, Ticonderoga, and Union. They have a lateral extent of several thousand feet and converge in a Southwesterly direction in the western half of the Galena Claim. All dip more or less steeply to the south. There are several other less pronounced outcroppings in the western portion of the group.

The average width of the main veins is about five feet and they vary from two to ten feet. The foot and hanging walls are well defined. The filling consists of massive white quartz. The ore shoots are lenticular in form. The pinching and swelling lenses sometimes overlap or are lying alongside of each other and separated by schistose sericilic gangue material. The lenses vary in thickness from two to ten feet or more and from twenty to seventyfive feet in the lateral extent. Gold bearing sulphides, principally pyrite are irregularly distributed through the quartz lenses. Small amounts of lead and zinc sulphides are also present. Below the oxidized zone, mineralization commences at or below the 170ft. level and with depth, more sulphides and better values are encountered. The gold is deciminated in the sulphide in microscopic particles.

The Lelan shaft is 436 ft. deep with workings on five levels. On the 120 ft. level drifts extend 60' east and 140' west, with a crosscut from the end of this drift, 365 feet to the surface.

On the 170 ft. level, drifts extend 120 east and 280 west.
On the 256 ft. level, drifts extend 180 east and 220 west.
On the 346 ft. level, drifts extend 150 east with a north crosscut 243'long and 400 'or morewest with a south cross cut 160' long.
On the 436 ft. level, drifts extend 150' east,connecting with the old Dividend, & 40 ft. winze driven from this level 270 west of the shaft.
The Dividend shaft is probably carried some distance below the lowest 477 ft. level. Drifts were driven on four levels:

On the 145 ft. level, drifts extend 40 east and 50 west.
On the 270 ft. level, drifts extend 20 east and 50 west.
On the 352 ft. level, drifts extend to an undetermined footage east & 100 wes
On the 477 ft. level, drifts extend 200 east and 100 west.

EARLY OPERATIONS

The property is the result of a number of consolidations. Available records of the early operation and production are fragmental and incomplete. It appears, however, that the claims on which the two mines are located were originally owned and operated separately and that the

development and operation of the various claims has been carried on more or less intermittently since considerably before 1877, when the Dividend and Galend Claims were patented and while no definite records of production prior to 1901 are available, it is probably that the ore deposits known to have been mined before that time yielded a considerable amount of gold from the oxidized zones. Brown's report of 1868 mentions a sixty ton shipment from the Dividend mine to the Big Bug (Henrietta) mill that yielded $20.oo per ton in free gold. At the time itwas not considered of commercial grade. For gold at that time was only $35.oo per ounce.

REQUIREMENTS

In the consideration of gold mining properties, it must be recognized that the point of view has been considerably altered not only by the increased price of gold, buy by the greater economy of operation and recovery of values made possible by modern methods of mining and milling.

Even before the price of gold had increased, improvements in the methods of recovery were making possible the resumption of operation of old mines that had long been idle and even the profitable working of old dumps and stope fills.

With the price of gold at $380.oo per oz., compared with the old price of $35.oo,an actual recovery of values from the sulphides ore of the Lelan are 98% compared with the 60% to 65% by the old methods of amalgamation and table concentrations; therefore, a much lower grade of ore can be profitably mined and milled than was possible at the old price and old mining methods.

The important factor, in final analysis, is the grade of ore that will permit profitable operation and production. Also, the tonnage of that grade that can be developed must be considered.

To arrive at the grade of ore that will permit a profitable operation, the factors are as follows: The cost of mining and milling, the percentage of recovery of values in the mill concentrates, and the net smelter returns, which would be the value of the concentrates at the point of shipment, because the smelter pays and deducts the freight and treatment charges.

For convenience and because the proportion of gold and silver are fairly uniform, the set smelter can be reduced.

(The Net smelter returns from concentrates in the Lelan-Dividend mines for 1934 do show up in net smelter reports. One return of net smelter returns from concentrates in August and September of 1934, when gold was $35.00 per ounce; show that the total return was $9,971.28 and the net return per ounce of gold content therefore was $30.97.)

(Confirmations on this report, corresponding mining claims and general mining details can be obtained from the following:
(Mr. Floyd Hanly & Associates, Arizona Bureau of Mineral Resources, and attached studies).

ESTIMATED ORE RESERVES and VALUES

"GOLD BUG GROUP"

DEFINITIONS:

PROVEN ORE: Measured Blocked out ore; is determined from exposure in outcroups, cuts, pits, shafts mine workings, drill holes or otherwise where measurements are so closely spaced that the computed tonnage will have a high degree of accuracy.

INDICATED ORE: Probable; is computed upon obserable data which is projected for a reasonable distance on the basis of geological evidence and the tonnage computed is reasonably assured but not absolute.

INFERRED, POSSIBLE ORE: is computed largely on broad knowledge of the geological environment and the character of the mineralization. Few measurements are available. The computed tonnage is a reasonable estimate rather than a quantitative amount.

BASIS:

It is determined from the above DEFINITIONS, and previous mining activity on the Gold Bug Group and or adjoining mines as described in the reports attached, as a reasonable length, depth, thickness and grade factor based on geologic evidence, as defined as factors used by the U.S Bureau of mines and the U.S.G.S. to signify dependability of information. (see history attached).

DEPTH	LENGTH	THICKNESS	GRADE
200' to 1100'	Several Thousand '	3½' to 10'	½oz. to 3oz.

AVERAGE OF THE ABOVE
(Gold price $375.00)

650'deep X 2000'long X 6½'thick= 8,320,000 cubic feet

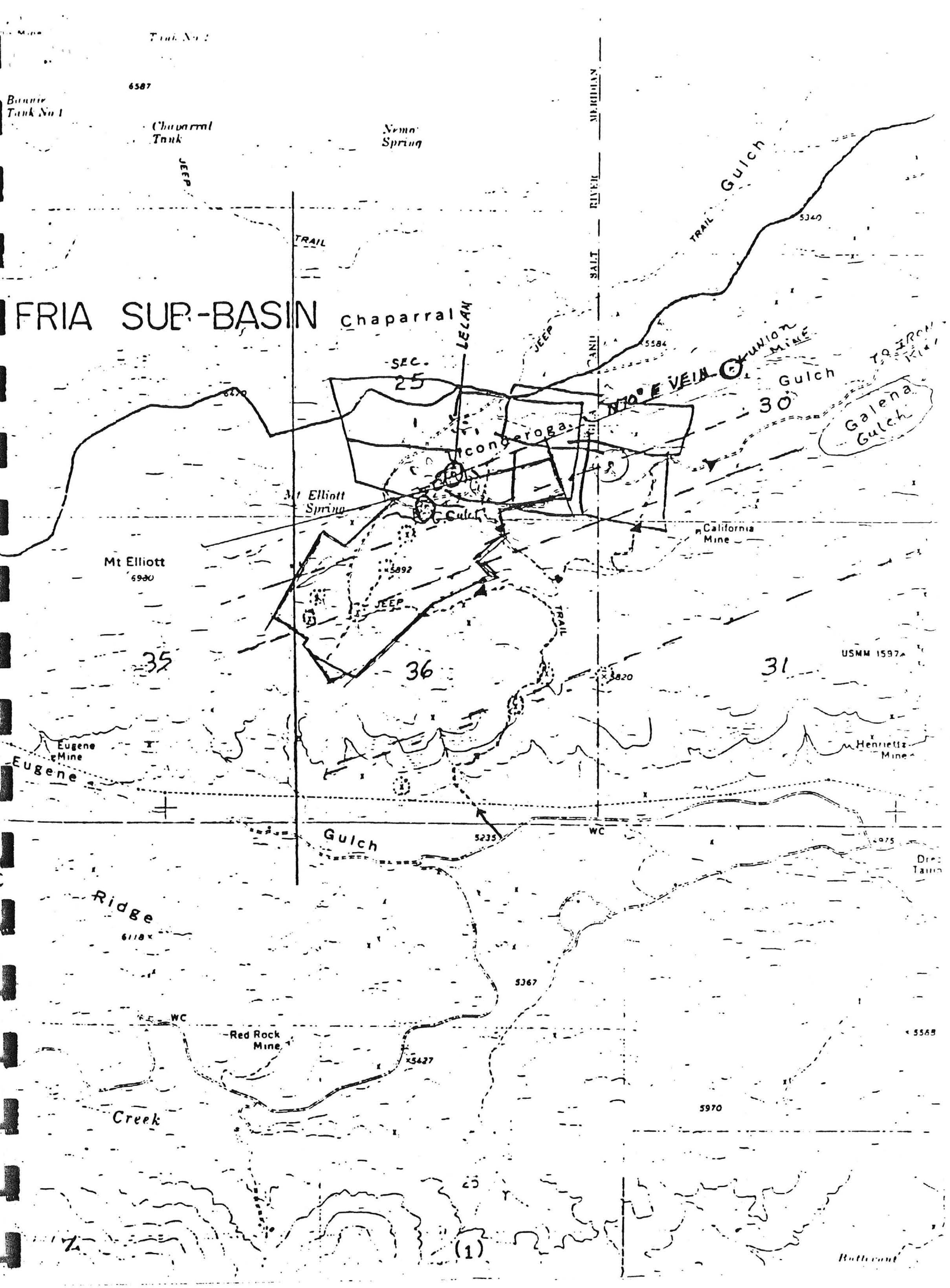
8,320,000 cu.' divided by 12 cu.' per ton= 693,300 ton

AVERAGE ORE GRADE= 1.12 onces per ton X $375.00= $420.00 ton
ESTIMATED COST TO PRODUCE ORE MINE, MILL, SALES= 50.00 ton

VALUES

GROSS VALUE TON	$420.00	X 693,300 TON=	TOTAL	$291,200,000.00
PRODUCE COSTS	50.00	X 693,300 TON=	COSTS	34,665,000.00
NET POTENTIAL	$370.00	X TONS		$256,535,000.00

*"All Estimates herein has no intent to imply or guarantee accuracy".



FRIA SUB-BASIN
Chaparral
LELAN
SEC. 25
NO. E VEIN
UNION MINE
TO IRON
Gulch
30
Galena Gulch
Ticonderoga
Mt Elliott Spring
Gulch
California Mine
Mt Elliott
6930
5892
JEEP
TRAIL
35
36
31
USMM 1597
5820
Eugene Mine
Eugene
Gulch
5235
WC
Henrietta Mine
Ridge
6118
5367
Red Rock Mine
5427
Creek
5568
5970
Bonnie Tank No 1
Chaparral Tank
Nemo Spring
6587
5340
5584
SALT RIVER MERIDIAN
(1)

PARCEL I:

All mineral rights into the following patent Lode Mining Claims, situate in the Big Bug Mining District, Yavapai County, Arizona:

The INDIA, BESSIE NO. 1, REPUBLIC NO. 1, REPUBLIC NO. 2, and SNOWSTORM, designated by the Surveyor General as Mineral Survey No. 1772, patent whereof is recorded in Book 69 of Deeds, page 253;

EXCEPTING from the REPUBLIC NO. 1, all that portion in conflict with the INDIA LODE MINE as set out in said Mineral Survey.

ALSO EXCEPTING from the REPUBLIC NO. 1, that portion lying outside the Prescott National Forest more specifically described as:

COMMENCING at Corner No. 2 of the Republic No. 1 which is the point of beginning; thence North 49°50' West 600 feet to Corner No. 3 of the Republic No. 1 lode mining claim; thence South 66°20' West 205.5 feet to a point on the West line of Section 31, Township 13 North, Range 1 East of the Gila and Salt River Base and Meridian, which section line is the boundary of the Prescott National Forest; thence due South 587.8 feet; thence North 66°20' East along line 1-2 of the Republic No. 1, 706 feet to Corner No. 2 of the Republic No. 1 lode mining claim, which is the POINT OF BEGINNING.

JUANITA, designated by the Surveyor General as Mineral Survey No. 1964, patent whereof is recorded in Book 75 of Deeds, page 251.

CLIPPER, SUMMIT, JUMP OFF, PEERLESS, STAR LIGHT, COMSTOCK and ALADIN, designated by the Surveyor General as Mineral Survey No. 1949, patent whereof is recorded in Book 80 of Deeds, page 385;

EXCEPTING therefrom all portions in conflict with Mineral Survey No. 1964, Lot No. 40, and the Lelan Extension and Custer Fraction Lode Mining Claims, as more fully set out in said Patent.

OMAR, designated by the Surveyor General as Mineral Survey No. 3987, patent whereof is recorded in Book 145 of Deeds, page 498;

EXCEPTING therefrom, all portions in conflict with Lot No. 41, the Comstock Lode Claim, and Mineral Survey No. 1949, as more fully set out in said Patent.

FIRST EXTENSION OF THE DIVIDEND MINE, designated by the Surveyor General as Lot No. 40, Mineral Survey No. 75, Patent whereof is recorded in Book 10 of Deeds, page 429.

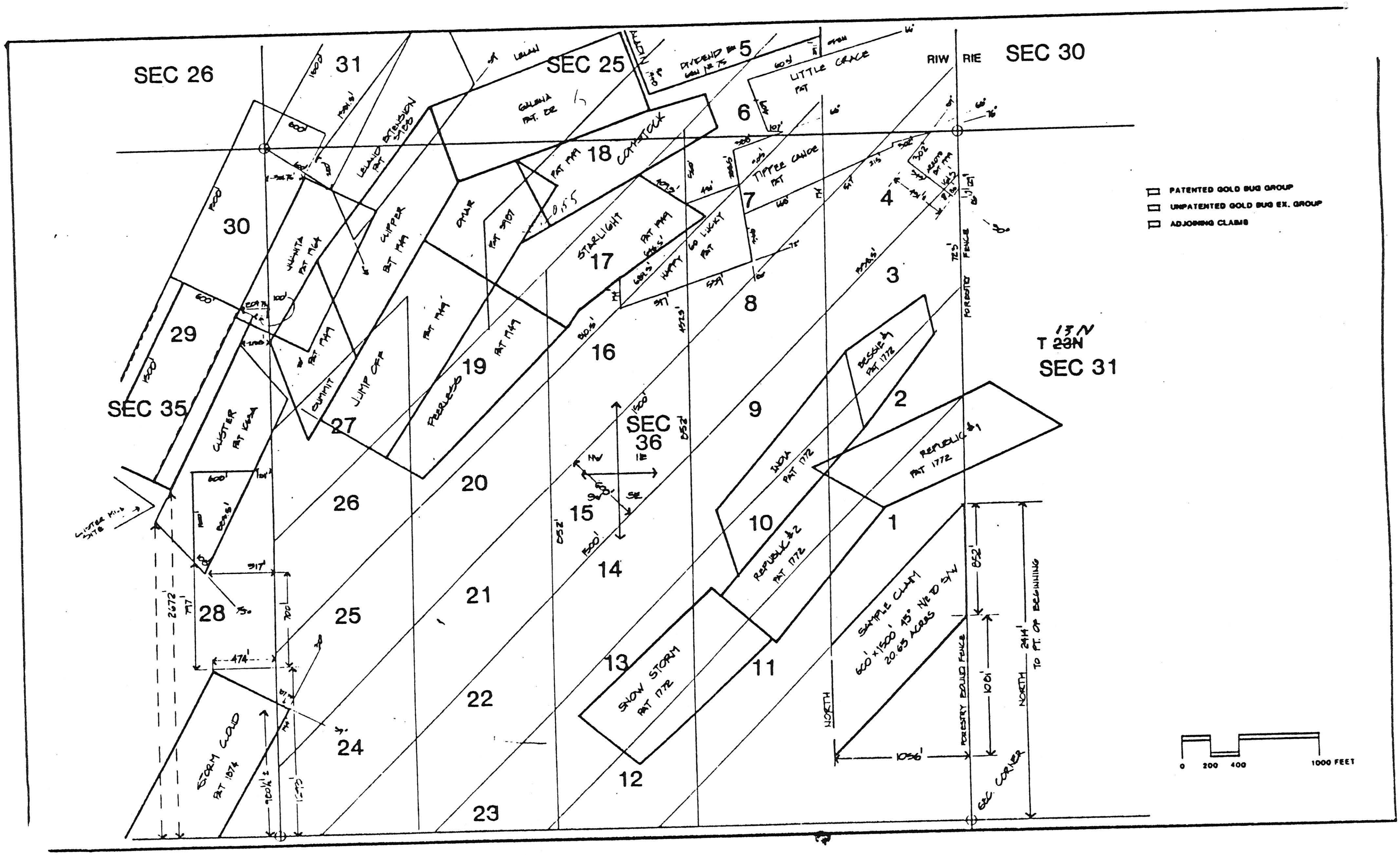
GALENA MINE, designated by the Surveyor General as Lot No. 41, Mineral Survey No. 82, Patent whereof is recorded in Book 10 of Deeds, page 440.

PARCEL II:

That portion of the Republic No. 1 Patented Lode mining Claim situate in the Big Bug Mining District, Yavapai County, Arizona, described as follows:

COMMENCING at Corner No. 2 of the Republic No. 1 which is the point of beginning; thence North 49°50' West 600 feet to Corner No. 3 of the Republic No. 1 lode mining claim; thence South 66°20' West 205.5 feet to a point on the West line of Section 31, Township 13 North, Range 1 East of the Gila and Salt River Base and Meridian, which section line is the boundary of the Prescott National Forest; thence due South 587.8 feet; thence North 66°20' East along line 1-2 of the Republic No. 1, 706 feet to Corner No. 2 of the Republic No. 1 lode mining claim, which is the POINT OF BEGINNING.

EXCEPTING from the REPUBLIC NO. 1, all that portion in conflict with the INDIA LODE MINE as set out in said mineral Survey.


SEC 26
SEC 25
SEC 30
SEC 35
SEC 36
SEC 31
R1W R1E
T 13N
PATENTED GOLD BUG GROUP
UNPATENTED GOLD BUG EX. GROUP
ADJOINING CLAIMS
0 200 400 1000 FEET
GALENA
COMSTOCK
LITTLE GRACE
TIPPEE CANOE
STARLIGHT
HAPPY GO LUCKY
OMAR
CLIPPER
JUANITA
CUSTER
SUMMIT
JUMP OFF
PEERLESS
BESSIE
INDIA PAT 1772
REPUBLIC #1 PAT 1772
REPUBLIC #2 PAT 1772
SNOW STORM PAT 1772
STORM CLOUD PAT 1874
SAMPLE CLAIM 600' x 1500' 45° NE TO SW 20.65 ACRES
FORESTRY BOUND FENCE
SEC CORNER
TO PT. OF BEGINNING
NORTH
1056'
852'
1001'
2414'
CUSTER MILL SITE

DIVIDEND MINE-HUMBOLT AZ.

Estimated costs

Dewater and Sample 600' Level & Shaft

Crane Operation

Consulting Fees	$ 2,450.00
Travel Expenses	$ 1,600.00
Labor	$ 9,118.34
Subsistance (Crane Crew)	$ 900.00
Equipment Rental	$ 20,699.92
Equipment Repair	$ 937.50
Fuels	$ 2,805.00
Oils and Lubricants	$ 981.75
Tires and Tubes	$ 98.43
Explosives	$ 0.00
Bits and Steel	$ 264.40
Hose and Fittings	$ 500.00
Pipe and Accessories	$ 4,186.00
Ground Support	$ 2,944.80
Ventilation and Accessories	$ 2,690.00
Shop Supplies	$ 112.50
Freight	$ 1,505.00
Transportation (On Site)	$ 275.00
Small Tools and Supplies (15% of Direct Labor)	$ 1,367.75
	$ 53,436.39
Administration 9%	$ 4,809.27
	$ 58,245.66
Mark Up 15%	$ 8,736.84
Total Esitimated Cost	$ 66,982.50

The listed costs are as stated estimated only all work will be done on a cost plus base.

DIVIDEND MINE-HUMBOLT AZ.

Estimated Costs

Dewater and Sample 600' Level and Shaft

Consulting Fees	$ 2,450.00
Travel Expenses	$ 1,600.00
Labor	$ 15,435.30
Subsistance	$ 0.00
Equipment Rental	$ 7,953.60
Equipment Repair	$ 1,388.65
Fuels	$ 4,070.00
Oils and Lubricants	$ 1,424.50
Tires and Tubes	$ 98.43
Explosives	$ 0.00
Bits and Steel	$ 264.40
Hose and Fittings	$ 300.00
Pipe and Accessories	$ 4,186.00
Ground Support	$ 2,944.80
Ventilation and Accessories	$ 2,690.00
Shop Supplies	$ 100.00
Freight	$ 1,505.00
Transportation (On site)	$ 275.00
S.T.S. 15% of Direct Labor	$ 2,315.30
Consumables (headframe materials)	$ 11,990.00
	$ 60,990.98
Administration 9%	$ 5,489.19
	$ 66,480.17
Mark up 15%	$ 9,972.02
Total Estimated Cost	$ 76,452.19
Actual Headframe Costs (First month only)	$ 20,419.52

LELAN-DIVIDEND GROUP

The Lelan-Dividend Group of Mining Claims comprises twenty claims, fourteen of which are patented and six are held by location and possession.

The whole tract covers about 325 acres of mineral lands lying contiguous and in one body, and penetrated by a series or belt of lodes or veins carrying gold and silver located in the Chaparral section of the Big Bug Mining District in Yavapai County, Arizona, and two and one-half miles from an operated railroad with good wagon road connection.

The names of the mining claims are the Lelan, Ticonderoga, Dona Ana, Independence, Dividend No. 1, Galena, Jaunita, Summit, Clipper, Jump Off, Comstock, Aladin, Peerless, Starlight, and Lelan Extension, Contention, Bonanza, Vidette, Bettie and Little Alice.

A surface map of these claims accompanies this statement and is marked "A".

Several thousand feet of development has been done on these claims in shafts, tunnels, drifts, winzes, raises, etc.

Approximately 20,000 tons of dependable ore of the average value of $10.00 per ton is developed, in these claims.

The principal development is done on the Lelan Claim. The shaft is 484 feet in depth, of good working size, well timbered, and the underground workings are in good shape, properly timbered and connected for ventilation. There are five stations from which levels are run out on and cutting the ore-bodies. Occasional connections between levels are made. The ore-bodies are well defined and fairly well opened up. Only moderate stoping has been done. From the fourth level up the mine is open to inspection and investigation.

The fifth level has been under water for four years. It can be unwatered at a small cost, but when so done preparation should be made for taking care of the shaft and opened ground.

On the fifth level in the west drift there is exposed an ore-body about six feet in width and 70 feet in length of the average value of $10.00 per ton. A cutting into the hanging wall

shows a further ore-body of three feet in width of the value of $10.00 and more per ton.

A map marked "B" of the underground development accompanies this statement.

About 180 feet east of the said Lelan shaft, and on the same vein or lode, a shaft, through the eastern end of the ore zone developed by the Lelan shaft, has been sunk to a depth of about 700 feet. Heretofore, we have not had access to these workings which are now under water. A considerable quantity of ore, in the past, has been mined and taken out through this shaft, but we have no accurate information of the quantity nor the value of the mineral extracted therefrom. However, we are briefly furnished with the following data by what we consider reliable authority, and which may be of some interest on the question of development.

"All recent work on this shaft has been confined to the third, fifth, and seventh levels, also timbering shaft from sixth to seventh level, a distance of 126 feet.

Work on the third level, consisting of an upraise of four feet, started on hanging wall vein at a distance of 20 feet west of Dividend shaft. Raise connecting with main 300 foot level of Lelan vein.

Fifth level. This work consists of driving drift west on hanging wall vein 121 feet, which is directly underneath on the same vein of the fourth level of the Lelan.

We find continuance of ore on that level for fifty feet to face of drift, which shows 48 inches of ore of fairly good values.

Seventh level. East drift consists of work for a distance of 113 feet east in which we have encountered bunches of some very good ore. West drift 136 feet, showing a strong ledge of quartz, in places showing good values.

Cross cutting in foot wall 36 feet, started at a point about 35 feet west of shaft. In my estimation crosscut will cut foot wall ledge at a distance of about 42 feet."

The Ticonderoga claim is developed by a shaft 200 feet deep with levels run at points 55 feet and 200 feet from the collar

of the shaft. The accompanying map "C" shows the development done.

We have been furnished the following data by a reputable person who was in charge of the development work during the progress, and which we have no reason to question.

"First level. 55 feet from surface. West drift having been driven from point 90 feet, west of shaft to point 255 feet, West from 100 to 235 feet. West of shaft, have stoped out considerable ore ranging in values from $60.00 to $65.00 per ton. The face of the drift is about 100 feet, vertical depth, from surface, owing to pitch of ground.

200 foot level. West drift has been continued to 702 feet west of shaft, having two good ore shoots, one beginning at a point 150 feet west of shaft, 60 feet in length which is stoped about 80 feet high. Back of stope now showing 18 inches of ore, average value $40.00 per ton. The other shoot beginning at a point 250 feet west of shaft and about 100 feet in length, and stoped to a height of 35 feet, but I feel satisfied we are at the top of a good ore shoot.

Cross cut has been started from a point 178 feet west of shaft in a southerly direction, from point of starting to face of same is 327 feet. In driving cross cut we encountered three separate veins. The first one has not been developed. The second vein encountered 125 feet from starting point, is developed by drift to west 21 feet, drift to east 80 feet, also raise in east drift 20 feet, showing good values.

The third vein encountered 180 feet from point of starting, which has been drifted on west to a distance of 235 feet with raise of 15 feet, which shows quartz containing a value of $20.00.

The shaft is in low ground and is filled with water. We have had no opportunity to verify this information.

Considerable development has been done in claims on other veins penetrating this group which will be better understood by a personal inspection on the ground, and this observation applies to the improvements upon the surface, operating equipment, etc., pertaining to the whole group.

So far as ascertained the general character of the ores of the veins in this group appear to be about the same, and is typically an amalgamating and concentrating ore. Concentrates made as a product after amalgamation, have a gold value of from four to five ounces per ton.

A ten stamp mill with concentration table was built to try out the milling qualities of the ore in the Lelan mine. A test run was made on ore taken principally from all parts of the mine, including the accumulated ore extracted in sinking shaft, running levels and other development work, gave the following returns.

Quantity of ore milled, 1600 tons. Value recovered:

1st. By amalgamation, as per mint certificate, Gold $15,394.68, Silver $168.03, total bullion $15,562.71.

2nd. By concentration, as per smelter certificate:

No. 1	27.122 tons at	$103.30 per ton,	$2,801.79
No. 2	22.016 tons at	98.39 per ton,	2,166.15

Making total recovery of $18,530.56.

(Signed) E. W. Wells.

Prescott, Arizona,

November 20, 1915.

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NOTES ON PRELIMINARY EXAMINATION OF THE
LELAN-DIVIDEND GROUP OF MINES, YAVAPAI COUNTY, ARIZ.

GENERAL DESCRIPTION

The Lelan-Dividend Group comprises 20 contiguous claims; 14 of these are patented.

The Group is situated about 12 miles southeast of Prescott on the headwaters of Galena and Ticonderoga Gulch, Yavapai County, Arizona. The camp lies at an altitude of 5500 ft; it is connected by a five mile wagon road with Humboldt (elevation 4500') on the Prescott Line, in Agua Fria Valley, another four mile down grade road leads to Huron Station, south of Humboldt, on the same railroad. The main transmission line of the Arizona Power Co. passes over the property; the Lelan Hoist is connected therewith.

GEOLOGY AND MINERALIZATION

The Group covers a large mineral area, approximately 325 acres, characterized by prominent quartz outcroppings of four main veins, the Galena, the Lelan-Dividend-Independence, the Ticonderoga, and the Union Vein, as well as by several other less pronounced quartz croppings in the western portion of the Group. The main veins, which have a lateral extent of several thousand feet, converge in southwesterly direction toward each other, in the western half of Galena, Claim, and all of them dip more or less steeply to the south.

The average width of the main veins is about five feet, they vary two to ten feet. Their outcrop occurs in, and at the east contact of, a narrow belt of the sericite schist formation, which have is wedged or closely pressed by quartz diorite on the east, against massive Bradshaw granite on the west. Several narrow basic dikes traverse schist and quartz diorite alike, conforming in strike to the trend of the veins. Geologically, the group presents rather complex but interesting features and considerable field and exploration work remains to be done, to clear up details sufficiently so as to form positive conclusions regarding the value of the group.

There is a great similarity, not only between the different veincroppings, but also in respect to the vein contents and mineraliza-

tion underground. The ore bodies occur between well defined foot and hanging wall in shoots of irregular form, or in the form of a series of lenses which overlap each other, or lie alongside of eachhother, being separated by schistose, sericitic gangue material. Gold bearing iron sulphides are irregularly distributed through the quartz lenses, and very small amounts of lead and zinc sulphides are also present.

THE LELAN MINE

The ore shoots, which are up to 300 ft. lateral extent, alternate with barren schistose zones, but they are continuous in their downward northwest pitch. On the Lelan, which is in operation and open for inspection to the 400 ft. level, they have been followed from the surface down to the 500 ft. level. Oxidation has proceeded to about 100 ft. below the surface. The water level stands at about 350 ft. in the Lelan. The cementation zone between these horizons shows some local enrichment of the sulphides.

The average value of the Lelan ores, according to 175 mine samples, taken during the course of development, is .63 ozs. Au p. t My own sampling in the open workings is indicated by Nos. 1073-1078 on attached assay plan and section. 1600 tons of average mine ore from various levels are milled several years ago in the Lelan 10 stamp mill, with a recovery of

Bullion by amalgamation--------	$13,562.30	or $8.48 per ton
49 tons concentrates	4,900.00	or 3.06 per ton.

The Lelan shipped also the following amounts of 90% SiO2 ore under contract to neighboring smelters.

In 1911 to Humboldt	1,400 tons,	.41 oz. Au,	0.5 oz. Ag,	91.1 SiO2
In 1911 to Jerome	3,000 tons,	.35 "	" 0.5	" "	89.1 "
		3% Fe, 0.2 Pb, 1.5 S.			

In 1914 there were shipped seven tons smelting ore of 2. oz. Au. p. t.

Attached hereto is sketch of plan and section of Lelan workings

HISTORY AND OPERATION

The claims were located a number of years agol From 1900, 1909, a part of the group was operated by the Dividend Gold Mining Co. who accomplished most of the development work on the Galena, Dividend, Ticonderoga, until litigation ensued with Lelan, which finally resulted in consolidating the individual enterprises into the present boundaries of the Lelan Dividend Group , now controlled and largely owned by

Judge B. W. Wells, of Prescott, Arizona, At present, a crew of about ten men is employed, prospecting on the lower levels of the Lelan Mine. The owner fully realizes that it is beyond his province to inaugurate a mining and milling enterprise on a scale large enough to insure successful results, and he therefore prefers to sell the group at a price of $200,000.00

SUMMARY:

On the whole, the district has impressed me rather favorably I believe that it has merit and warrants further investigation.

THE OLDER WORKINGS: On the Galena-Dividend- Ticonderoga veins were found to be inaccessible, most of them being under water. Attached hereto, are sketches of the extent of prospecting done, according to reliable sources. Two small stamp mills which are now put of commission have operated intermittently on the output of the mines.

THE GALENA SHAFT is 300 feet deep, following a quartz orebody from 30" to 60" wide, the bottom of shaft is said to contain 10" of $.50 ozs. Au ore. The ground above the 65 ft. level has largely been stoped, the face is 240 ft. west of shaft and said to contain 40" of ore of 1.50 ozs. Au. p. t.

The 165 ft. level extends 140 ft. east on 24" of gold-bearing quartz.

The 265 level extends 370 ft. west on 48" low grade gold bearing quartz.

The croppings of the vein are large; they extend for about 500 ft. west of shaft, and can be traced throughout the Dividend Bround on the east. The Lelan crew is engaged at present in crosscutttin from their 400 ft. level towards the Galena Vein, a distance of approximately 400 ft. The collar of Galena Shaft is 35 ftl below Lelan Shaft.

THE DIVIDEND SHAFT has reached a depth of 700 ft. The outcrop of vein is 24" wide. On the 300 ft. level, it is said to be 10 ft. wide, containing shipping and milling ore. On the 5th level, it is 48" wide, with fairly good values, 250 ft. of work has been done on 7th level east and west on strong quartz vein, with fairly good values and bunches of some very good ore.

A little stoping has been done. During a seventeen months

period, in 1900 and 1901.

there were treated in the Dividend 5 stamp mill a total of

665 tons of ore with a recovery of

Bullion, by Amalgamation	$22,919.32	or $34.46 p. t.
by Concentration	3,748.74	or 5.64 p. t.
	$26,668.06	$40.10

THE TICONDEROGA SHAFT is 200 ft. deep. The 55 feet level extends on vein 255 feet west, with considerable stoping on good ore.

The 200 ft. level extends 702 ft. west, with two stopes, one 60 ft. long by 80 ft. high, said to show 18" of 2.00 oz. Au in back; the other 100' long by 35' high. At 327 ft. a crosscut south was run from bottom level for the purpose of intersecting the Dividend and Galena Veins. It appeared that two branches of the Dividend were cut, and several hundred feet of drifting was done on ore containing good values, up to 1.00 oz. Au. per ton . The Ticonderoga Shaft is approximately 300' below the Delan Dividend Shaft, and also more centrally located for advantageous prospecting.

THE INDEPENDENCE VEIN shows very large croppings, from four to fifteen feet wide. It is prospected by two shafts 50 ft. and 90' deep, respectively, The Jones Tunnel, at320 feet from protal, intersects the vein about 100' below the surface and a drift of 95 ft. east was run on quartz which contains fairly good values.

THE UNION VEIN is prospected by several shallow shafts in the east portion of Dona Anna Claim. The croppings are large and persistent. especially on the adjoining Union Claim, where miming and 5 stamp milling operations have been successfully carried on for about 15 years. The ore shoot is 500' long and extends from surface down to Union Tunnell, a distance of 185'. Most of the ground above the tunnel is stoped, and very little prospecting has been done below. The vein averages about five feet in width and is accompanied by a basin dike.

Respectfully submitted

Sgd. Max Stockder

Tucson, Arizona Feb. 29, 1916.

Sept 22/17 2

BRIEF REVIEW OF THE LELAN-DIVIDEND MINE, by T. J. Sparkes.

The data comprising this review of the Lelan-Dividend mine is, in the main, extractions from records and reports now in the possession of the owners of the property.

The writer made a preliminary examination of the Lelan Mine in 1906; and, again in September, 1923, of the surface and of general conditions.

CLAIMS AND LOCATION: The Lelan-Dividend Company's properties comprise twenty (20) fractions included, contiguous mining claims, fourteen (14) of which are patented, embracing an area of 323 acres; also a valuable water right and mill site adjacent to the Humboldt smelter.

The property is situated in the Big Bug Mining District, Yavapai County, Arizona, about twelve (12) miles southeast from Prescott, six (6) miles west from Humboldt, four (4) miles from Huron, and 2½ miles from Eugenia Siding on the Santa Fe railroad.

Elevation at mine is 5,500'; Humboldt, 4,500'. The Arizona Power Company's line passes over the property.

HISTORY: The claims included in the group were located in the early 60's and were worked intermittently up to practically the present period; the first ore mined was hauled by ox teams to a small custom mill several miles distant from the claims and in later years two small old style stamp mills were erected upon the properties and were successfully operated for many years, treating the high-grade ores mined from the several properties which are now embraced in the Lelan-Dividend group.

In 1916, the various interests comprising the present group were consolidated by Judge Ed. W. Wells and a company formed known as the "Lelan-Dividend."

GEOLOGY: The property, covering a large mineral area, is characterized by prominent quartz out-croppings of numerous veins; the main veins are known as the Galena, Lelan-Dividand, Independence, Ticonderoga, and the Union.

These veins have a lateral extent of several thousand feet; strike slight N. W., and S. E., with steep dip to South. They vary

in width from two (2) feet to ten (10) feet and will average about five (5) feet.

Their out-crops occur in, and at the east contact of a narrow belt of sericite schist which is closely pressed by quartz diorite on the east, against Bradshaw granite on the West, basic dikes of diabase and diorite traverse and conform to the strike and dip of all of the veins.

The ore bodies occur between well defined foot and hanging walls, in shoots of irregular form, as in the form of a series of lenses, overlapping, or lie alongside of each other, being separated by schistose, sericitic gangue material.

Gold-bearing iron sulphides are distributed through the quartz, very small quantities of lead and zinc sulphides are also present.

The oxidized zone reaches to about 150'; present water level 250 ft.

Ore shoots up to 300' lateral alternate with barren schistose zone, but they are strong and continuous downward with a N. W. rake.

LELAN, ORE TONNAGE AND VALUES: In the Lelan the ore shoots have been followed to the 461' level; the rock in this level shows more sulphides and better values than the upper ores.

One hundred and seventy-five (175) mine samples taken during development of the Lelan gives an average of .63 oz. Au., p. t. (12.60 p. t.)

1,600 tons of average ore from various levels of the mine milled in the Lelan stamp mill gave the following results:

Bullion by amalgamation----------$13,562.30
Concentrates----------4,900.00
Net total----------$18,462.30, giving an average of $11.54 p. t.

This saving by the methods used could not have exceeded 80% of the values.

"Silicious Ores" under contract to run 90% Si 02 were shipped as follows:

1911 - Humboldt ------- 1,400 tons .41 oz. Au., .05 oz Ag., 91.1 Si 02
" - Jerome ------- 3,000 " .35 " " .05 " " 89.1 " "
1914 - Seven tons smelting ore - 3 oz. Au., p. t.

LELAN AVAILABLE ORE: (using the factor of 13 cu. ft. to ton)

168'	Level	W.,	from shaft	100' x 100' - 5'	wide	-------	3,761 tons
"	"	E.,	" "	50' x 100' - 3'	"	-------	1,153 "
274'	"	W.,	" "	170' x 100' - 5'	"	-------	6,530 "
"	"	E.,	" "	100' x 50' - 3'	"	-------	1,153 "
359'	"	W.,	" "	200' x 100' - 6'	"	-------	9.237 "
"	"	E.,	" "	100' x 50' - 4'	"	-------	1,537 "
461'	"	W.,	" "	120' x 100' - 6'	"	-------	5.538 "
							28,909 tons
				Less ore extracted		-------	7,000 "
				TOTAL AVAILABLE ORE		-------	21,909 tons

21,090 tons at $12.00 per ton gives a gross total value of $262,908.00

The most prominent other veins known as the Union, Independence, Ticonderoga and Galena are strong and well defined, closely paralleling the Lelan-Dividend vein and have the same general mineral characteristics.

Considerable work has been performed upon these veins, but thereare no authentic records available as to ore tonnages and values, yet it is commonly known that a large tonnage of both milling and shipping ore was mined in past years from these properties.

The possibilities throughout the veins compare most favorably with that of the Lelan.

SUMMARY: While, as first stated, the data herein contained (on account of the present inaccessibility of the workings) is compiled larely from old records and reports, the same is of such a positive nature, that it warrants due credence.

The values of ores milled and shipped, together with the available assays, fairly establishes the average value, which figures out very close to $12.00 p.t.

The ore at the 461' level in the Lelan shows more sulphides and higher values, which indicate plainly the mine to be one of long life with still "greater possibilities."

Ore shoots are of good workable size, stand at a good angle, with clean walls, handling of waste material would be practically nill,

thereby enabling fair comparative mining costs.

Rock contains no deleterious matter which would interfere with "direct cyaniding" and a high saving of minerals should be made.

Present equipment, including electric-driven mine machinery, shop, tools, houses, etc., are all in good condition, ready for immediate use. The mine equipment is of sufficient size to develop the property fully.

After the main shaft and lower levels have been rehabilitated, at a maximum cost of $15,000, the main shaft should be sunk another 200'; drift west along the vein and cross cuts run, as it is highly probable by crosscutting, the other main veins will be encountered within a short distance, also there are other possibilities throughout this area; in fact it is the writer's opinion the heart of the mine and where the "real ore bodies" lie, is approximately 700 feet west from the Lelan shaft. The property has unquestioned merit and proper development should prove it a profitable mine.

(signed) T. J. Sparkes.

Prescott, Arizona - Sept. 22/23

MEMO RE: LELAND DIVIDEND MINE

(By G. M. Colvocoresses)

6/12/35.

The report by Stockder was made in 1916 and has little value at present. I knew Stockder well and he was an excellent engineer, but it is evident that he merely examined the property for the purpose of obtaining a general information for his employers (The American Smelting & Refining Co.) rather than for the purpose of placing any value on the mine or determining whether or not they should consider an investment.

The second report which is not signed brings the situation up to date and gives a certain amount of valuable information, particularly in reference to the occurrence of the pay ore in lenses (which is usual in that section of the state) and in reference to the value of the ore mined in 1933 and 34, and it is very noticeable that during the former year the ore had a recoverable value at present prices of approximately $13.00 per ton whereas in 1934 the recoverable value had decreased to $5.50 per ton, indicating that all of the pay ore in the mine had been taken out in the previous operations.

Since the working costs are given at approximately $6.00 per ton it would seem to me that one should be assured of an average value of $10.00 or $12.00 per ton in order to make the re-opening of this mine attractive.

The report is lacking in several vital respects, principally as follows:

A--No information is given concerning the amount of pay ore blocked out, if any, nor,

B--Concerning the quantity of such ore which might reasonably be developed by additional underground work.

C-- No information is given as to the present mining and milling equipment nor the cost of reconditioning this equipment in order to put in in efficient operation, and I am uncertain as to whether the mining and milling machinery belong to the owners of the ppoperty or to the parties who last operated the mine.

mining and milling machinery belong to the owners of the property or to the parties who last operated the mine.

D--No information is given as to the cost of additional development which would be necessary in order to block out sufficient ore (assuming this might be found) to permit operations to be resumed in a profitable manner.

E--There is no statement in respect to the terms on which the property would be purchased from the owners and/or other interested parties, nor as to the royalty or percentage of the total purchase price which would have to be added to the operating costs.

Without data on the above essential points it is very difficulty to form any worthwhile opinion concerning this property as an investment and I would judge that a thorough investigation of the mine by a competent engineer would involve an expense of approximately $1,000.

From my personal knowledge of the Delan-Dividend Mine dating back for over 20 years I believe that it contains substantial bodies of partially developed and expectant ore but whether or not this ore is of sufficient any value to permit profitable operations I am not in a position to say.

G. A. C.

The statements by Wells & Gordon must be discounted as having been made by interested parties

DESCRIPTION, HISTORY AND PRODUCTION OF THE LELAN-DIVIDEND GROUP OF MINES, YAVAPAI COUNTY, ARIZONA.

A condensed compilation of available reports and a review of the recent operations.

LOCATION:

The property is twelve miles air line south east of Prescott. By road it is 26 miles from Prescott and 6 miles from Humboldt. It is reached from Prescott by taking Highway #112 to a short distance beyond Humboldt then taking a side road to the right, crossing the railroad near the siding on the Prescott and Eastern Division of the Santa Fe, which is, incidentally, the nearest shipping point.

The group of claims is situated on the head waters of the Galena and Ticonderoga Gulch on the East slope of Mt. Elliott in the Big Bug Mining District, Yavapai County, Arizona.

THE DISTRICT:

The Big Bug Mining District is on the northeastern slopes of the Bradshaw Mountains and extends from Big Bug Mesa to the Agua Fria Valley. It ranges in altitude from 4500' to 7000'.

Placer gold was discovered in the Big Bug region in the sixties and it is generally understood that all of the gulches paid well. This leads to the discovery of numerous veins and the subsequent working of the oxidized zones. In early days mining stopped when the limit of the oxidized zones was reached. Although the continuing sulphides often held values that steadily increased with depth, they could not profitably be recovered by amalgamation. No estimates of early production are available. Arizona Bureau of Mines Bulletin #37 states, "During the Early days some of the Big Bug deposits yielded a considerable amount of gold and silver from the oxidized zones. From 1901 to 1931 inclusive, the production of the district, as recorded by the U. S. Mineral Resources, amounts to approximately $17,000,000 in copper, gold, silver, lead and zinc. Nearly $4,000,000 of this amount was in gold, of which amount $30,000 came from placers.

The mines in the immediate vicinity of the Lelan-Dividend group have good production records. The adjoining properties are the Union-and little Jessie, which are consolidated and now known as the

Union-Jessie. Both became known in the late sixties. From about 1890 to 1898 it was worked by J. S. Jones and lessees. Their mill is reported to have produced about $750,000 worth of bullion and concentrates chiefly from the Little Jessie. The combined production record of the Union Jessie is $1,400,000. The next adjoining properties are the McCabe and Gladstone on the Galena Gulch. Arizona Bureau of Mines Bulletin #37 states, regarding the McCabe-Gladstone "During the early seventies this deposit yielded considerable amounts of rich oxidized ores. The property then remained practically idle for many years. It was worked continuously from 1898 to 1913 by the Ideal Leasing Company with a reported production of $2,500,000 to $3,000,000".

THE LELAN DIVIDEND GROUP:

Extent of property--vein system and mineralization--Underground Development, surface improvements and equipment.

This group of contiguous claims covers a large mineral area, approximately 320 acres of patented land and extends a mile or more in length on the strike of the mineralized zone.

It is characterized by prominent quartz outcroppings of numerous veins. These occur in and at the contact of a belt of sericite schist formation between quartz diorite on the east and massive Bradshaw granite on the west. Several basic dykes traverse the schist and quartz diorite. There is a great similarity in the different outcroppings and in the vein contents and the mineralization underground.

There are four main veins, the Galena, Lelan-Dividend-Independence, Ticonderoga, and Union. They have a lateral extent of several thousand feet and converge in a southwesterly direction in the western half of the Galena claim. All dip more or less steeply to the south. There are several other less pronounced outcroppings in the western portion of the group.

The average width of the main veins is about five feet; they vary from two to ten feet. The foot and hanging walls are well defined. The filling consists of massive white quartz. The ore shoots are lenticular in form. The pinching and swelling lenses sometimes

overlapping or lying alongside of each other and separated by schistose sericilic gangue material, vary in thickness from 2 to 10 feet or more and from 20 to 75 feet in lateral extent. Gold bearing sulphides, principally pyrite are irregularly distributed through the quartz lenses. Small amounts of lead and zinc sulphides are also present. Below the oxidized zone mineralization commences at or below the 170 ft. level and with depth more sulphides and better values are encountered.. The gold is deciminated in the sulphides in microscopic particles.

There are four distinct mines, the Lelan, Dividend, Galena, and Ticonderoga.

The Lelan shaft is 436 ft. deep with workings on five levels. On the 120 ft. level drifts extend 60' east and 140' west.

" " with a crosscut from the end of this drift 365 feet to the surface.

" " 170 ft. level drifts extend 120' east and 280' west.
" " 256 " " " " 180' " " 220' west.
" " 346 " " " " 150' " with a north cross cut 243' long and 400' or more west with a south cross cut 160' long.
" " 436 ft. level drift extend 150' east connecting with the Old Dividend Workings, and 840' west. There is a 40' winze driven from this level 270' west of the shaft.

The Dividend shaft is probably carried some distance below the lowest or 477 ft. level. Drifts were driven on four levels.

On the 145 ft. level drifts extend 40' east and 50' west.
" " 270 " " " " 20' " " 50' " .
" " 352 " " " " " " 100' " .
" " 477 " " " " 200' " " 100' " .

The collar of the Ticonderoga is 246 ft. lower than the Lelan and Dividend. The shaft is 200 ft. deep. Workings were on two levels.

On the 55 ft. level drift extends 250 feet to the east.
" " 200 " " " " 700 " " " " . From this level about 180' east of the shaft there is a crosscut 300' south from which drifts were driven 80' east and 240' west.

The Galena Shaft is 265 feet, deep the collar being 35' below the collar of the Lelan. Drifting was done on four levels.

On the 65 foot level drifts extend 55' east and 220' west.
" " 105 " " " " 100' " " 110' " .
On the 165 foot level drift is caved 40' east of shaft and extends 340' west.
On the 265 ft. level drifts extend 115' east and 190' west.

The workings in this mine have not reached the horizon that produced the best values in the Lelan.

Recent operations have been limited to the Lelan, which is equipped with an electric hoist (the property is served by Arizona Power Co. transmission lines) two motor driven air compressors enclosed in substantial buildings, store room, blacksmith shop, change house and heavy timber head frame. The old engine room at the Dividend is used for a garage and store room. The Galena shaft has a light head frame and gasoline hoist, recently used in opening the shaft. Here also the old engine room is used for a garage. The old stamp mill and other buildings at the Ticonderoga have been partially dismantled. The Lelan Mill, about 150 feet west of the Lelan shaft, recently rebuilt and brought up to date, contains a 6A Telsmith gyratory crusher, a hundred ton ore bin, ten stamps, 4 x 5 ball mill, 4½ x 18 duplex classifier, two Wilfley tables, an eight cell (273/4" x 27 3/4") Fahrenwald flotation machine, a 10 x 20 tailings thickner and complete supplimentary equipment, all electrically driven, for a capacity of 75 to 100 tons per day. The other buildings on the property are superintendent's house, garage and store house, foreman's house, bunk house and boarding house, all in good repair. Excellent water for domestic use is pumped from a well in the headwaters of the Galena gulch, west of the camp, to storage tanks and piped to dwelling and boarding houses.

The elevation of the camp is 5500 feet. The climate is excellent for working during all seasons.

EARLY OPERATIONS AND CONSOLIDATIONS:

The property as it stands today is the result of a number of consolidations. Available records of early operation and production are fragmental and incomplete. It appears, however, that the claims on which the four mines are located were originally owned and operated separately and that the development and operation of the various claims has been carried on more or less intermittently since considerably before 1877, when the Dividend and Galena Claims were patented and while no definite records of production prior to 1901 are available,

it is probable that the ore deposits known to have been mined before that time yielded a considerable amount of gold from the oxidized zones. Brown's report of 1868 mentions a 60 ton shipment from the Dividend mine to the Big Bug (Henrietta) mill that yielded $20.00 per ton in free gold. At that time it was not considered of commercial grade.

The Dividend Gold Mining Co. was organized in 1900 to take over the Dividend and the Ticonderoga. In 17 months operation in 1901 and 1902 records show that 665 tons of ore was milled with a recovery of $26,668.06 or $40.10 per ton. The small five stamp mill was operated at the rate of only 1.5 tons per day. In 1902 negotiations were started to consolidate the Dividend Mining Co. and the Galena Mining Co. with a view of increasing the capacity of the mill and further development and improvements. This consolidation was effected by the Dividend Consolidated Gold Mines Co. It comprised the following claims, from that time on, known as the Dividend Group; Independence, Ticonderoga, Dividend #1, Galena, Clipper, Summit, Comstock, Jump Off, Starlight, Peerless and sundry fractions. Some mining but principally work on development and improvements was continued until the latter part of 1905. The mill was increased to ten stamps and with other improvements its capacity was stated to be 20 tons per day. The property was then taken over by the newly organized Mt. Elliott Consolidated Mines Co. At this time the Aladin and Union claims are shown to be a part of the property in addition to those previously listed as the Dividend group, all patented except the Union, making 12 claims aggregating in area about 200 acres. Operation was resumed and records show that from Nov. 13, 1907 to Feb 11, 1910, the recovery amounted to $28,029.32.

While the Dividend Group was being developed and operated work on the Lelan, adjoining the Dividend, had been carried on. The shaft being only 200 ft. west of the Dividend shaft. This property, including several contiguous claims, all adjoining the Dividend group was acquired by Judge E. W. Wells and for a number of years was op-

erated by his son Elmer W. Wells. A rather extensive development program was carried out and a ten stamp mill was operated intermittently. Records show that in 1905 and 1906, 1600 tons of average ore taken from the various levels above the fifth, were milled with a recovery by amalgamation and table concentration of $18,462.30 or $11.54 per ton with mill tailing averaging $3.00 to $4.00 per ton and that in 1911, 1400 tons of ore averaging .41 oz. gold and .45 oz. silver per ton was shipped to the Humboldt smelter and 300 tons averaging .35 oz. gold and .5 oz. silver per ton were shipped to Jerome. These shipments were made on contract with the smelters for high (90%) si02 ore for furnace lining and no effort was made to sort for higher values. However gold and silver values in these shipments at prices then in effect amounted to approximately $34,000.00.

Considerable trouble arose between the operators of the Lelan and Dividend on account of alleged invasions and operations were discontinued when the question was thrown into litigation, which finally resulted in the organization of the Lelan-Dividend Mining Co. by the two owners, Judge E. W. Wells of Phoenix and Senator Reynolds of N. M. and the consolidation of the Lelan and Dividend Groups, which now include the following patented mining claims; Ticonderoga, Dividend #1, Independence, Galena, Comstock, Clipper, Summitt, Jump Off, Peerless, Starlight, Aladin, Lelan, Dona Ana, Vidette, Bettie, Contention, Lelah, Extention, Omar and the Mineral Junction unpatented claim.

Lindgren states that the ore production of the Lelan-Dividend prior to 1923 was probably 10,000 tons which contained from a half to three ounces of gold per ton together with a little silver, copper and lead.

Work had been discontinued in 1916 to be resumed in 28 and 29 on a $25,000.00 development program, practically all work being done on the fifth level. When this amount of money had been spent the owners were unable to agree on plans for continuing the work and operations were again discontinued. In 1931, Senator Reynolds, who by this time had a controlling interest, was preparing to resume operations but died before his plans could be carried out. A caretaker

was left on the property and the Lelan mine kept unwatered.

RECENT OPERATIONS AND IMPROVEMENTS:

Early in 1932 a member of a syndicate, known as the Southern Exploration Company of San Antonio, Texas, learned that the executors of the Reynolds estate would consider leasing or disposing of this property. Negotiations were entered into and in Feb. 1932 the Southern Exploration Company's Engineer and two members of the syndicate visited the property. Some samples were taken that showed satisfactory values, but it was impossible to get far enough into the Lelan to make a satisfactory examination. They were impressed, however, by the surface indications and by what they were able to learn of the history and production of the Lelan Dividend group and of the adjoining properties, the Union-Jessie and the McCabe-Gladstone. They also learned that shortly before operation was discontinued in 1916 the property had been examined and reported upon favorably be a staff engineer of the American Smelting & Refining Co. but that no deal was consumated due to the large purchase price asked at that time. This report including the assay map of the Lelan was made available. With this information it was decided to secure an option and to do the work necessary to get into the Lelan for a more thorough examination. The results of this preliminary work were sufficiently encouraging to justify raising of funds for a more formal development program which included preparing the mine for extraction of ore and modernizing the mill. The necessary funds were raised by private subscription principally by members of the original syndicate. In June 1932 contract and option to purchase was formally concluded with the owners and with the operating capital available general repair work was carried on, a large stope west of the Lelan shaft was prepared for extraction, the necessary repairs to buildings made, assay laboratory equipped, modern mill equipment purchased and installed and mill repaired and reconstructed.

Ore extraction and milling was started on August 1, 1933 and continued for five months. During this period 2020 tons of ore were mined and milled with an average gold content of .44 oz. per ton.

Ninety and one half tons of concentrates were produced and shipped to the El Paso smelter. The total gold content was 808.36 oz. Including payments for silver lead and copper net smelter returns amounted to $23,313.86 with an average price of gold during the five months of $28.50 per oz.

The mill functioned perfectly making a recovery of 92.4 per cent of gold content. However with a milling capacity of 2000 tons or more per month, only 400 tons was being produced by the mine and that from one stope. After starting extraction from this stope it was found impossible to practice shrink stoping as had been contemplated. The quartz vein filling opened to a width of 30 feet, a schistose condition on both foot and hanging walls brought about a serious stoping problem. It was necessary to draw and spread waste fills from old caved stopes of the level above. The safe handling of the ground naturally resulted in much slower production than had been scheduled.

When operations were started it was expected that it would be possible to build up a cash reserve to take care of preparation for stoping of three other blocks in the Lelan and to open the Galena and Dividend, but with extraction confined to one stope and that retarded by unexpected conditions, returns were not sufficient to take care of this and although operating at a small profit, it was concluded that ore reserves were being used up uneconomically, that the very common error of attempting to equip a mine and mill and get into production with insufficient funds had been made. Consequently it was decided to shut down the mill and secure financing for at least three months of straight mine preparation and development and to provide additional compressor capacity, which had been found to be inadequate.

The members of the original syndicate were unable to advance the amount necessary for the proposed work and steps were taken to secure outside financing with the result that two examinations were made by engineers for parties interested in the propositions. Both engineers reported favorably to their principals. In April, 1934,

a satisfactory agreement was reached and what had been estimated to be a sufficient amount to carry out the proposed plans was provided by New York interests.

These plans which were arrived at by the Southern Exploration Company's engineers in conference with the engineer representing the New York interests, included the installation of an additional air compressor, purchase of some additional mine equipment, installation of a drier for concentrates, preparing three old stopes in the Lelan for extraction, clearing and repairing the old Dividend shaft, drifting east on the fifth level of the Lelan to connect with the Dividend, unwater the Dividend and get into the old workings, continue development work in the winze below the fifth level west of the Lelan shaft, develop new ore bodies between the 4th and 5th levels between the Lelan and Dividend, repair and clear the Galena shaft and resume extraction and milling not later than August 1st, 1934.

The New York interest were insistant on starting the mill on this date and although, by working double shift, a considerable part of the proposed work had been accomplished, including the enlargment of the compressor house and the installation of a 700 cu. ft. per minute compressor, very little advance had been made in exploration or development of new ore bodies and only one new ore body and two old partially stoped ore bodies in a very limited area east of the Lelan shaft were prepared for extraction. However, up to the time milling was resumed on Aug. 1, 1934, no anxiety was felt as to tonnage or grade of the ore exposed in these stopes. Milling was started at the rate of 40 tons per day, the ore averaging .33 oz. of gold per ton. While this was considerably lower than the average grade of the ore milled in 1933 it was good enough to show a profit. As the mill was not running to capacity no particular effort was made to improve the grade of the ore by sorting either in the stopes or at the mill. Anything that showed even a trace of sulphides was put through the mill. It was felt certain that as mining progressed, an average grade equal to that of the former mill run would be readily maintained. Instead, these ore bodies showed an unexpected lack of uniformity and

with no other stopes prepared for extraction it became more and more difficult to supply the mill with ore.

The mill was run two months. Only 1825 tons of ore were milled producing 44.1 tons of concentrates with a gold content of 321.92 oz. and net smelter returns amounting to $9,971.28.

With production decreasing from the only stopes that had been prepared, operating l sses were slowly but surely depleting the operating capital. Consequently it was decided to close down operations before incurring indebtedness that could not be liquidated by smelter returns.

An effort was made to provide additional funds to continue the proposed development east of the Dividend by a loan secured by the machinery and equipment. This was recommended by the engineers of the Southern Exploration Co. and the engineer associated with the New York interests. To do this, it would have been necessary to modify the terms of the lease. However, it proved to be impossible to reach an agreement and in view of the circumstances it became necessary, in accordance with the terms of their contract, for the Southern Exploration Co. to return the property to the owners.

SUMMARY OF 1933 and 1934 OPERATIONS:

The judgment of the engineers of the Southern Exploration Company, which was later confirmed by engineers of recognized standing and ability of three other mining companies, in recommending this property, is not questioned.

In the subsequent operation, instead of an extensive exploration and development program, spreading over a large area, prior to starting production, the limited capital and the pressure of some of the larger stock holders for quick returns and to avoid if possible the necessity of raising additional funds, dictated the policy of hurried preparation for extraction and milling of the immediately available ore in the Lelan. In the first operation the adoption of this plan for the development of the property was also considerably influenced by the fact that the buildings and equipment on the property were is usable condition, that the Lelan shaft and a part of the under-

ground workings were open and accessable and that the necessary additional equipment required to modernize and increase the capacity of the mill could be acquired at that time at very low prices.

While a great deal was accomplished with the money spent, the funds provided were inadequate to cover the reguildings of the mill, re-equipping the mine, clearing the old workings and leave a sufficient amount for preparing the old stopes for extraction of the ore remaining in them and fr exploration and development of new ore bodies.

Preparation for extraction, due to the limited funds and the rush to get into production, had been necessarily confined to small and limited areas. In the first operation, to the large stope between the 3rd and 4th level west of the Lelan shaft and in 1934 to the two old stopes and one small new ore body, east of the shaft, between the 3rd and 5th levels. Both in 1933 and 1934 milling was started before the mine had been made ready to take care of anywhere near the capacity of the mill, with the expectation that returns would show sufficient profit to provide a surplus for development and preparation for extraction of other ore bodies.

In 1933 funds had been entirely exhausted by the time production started and it was necessary to borrow operating capital and in 1934 only a sufficient balance had been reserved for one month's operation.

Continuous operation depended not only on maintaining a sufficiently large tonnage of ore from the mine for economical operation but the preparation of new ore bodies for extraction.

Unexpected underground conditions retarded the rate of production and shortage of funds, which had seriously curtailed development before starting production, prevented preparation of new stoping ground for future tonnage to replace that extracted.

The unsuccessful experience of the Southern Exploration Company in no way detracts from the value or possibilities of the property as a whole, especially in view of the present prices of gold and silver. If the first operation in 1933 could have been delayed

until the price of gold had reached $35.00 per oz. and sufficient funds had been available for the development of the ore bodies in the mine, in the meantime, the eventual operation would not only have been more efficient and economical due to greater daily tonnage but the returns would have been considerably more and it is entirely possible that the operation could have been continued. The recovery from the comparatively small tonnage (less than 25 per cent of the capacity of the mill) extracted from two very limited areas in the Lelan, in the seven months operation in 1933 and 1934, at present prices, would have amounted to approximately $40,000.

There is every indication of the continuation of the ore bodies. It was found that the veins, though locally lenticular, were persistant with definite walls and that the lens formations could attain a considerable size. From the extent of the old workings and the balance of the tonnage recovered in 1933 from one of these lenses between the 3rd and 4th levels west of the Lelan shaft, this single lens that reached a thickness of 30 feet must have originally held very close to 5000 tons of ore that would average half an ounce of gold to the ton.

The deepest work in the Lelan is the 40 ft. winze driven from the 5th level west of the shaft. The bottom of this winze, which is 476 ft. below the surface, is in ore as were the old Dividend workings, about 500 ft. to the east at approximately the same level. No workings have gotten below the ore bodies and not only the showings at the greatest depths reached in the Lelan-Dividend group but the actual recovery in other mines in the vicinity at much greater depths are indicative of what may reasonably be expected both in tonnage and grade by deeper development.

The adjoining property, the Little Jessie, has been worked to a depth of 659 ft. and the collar of the shaft is about 200 ft. lower than the collar of the Lelan. Lindgren states that much high grade auriferous pyrite was encountered between the 500 and 600' levels. This would be in a horizon from 200 to 300 ft. below the deepest workings

of the Lelan. The next adjoining property, the McCabe-Gladstone is 600 ft. lower than the Lelan at the surface. The McCabe shaft is 900 ft. deep and the Gladstone 1100 ft.

The extensive permanent improvements made by the Southern Exploration Co. are now a part of the property. The building were repaired and equipped for use where necessary. The compressor house was enlarged and a 700 cu. ft. per minute air compressor installed. The capacity and efficiency of the mill was increased by the installation of up to date equipment, which is in excellent condition, less than 4000 tons having been milled sincetthe mill was rebuilt.

The Lelan shaft was repaired, caved drifts cleared and timbered and connections made between the Lelan and Dividend workings. The Galena, Ticonderoga and Dividend shafts were opened. The road to the property was greatly improved.

This work, all necessary to facilitate further exploration and development, is done.

COSTS AND REQUIREMENTS FOR PROFITABLE OPERATION:

In the consideration of gold mining properties, it must be recognized that the point of view has been considerably altered not only by the increased price of gold but by the greater economy of operation and recovery of values made possible by modern methods of mining and milling.

Even before the price of gold had increased, improvements in methods of recovery were making possible the resumption of operation of old mines that had long been idle and even the profitable working of old dumps and stope fills.

With the price of gold at $35.00 per ounce compared with the old price of $20.67 and actual recovery of values from the sulphide ore of the Lelan 92.4% compared with 60% to 65% by the old methods of amalgamation and table concentration, a much lower grade of ore can be profitably mined and milled than was possible at the old price and with the old methods.

The important factors, in the final analysis, are the grade of ore that will permit profitable operation and the tonnage of that

grade that can be developed.

To arrive at the grade of ore that will permite profitable operation, the factors, are, the costs of mining and milling, the percentage of recovery of values in mill concentrates, and the net smelter returns, which is the value of the concentrates at the point of shipment, as the smelter pays and deducts the freight and deducts treatment and other charges.

For convenience and because the proportion of gold silver and lead are fairly uniform, the net smelter return can be reduced to dollars per ounce of gold content.

Net smelter returns from shipments of concentrates in August and September 1934, when gold was $35.00 per ounce amounted to $9,971.28. The gold content was 321.92 ounces. The net return per ounce of gold content was, therefore, $30.97.

During this period the percentage of recovery of gold values in the concentrates was 92.4.

The estimated cost of mining and milling, based on a minimum production of 1000 tons per month, exclusive of amortization is:

MINING (including development - $1.00)		$3.55
MILLING		1.20
MARKETING		
Freight on Conc't's to El Paso	$17.27	
Smelter treatment	5.00	
Haulage--Mine to Humboldt	.75	
Sacking and Handling	.30	
Representative at smelter	.12	
Per ton of Conc't's	$23.44	
Per ton of crude ore (ratio 25 to 1)		.94
Compensation Insurance		.12
State Taxes		.09
Fire Insurance		.01
UNFORESEEN		.30
TOTAL OPERATING		$6.21

As concentrates are loaded in trucks at the mill for delivery to the smelter and the marketing and treatment etc. has been taken into consideration in Net smelter returns, Deduct. .94

$5.27

This estimate is based on 1000 tons per month from one shaft. The mill can concentrate 75 tons ore more or 2250 tons per month, say 2000 tons per month.

On this basis add $.70 per ton for transportation and other costs, possibly necessitated by operating

more than one mine and $.30 for sacking, handling and loading concentrates. .73

COST PER TON $6.00

Using these figures:

Cost of mining and milling per ton of ore $6.00

Net smelter returns per oz. of gold recovered. $31.00

Recovery 92.4%

the grade or gold content per ton of ore, to just equal mining and milling costs would be 0.21 oz. per ton.

$\frac{6}{31} = .1935, \quad \frac{.1935}{92.4} = .21$

From this making allowance for a minimum profit and unforeseen contingencies the economical minimum of grade of ore to be mined and milled should be .3 to .35 oz. per ton, depending on prospective tonnage and distribution of amortization.

GEOLOGY

BIGBUG DISTRICT[27]

The Bigbug district is on the northeastern slopes of the Bradshaw Mountains. It ranges in altitude from 7,000 feet, west of Bigbug Mesa, to 4,500 feet, in Agua Fria Valley. The western portion is timbered and fairly well watered, while the lower dissected pediment or foothill belt is rather dry and brushy to open country.

This area is made up of schist, intruded in places by diorite, granodiorite, granite, and dikes of rhyolite-porphyry. The schist is mainly of sedimentary origin, with many quartzitic beds, but contains also some igneous members. It is intruded on the west by the Mount Union belt of granite, and southwest of McCabe, by a stock of granodiorite. These relations are shown on the geologic map of the Bradshaw Mountains quadrangle, by T. A. Jaggar and C. Palache.[28] Basalt flows of post-mineral age form Bigbug Mesa where they rest upon a late Tertiary or early Quaternary pediment. Elsewhere in the district, this pediment has been extensively dissected by post-basalt erosion.

Lindgren has classified the ore deposits, other than placers, as follows: (1) Pyritic copper deposits, such as the Blue Bell, Hackberry, Butternut, and Boggs; (2) Pre-Cambrian quartz veins, such as the old Mesa, near Poland; (3) The Iron King gold-silver replacement deposit; (4) Later veins, probably connected genetically with rhyolite-porphyry dikes, mainly near Poland and Providence.

During the early days, some of the Bigbug deposits yielded a considerable amount of gold and silver from the oxidized zone. From 1901 to 1931, inclusive, the production of the district, as recorded by the U. S. Mineral Resources, amounts to approximately $17,000,000 in copper, gold, silver, lead, and zinc. Nearly $4,000,000 of this amount was in gold of which about $30,000 came from placers.

[27] Abstracted from Lindgren, W., work cited, p. 112.
[28] Largely abstracted from Lindgren, W., U. S. Geol. Survey Bull. 782.
[29] Published by U. S. Geol. Survey in Folio 126 and Bulletin 782.

IRON KING MINE[30]

"A little more than a mile west of the Humboldt smelter, in the open foothills, is the Iron King mine, now owned by the Southwest Metals Company, which also owns the Humboldt smelter. To the officers of that company I am indebted for most of the following information. The deposit, which carries gold and silver, forms a replacement zone in the Yavapai schist, but it differs from the normal copper deposits that are so numerous farther to the south in the same schist. It was worked about 1906 and 1907. The production in 1907 was 1,253 ounces of gold, 35,491 ounces of silver, and 3,933 pounds of copper.

"The deposit is developed by two shafts 750 feet apart and 435 and 225 feet deep. Several thousand tons of ore averaging $8 a ton in gold and silver have been shipped to the neighboring smelter. It is claimed that the ore in sight amounts to 20,000 tons and that the deposit contains much low-grade siliceous material averaging $1 or $2 in gold to the ton. The ore is reported to contain from $6 to $8 in gold and 4 to 23 ounces in silver to the ton. Some diamond drilling has been done; the cores in the ore body contained $8 in gold and 9.60 ounces of silver to the ton, 32 per cent of iron and 14 per cent of insoluble matter. Other parts of the ore body contain as much as 70 per cent of insoluble constituents.

"The deposit forms a series of lenses in part overlapping, in highly silicified schist, which strikes N. 21° E. and dips 75° W. These lenses are 150 to 500 feet long and 5 to 10 feet wide. The whole mineralized zone is 75 feet wide.

"The water level was found at a depth of 140 feet, and near this level in one ore body there was some enriched copper ore containing 4 to 5 per cent of copper.

"The ore is a steel-gray flinty schist containing a crushed quartz mosaic of coarser and finer grain intergrown with some dolomitic carbonate and abundant prisms of bluish-gray tourmaline. The sulphides are disposed in streaks and consist of fine-grained arsenopyrite, pyrite, light-colored sphalerite, and a little chalcopyrite and galena."

McCABE-GLADSTONE MINE[31]

The McCabe-Gladstone property of eight claims is a short distance south of McCabe, on Galena Gulch.

During the early seventies, this deposit yielded considerable amounts of rich oxidized ore. The property then remained practically idle for many years. It was worked continuously from 1898 to 1913 by the Ideal Leasing Company, with a reported production of $2,500,000 to $3,000,000. The mine was again idle from 1913-1933 but early in 1934 was reopened and unwatered by H.

[30] Quoted from Lindgren, W., work cited, pp. 127-28.

[31] Largely abstracted from Lindgren, W., work cited, pp. 130-32.

see Gold Bug Location

LITTLE JESSIE MINE

The "Little" Jessie mine is about 1,700 feet south of the Union. This deposit was discovered in 1867. From about 1890 to the end of 1898, it was worked by J. S. Jones and lessees. Their mill is reported to have produced about $750,000 worth of bullion and concentrates, chiefly from the Little Jessie. From about 1909 to 1916, considerable development work was done and a little ore was shipped, mainly by the Chaparral Mining Company. Early in 1934, the Arizona Consolidated Mining Company was reported to be carrying on development work and installing new mill machinery at the Union-Jessie property.[33]

$20.00 A.U.

Lindgren states that, in 1922, the shaft was 659 feet deep, and that much high-grade auriferous pyrite was encountered between the 500- and 600-foot levels. He adds that the ore contains from one-half to one ounce of gold per ton and very little silver.[34]

LELAN-DIVIDEND PROPERTY

"PART OF GOLD BUG GROUP"

The "Lelan" mine is on a ridge southwest of the Jessie.

This deposit was discovered during the sixties. Browne's report for 1868 states that 60 tons of ore from the "Dividend mine," treated in the Big Bug (Henrietta) mill, yielded $20 per ton in "free gold."[35] At that time however, it was not of commercial grade. According to Lindgren, the Lelan and Dividend were worked more or less from 1900 to 1914, and during part of that time were equipped with a 10-stamp mill. He states that their ore production prior to 1923 was probably at least 10,000 tons which contained from a half to 3 ounces of gold per ton, together with a little silver, copper, and lead.[36] In 1932 and 1933, the property was operated by the Southern Exploration Company with a force of about twenty-five men. This company erected a 100-ton flotation-concentration plant and produced concentrates during part of 1933. Operations were suspended at the end of the year.

1 oz.

The vein, which is a continuation of the Union, strikes northeastward and dips steeply southeastward. It is opened by a 500-foot shaft inclined at 80°, with development on five levels. Most of the recent production is reported to have come from the fourth level. The vein is rather lenticular and ranges up to several feet in width. Its filling consists of massive, shiny white quartz with irregular masses, seams, and disseminations of pyrite, chalcopyrite, sphalerite, and galena. The gold occurs in the sulphides.

70°

[33] History compiled by J. B. Tenney.

[34] Work cited, pp. 132-33.

[35] Brown, J. Ross. Mineral resources of the states and territories west of the Rocky Mountains. 1868.

[36] Work cited, p. 133.

HENRIETTA OR BIG BUG MINE

The Henrietta mine which, in the early days, was known as the Big Bug, is about one-half mile north of Bigbug Creek and one mile west of Poland siding.

Browne's report for 1868 states that, in 1866, the Big Bug mine was some 50 feet deep and was producing ore from near the surface. In 1871, according to Raymond, the Big Bug vein was not being worked, but the Big Bug 10-stamp mill was treating gold ores from the vicinity.[37] At that time, the combined costs of mining and milling amounted to about $9 per ton.

The following data are largely abstracted from Lindgren's report: In 1883 and 1884, the Big Bug property was the most prominent one in the district. During this early period, the mine made a large production mainly from the oxidized gold ores from the upper levels. From 1915 to 1919, the mine was operated by the Big Ledge Copper Company which did considerable development below the old workings and produced gold-bearing copper ore. The property was equipped with a 100-ton flotation mill. In 1923, this company was reorganized as the Huron Copper Mining Company. Some shipments of copper ore containing gold were made in 1926 and 1930.

A longitudinal section of the workings is shown in U. S. Geol. Survey Bulletin 782. The old developments, which extended to the sulphide zone, include a 500-foot shaft, on the ridge, with a 1,500-foot tunnel through the ridge, 220 feet below the collar, and considerable stoping. Farther north, on the Gopher claim, the vein has been opened to depths of a few hundred feet. The deeper work, which was done by the Big Ledge Copper Company, included a 2,200-foot tunnel and a 600-foot winze with levels and stopes extending a few hundred feet northward.

The vein, which occurs mainly in massive, fine-grained amphibolite or diorite, strikes north, dips about 70° W., and is from 2 to 6 feet wide. Its gangue consists of massive quartz with some calcite. About 60 per cent of the unoxidized ore consists of pyrite, chalcopyrite, sphalerite, and galena. Ore from the lower levels is reported to contain 3.2 per cent of copper and 14 per cent of iron, together with 0.2 ounces of gold and 2.7 ounces of silver per ton.

POLAND-WALKER TUNNEL[38]

Poland, at the northern foot of Bigbug Mesa, is accessible by road from the Black Canyon Highway. The spur of the Santa Fe Railway that formerly served this vicinity was dismantled a few years ago. Near the southern portal, amphibolite is intruded on the north by somewhat schistose granite, and on the west by a 75-foot dike of rhyolite-porphyry. The tunnel extends northward

[37] Raymond, R. W., Statistics of mines and mining in the states and territories west of the Rocky Mountains. 1871.

[38] Largely abstracted from Lindgren, W., work cited, p. 136.

for 1,100 feet through a ridge of this granite. It exposed several veins upon which considerable work has been done.

The Poland vein, which was cut 800 feet from the south portal, strikes northeast and dips steeply northwest. Ore on the dump shows druzy quartz with pyrite, sphalerite, and galena. According to local reports, the vein was opened by several thousand feet of drifts and a 325-foot shaft below the tunnel level. From 1900 until about 1912, intermittent production was made with a 20-stamp mill. The 1907 yield was $130,465 in gold and 16,609 ounces of silver. The total output for this period is estimated at $750,000, probably mostly in silver. According to the U. S. Mineral Resources, the mine made a small production of gold ore in 1926, 1930, and 1931. Early in 1934, occasional shipments of gold-bearing ore and concentrates were being made by F. Gibbs and associates.

Prior to 1922, some production was made from the Occidental vein which is reported to have been cut 500 feet from the north portal of the tunnel and followed to a depth of 200 feet below the tunnel level. This vein, which is said to be similar to the Poland vein, carries gold, silver, and lead.

MONEY METALS MINE

The Money Metals mine, about 1¼ miles west of the Poland tunnel and Bigbug Mesa, is accessible by a road that branches northeastward from the Senator Highway at a point about ⅛ mile south of the Hassayampa bridge.

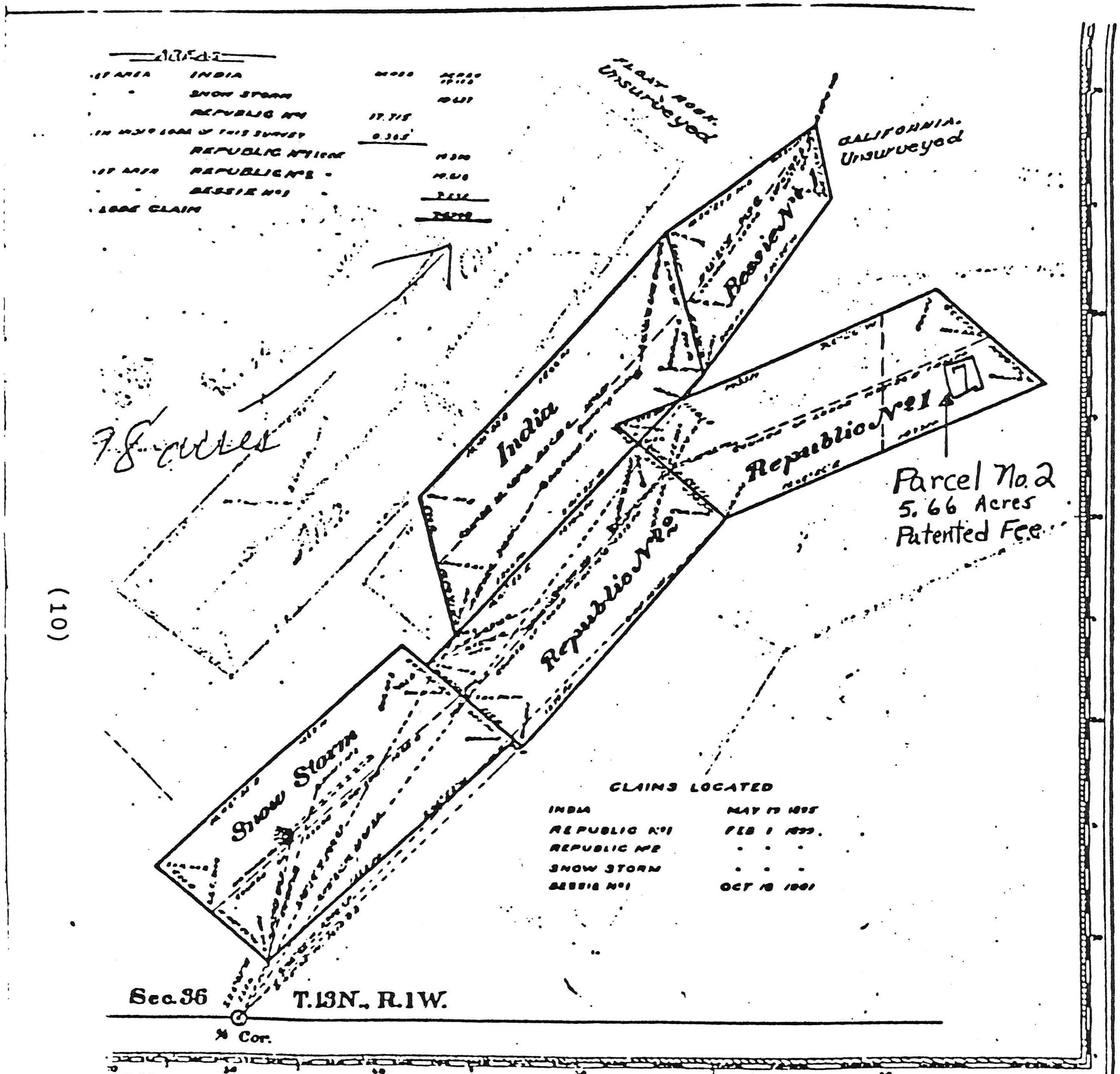
This deposit was located in 1897 by F. Reif who shipped some ore from the upper levels and sold the property. After some further development work, the mine remained idle until 1928 when it was reopened. Since 1933, it has been operated by the Yavapai Gold and Silver Mining Company.

The country rock is gneissoid granite. A rhyolite-porphyry dike about 60 feet wide follows the hanging wall of the vein, and, a short distance farther west, a mass of diorite intrudes the granite.

Workings on the property include a 300-foot shaft, inclined 68° W., together with a total of approximately 1,400 feet of drifts on three levels. When visited in February, 1934, water was kept from the 200-foot level with a Cornish pump.

As exposed underground, the vein strikes N. 50° W. and dips 65° to 70° W. In places, it has been offset by transverse faults. The vein filling consists of coarse-grained, grayish white quartz with irregular masses, veinlets, and disseminations of galena, sphalerite, pyrite, and chalcopyrite. The wall rock shows strong sericitic alteration. According to J. K. Kilfeder," mine superintendent, much of the vein contains about half an ounce of gold per ton. On the 200-foot level, the ore shoot is about 175 feet long by 2 to 5 feet wide.

Surface equipment on the property includes a 20-ton concentrator powered with two Dodge motors. The sulphide concentrates are reported to carry more than $200 in gold per ton. 10 oz.



(10)

Mineral Survey No 1555

LOT No

Prescott Land District.

PLAT

OF THE CLAIM OF

Burlington Gold Mining Co.

KNOWN AS THE

India, Bessie No 1, Republic No 1
Republic No 2 & Snow Storm

IN *Big Bug* MINING DISTRICT.
Yavapai COUNTY, *Arizona.*
Containing an Area of *71.999* Acres.
Scale of *400* Feet to the inch.
Variation *14° E.*
SURVEYED *March 17 to 19* 1903 BY
William H. Merrill
U.S. Deputy Mineral Surveyor.

The Original Field Notes of the Survey of the Mining Claim of *Burlington Gold Mining Co* known as the *India, Bessie No 1, Republic No 1, Republic No 2 and Snow Storm*

from which this plat has been made under my direction, have been examined and approved, and are on file in this Office; and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

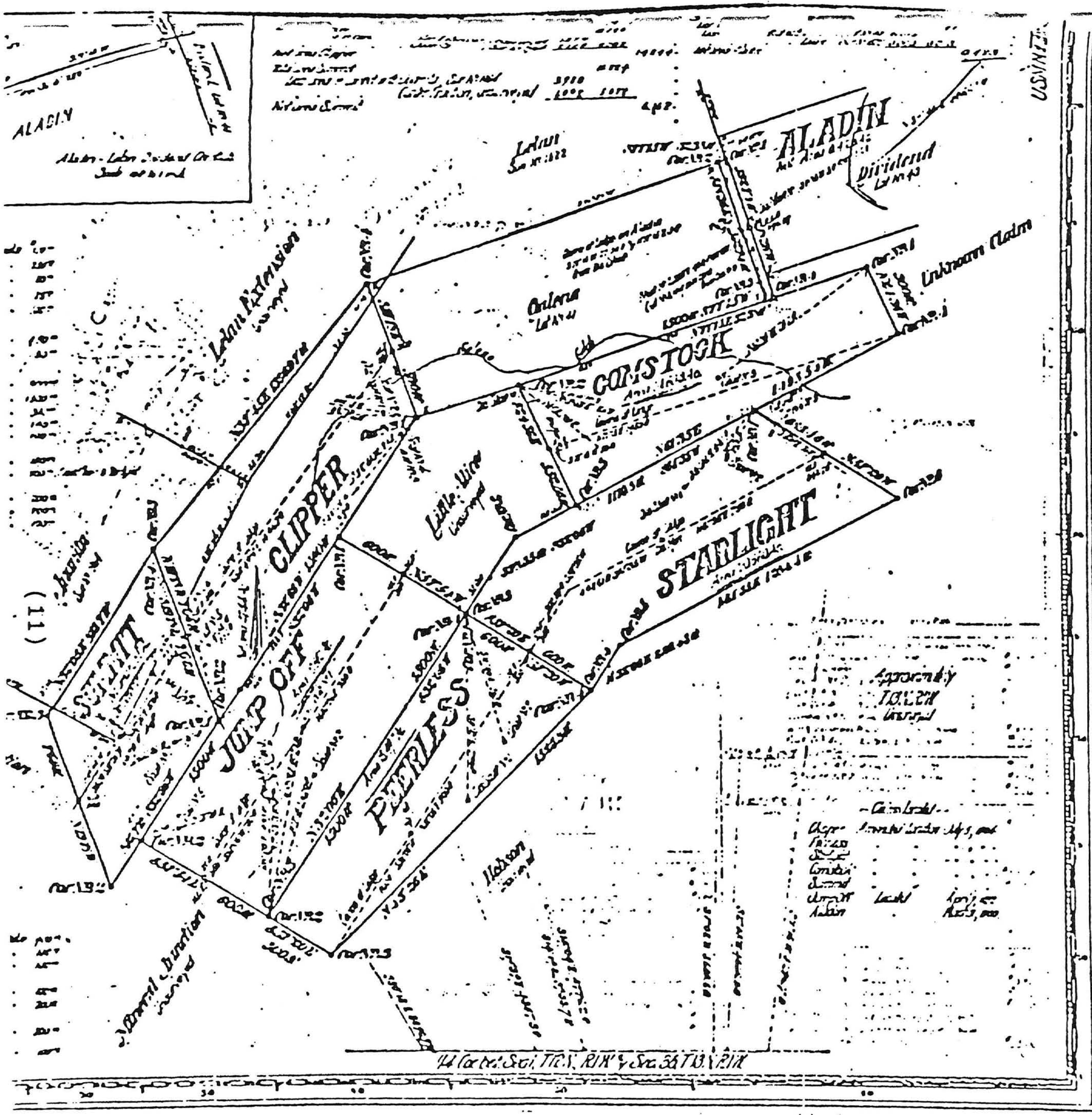
I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant or its grantors, and that said improvements consist of *7 shafts, 2 tunnels and boarding house*

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office.
Phoenix, Arizona
June 20, 1903

Hugh H. Price
U.S. Surveyor General for
Arizona



Mineral Survey No. 1919

LOT No.

Prescott Land District.

PLAT

OF THE CLAIM OF

The Dirkirrol Consolidated Gold Mines Co.

KNOWN AS THE

Clipper, Summit, Jump Off, Peerless, Starlight, Comstock and Aladin

IN Big Bug MINING DISTRICT.

Yavapai COUNTY, Arizona

Containing an Area of 92.240 Acres.

Scale of 300 feet to the inch.

Variation 14°E.

SURVEYED April 16 - July 23 1900 BY

A.B. Vaulor

U.S. Deputy Mineral Surveyor.

The Original Field Notes of the Survey of the Mining Claim of [illegible]

known as the

[illegible]

from which this plat has been made under my direction have been examined and approved, and are on file in this Office and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant or its grantors and that said improvements consist of

-See [illegible]-

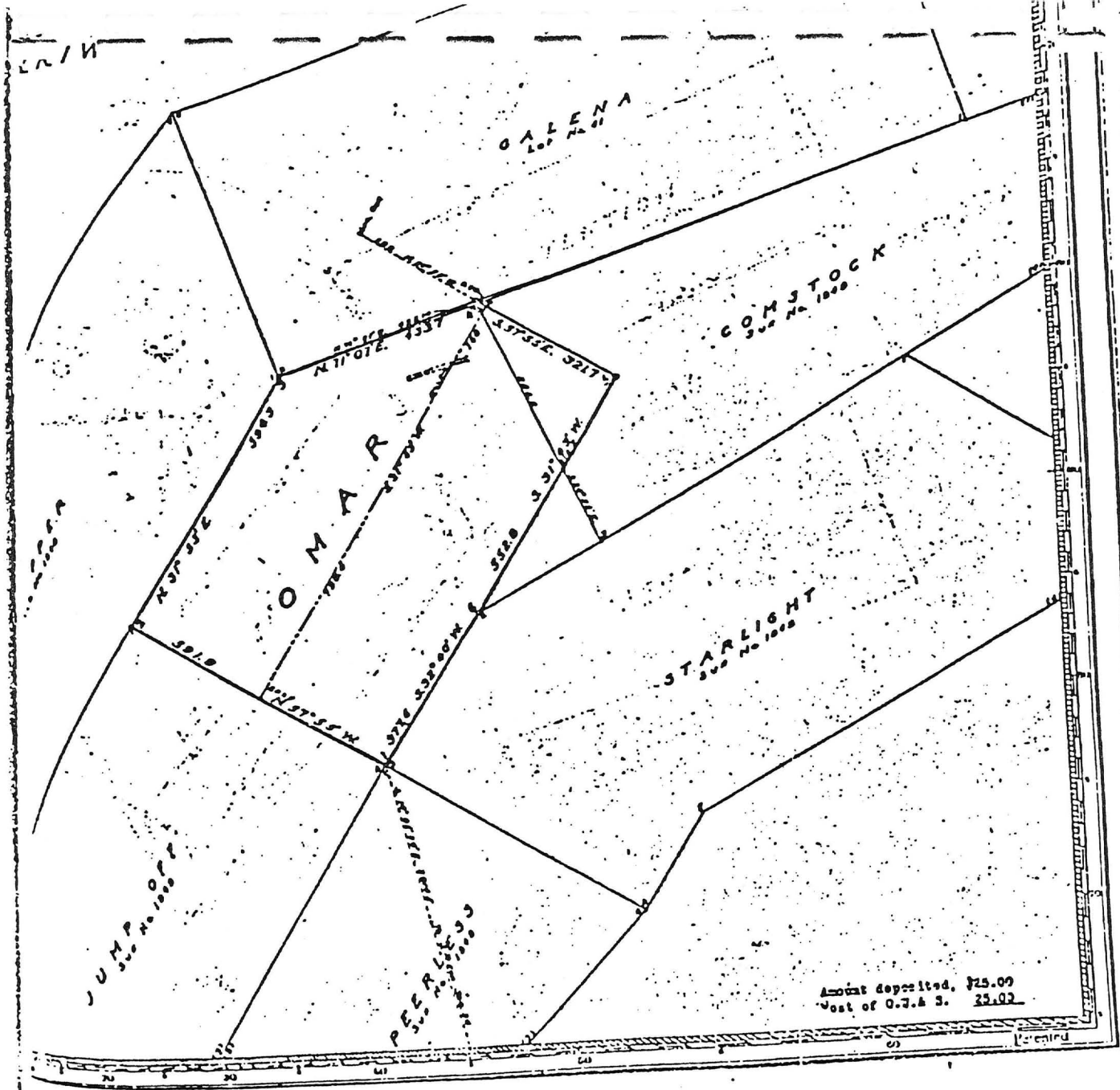
that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office. Frank S. Ingalls

Phoenix, Arizona U.S. Surveyor General for

March 21, 1903 Arizona



OF THE CLAIM OF

Elmer W. Wells

KNOWN AS THE

Wild Rose lode

IN Big Bug MINING DISTRICT,

Yavapai COUNTY, Arizona

Containing an area of 20.0 feet in the mark.

Scale of 200 feet to the inch.

Variation 15° E.

SURVEYED July 30 - Aug. 8 1925 BY

J. William Evans

U.S. Deputy Mineral Surveyor

The Original Field Notes of the Survey of the Mining Claim of

Elmer W. Wells

known as the

Wild Rose lode

from which this plat has been made under my direction, have been examined and approved, and are on file in this office, and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the bounds thereof.

I Further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant ---------- or his grantors and that said improvements consist of 1 tunnel and 2 winzes.

Total value $920.

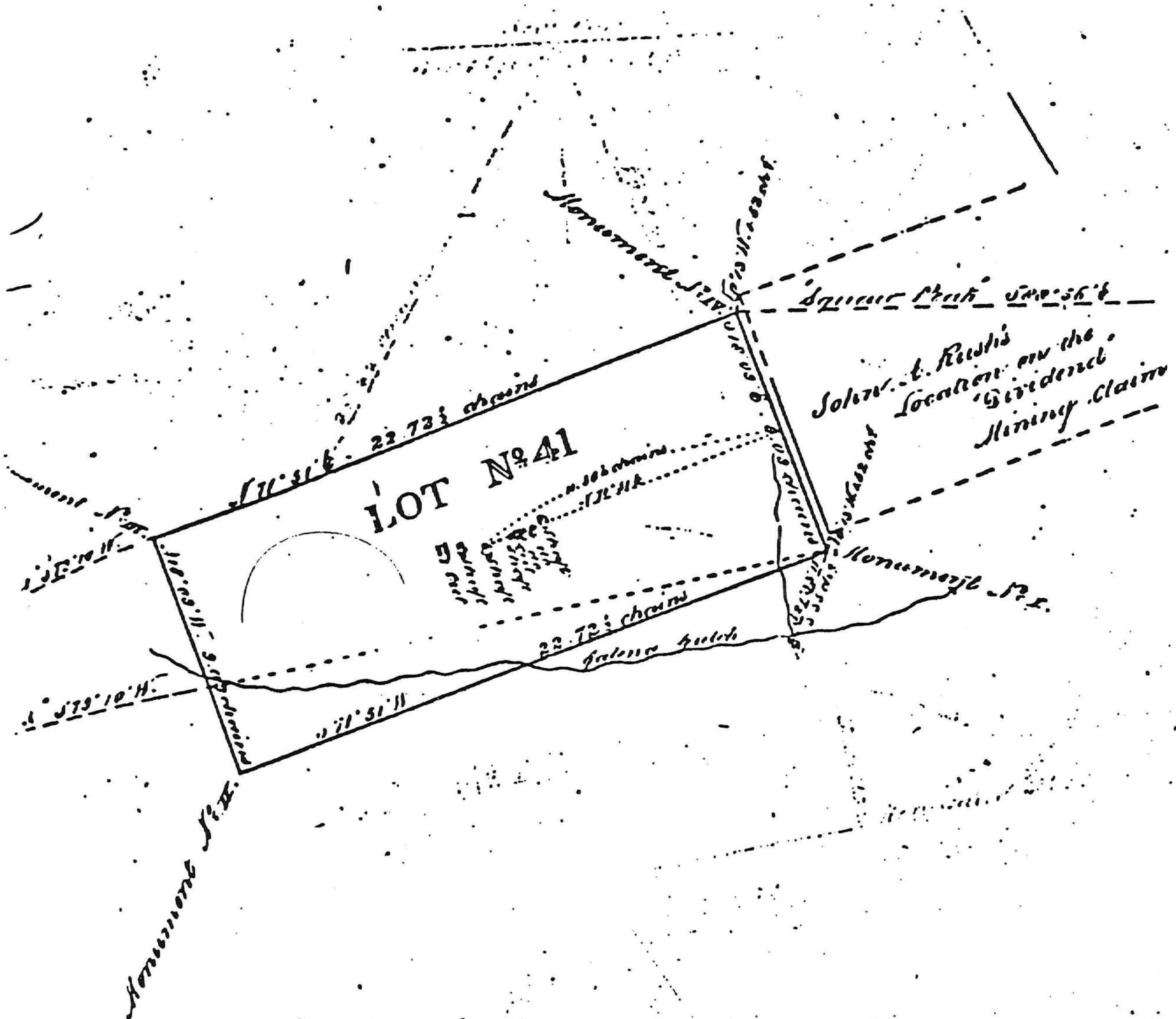
that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditure upon any other claim.

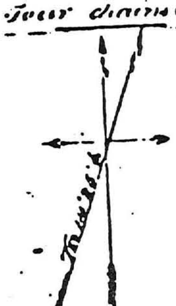
And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

Office of
District Cadastral
Engineer.
Phoenix, Arizona,
January 4, 1926.

John D. Peters
Office Cadastral Engineer
for
ARIZONA

(12)





82

Lot No. 41

PLAT

of the

GALENA

MINING CLAIM.

Situate in Big Bug Mining District, County of Yavapai and in Sec. ... T. ... R. ... Gila and Salt River Meridian,

ARIZONA.

Claimed by Michael Wormser

Surveyed by C. Burton Foster U.S. Deputy Surveyor.
16th December ...

Containing 20 ... Acres.

Scale Four chains to inch.

The original field notes of the survey of the Galena mining claim from which this plat has been made, have been examined and approved and are on file in this office, and I hereby certify that they furnish such an accurate description of said Galena mining claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects and permanent monuments as will perpetuate and fix the locus thereof.

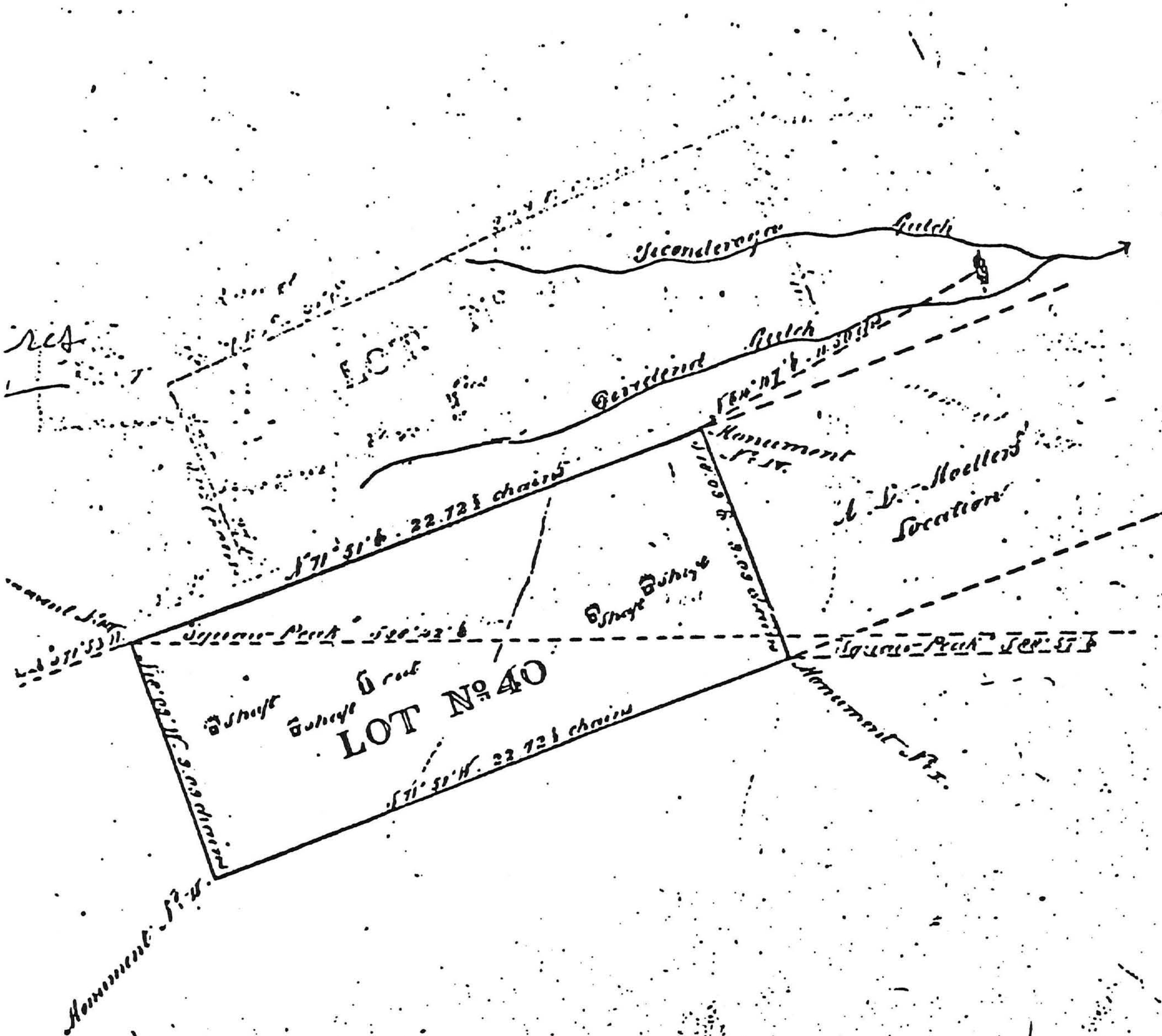
I further certify that the value of the labor and improvements upon said mining claim, placed thereon by the applicant and his grantors, is not less than five hundred dollars, and that said improvements consist of

1	Shaft	6 x 14	feet	70	feet deep
1	"	6 x 14	"	70	" "
1	"	6 x 6	"	6	" "
1	"	6 x 14	"	84	" "
1	Cut	4 x 5	"	8	" long
1	Shaft	6 x 14	"	8	" deep
1	"	6 x 14	"	60	" Tendered

And I further certify that this is a correct plat of said Galena mining claim or premises, made in conformity with said original field notes of survey thereof.

John ...
Surveyor-General.

U. S. Surveyor-General's Office,
Tucson, Arizona, January 9th, 18..



Lot No. 39 [illegible] 72

PLAT

of the

John A. Kirsh's [illegible] on the

DIVIDEND

MINING CLAIM.

Situate in Big Bug Mining District, County of Yavapai

ARIZONA.

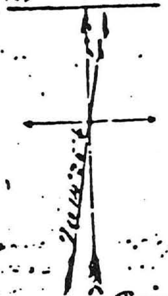
Claimed by John A. Kirsh

Surveyed by C. Burton Foster U.S. Deputy Surveyor

18th December 18[illegible]

Containing 20[illegible] acres.

Scale Four chains to an inch.



The original field notes of the survey of the Dividend mining claim from which this plat has been made, have been examined and approved and are on file in this office, and I hereby certify that they furnish such an accurate description of said Dividend mining claim as will, if incorporated into a patent, serve fully to identify the premises; and that such reference is made therein to natural objects and permanent monuments as will perpetuate and fix the locus thereof.

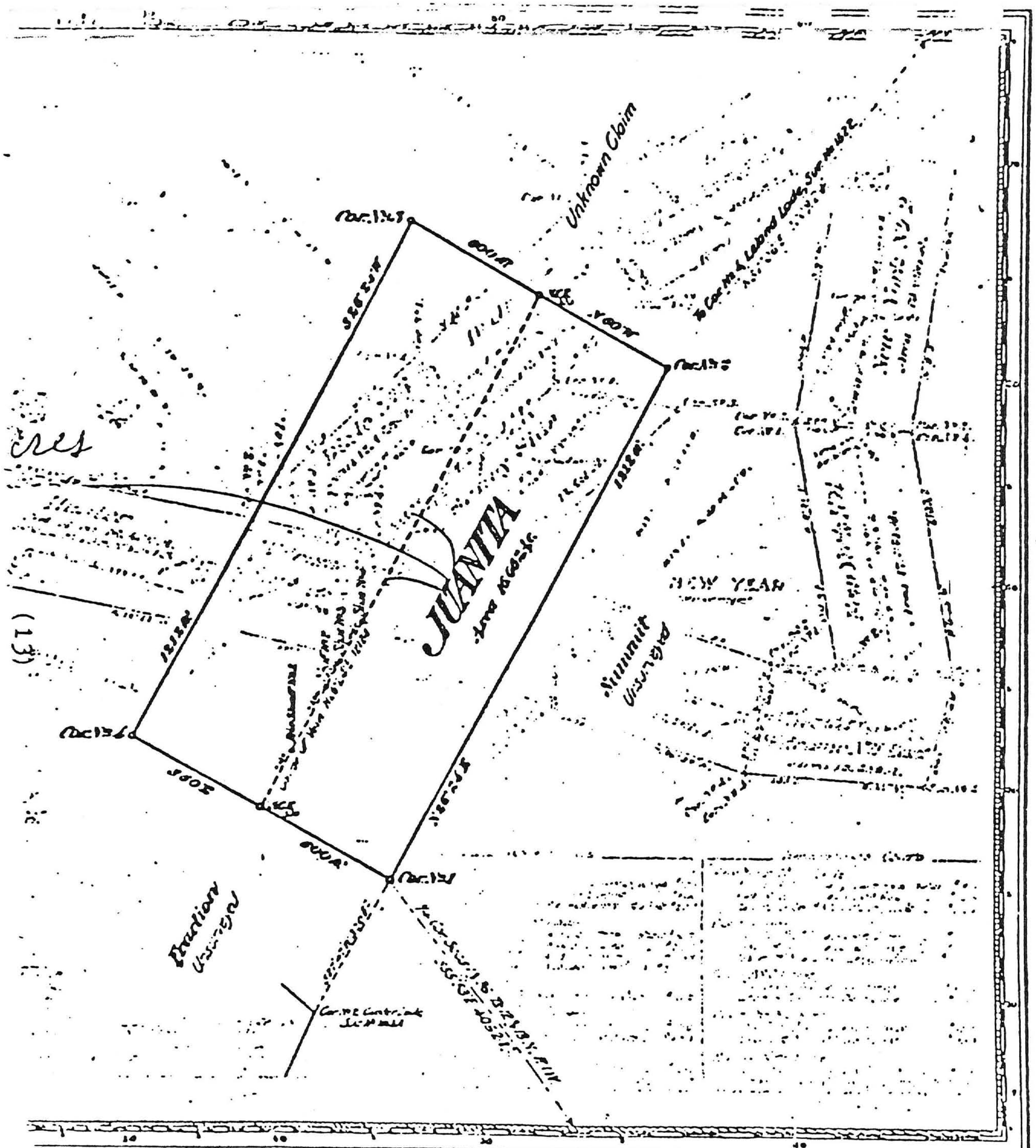
I further certify that the value of the labor and improvements upon said mining claim, placed thereon by the applicant and his grantors, is not less than five hundred dollars, and that said improvements consist of

1 Shaft 12 x 6 feet 40 feet deep
1 " 6 x 5 " 8 " "
1 " 8 x 6 " 6 " "
1 " 6 x 4 " 3 " "
1 Cut 6 x 4 " 6 " long

And I further certify that this is a correct plat of said Dividend mining claim or premises, made in conformity with said original field notes of survey thereof.

[illegible signature]
Surveyor General.

U. S. Surveyor General's Office,
Tucson, Arizona, January 8th, 18[illegible]



[illegible] 1910

Mineral Survey No 1961

Lot No

Prescott Land District.

PLAT

OF THE CLAIM OF

John Kinney

KNOWN AS THE

—— Juanita ——

IN Big Bug MINING DISTRICT,
Yavapai COUNTY, Arizona
Containing an Area of 16.652 Acres.
Scale of 200 feet to the inch.
Variation 14° E.
SURVEYED July 7th 1904 BY
J.J. Fisher
U.S. Deputy Mineral Surveyor.

The Original Field Notes of the Survey of the Mining Claim of
John Kinney
known as the

—— Juanita ——

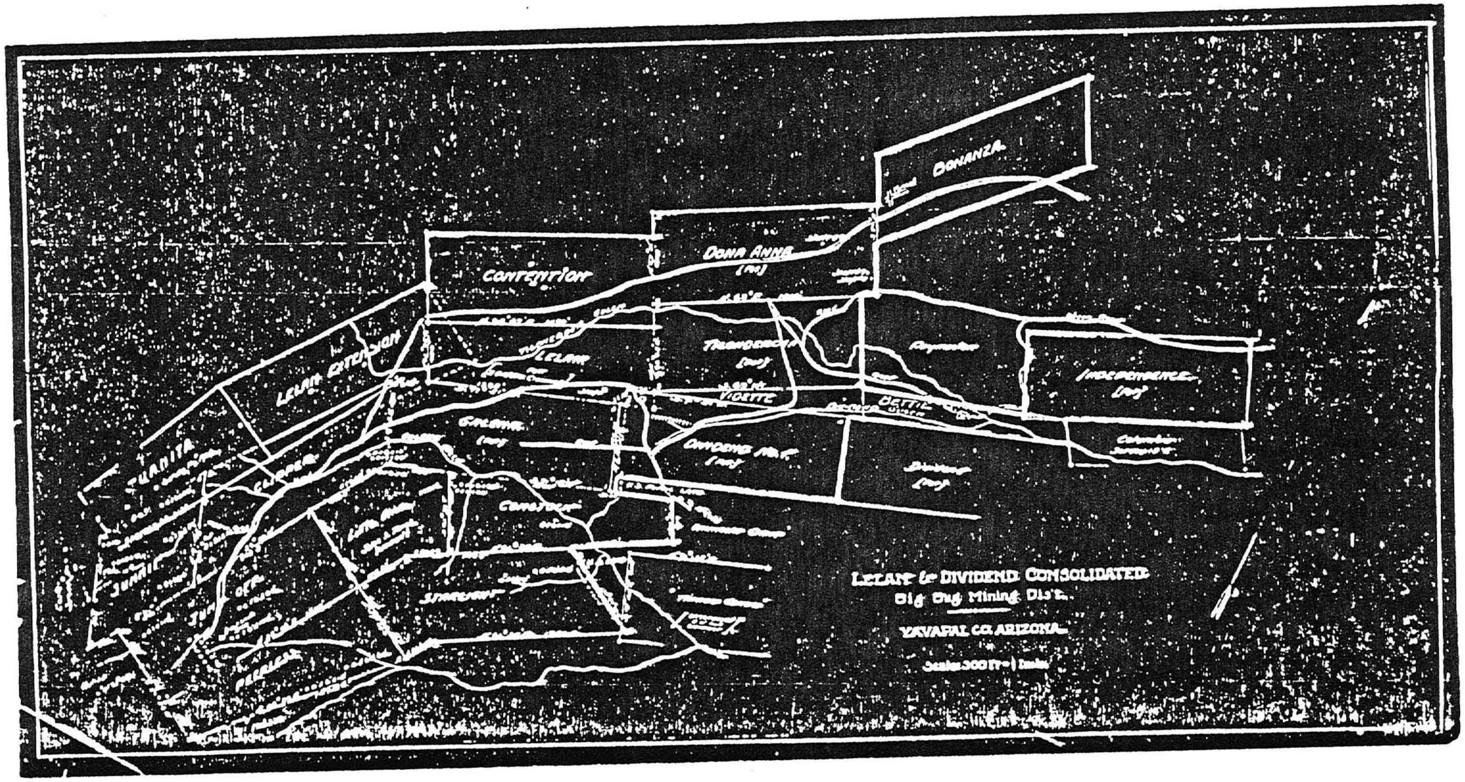
from which this plat has been made under my direction, have been examined and approved, and are on file in this Office; and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

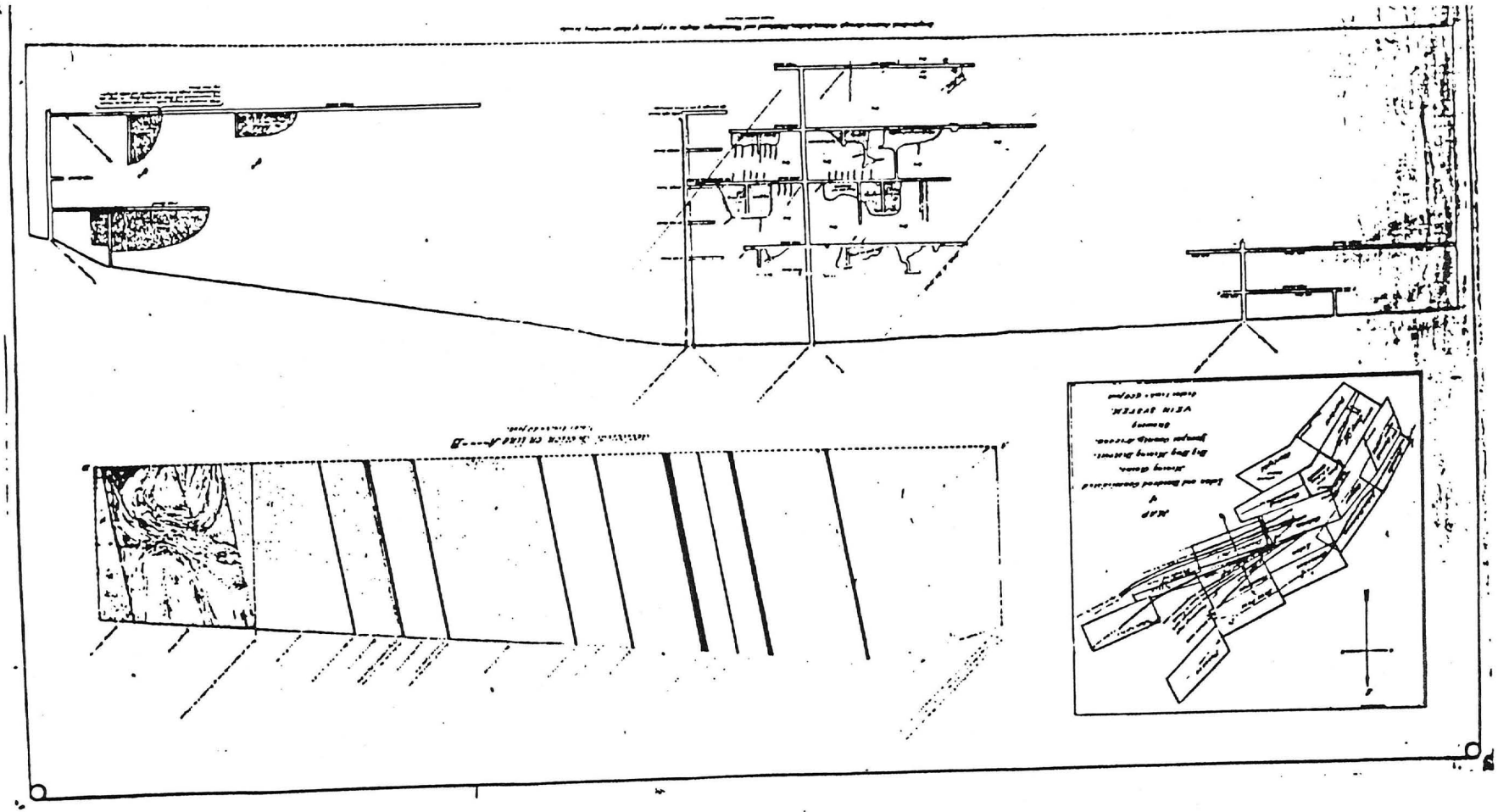
I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant or his grantors, and that said improvements consist of [illegible]

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office. Frank [illegible]
Phoenix, Arizona U.S. Surveyor General for
Sept 10, 1904 Arizona


CONTENTION
DONA ANNA
LELAN EXTENSION
INDEPENDENCE
VIDETTE
LELAN & DIVIDEND CONSOLIDATED
Big Bug Mining Dis't.
YAVAPAI CO. ARIZONA



Fields and associates. In June, 1934, mine ore, mixed with old gob and dump material, was being treated in a 200-ton flotation mill.

The mine is developed by two shafts, 800 feet apart and 900 to 1,100 feet deep, together with several miles of workings. A longitudinal section of the mine is given in U. S. Geol. Survey Bulletin 782.

Here, amphibolitic schist is intruded by dikes of rhyolite-porphyry and, a short distance farther southwest, by a stock of quartz diorite.

The vein strikes N. 54° E. and dips 79° SE., but, between the two shafts, a 20-foot dike of rhyolite-porphyry apparently deflects the strike southward. The vein averages about 3½ feet wide. Stoping has followed five ore shoots, each 200 to 500 feet long. At least two of them appear to extend to the 1,100-foot level. They pitch steeply westward and average somewhat less than a foot in thickness.

The ore consists of quartz together with considerable amounts of pyrite and arsenopyrite and a little sphalerite, galena, and chalcopyrite. The following analysis of the shipping ore and the concentrates is given: Silica, 31.4 per cent; copper, 2.0 per cent; lead, 2.1 per cent; zinc, 4.7 per cent; iron, 24.6 per cent; arsenic, 3.9 per cent; antimony, 1.0 per cent; sulphur, 20.4 per cent; gold, 1.6 ounces per ton; silver, 10.2 ounces per ton.

UNION MINE[32]

The Union mine is about 1¾ miles southwest of McCabe, in the upper part of Chaparral Gulch, at an elevation of approximately 5,000 feet.

This deposit, which became known in the late sixties, at one time was consolidated with the Little Jessie. Except for a little intermittent work and small production, the property has been practically idle for many years. Early in 1934, the Union and Jessie mines were reported to be held by the Arizona Consolidated Mining Company which was carrying on development work and installing new milling machinery.

The workings include a 1,200-foot tunnel, with more than 1,000 feet of drifts on the vein, and a 200-foot shaft sunk from the tunnel level. The vein, which is a continuation of the Lelan vein, strikes about N. 70° E., dips steeply southeastward, and is followed by a later unmineralized basic dike. The ore consists of massive glassy quartz, up to 10 feet thick, with irregularly disseminated pyrite, arsenopyrite, sphalerite, and galena. Where cut on the tunnel level and on the 77-foot level of the shaft, the ore shoot is reported to be 250 feet long, with a pitch of about 30° SW. The lower limit of the ore is reported to be about half an ounce in gold per ton. Except in the oxidized zone, which is shallow, the gold does not occur free.

Union - Lelan Vein

[32] Largely abstracted from Lindgren, W., work cited, pp. 133-34.