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PRINTED: 12/17/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: CASHIER

ALTERNATE NAMES:

WEDGE
ABLEMAN TUNNEL
HASYAMPA

MOHAVE COUNTY MILS NUMBER: 112A

LOCATION: TOWNSHIP 23 N RANGE 17 W SECTION 31 QUARTER SE
LATITUDE: N 35DEG 20MIN 15SEC LONGITUDE: W 114DEG 07MIN 45SEC
TOPO MAP NAME: CERBAT - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

GOLD LODE
LEAD SULFIDE
SILVER SULFIDE
ZINC SULFIDE
COPPER SULFIDE

BIBLIOGRAPHY:

ADMMR CASHIER MINE FILE
ADMMR MOHAVE CUSTOM MILL PROJECT
ADMMR ALPHA MINE FILE
ADMMR MAPS - UPSTAIRS IN DRAWER 6 - FLAT FILE

CASHIER MINE

MOHAVE COUNTY

Earl Baier, 12813 N. 30th Dr., Phoenix and Roy Montague have the Jamison and Cashier Mines. Cashier reportedly has 51,000 tons of silver, lead, gold ore that will assay \$127.00/ton (hearsay).

FTJ WR 1/7/66

See: Nighthawk Mine (file) Mohave - article from Mohave County Miner dated 9/5/74

NAME: CASHIER

COUNTY: MOHAVE

T 23 N R 17 W ^{E. Center} SEC. 31 Elev. 4700'

DISTRICT: WALLAPA!

cerbat

Mineralization: Cu Pb Zn Au Ag

Geology: Qtz - 90 in fault fissure

Type Operation:

Production:

References: AEC microfilm, clipping file

Mohave Cty Card File

MA-42

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

1. Mine **Cashier**
2. Mining District & County **Wallapai**
3. Former name
4. Location **10 miles S. of Chloride
6 miles E. of Boulder Dam
highway.
15 miles N. of Kingman.**
5. Owner **Bert Abelman, J. A. Bell,
A. A. Rose**
6. Address (Owner)
7. Operator
8. Address (Operator)
9. President
10. Gen. Mgr.
11. Mine Supt.
12. Mill Supt.
13. Principal Metals **Gold, silver, lead**
14. Men Employed
15. Production Rate
16. Mill: Type & Cap.
17. Power: Amt. & Type
18. Operations: Present
19. Operations Planned **Crosscut 1000 feet to cut every vein on surface**
20. Number Claims, Title, etc. **Five - Cashier, Cashier #1, Cashier Extension, Panama,
New Year.**
21. Description: Topography & Geography
22. Mine Workings: Amt. & Condition **1000 feet crosscut. June 1st was in good condition.**

23. Geology & Mineralization **Gold, Silver, Lead.**

24. Ore: Positive & Probable, Ore Dumps, Tailings

24-A Vein Width, Length, Value, etc.

25. Mine, Mill Equipment & Flow Sheet

26. Road Conditions, Route **Old Kingman Road south 7 miles,
3 miles east. Good condition.**

27. Water Supply **Plenty of water from tunnel**

28. Brief History **Jennison on west side line has been heavy producer. Night Hawk on
south line high grade gold silver. Alpha Co. east line has been
heavy producer. Summit east line heavy producer.**

29. Special Problems, Reports Filed

30. Remarks

31. If property for sale: Price, terms and address to negotiate. **\$50,000 Bond and Lease
Terms to suit buyer**

32. Signed.....

33. Use additional sheets if necessary.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Mine *Cashier*
District *Wallaapai*
Former name
Owner *Bob Ahlman*
Operator *J. A. Bell*
President *A. A. Ross*
Mine Supt.
Principal Metals *Gold, Silver, Lead*
Production Rate
Power: Amt. & Type
Operations: Present

Date
Location *10 mi So. of Chlorid
6 mi East of Boulders*
Address *Dart Hwy.*
Address *15 mi N. of*
Gen. Mgr. *Kingman*
Mill Supt.
Men Employed
Mill: Type & Cap.

Operations Planned *Cross cut 1000 feet to cut every vein on surface*

Number Claims, Title, etc. *5 - Cashier, Cashier #1, Cashier extension, Panama, New Year*

Description: Topog. & Geog.

Mine Workings: Amt. & Condition *1000 ft cross cut
level 1st was in good condition*

Gold, Silver, Lead

Geology & Mineralization

Ore: Positive & Probable, Ore Dumps, Tailings

Mine, Mill Equipment & Flow Sheet

Road Conditions, Route Old Kingman Road south 7 mi
3 mi East. Good conditions

Water Supply Lots of water from tunnel.

Brief History Gemmison on West side line
Has big heavy producer. Night Hawk on
south line High grade Gold silver

Special Problems, Reports Filed Alpha Co. East line Has big
heavy producer. Summit East line
Remarks Heavy producer

If property for sale: Price, terms and address to negotiate.

\$50,000 Bond + Lease
Turn to Suite Buryer

Signed.....

Use additional sheets if necessary.

MC-42
SPECIAL

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine V Cashier Date July 29, 1940
District Wallapai, Mohave County, Ariz. Engineer Elgin B. Holt
P.O. Box 288
Subject: Kingman, Ariz.

S Y N O P S I S R E P O R T

OWNERS: Bert Abelman, J. A. Bell and A. A. Rose.
Bert Abelman, Agent, Chloride, Arizona.

LOCATION: Property is located on the west side of the Cerbat range at an approximate elevation of 4,500 feet.

METALS: Gold, Silver, Lead, Zinc and Copper; Silver and Gold predominating.

GEOLOGY: The rocks of this area are essentially of the pre-Cambrian complex, consisting of granite, gneiss and dark schists. These older rocks are intruded by younger masses of granite-porphry.

AREA: The Cashier group consists of 5 mining claims, covering three or four prominent veins, including the Alpha vein, which traverses the Cashier claim for 1,500 feet; this claim being the northwest extension of the Alpha mine.

DEVELOPMENT WORK consists of a crosscut tunnel 1,000 feet in length, the object of which was to cut the Cashier, Alpha, Summit, and many other veins. The tunnel was driven many years ago; but was never completed. About 75 feet from face of tunnel a vein was intersected, which may or may not be the Cashier vein. This vein is 5 feet wide and an 18-inch pay streak from which less than a carload of ore was shipped, assaying \$23 per ton in gold and silver.

By driving the Cashier tunnel an additional 250 feet it should intersect the Alpha vein 800 feet below the surface and at a point 50 feet northwest of the northwest end of the Alpha claim. Also, should this tunnel be continued about 2,200 feet beyond the Alpha vein, the Summit vein should be cut at a depth of approximately 2,000 feet from the surface. Also there are a number of undeveloped ore-bearing veins between the Alpha and Summit veins. Hence if this tunnel could be driven an additional distance of 2,500 or 3,000 feet a vast amount of commercial ore should be exposed in the various veins it would open up.

Work on surface outcrop of the Cashier vein consists of open cuts, showing vein to be 3 feet wide, from which 3 lots of ore were shipped, assaying as follows: One car of 30 tons, \$48 per ton; 1/2 car of 20 tons, \$64 per ton; 1/2 car of 20 tons, \$51 per ton; two other cars were shipped; but the assay results of these are not available. This data was furnished by Mr. Abelman.

WATER now flowing from the Cashier tunnel fills a 1.5-inch pipe. It is believed that after the Alpha and other veins are cut by this tunnel a great deal more water will be encountered sufficient to supply a large milling plant which could be located directly below the portal of said tunnel.

NOTE: As the Alpha vein traverses Cashier ground for 1,500 feet, as above set forth, a brief description of the Alpha property is submitted, as follows:

The ALPHA MINE is located on the west side of the Cerbat range, at an elevation of 5,300 feet, more or less, at a point about 2,200 feet south-southwest of the Summit property. It was worked up to 1939 by the Alpha-Keystone Mines, Inc., and ore produced, averaging around \$12 per ton in gold and silver alone, was hauled to the Keystone mill for treatment.

The Alpha property is opened by tunnels on vein, striking south 30 deg. east. The croppings are a prominent reef of black iron and manganese stained quartz. The vein ranges from 4 to 20 feet wide and ore contains silver sulphide, assaying up to 1,000 ounces silver to the ton. Iron pyrite, galena, zinc blende and chalcopryrite are also present in the ore. Hence all values can readily be recovered by selective flotation.

The mine has been an excellent producer of shipping and milling ores through the years and a great deal of money has been made out of it by various owners.

According to F. C. Schrader (1909): "A consignment of 400 tons of ore, shipped from Alpha mine, is reported to have netted \$125 per ton.

In Conclusion, the Cashier property is recommended to anyone looking for an attractive development setup on which to spend some money, with the end in view of opening up a large amount of mill tonnage out of which considerable money should be made. However, any company taking over the Cashier group should also secure, if possible, both the Alpha and Summit properties.

(SIGNED) Elgin B. Holt.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

Mine Cashier

Mining District & County - Wallapai Dist.
Mohave CountyLocation - 10 miles S. of Chloride
6 miles E. of Boulder Dam
highway. 15 miles N. of Kingman.

Former Name

Owners - Bert Abelman, J. A. Bell,
A. A. Rose

Address - Chloride, Arizona

Operator

Address

President

Gen. Mgr.

Mine Supt.

Mill Supt.

Principal Metals - Gold, Silver, Lead

Men Employed

Production Rate

Mill: Type & Cap.

Power: Amt. & Type

Operations: Present

Operations Planned - Cross cut 1000 feet to cut every vein on surface.

Number Claims, Title, etc. - Five claims - Cashier, Cashier No. 1, Cashier Extension,
Panama, New Year.

Description: Topography & Geography

Mine Workings: Amt. & Condition - 1000 feet crosscut. June 1, was in good
condition.

DEPARTMENT OF MINERAL RESOURCES

News Items

Date

7/30/40

Mine

CASHIER MINE

Location

CERBAT MOUNTAINS - MOHAVE COUNTY

Owner

BERT ABELMAN - J.A. BELL

Address

& A.A. ROSE ALL OF KINGMAN.

Operating Co.

LEASE TAKEN BY

Address

J.E. DIETRICH OF

SUNLAND - CALIF.

Pres.

Genl. Mgr.

Mine Supt.

Mill Supt.

Principal Metals

AU - AG - CU - PB, ZN.

Men Employed

JUST TAKEN OPTION

Production Rate

Mill, Type & Capacity

PLAN TO EXTEND CASHIER TUNNEL

Power, Amt. & Type

& DEVELOP.

Signed

J.E.

(Over)

Kingman, Arizona, July 30, 1940.

To: J. S. Coupal, Director,
From: Elgin B. Holt
Subject: Cashier Mine - Cashier Tunnel

The inclosed data is all about the Cashier Mine, or more particularly about the Cashier Tunnel, which I looked over carefully when I was making the Smelter examinations.

You will no doubt remember that Forest V. Phillips, former Gen. Manager of Alpha-Keystone Mines, Inc., had a long term option on all this property, including the Cashier Tunnel and claims, the Alpha mines, the Summit, Jamieson and all the Stockton Hill properties.

In fact, Phillips had the right idea - he wanted to build a large mill below the Cashier tunnel in order to work ores from all that country. Of course, he expected to drive the Cashier Tunnel forward in order to cut the Cashier, Alpha, Summit and a score of other veins. So much for the history.

Harry Lennox asked me to call on Bert Abelman, one of the owners of the Cashier group and tunnel. I did so and found this property was open for a deal for the first time in some years.

A day or two later, J. E. Dietrich came along looking for properties. I took him to Chloride, introduced him to Abelman and he now has an option on the property in question.

The object of this memo is this:

Kindly keep this data in your active files so that in case Dietrich fails to make a deal, you can present it to some live wire who might be interested in taking property over with a view to carrying out the plans Phillips had in mind.

E. B. Holt

Examinations, Surveys
Appraisals, Assays
Confidential Reports

E. ROSS HOUSHOLDER

Registered Professional Engineer No. 257, Arizona
Registered Land Surveyor No. 3065, Arizona
Licensed Land Surveyor No. 2641, California
and Mohave County Engineer
P. O. Box 1107

Kingman, Arizona

Residence-Office
431 E. Spring Street
Telephone SK 3-2097

COURTESY of
C.R. WARD CORP.

Refer: Ref 217, Claride
Property of Mrs Eue Sawyer Mortgage
~~Ref 217, Claride~~

Extracts From 1955
E. Ross Housholder's
Mining Report
On
Cashier Mine
Wallapai Mining
District
Mohave County, Arizona

Note: Photographs & Maps From
Original Report Are Available
If Not Here Included.

TERMINOLOGY: Standard terms used in this report follow definitions of those relating to the metal mining industry obtained from "A Glossary of the Mining and Mineral Industry by Albert H. Fay, published 1920, by the U. S. Bureau of Mines.

"Ore" Page 475 Bull. 95, Bur. of Mines, Dept. Int.

A natural mineral compound, of the elements of which one at least is a metal. The term is applied more loosely to all metalliferous rock, though it contain the metal in a free state, and occasionally to the compounds of non-metallic substances, as sulphur ore. (Raymond).

Also, material mined and worked for nonmetals, as pyrite is an ore of sulphur (Webster).

A mineral of sufficient value as to quality and quantity which may be mined with profit. (Hilseng).

A mineral, or mineral aggregate, containing precious or useful metals or metalloids, and which occurs in such quantity, grade, and chemical combination as to make extraction commercially profitable. (Robert Peele, Min. & Met. Soc. of America, Bull. 64, p. 257)

A metalliferous mineral, or an aggregate of metalliferous minerals, more or less mixed with gangue, which from the standpoint of the miner, can be won at a profit, or from the standpoint of a metallurgist can be treated at a profit. The test of yielding a metal or metals at a profit seems to me, in the last analysis, to be the only feasible one to employ. (J. F. Kemp, Trans., Canadian Min. Inst., 1909, p. 367).

"Ore blocked out" - P. 476

Ore exposed on three sides within a reasonable distance of each other. (H. C. Hoover, p. 17)

"Ore developing" - P. 476

Ore exposed on two sides. See Probable ore. (H. C. Hoover, p. 17) First class, blocks with one side hidden; second class, blocks with two sides hidden; third class, blocks with three sides hidden. (Philip Afgall, Min. and Met. Soc. of Am., Bull. 64, p. 250)

"Probable ore" P. 540

Any blocked ore not certain enough to be "in sight" and all ore that is exposed for sampling, but of which the limits and continuity have not been proved by blocking. Also, it includes any undiscovered ore of which there is a strong probability of existence. Ore that is exposed on either two or three sides. Whether two or three sides be taken as a basis will depend on the character of the deposit. (Min. and Met. Soc. of Am., Bull. 64, pp. 258 and 262).

"Ore developed" P. 476

Ore exposed on four sides in blocks variously prescribed.

E Ross Housholder

"Deposit" p. 211

The term mineral deposit or ore deposit, is arbitrarily used to designate a natural occurrence of a useful mineral ore in sufficient extent and degree of concentration to invite exploitation. (Raymond)

"Exploitation" p. 255

The extraction and utilization of ore. Often confused with "exploration." (Richard)

"Exploration" p. 255

The work involved in looking for ore. Often confused with "exploitation". (Richard)

"Exploring mine" p. 255

(Scot.) A working place driven ahead of the others to explore the field. (Barrowman) Prospect.

"Prospect" p. 540

To examine land for the possible occurrence of coal or valuable minerals by drilling holes, ditching, or other work. (Steel)

"Prospect hole" p. 540

Any shaft, pit, drift, or drill hole made for the purpose of prospecting the mineral-bearing ground.

"Prospecting" p. 540

Searching for new deposits; also, preliminary exploration to test the value of lodes or placers already known to exist.

"Development" p. 214

Work done in a mine to open up ore bodies, as sinking shafts and driving levels, etc. (Skinner).

and

"Resources"

(Re. S. G. Lasky, (with U.S. Geol.Surv.) p. 15, Vol. 23, No. 8, Aug. 1955, Western Mining)

"Resources include" all material in the ground, discovered or undiscovered, usable at present, or not, rich or lean, considered within the context of all factors -- that may influence its conversion into a reserve."

"Reserves" (Re. A. P. Butler, Jr. (with U.S. Geol.Surv), p. 15, Vol. 23, No. 8, Aug. 1955 Western Mining.

Apply to known deposits that have aspects of usability within a specified set of economic and technological conditions.

E. Ross Housholder

"Positive ore" P. 530 Bull. 95

Ore exposed on four sides in blocks of a size variously prescribed. See "Ore developed," also "Proved ore." (B. C. Hoover, p.17)

Ore which is exposed and properly sampled on four sides, in blocks of reasonable size, having in view the nature of the deposit as regards uniformity of value per ton and of the third dimension, or thickness. (Min. and Met. Soc. of Am., Bull. 64, p. 262)

"Proved ore". p. 541

Ore where there is practically no risk of failure of continuity (H. C. Hoover, p. 19). See also Positive ore.

"Possible ore" p. 531

Ore which may exist below the lowest workings, or beyond the range of actual vision. (Min. and Met. Soc. of Am., Bull. 64, p. 262).

"Ore expectant" p. 476

The whole or any part of the ore below the lowest level or beyond the range of vision. See Possible ore, also Prospective ore. (H. C. Hoover, p. 17). The prospective value of a mine beyond or below the last visible ore, based on the fullest possible data from the mine being examined, and from the characteristics of the mining district. (Phillip Argall, Min. and Met. Soc. of Am., Bull. 64, p. 260)

"Prospective ore" p. 540

Ore that cannot be included as proved or probably, nor definitely known or stated in terms of tonnage. See Possible ore, also Ore expectant. (H. C. Hoover, p. 19)

"Low grade" p. 409

A term applied to ores relatively poor in the metal for which they are mined; lean ore.

"Ore faces" p. 476

Those ore bodies that are exposed on one side, or show only one face, and of which the values can be determined only in a prospective manner, as deduced from the general condition of the mine or prospect. (Min. and Met. Soc. of Am., Bull. 64, p. 255)

"Ore partly blocked" p. 477

Those ore bodies that are only partly developed, and the values of which can be only approximately determined. (see Probable ore)

"Ore in sight" p. 477, Bull. 95

A term frequently used to indicate two separate factors in an estimate, namely

(a) Ore blocked out, that is, ore exposed on at least three sides within reasonable distance of each other;

(b) Ore which may be reasonably assumed to exist, though not actually blocked out;

these two factors should in all cases be kept distinct, because

(a) is governed by fixed rules, while

(b) is dependent upon individual judgment and local experience.

The expression "ore in sight" as commonly used in the past appears to possess so indefinite a meaning as to discredit its use completely.

The terms Positive ore, Probable ore, and Possible ore are suggested. (Min. and Met. Soc. of Am., Bull. 64, pp. 258 and 261)

E. Ross Housholder

TRANSPORTATION & SUPPLIES

A good mine road of easy down grade leads from the present workings of the Cashier mine, connecting with the Arizona State oil cake paved U.S. 93 highway which is about 2-3/4 miles westerly from the property, thence 13 miles over paved highway to Kingman, the chief distributing center for northwestern Arizona, where ample supplies of all kinds needed in mining are kept in stock.

CLIMATE

The district has a healthful climate with mild winters which permits good working conditions the year around. The vegetation is typical of semi-arid mountain regions. The rainfall is about 10 to 12 inches per year.

WATER SUPPLY

Domestic water can now be secured from several good springs on the property. Water from the present underground workings is in excess of any development requirements, and as development proceeds it is believed sufficient water will be obtained for other purposes.

TOPOGRAPHY

The district ranges in elevation from 3,000 feet in the foothills on the west to 5,000 feet on the east, at the crest of the Cerbat Mountain Range. Lane Springs, along which the Cashier mine is located, is a short, deeply cut side valley situated northeast of Todd Basin and the Golconda Mine, from which it is separated by a prominent ridge extending northwestward from the axis of the range. Lane Springs canyon empties into Long Wash the principal drainage of the immediate section, which leads northward and westward into Sacramento Valley. The mountain sides on either slope of Lane Springs canyon has a steep pitch. These slopes are deterial covered but permit the ready construction of trails and roads to all parts of the group.

ORE DEPOSITS OF THE DISTRICT

The ore deposits of this district contain principally lead, zinc, silver and gold, and sometimes copper. They occur in fissure veins which have a generally northwesterly trend and a steep northeasterly dip. Those situated north of Cerbat Wash including Lane Springs canyon section contain principally lead, zinc, silver and gold. The gangue is mainly quartz and the values usually favor the hanging wall. The principal minerals are pyrite, chalcopyrite, galena, spalerite, stibnite, and native gold. Near the surface native silver, argentite, and ruby silver appear, together with free gold, but the water level is often less than 80 feet, and subsequently primary ores come in at relatively slight depth.

Jan 26



GEOLOGY OF THE LAKE SPRINGS SECTION

The country rock is the pre-Cambrian granite, gneiss, and schist complex. It is intruded by dikes of minette, granite, granite porphyry, rhyolite and other rocks, some of which are associated with workable veins and are too greatly sericitized for determination. The complex is also flanked on the west by masses of Tertiary volcanic rocks, principally rhyolite.

The veins for the most part are regular and persistent with well defined walls. They occur chiefly in the pre-Cambrian granitic fissures. Oxidation has altered the upper part to a depth ranging from 50 to 300 feet, and this oxidized zone changes to the primary ore within a vertical range of 10 to 40 feet. At the present time operators utilize the sulphide ores. The old time miners were unable to market the sulphide ores at a profit such as has been mine during the past several decades in the district. Only the oxidized and secondary enriched ores were they able to treat and ship. There fore today there are mines being developed which may be capable of important production. The veins have suffered great erosion, and their mode of occurrence leads to the belief that they were deposited at comparatively great depths by hot circulating waters.

GEOLOGY AND VEINS OF THE CASHIER GROUP

The geology of the Cashier group corresponds to that of the district. The country rock is pre-Cambrian gneiss, extensively intruded by granite porphyry. In the shallow underground workings the granite porphyry seems to be associated with the veins and is finer grained than the outcrops. There are evidences of five major veins on this property, together with smaller ones that will bear investigation as the development of the mine proceeds.

CASHIER VEIN

The Cashier vein is in the central part of the group. It might be well to here record that Bert Ableman, a former owner of this mine group in 1927 told me personally that "a good tonnage of heavy lead ore has been extracted from its workings, especially from the 85 foot shaft, known as the Cashier shaft," which is within 500 feet of the westerly endline of the Night Hawk mine, and from the Ableman tunnel. This vein has a northwestward strike and the similar dip as the Night Hawk vein, of which it is undoubtedly the western extension. It is a large vein dipping to the northeast between 70 and 80 degrees. It contains sulphide ores of lead, silver, zinc and gold, and in places carrying some copper. None of the present workings are many feet below the grass roots. The ore shoots that have been exposed, I believe however, have promise to become producers, following an intelligent development program. Based on his office records in 1927, Bert Ableman told me personally that "the ores thus far shipped from the Cashier vein ranged between \$48 and \$200 per ton."



E. ROSS HOUSHOLDER, E. M.
CHEMIST
REGISTERED PROFESSIONAL ENGINEER
 MEMBER
 SOCIETY OF AMERICAN MILITARY ENGINEERS
 AMERICAN ASSOCIATION OF ENGINEERS
 AMERICAN SOCIETY OF ENGINEERS

KINGMAN, ARIZONA.

July 16, 1927

WE HEREBY CERTIFY THAT THE SAMPLES ASSAYED FOR

Cashier Mine,
 Kingman, Arizona.

GIVE THE FOLLOWING RESULTS:

OWNER'S MARK	GOLD		SILVER		GOLD AND SILVER VAL. PER TON DOLLARS CENTS	COPPER PER CENT	LEAD PER CENT	ZINC PER CENT
	GR. PER TON	VAL. PER TON	GR. PER TON	VAL. PER TON				
Ore from wedge vein near face	0.88	\$10.42	5.44	\$4.99 @ 90¢/oz	\$5.59	0.6%	5.2%	13.44%
Select ore Ableman tunnel dump	0.78	\$16.71	35.72	\$32.15 @ 90¢/oz	\$58.74	2.5%	44.0%	3.32%
Select ore Cashier shaft	0.36	\$7.44	23.00	\$20.70 @ 90¢/oz	\$32.30	0.88%	41.4%	7.61%
Ore from main tunnel 100 feet from portal	0.02	\$0.42	3.32	\$2.99 @ 90¢/oz	\$3.69	0.7%	1.3%	3.25%

GOLD AT \$20.67 PER OUNCE.

SILVER AT PER OUNCE.

CHARGES \$ Paid

f2

GOLD \$20 PER OUNCE
 SILVER 90 CENTS PER OUNCE

E. Ross Housholder
 ASSAYER

Wm. L. Kern
 ASSAYER

E. ROSS HOUSHOLDER, E. M.
CHEMIST
ANALYST

REGISTERED PROFESSIONAL ENGINEER

MEMBER
 SOCIETY OF AMERICAN MILITARY ENGINEERS
 AMERICAN ASSOCIATION OF ENGINEERS
 AMERICAN SOCIETY OF ENGINEERS

KINGMAN, ARIZONA.

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WE HEREBY CERTIFY THAT THE SAMPLES ASSAYED FOR

Cashier Mine,
 Kingman, Arizona.

GAVE THE FOLLOWING RESULTS:

OWNER'S MARK	GOLD		SILVER		GOLD AND SILVER		COPPER PER CENT	LEAD PER CENT	ZINC PER CENT
	GR. PER TON	VAL. PER TON	GR. PER TON	VAL. PER TON	DOLLARS	CENTS			
Ore from vein near face	0.88	\$0.42	5.44	\$4.99 @ 90¢/oz	5.59		0.6%	5.2%	13.44%
Select ore Ableman tunnel dump	0.78	\$16.71	35.72	\$32.15 @ 90¢/oz	58.74		2.5%	44.0%	3.32%
Select ore Cashier shaft	0.36	\$7.44	23.00	\$20.70 @ 90¢/oz	\$32.30		0.88%	41.4%	7.61%
Ore from main tunnel 100 feet from portal	0.02	\$0.42	3.32	\$2.99 @ 90¢/oz	\$3.69		0.7%	1.3%	3.25%

GOLD AT \$20.67 PER OUNCE.

SILVER AT PER OUNCE.

CHARGES \$ Paid

12

GOLD \$20 PER OUNCE
 SILVER 90 CENTS PER OUNCE

E. Ross Housholder
 ASSAYER

Wm. L. Kern
 ASSAYER

NO.	OZS. GOLD PER TON	OZS. SILVER PER TON	PER CENT LEAD	PER CENT COPPER	PER CENT ZINC	IMBOL. PER CENT	PER CENT IRON	PER CENT	PER CENT	VALUE OF GOLD PER TON
Picked Shaft Panama 125-1	0.13	13.00		0.90	12.90					\$ 4.95
30 Ft. from Portal 125-2	0.14	1.85	2.70	0.90						\$ 4.90
30 Ft. from Portal 125-4	0.06	32.40	2.80	0.90	None					\$ 2.50
Upper Shaft 8 Ft. From Portal 125	0.08	8.95		0.90	None					\$ 2.50

REMARKS

CHARGES \$ 2.00

E. S. EASTE P. H. BRINSON DORIN FISHER HAROLD E. GULVER

CRISMON & NICHOLS
W. L. Kern

CRISMON & NICHOLS
ASSAYERS AND CHEMISTS
229-231 SOUTH WEST TEMPLE STREET
P. O. BOX 1708

REPORT OF ASSAY

Exploration Division Co.

SALT LAKE CITY, UTAH July 5, 1955

DESCRIPTION	NO.	OZS. GOLD PER TON	OZS. SILVER PER TON	PER CENT LEAD	PER CENT COPPER	PER CENT ZINC	IMBOL. PER CENT	PER CENT IRON	PER CENT	PER CENT	VALUE OF GOLD PER TON
Hanging Wall 30 in	126-5	0.03	17.20	6.70	3.70						\$ 1.05
Dimp-Cashier Cross cut	126-6	0.06	3.40	4.40	0.45	6.15					\$ 2.10
Cashier 30 ft. from Portal Cross Cut 60b	126-7	0.02	0.60	0.60	0.40	None					35

SAMPLES 1
DATE 28

SAMPLES 28
RECEIVE 1

REMARKS

CHARGES \$ 10.00

CRISMON & NICHOLS
W. L. Kern

July 26, 1955

OWNER'S MARK	GOLD PER TON		SILVER PER TON		TOTAL VALUE GOLD & SILVER	COPPER PER CENT	LEAD PER CENT	ZINC PER CENT
	OUNCES	VALUE	OUNCES	VALUE				
217 Panama #3 ft wall 10ft portal 10" wide floor	.05		1.6			.4	1.61	.0
218 Portal 30ft wide-hunging wall	Trace		18.0			3.9	0.50	
219 Cashier #6 dimp at cross cut	.02		.7			.2	7.25	
220 Cashier #7 30ft portal cross cut	Trace		Trace			Trace	.6	
231 Upper Shaft	.02		8.0					
232 Panama #1 picked sample	Trace		34.8			.8	12.76	
235 Cashier cross-cut 50 ft in #1	Trace		.50					
236 Cashier cross-cut 50 ft in #2	.16		7.50			.1	4.8	4.

GOLD 835 PER OUNCE
SILVER 80 CENTS PER OUNCE

W. L. Kern ASSAYER

OUTCROP OF THE ALPHA VEIN.

Looking southeast from the center of the New Years claim of the Cashier group, along the outcrop of the Alpha vein, showing the dumps of the Alpha mine in the central background from which many thousands of dollars worth of ore have been mined and shipped from this same vein according to production records published concerning this mine I believe and expect this vein will be cut by the proposed Cashier development tunnel.

ALPHA VEIN

752 #1 The Alpha vein is about 400 feet northerly from the Cashier vein and practically parallels it although trends more to the north, almost directly across the strike of the pre-Cambrian gneiss complex. Outcroppings are both prominent on the Cashier property and the patented Alpha estate to the east, as can readily be noticed in the above photograph. This vein being for the most part a prominent reef of black iron and manganese stained quartz. The vein varies in width from 4 to 30 feet, and consists principally of a ledge in which the ore occurs. The ore contains silver sulphide, pyrite and chalcopyrite. Another almost parallel vein to this Alpha vein enters a couple hundred feet northerly which has the same general character as this one. Both have a steep dip to the northeast. The latter vein apparently enters the old Summit property.

WEDGE VEIN

Note #1 The Wedge or Main working tunnel has been driven about 900 feet, of which 375 feet has been on the Wedge vein itself, exposing ore of a possible milling grade. The wedge vein has a west northwest strike with a dip ranging between 75 and 86 degrees to the northeast. This vein is several hundred feet southwesterly from the Ableman tunnel on the Cashier vein. According to the observed strike and dip of the wedge vein it is expected that it will coincide with the Cashier vein upon the Cashier property near its easterly endline, not far from the boundary of the Night Hawk mine.

Note #2 A short distance from the Cashier shaft to the southwest there is a marked quartz stringered blowout on the wedge vein that would lead me to believe that there could be an ore body beneath the surface at this point. The present face of the main working tunnel is now in what is believed by me to be of a grade that will probably make milling ore and it just entering beneath this widened portion of the vein which would bear out the supposition mentioned above. An assay taken from this ore gives 5.44 ounces silver, 5.2% lead and 13.44% zinc together with a low percentage of copper. The ore is encountered over the whole face of the drift in three parallel streaks varying in width between 6 inches to 2 feet, with streaks of gangue material between 3 to 6 inches wide. Much water has been encountered at this place which is typical of ore bodies in the sulphide zone, in this district.

Between the Cashier vein and this Wedge vein there is another vein that outcrops prominently but on which there has been little prospecting.

DEVELOPMENT & ORE EXPOSURES

Note #3 As just stated the Wedge vein has been opened 375 feet in the present working tunnel. A 500 foot crosscut has been started toward the Cashier and Alpha veins as is recorded in the accompanying map. One hundred feet from the portal there has been some zinc ore exposed. This ore occurs in a lense about 60 feet long, and varying from 8 inches to 2½ feet in width carrying from 2 to 6 per cent zinc and a few ounces in silver according to mine records. In places lead occurs in appreciable quantities. The ore shoot at the face of the tunnel has already been exposed for 40 feet carrying values in lead, zinc, silver and copper. There is a marked increase in the silica or quartz content where the ore occurs in this vein.

Note #4 The Ableman tunnel on the Cashier vein has been driven about 60 feet in a southeasterly direction along the vein at a shallow depth. Bert Ableman, the locator of this group, after whom this tunnel is named, made a shipment during December 1924, that had according to Mr. Ableman's records shown to me in 1927 and my belief "a gross value of \$316 per ton from an underhand stop in the heading of this tunnel. The following month he made another small shipment that had a gross value of \$64 per ton. The shipments were sent to the sampling works at Kingman. French and

Winters, two contractors and leasors, shipped 8 tons from this tunnel in the spring of 1925 that brought them \$51 per ton. The values were in lead, silver, gold, and zinc." A selected sample from ores left on the dump gave assay returns of 35.72 ounces in silver, \$16.71 in gold, 2.5% copper, 44.0% lead and 3.32% zinc, which checks the reported value of the shipments made from this tunnel.

One noticeable feature of the ore deposits in this tunnel was that a horizontal bedding or "floor" of mica schist was found above each of the lead ore shoots.

72411

Then there is the Cashier shaft on this same vein several hundred feet to the southeast that is 85 feet deep. Jack Connell who owned this claim between 45 and 55 years ago told me persons in 1924 that he "sunk this shaft, from which he shipped a carload of ore that brought him \$48 per ton even with an exceedingly low price for lead. The claim was then known as the Hasyampa. The companion claim which is now partially covered by the New Years claim, being the westerly extension of the Alpha vein was then known as the Yun Yan." There is today a 16 inch exposure of lead sulphide ore at the bottom of this shaft contained in a 3-1/2 foot face of lower grade ore of milling grade. A selected sample from the old dump gave in 1927 returns of \$6.44 in gold, 23.00 ounces silver, 0.8% copper, 41.4% lead and 7.61% zinc.

For the most part the other openings on the property consist of location and assessment holes on the various veins which have uncovered considerable ore of varying grade. In general the Cashier group lies in the heart of a mineralized area from which much ore has been extracted, but the development of the group itself has been neglected in the past, for the superficial work that has been done thus far has only scratched the veins. The showings thus far made have been good and the property, I believe has much promise in a mining way.

SHIPPING ORES TO CUSTOM PLANTS SUGGESTED

Until the time arrives when the development of the Cashier mining property uncovers an extent of ore of sufficient size to justify the expenditure necessary for constructing and equipping a milling plant of its own on the estate itself, it is preferable to mine, sort or select, and ship to custom milling plants or custom smelters, even though the ore responds to milling treatment at a reasonable cost per ton. With present competition for ores by smelting plants and the more efficient operation of large custom milling plants as compared to small size plants, it will figure to your advantage to ship to those plants rather than consider the erection of a small plant on the Cashier mine group at this time.

ADVANTAGES OF SHIPPING TO CUSTOM PLANT

Advantages to be gained by shipping rather than constructing a small smelting or mill treatment plant on the Cashier mine group, may be summarized as follows:

- (1) a large developed body of ore is not initially required.

(2) Initial plant cost, including development of considerable amounts of water, is not necessary.

(3) The risk involved in the proposition as a whole when no mill treatment plant or smelter is erected at the mine itself, is not as great, due to the smaller investment necessary.

ORE VALUE DETERMINED BY SHIPPING RETURNS

Note C. D. (Blackie) McGovern, was mine superintendent in charge of underground operations at the Cashier mine during the 1938 activity and on the fifth of September 1955, personally told me that "the ore, taken from a 35 to 40 foot wing in the Cashier tunnel at about 740 feet from the portal, where they cut the Cashier Vein and the ore shoot uncovered above near the surface (see sketch map) in the Ableman Tunnel, contained an average of \$68 in gold (Au) and silver (Ag) and 5 to 6 per cent lead (Pb) and from 2 to 4 per cent copper (Cu). On the Cashier tunnel level at this point they drifted in ore to the northwest on the Cashier vein about 35 to 40 feet. They also, at that time drifted southeast about 25 to 30 feet. The shipping grade ore average (according to McGovern) about 18 inches in width, although in places the width dropped to 4 and/or 5 inches in width. The mill grade ore varied from 28 inches to 38 inches in addition to the width of the shipping ore."

Note Mr. McGovern also stated that "at 1,100 feet in from the tunnel portal the Alpha Vein was cut and a short drift run to the northwest about 18 feet, and about 12 feet to the southeast. Ore was extracted from these drifts and some underhand stoping to make up a shipment to the Keystone mill, then operating at Mineral Park, about 8 miles by road to the north of the Cashier mine. This ore contained \$64 in gold and silver, a little lead, some zinc and a small amount of copper. The vein was similar in width to that of the Cashier Mine, both as to the higher grade streak and the milling grade ore, which they were not interested in mining at that time." Mr. M. B. Maxwell who had worked in the Cashier mine agreed with the statement made by Mr. McGovern.

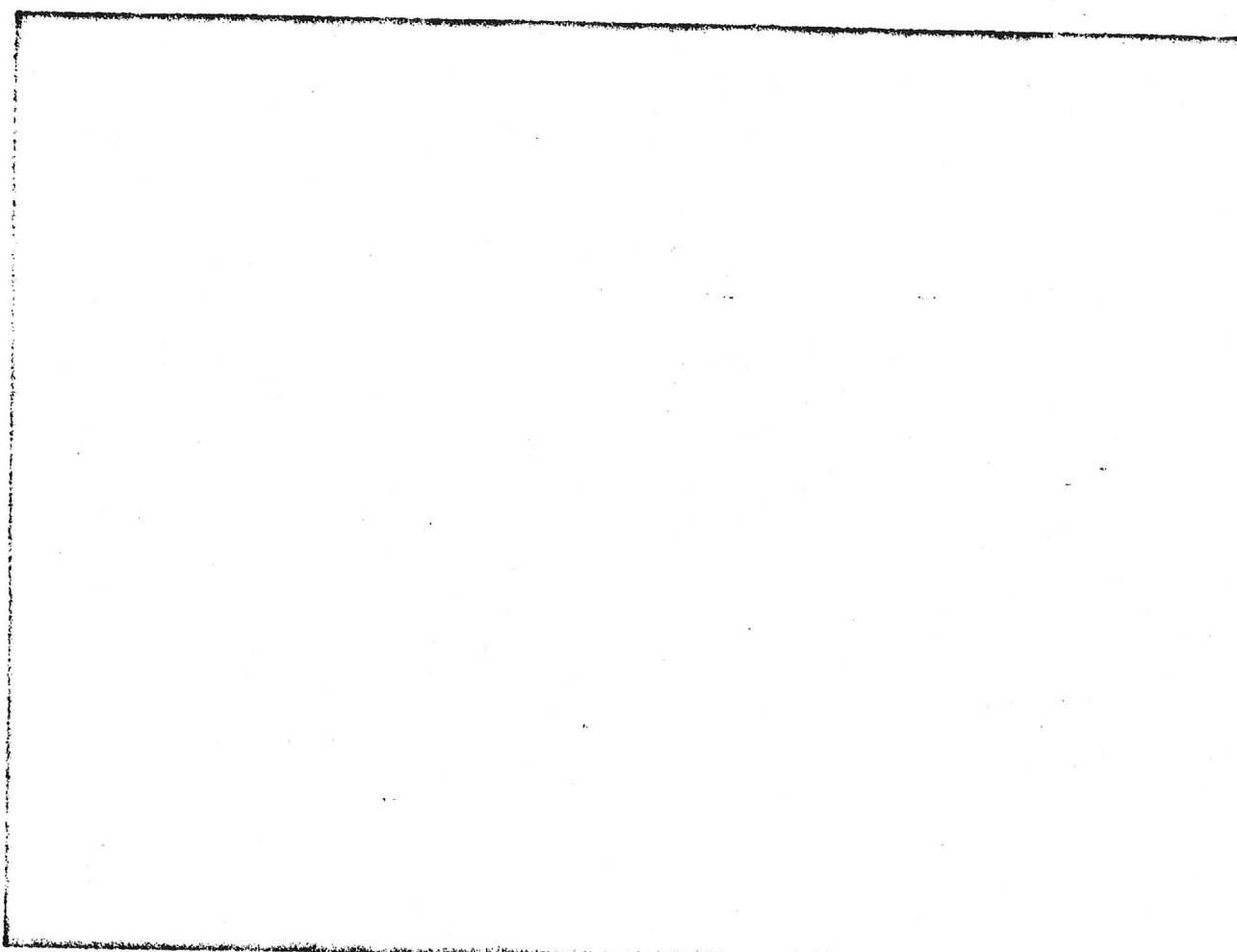
The footage from the Cashier Tunnel portal of about 740 feet to the Cashier Vein corresponds closely with the 80 degree dip noted on the surface, although the recorded dip of the vein was 72 degrees at the point of contact. Also the 80 degree dip of the Alpha Vein would indicate that it would be encountered at near 1,100 feet from the tunnel portal (see sketches).

After careful calculations, and in keeping with the definitions of standard terms, relating to the metal mining industry, I have tabulated the resulting information, in the following, table. Note carefully the terminology and tonnage.

Tonnage estimates by E. Ross Haushalter, E. G., Sept. 1958

Type of ore*	Tonnage of vein or possible ore		Total
	Cashier vein	Alpha vein	
Provable Ore (A)	1,540	700	2,240
Additional Proved Ore (B)	3,000	1,280	4,280
Total Proved Ore (A, B)	4,540	1,980	6,520
Also accompanying known possible projection maps	**	**	**
Additional Possible ore	5,900	2,800	8,700
Total of ore in mine	10,440	4,780	15,220

Based on the knowledge of the lead, zinc, copper sulphide deposits carrying gold and silver values in this area and mining district and the existing characteristics in evidence of this lead-zinc-copper with gold and silver mine property, I estimate and expect your future development of these deposits, will necessarily uncover an additional tonnage, hereby tabulated.			
Additional Ore expected	27,000	8,000	35,000
Total for all expected ore	37,840	12,780	50,620



AT THE PORTAL OF THE CASHIER TUNNEL

This shows a portion of the big dump at the main working Tunnel, and the track leading from the portal.

LOCATION & TRANSPORTATION

The Cashier group is located in the southwest portion Township 23 North, Range 17 West, in the Wallapai Mining District in the Coconino Mountain Range, Mohave County, Arizona, at an elevation ranging between 4000 and 4500 feet above sea level. The group is 2-3/4 miles in an easterly direction by a well paved highway leading southeasterly into Kingman, the Mohave County seat, on the main line of the Atchison, Topeka & Santa Fe railroad; also the junction with Arizona State oil cake paved highway U.S. 66.

SUMMARY

note

After a careful preliminary examination of the six lode mining claims, comprising the estate of the Cashier group, located in the Wallapai Mining District, Mohave County, Arizona it would seem to me that the indications on the property; such as the prominent vein exposures, whose characteristics are similar to the production veins of the district, the same general strike and dip of the veins to those in the geological formations recognized as favorable in which to expect commercial ore deposits in the district, and to the discovery of ore, of commercial grade, carrying a mineral content; indicated by the assay and shipping records mentioned above, warrants further exploration and development to open up the ore bodies believed by me to exist on the group, especially those on the Wedge, Cashier and Alpha veins, that have already exposed ore at or near the surface.

Because the ores of this mine already show a value as indicated above supplemented by a development program to explore and determine their extent have the possibility to prove profitable to the owners.

In going over this property and examining the large vein having widths up to 40 feet, and obtaining samples carrying from a few dollars up to better than \$100 in values, supplemented by the favorable geological conditions, I was impressed with the possibilities of this property. It is my opinion that when these ore bodies have been opened up to several hundred feet in depth, supplemented with suitable lateral work, that it will prove to be one of the important mines of the district, as is attested by the persistent length and width of the outcrops and the type of deposition.

These veins are strong and well defined, and in my opinion there is no question as regards their permanency and continuity to a great depth. It can be expected that the base metals content will materially increase as the openings penetrate below the leached surface area. This has already been proven in the shallow openings already made. Then too, samples taken from the various openings on these veins, all carry encouraging value. This opinion is based also on my observation and knowledge of similar prospects that have become important producers in this area.



21-100

APPENDIX

A condensed description of ROCKS is here included, gleaned from pages 94 and 95 in Arizona Bureau of Mines Bulletin No. VI, No. 6 (1935, by Dr. G. Montague Butler. In so far as any of these terms are used in this report, the definitions of such terms are intended to conform to the following data.

E. Ross Housholder
E. ROSS HOUSHOLDER, E.M.
Registered Professional Engineer #2

ROCKS

Five classes of rocks are generally recognized, namely: igneous, clastic, chemical precipitates, organic, and metamorphic. Each class may be briefly defined and described as follows:

IGNEOUS ROCKS

Igneous rocks are formed by the solidification of once molten earth material--magma. Three subdivisions of igneous rocks may be recognized, namely: plutonic, minor intrusive, and extrusive. Most igneous rocks are very hard when fresh.

PLUTONIC ROCKS: Such igneous rocks have usually cooled slowly far below the surface where the pressure is very high. They ordinarily occur in masses of great size, although relatively narrow dikes of some plutonic species, such as pegmatite, are common in some localities. Plutonic rocks are compact, composed of interlocked grains large enough to be seen with the unaided eyes, which consist of two or more ingredients each of which may be readily recognized by a mineralogist, and, with very rare exceptions, the more plentiful ingredients do occur in well-formed crystals.

MINOR INTRUSIVE ROCKS: Such igneous rocks are formed from magma that has risen toward the surface of the earth through cracks (forming dikes) or has spread between layers of earth material (forming sills, etc.) Part, at least, of the ingredients are forced to crystallize with relative rapidity when the magma comes in contact with cool earth material (resulting in fineness of grain and, although the pressure on the solidifying magma averages less than on plutonic magmas, it is still relatively great, so the resulting rock is compact. All of the ingredients of some of the minor intrusive rocks are so small that none of them may be identified or even seen with the unaided eyes, but, typically, these rocks show well-formed crystals of one or two minerals embedded in a finer groundmass.

EXTRUSIVE ROCKS: Such igneous rocks have solidified on or relatively close to the surface of the earth and occur typically in surface flows, volcanic necks, and dikes. Otherwise, but the latter are frequently porous, are more commonly composed of lava glass (obsidian), and they are sometimes banded (show flow texture).

E. Ross Housholder

CLASTIC ROCKS

Clastic rocks are composed of fragments of other rocks, produced by weathering or mechanical disintegration. The fragments may be several inches or feet in diameter (conglomerates and breccias), much smaller, but visible to the unaided eyes (arkose, grit, and sandstone), or microscopic (shale, clay, and some limestone). The fragments may be transported by wind and water and are usually stratified (laid down in distinct layers), especially if finally deposited in water, when they are called sediments or sedimentary rocks. The fragments are often eventually cemented together more or less firmly, but all degrees of hardness are found in clastic rocks. Such rocks contain shells or other remains of organisms (fossils).

CHEMICAL PRECIPITATE ROCKS

Chemical precipitate rocks are composed of material deposited by precipitation from water solutions, usually as the result of evaporation. The precipitate rocks are commonly interbedded with sediments that were washed into the evaporating body of water. Rock salt and gypsum are illustrations of this type of rock.

ORGANIC ROCKS

Organic rocks are composed of

- (1) Material secreted or deposited by animals or plants, or
- (2) Made up of animal or plant remains.

Illustrations are some limestone and coal.

METAMORPHIC ROCKS

Metamorphic rocks are made up of other rocks that have been changed in appearance or composition, or both, by pressure, heat, or solutions that have percolated through them. Two types are recognized, namely: regional or dynamometamorphic rocks and contact or thermometamorphic rocks.

REGIONAL OR DYNAMOMETAMORPHIC ROCKS: Such rocks are composed of earth material that has been deeply buried and, therefore, subjected to enormous pressure and some heat. Such rocks are often banded, hard, and composed of interlocked grains visible to the unaided eyes. They sometimes contain well-formed crystals. Illustrations are mica schist, gneiss, slate, quartzite, and some marble.

CONTACT OR THERMOMETAMORPHIC ROCKS: Such rocks are composed of material that has been changed and often baked by the heat of intrusions of molten magma and by the chemically active solutions expelled by such magma as they cool. Illustrations are garnet and epidote rocks.

E. Ross Housholder

DESCRIPTION OF ROCK SPECIES
MENTIONED IN THIS REPORT

ALASKITE: A granular plutonic igneous rock composed almost entirely of the relatively light colored minerals, quartz and feldspar. Like granite (which see), but lacking dark colored constituents.

ANDESITE: An extrusive igneous rock that usually contains glassy, light colored, plagioclase feldspar crystals in a darker colored, fine-grained groundmass. Does not contain visible quartz, but may contain black hornblende or black augite pyroxene crystals. The groundmass may be porous and the rock then has a very rough texture.

BASALT (MALPAIS): An extrusive igneous rock that often contains small, black crystals of pyroxene or dark green or brown crystals of olivine in a somewhat lighter colored groundmass in which may be imbedded, however, numerous small, very slender, glassy plagioclase feldspar crystals. Usually very dark colored and relatively heavy and frequently decidedly porous.

BRECCIA: A clastic rock that is composed of angular broken fragments of other rock, more or less firmly cemented together. The fragments are often large, and must exceed 1/8 inch in diameter.

CONGLOMERATE: A clastic rock that is composed of large, rounded fragments of other rock more or less firmly cemented together; otherwise like a breccia (which see).

DIABASE: A minor intrusive igneous rock that shows numerous slender, dull or stony lustered, usually white plagioclase feldspar crystals, pointing in all directions, imbedded in a dark colored (often black on fresh surfaces) groundmass that is composed of pyroxene.

DIORITE: A plutonic igneous rock like granite (which see) in texture, but it contains no visible quartz and is usually predominantly composed of white plagioclase feldspar and black hornblende.

GABBRO: A plutonic igneous rock like granite (which see) in texture, but it contains no quartz and is usually predominantly composed of dark colored pyroxene and lesser amounts of white or light green plagioclase feldspar.

GNEISS: A regional metamorphic rock usually associated with other schists and much like granite (which see) in composition. In fact small specimens cannot always be distinguished from granite, but the rock is plainly banded when seen in the field, and white mica (muscovite) is a very common constituent.

GRANITE: A plutonic igneous rock that consists essentially of pinkish to white orthoclase feldspar and quartz, but mica, especially black mica (biotite), is a common constituent and other and other minerals may be present in subordinate amounts.

E. Ross Hausholder

LIMESTONE: A rock composed essentially of carbonate of lime which dissolves with the emission of bubbles when a drop of dilute or concentrated muriatic acid is placed upon it. Depending upon its origin it may be either a clastic or an organic rock or a chemical precipitate. Most limestones are finely granular and light colored. They are often flint-like in appearance when freshly broken. They may contain fossils which are usually composed of quartz.

MARBLE: A regional or contact metamorphic rock that is formed from limestone and has the same composition as limestone, but it is rather coarsely granular so that the individual grains, which are usually glassy, and have the perfect cleavage of calcite (which see) are visible to the unaided eyes.

MONZONITE: A plutonic igneous rock like diorite (which see), but it contains both orthoclase (often pinkish in color) and plagioclase (often white or greenish in color) feldspar.

PEGMATITE: A plutonic igneous rock that occurs in dikes and is much like granite (which see) in texture and composition, but the individual grains or crystals are very large (often several inches long, or larger), and white mica (muscovite) is a much commoner constituent than black mica (biotite). May contain beryl, topaz, tourmaline, and even rarer minerals.

PERIDOTITE: A basic plutonic rock that is usually dark colored and relatively heavy. It contains no feldspar or quartz. Dark brown or green pyroxene (hypersthene, enstatite, or diallage) and olivine are the most plentiful ingredients, but it may also contain magnetite, chromite, and pyrrhotite.

PHONOLITE: An extrusive igneous rock, sometimes has a somewhat greasy luster, occurs in various tints of dull green, gray, and brown, and shows few easily identifiable minerals other than small, scanty crystals of glassy feldspar and, sometimes, numerous very thin, slender black crystals of aegerite pyroxene. One peculiarity of these rocks is that thin slabs, when suspended or held in proper way and struck with a hammer or pick, ring like a bell, hence the name, from two Greek words meaning "sound" or "tone" and "stone." Usually formed when the phonolite breaks as a molten lava up through crater fillings, and quickly solidifies in the form of dikes. Phonolite can rarely be recognized with certainty by other means than a microscopic examination of a thin section. Its presence does not necessarily indicate the near presence of any particular metal or mineral.

PORPHYRY: A minor intrusive igneous rock that, typically, shows well-formed crystals of light colored, stony lustered orthoclase feldspar, and, more rarely, quartz in a dense, fine-grained groundmass.

QUARTZITE: A regional metamorphic rock formed from sandstone. The openings between the grains in the sandstone have been filled with quartz and the resulting rock is very dense.

E. Ross Henshelder

SANDSTONE: A clastic rock that is composed of grains of other substances, usually largely or almost entirely quartz, which are more or less firmly cemented by silica, calcium carbonate, iron oxide, or some other substance. The individual grains are visible to unaided eyes and are of the size of coarse granulated sugar, or smaller.

SCHIST: A regional metamorphic rock that has, typically, a banded (schistose) texture and often breaks readily along the bands. There are many varieties, such as mica schist, tremolite schist, etc., each being usually named by prefixing the name of the most prominent mineral or minerals.

SERPENTINE: A rock formed by the alteration of very basic igneous rocks like peridotite (which see). It is usually soft enough to be easily scratched with a knife, has a somewhat waxy or greasy luster, feels smooth, breaks with a smoothly curving fracture, is most often some shade of green (commonly dark) in color, and light may frequently be seen through thin edges.

SHALE: A clastic rock made of layers (often as thin as cardboard, or thinner) or particles, too small to be visible to unaided eyes, of various hydrous aluminum silicates (of which kaolinite is one), quartz and other impurities. It is usually soft, smells like clay, especially when moistened, and breaks along the layers. The color is usually brown or gray.

SLATE: A regional metamorphic rock like shale in composition but much harder. It breaks into strong, thin sheets perpendicular to the pressure that produced it and the color is most frequently black.

SYENITE: A plutonic igneous rock like granite (which see), but it contains no visible quartz and black hornblende is more often present than is black mica.

RHYOLITE: An extrusive igneous rock that is usually light colored and relatively light in weight. It often contains glassy, colorless or white orthoclase feldspar crystals and, less frequently, quartz crystals imbedded in a fine grained groundmass that often feels rough. It sometimes shows flow texture (is banded) and may be glassy (obsidian). When it is very finely porous and contains no grains of minerals visible to unaided eyes, it is called pumice.

TRACHYTE: Exactly like rhyolite (which see), but no quartz, or practically none, is visible even in thin sections under the compound microscope. It cannot usually be distinguished from rhyolite in the field.

TUFF: Composed mostly of the fine material (particles of volcanic glass) called volcanic ash that is thrown into the air during volcanic eruptions. It is usually white or light tinted, porous, light in weight, and soft. It feels rough and commonly contains angular fragments of extrusive rocks.

VOLCANIC BRACCCIA: A braccia (which see) that contains numerous angular fragments of extrusive rocks.

S.P. Housholder

References to publications

The following list of publications and sources of information, used as part of the references in compiling this report, is here included for the information of those who may be interested.

Geology of the Catman Gold District, F.L. Ransome, U. S. Geological Survey Bulletin 743, 1923.

Mineral Deposits of the Cerbat Range, Black Mountains, and Grand Wash Cliffs, Mohave County, Arizona; U. S. Geological Survey Bulletin 297, 1909. F. C. Schrader.

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Mining Methods and Records at the United Eastern Mine: Roy W. Moore: Trans. A.I.M.E. vol. 76, p. 56, 1928.

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The superficial alteration of ore deposits: R. A. F. Fenrose Jr.; Jour. Geology, vol. 2, pp. 314-316, 1894

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Reconnaissance of Parts of Northwestern New Mexico and Northern Arizona: M. H. Darton; U. S. Geol. Surv. Bulletin 435 1910.

Geology of Mohave County, Arizona: S. Ross Housholder; 1929.

Geology and Ore Deposits of the Catman and Katherine Dists., Arizona: Carl Laussen, Bulletin 131, Ariz. Bureau of Mines, 1931.

Resume of Arizona Geology: S. H. Darton: Bulletin 119: Arizona Bureau of Mines, 1925.



July 30, 1940

P. O. Box 286,
Kingman, Ariz.

Subject: Cashier Mine

Mr. J. E. Dietrich,
10547 Whitegate St.,
Sunland, Calif.

Dear Mr. Dietrich:

Referring to the Cashier Mine, on which you secured an option from Mr. Bert Abelson, of Chloride, Arizona, on July 27th, per your request I am herewith inclosing a copy of a brief report on this property by myself, which may be of some assistance to you in presenting this property to your clients.

I believe if you can find the money with which to drive the Cashier tunnel forward to the Alpha and other veins, you can make considerable money out of this enterprise. However, as stated in the report mentioned, you should arrange, if possible, to secure at least the Alpha group, on which there is considerable ore opened up.

Adjoining properties are the Summit, located on top of the Cerbat mountains and which property is now in ore, the Night Hawk, Mint and Jamieson. Suggest you look some of these mines over, when you examine the Cashier. Also the road leading from Highway 93 to the Cashier mine is County maintained the year round. This road leads on over the mountain to Stockton Hill, where there are a number of mines, some of which are being operated and shipping ore. Hence, if you had a good sized flotation mill located below the Cashier Tunnel, you could get considerable customs ore, and be in line also to pick up the better properties.

The Cashier Tunnel is a splendid bet all around - not only because a goodly amount of milling ore is now already indicated in that area; but also because this tunnel produces mill water, which is a scarce article in that neck of the woods. The Alpha mine workings struck considerable water mainly in a winze sunk from the lower tunnel of that property; so when the Alpha vein is cut, the present water now flowing from the portal of the Cashier Tunnel will be more than doubled. I hardly think there is any doubt of this. All veins in the Cerbats carry water.

With kind personal regards, I am

Very sincerely yours,

Elgin B. Holt,
Field Engineer.

cc - J. S. Coupal

September 15, 1941

Mr. Bert Abelman
Chloride, Arizona

Dear Mr. Abelman:

L. S. Hackney, 132 North Kenmore Avenue, Los Angeles, California, has expressed an interest in your ~~Cashier Mine~~ and we have sent him your name and address. You will no doubt hear from him.

If you do make a contact with him that results in business done, we would appreciate your advice for the records of the department.

Hoping that you will hear from him further, I
am

Yours very truly,

Chairman, Board of Governors
Arizona Department of Mineral Resources

CFW:LP

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

Mine

Cashier

District

Wallapai

Location

10 mi So. of Chloride
6 mi East of Boulders

Former name

Owner

But Ableman

Address

Dart Hwy.

Operator

J. A. Bell

Address

15 mi No. of

President

A. A. Rose

Gen. Mgr.

Kingman

Mine Supt.

Mill Supt.

Principal Metals

Gold, Silver, Lead

Men Employed

Production Rate

Mill: Type & Cap.

Power: Amt. & Type

Operations: Present

Operations Planned

Cross cut 1000' feet to cut every vein on surface

Number Claims, Title, etc.

5 - Cashier, Cashier #1, Cashier Extension, Panama, New Year

Description: Topog. & Geog.

Mine Workings: Amt. & Condition

1000 ft cross cut
June 1st was in good condition

Geology & Mineralization

Ore: Positive & Probable, Ore Dumps, Tailings

Mine, Mill Equipment & Flow Sheet

Road Conditions, Route

Old Kingman Road south 7 mi
3 mi East. Good condition

Water Supply

Lettr of water from tunnel

Brief History

Jenkinson on West side line
Has six Heavy Producers, Night Hawk on
south line Hi grade Gold silver

Special Problems, Reports Filed

Alpha So. East line Has six
heavy producers. Summit East line
Heavy Producer

Remarks

If property for sale: Price, terms and address to negotiate.

\$50,000 Bond + Lead
Terms to Suite Burges

Signed.....

MP-42

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

- 1. Mine **Cashier**
- 2. Mining District & County **Wallapai**
- 3. Former name
- 4. Location **10 miles S. of Chloride
6 miles E. of Boulder Dam
highway.
15 miles N. of Kingman.**
- 5. Owner **Bert Abelman, J. A. Bell,
A. A. Rose**
- 6. Address (Owner)
- 7. Operator
- 8. Address (Operator)
- 9. President
- 10. Gen. Mgr.
- 11. Mine Supt.
- 12. Mill Supt.
- 13. Principal Metals **Gold, silver, lead**
- 14. Men Employed
- 15. Production Rate
- 16. Mill: Type & Cap.
- 17. Power: Amt. & Type
- 18. Operations: Present

19. Operations Planned **Crosscut 1000 feet to cut every vein on surface**

20. Number Claims, Title, etc. **Five - Cashier, Cashier #1, Cashier Extension, Panama,
New Year.**

21. Description: Topography & Geography

22. Mine Workings: Amt. & Condition **1000 feet crosscut. June 1st was in good condition.**

23. Geology & Mineralization **Gold, Silver, Lead.**

24. Ore: Positive & Probable, Ore Dumps, Tailings

24-A Vein Width, Length, Value, etc.

25. Mine, Mill Equipment & Flow Sheet

26. Road Conditions, Route **Old Kingman Road south 7 miles,
3 miles east. Good condition.**

27. Water Supply **Plenty of water from tunnel**

28. Brief History **Jennison on west side line has been heavy producer. Night Hawk on
south line high grade gold silver. Alpha Co. east line has been
heavy producer. Summit east line heavy producer.**

29. Special Problems, Reports Filed

30. Remarks

31. If property for sale: Price, terms and address to negotiate. **\$50,000 Bond and Lease
Terms to suit buyer**

32. Signed.....

33. Use additional sheets if necessary.

MC-42
SPECIAL

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Cashier

Date July 29, 1940

District Wallapai, Mohave County, Ariz.

Engineer Elgin B. Holt
P.O. Box 288
Kingman, Ariz.

Subject:

SYNOPSIS REPORT

OWNERS: Bert Abelman, J. A. Bell and A. A. Rose.
Bert Abelman, Agent, Chloride, Arizona.

LOCATION: Property is located on the west side of the Cerbat range at an approximate elevation of 4,500 feet.

METALS: Gold, Silver, Lead, Zinc and Copper; Silver and Gold predominating.

GEOLOGY: The rocks of this area are essentially of the pre-Cambrian complex, consisting of granite, gneiss and dark schists. These older rocks are intruded by younger masses of granite-porphry.

AREA: The Cashier group consists of 5 mining claims, covering three or four prominent veins, including the Alpha vein, which traverses the Cashier claim for 1,500 feet; this claim being the northwest extension of the Alpha mine.

DEVELOPMENT WORK consists of a crosscut tunnel 1,000 feet in length, the object of which was to cut the Cashier, Alpha, Summit, and many other veins. The tunnel was driven many years ago; but was never completed. About 75 feet from face of tunnel a vein was intersected, which may or may not be the Cashier vein. This vein is 5 feet wide and an 18-inch pay streak from which less than a carload of ore was shipped, assaying \$23 per ton in gold and silver.

By driving the Cashier tunnel an additional 250 feet it should intersect the Alpha vein 800 feet below the surface and at a point 50 feet northwest of the northwest end of the Alpha claim. Also, should this tunnel be continued about 2,200 feet beyond the Alpha vein, the Summit vein should be cut at a depth of approximately 2,000 feet from the surface. Also there are a number of undeveloped ore-bearing veins between the Alpha and Summit veins. Hence if this tunnel could be driven an additional distance of 2,500 or 3,000 feet a vast amount of commercial ore should be exposed in the various veins it would open up.

Work on surface outcrop of the Cashier vein consists of open cuts, showing vein to be 3 feet wide, from which 3 lots of ore were shipped, assaying as follows: One car of 30 tons, \$48 per ton; 1/2 car of 20 tons, \$64 per ton; 1/2 car of 20 tons, \$51 per ton; two other cars were shipped; but the assay results of these are not available. This data was furnished by Mr. Abelman.

WATER now flowing from the Cashier tunnel fills a 1.5-inch pipe. It is believed that after the Alpha and other veins are cut by this tunnel a great deal more water will be encountered sufficient to supply a large milling plant which could be located directly below the portal of said tunnel.

NOTE: As the Alpha vein traverses Cashier ground for 1,500 feet, as above set forth, a brief description of the Alpha property is submitted, as follows:

The ALPHA MINE is located on the west side of the Cerbat range, at an elevation of 5,300 feet, more or less, at a point about 2,200 feet south-southwest of the Summit property. It was worked up to 1939 by the Alpha-Keystone Mines, Inc., and ore produced, averaging around \$12 per ton in gold and silver alone, was hauled to the Keystone mill for treatment.

The Alpha property is opened by tunnels on vein, striking south 30 deg. east. The croppings are a prominent reef of black iron and manganese stained quartz. The vein ranges from 4 to 20 feet wide and ore contains silver sulphide, assaying up to 1,000 ounces silver to the ton. Iron pyrite, galena, zinc blende and chalcoppyrite are also present in the ore. Hence all values can readily be recovered by selective flotation.

The mine has been an excellent producer of shipping and milling ores through the years and a great deal of money has been made out of it by various owners.

According to F. C. Schrader (1909): "A consignment of 400 tons of ore, shipped from Alpha mine, is reported to have netted \$125 per ton.

In Conclusion, the Cashier property is recommended to anyone looking for an attractive development setup on which to spend some money, with the end in view of opening up a large amount of mill tonnage out of which considerable money should be made. However, any company taking over the Cashier group should also secure, if possible, both the Alpha and Summit properties.

(SIGNED) Elgin B. Holt.

By driving the Cashier tunnel an additional 250 feet it should intersect the Alpha vein 800 feet below the surface and at a point 50 feet northwest of the northwest end of the Alpha claim. Also, should this tunnel be continued about 2,300 feet beyond the Alpha vein, the Summit vein should be cut at a depth of approximately 2,000 feet from the surface. Also there are a number of undeveloped ore-bearing veins between the Alpha and Summit veins. Hence if this tunnel is driven an additional distance of 2,500 or 3,000 feet a vast amount of commercial ore should be exposed in the various veins it would open up.

Work on surface outcrop of the Cashier vein consists of open cuts, showing vein to be 2 feet wide, from which 3 tons of ore were shipped, assaying as follows: One car of 30 tons, \$48 per ton; 1/8 car of 30 tons, \$88 per ton; 1/2 car of 30 tons, \$81 per ton; two other cars were shipped; but the assay results of these are not available. This data was furnished by Mr. Johnson.

After now flowing from the Cashier tunnel this 1.5-inch pipe, it is believed that after the Alpha and Cerbat veins are cut by this tunnel a great deal more water will be encountered sufficient to supply a large milling plant which could be located directly below the portal of a 18 tunnel.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

Mine Cashier

Mining District & County - Wallapai Dist.
Mohave County

Location - 10 miles S. of Chloride
6 miles E. of Boulder Dam
highway. 15 miles N. of Kingman.

Former Name

Owners - Bert Abelman, J. A. Bell,
A. A. Rose

Address - Chloride, Arizona

Operator

Address

President

Gen. Mgr.

Mine Supt.

Mill Supt.

Principal Metals - Gold, Silver, Lead

Men Employed

Production Rate

Mill: Type & Cap.

Power: Amt. & Type

Operations: Present

Water Supply - Plenty of water from tunnel

Operations Planned - Cross cut 1000 feet to cut every vein on surface.

Number Claims, Title, etc. - Five claims - Cashier, Cashier No. 1, Cashier Extension,
Panama, New Year.

Special Problems, Reports Filed

Description: Topography & Geography

Remarks

Mine Workings: Amt. & Condition - 1000 feet crosscut. June 1, was in good
condition.

(SIGNED)
Bert Abelman, Agent
Chloride, Arizona

Date

Crs. Positive & Probable, Ore Dumps, Tailings

Mine Cashier

Location - 10 miles S. of Chino
8 miles E. of Boulder Dam
13 miles N. of Kingman

Mining District & County - Walker Dist.
Mohave County
Owner Name

Vein Width, Length, Value, etc.

Owners - Bert Abelman, J. A. Bell,
A. A. Rose

Address

Operator

Gen. Mgr.

President

Mine, Mill Equipment & Flow Sheet

Mine Equip.

Non-Employed

Principal Metals - Gold, Silver, Lead

Mill: Type & Cap.

Production Rate

Road Conditions, Route - Old Kingman road south 7 miles, 3 miles east.
Good condition..

Power: Amt. & Type

Operations: Present

Water Supply - Plenty of water from tunnel

Operations Planned - Cross cut 1000 feet to cut vein on surface.

Brief History - Jennison on west side line has been heavy producer. Night Hawk on south line high grade gold-silver. Alpha Co. east line has been heavy producer. Summit east line heavy producer.

Number Claims, Title, etc.
Phoenix, New York

Special Problems, Reports Filed

Description: Topography & Geology

Remarks

If property for sale: Price, terms and address to negotiate - \$50,000 Bond and Lease
Terms to suit buyer.

(SIGNED)

Bert Abelman, Agent.
Chloride, Arizona

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

Mine Cashier

Mining District & County - Wallapai Dist.
Mohave County

Former Name

Owners - Bert Abelman, J. A. Bell,
A. A. Rose

Operator

President

Mine Supt.

Principal Metals - Gold, Silver, Lead

Production Rate

Power: Amt. & Type

Operations: Present

Location - 10 miles S. of Chloride
6 miles E. of Boulder Dam
highway. 15 miles N. of Kingman.

Address - Chloride, Arizona

Address

Gen. Mgr.

Mill Supt.

Men Employed

Mill: Type & Cap.

Water supply - plenty of water from tunnel

Operations Planned - Cross cut 1000 feet to cut every vein on surface.

Number Claims, Title, etc. - Five claims - Cashier, Cashier No. 1, Cashier Extension,
Panama, New Year.

Special Problems, Reports Filed

Description: Topography & Geography

Remarks

Mine Workings: Amt. & Condition - 1000 feet crosscut. June 1, was in good

(SIGNED)

Bert Abelman, Agent
Chloride, Arizona

Geology & Mineralization - Gold, Silver, Lead.

MC-42

Date

Ore: Positive & Probable, Ore Dumps, Tailings

Location - 10 miles S. of Chloride
8 miles E. of Boulder Dam
Highway, 12 miles N. of Kingman.

Mining District & County - Wallace Dist.
Mohave County
Owner Name

Vein Width, Length, Value, etc.

Owners - Bert Abelman, J. A. Bolla,
A. A. Rose

Address

Operator

Gen. Mgr.

President

Mine, Mill Equipment & Flow Sheet

Mine Equip.

Men Employed

Principal Metals - Gold, Silver, Lead

Mill: Type & Cap.

Production Rate

Road Conditions, Route - Old Kingman road south 7 miles, 3 miles east.
Good condition.

Operations: Present

Water Supply - Plenty of water from tunnel

Operations Planned - Cross cut 1000 feet to cut every vein on surface.

Brief History - Jennison on west side line has been heavy producer. Night Hawk on south line high grade gold-silver. Alpha Co. east line has been heavy producer. Summit east line heavy producer.

Special Problems, Reports Filed

Description: Topography & Geology

Remarks

If property for sale: Price, terms and address to negotiate - \$50,000 Bond and Lease Terms to suit buyer.

(SIGNED) Bert Abelman, Agent.
Chloride, Arizona

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

MC-42
SPECIAL

Mine Cashier

Date July 29, 1940

District Wallapai, Mohave County, Ariz. Engineer Elgin B. Holt
P.O. Box 288
Kingman, Ariz.

SYNOPSIS REPORT

OWNERS: Bert Abelman, J. A. Bell and A. A. Rose.
Bert Abelman, Agent, Chloride, Arizona.

LOCATION: Property is located on the west side of the Cerbat range at an approximate elevation of 4,500 feet.

METALS: Gold, Silver, Lead, Zinc and Copper; Silver and Gold predominating.

GEOLOGY: The rocks of this area are essentially of the pre-Cambrian complex, consisting of granite, gneiss and dark schists. These older rocks are intruded by younger masses of granite-porphry.

AREA: The Cashier group consists of 5 mining claims, covering three or four prominent veins, including the Alpha vein, which traverses the Cashier claim for 1,500 feet; this claim being the northwest extension of the Alpha mine.

DEVELOPMENT WORK consists of a crosscut tunnel 1,000 feet in length, the object of which was to cut the Cashier, Alpha, Summit, and many other veins. The tunnel was driven many years ago; but was never completed. About 75 feet from face of tunnel a vein was intersected, which may or may not be the Cashier vein. This vein is 5 feet wide and an 18-inch pay streak from which less than a carload of ore was shipped, assaying \$23 per ton in gold and silver.

By driving the Cashier tunnel an additional 250 feet it should intersect the Alpha vein 800 feet below the surface and at a point 50 feet northwest of the northwest end of the Alpha claim. Also, should this tunnel be continued about 2,200 feet beyond the Alpha vein, the Summit vein should be cut at a depth of approximately 2,000 feet from the surface. Also there are a number of undeveloped ore-bearing veins between the Alpha and Summit veins. Hence if this tunnel could be driven an additional distance of 2,500 or 3,000 feet a vast amount of commercial ore should be exposed in the various veins it would open up.

Work on surface outcrop of the Cashier vein consists of open cuts, showing vein to be 3 feet wide, from which 3 lots of ore were shipped, assaying as follows: One car of 30 tons, \$48 per ton; 1/2 car of 20 tons, \$64 per ton; 1/2 car of 20 tons, \$51 per ton; two other cars were shipped; but the assay results of these are not available. This data was furnished by Mr. Abelman.

WATER now flowing from the Cashier tunnel fills a 1.5-inch pipe. It is believed that after the Alpha and other veins are cut by this tunnel a great deal more water will be encountered sufficient to supply a large milling plant which could be located directly below the portal of said tunnel.

NOTE: As the Alpha vein traverses Cashier ground for 1,500 feet, as above set forth, a brief description of the Alpha property is submitted, as follows:

The ALPHA MINE is located on the west side of the Corbat range, at an elevation of 5,300 feet, more or less, at a point about 2,200 feet south-southwest of the Summit property. It was worked up to 1939 by the Alpha-Keystone Mines, Inc., and ore produced, averaging around \$12 per ton in gold and silver alone, was hauled to the Keystone mill for treatment.

The Alpha property is opened by tunnels on vein, striking south 30 deg. east. The croppings are a prominent reef of black iron and manganese stained quartz. The vein ranges from 4 to 20 feet wide and ore contains silver sulphide, assaying up to 1,000 ounces silver to the ton. Iron pyrite, galena, zinc blende and chalcopryrite are also present in the ore. Hence all values can readily be recovered by selective flotation.

The mine has been an excellent producer of shipping and milling ores through the years and a great deal of money has been made out of it by various owners.

According to F. C. Schrader (1909): "A consignment of 400 tons of ore, shipped from Alpha mine, is reported to have netted \$125 per ton.

In Conclusion, the Cashier property is recommended to anyone looking for an attractive development setup on which to spend some money, with the end in view of opening up a large amount of mill tonnage out of which considerable money should be made. However, any company taking over the Cashier group should also secure, if possible, both the Alpha and Summit properties.

(SIGNED) Elgin B. Holt.

By driving the Cashier tunnel an additional 250 feet it should intersect the Alpha vein 800 feet below the surface and at a point 50 feet northwest of the northwest end of the Alpha claim. Also, should this tunnel be continued about 2,200 feet beyond the Alpha vein, the Summit vein should be cut at a depth of approximately 2,000 feet from the surface. Also there are a number of undeveloped ore-bearing veins between the Alpha and Summit veins. Hence if this tunnel could be driven an additional distance of 2,500 or 3,000 feet a vast amount of commercial ore should be exposed in the various veins it would open up.

Work on surface outcrop of the Cashier vein consists of open cuts, showing vein to be 3 feet wide; from which 3 lots of ore were shipped, assaying as follows: One car of 30 tons, \$48 per ton; 1/2 car of 20 tons, \$54 per ton; 1/2 car of 20 tons, \$51 per ton; two other cars were shipped; but the assay results of these are not available. This data was furnished by Mr. Ahlman.

Water now flowing from the Cashier tunnel fills a 1.8-inch pipe. It is believed that after the Alpha and other veins are cut by this tunnel a great deal more water will be encountered sufficient to supply a large milling plant which could be located directly below the portal of said tunnel.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

Mine Cashier

Mining District & County - Wallapai Dist.
Mohave County

Former Name

Owners - Bert Abelman, J. A. Bell,
A. A. Rose

Operator

President

Mine Supt.

Principal Metals - Gold, Silver, Lead

Production Rate

Power: Amt. & Type

Operations: Present

Location - 10 miles S. of Chloride
6 miles E. of Boulder Dam
highway. 15 miles N. of Kingman.

Address - Chloride, Arizona

Address

Gen. Mgr.

Mill Supt.

Men Employed

Mill: Type & Cap.

Operations Planned - Cross cut 1000 feet to cut every vein on surface.

Number Claims, Title, etc. - Five claims - Cashier, Cashier No. 1, Cashier Extension,
Panama, New Year.

Description: Topography & Geography

Mine Workings: Amt. & Condition - 1000 feet crosscut. June 1, was in good
condition.

(SIGNED)
Bert Abelman, Agent
Chloride, Arizona

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OTHERS MINE REPORT

Geology & Mineralization - Gold, Silver, Lead.

MC-42

Date

Cre. Positive & Probable, Ore Dumps, Tailings

Location - 10 miles S. of Chloride
8 miles E. of Boulder Dam
Highway 18 miles N. of Kingman.

Vein Width, Length, Value, etc.

Mine, Mill Equipment & Flow Sheet

Road Conditions, Route - Old Kingman road south 7 miles, 3 miles east.
Good condition.

Water Supply - Plenty of water from tunnel

Brief History - Jennison on west side line has been heavy producer. Night Hawk on south line high grade gold-silver. Alpha Co. east line has been heavy producer. Summit east line heavy producer.

Special Problems, Reports Filed

Remarks

If property for sale: Price, terms and address to negotiate - \$50,000 Bond and Lease Terms to suit buyer.

(SIGNED) _____
Bert Abelman, Agent.
Chloride, Arizona

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

MC-42
SPECIAL

Mine Cashier

Date July 29, 1940

District Wallapai, Mohave County, Ariz.

Engineer Elgin B. Holt
P.O. Box 288
Kingman, Ariz.

Subject:

SYNOPSIS REPORT

OWNERS: Bert Abelman, J. A. Bell and A. A. Rose.
Bert Abelman, Agent, Chloride, Arizona.

LOCATION: Property is located on the west side of the Cerbat range at an approximate elevation of 4,500 feet.

METALS: Gold, Silver, Lead, Zinc and Copper; Silver and Gold predominating.

GEOLOGY: The rocks of this area are essentially of the pre-Cambrian complex, consisting of granite, gneiss and dark schists. These older rocks are intruded by younger masses of granite-porphry.

AREA: The Cashier group consists of 5 mining claims, covering three or four prominent veins, including the Alpha vein, which traverses the Cashier claim for 1,500 feet; this claim being the northwest extension of the Alpha mine.

DEVELOPMENT WORK consists of a crosscut tunnel 1,000 feet in length, the object of which was to cut the Cashier, Alpha, Summit, and many other veins. The tunnel was driven many years ago; but was never completed. About 75 feet from face of tunnel a vein was intersected, which may or may not be the Cashier vein. This vein is 5 feet wide and an 18-inch pay streak from which less than a carload of ore was shipped, assaying \$23 per ton in gold and silver.

By driving the Cashier tunnel an additional 250 feet it should intersect the Alpha vein 800 feet below the surface and at a point 50 feet northwest of the northwest end of the Alpha claim. Also, should this tunnel be continued about 2,200 feet beyond the Alpha vein, the Summit vein should be cut at a depth of approximately 2,000 feet from the surface. Also there are a number of undeveloped ore-bearing veins between the Alpha and Summit veins. Hence if this tunnel could be driven an additional distance of 2,500 or 3,000 feet a vast amount of commercial ore should be exposed in the various veins it would open up.

Work on surface outcrop of the Cashier vein consists of open cuts, showing vein to be 3 feet wide, from which 3 lots of ore were shipped, assaying as follows: One car of 30 tons, \$48 per ton; 1/2 car of 20 tons, \$64 per ton; 1/2 car of 20 tons, \$51 per ton; two other cars were shipped; but the assay results of these are not available. This data was furnished by Mr. Abelman.

WATER now flowing from the Cashier tunnel fills a 1.5-inch pipe. It is believed that after the Alpha and other veins are cut by this tunnel a great deal more water will be encountered sufficient to supply a large milling plant which could be located directly below the portal of said tunnel.

NOTE: As the Alpha vein traverses Cashier ground for 1,500 feet, as above set forth, a brief description of the Alpha property is submitted, as follows:

The ALPHA MINE is located on the west side of the Cerbat range, at an elevation of 5,300 feet, more or less, at a point about 2,200 feet south-southwest of the Summit property. It was worked up to 1939 by the Alpha-Keystone Mines, Inc., and ore produced, averaging around \$12 per ton in gold and silver alone, was hauled to the Keystone mill for treatment.

The Alpha property is opened by tunnels on vein, striking south 30 deg. east. The croppings are a prominent reef of black iron and manganese stained quartz. The vein ranges from 4 to 20 feet wide and ore contains silver sulphide, assaying up to 1,000 ounces silver to the ton. Iron pyrite, galena, zinc blende and chalcopryrite are also present in the ore. Hence all values can readily be recovered by selective flotation.

The mine has been an excellent producer of shipping and milling ores through the years and a great deal of money has been made out of it by various owners.

According to F. C. Schrader (1909): "A consignment of 400 tons of ore, shipped from Alpha mine, is reported to have netted \$125 per ton.

In Conclusion, the Cashier property is recommended to anyone looking for an attractive development setup on which to spend some money, with the end in view of opening up a large amount of mill tonnage out of which considerable money should be made. However, any company taking over the Cashier group should also secure, if possible, both the Alpha and Summit properties.

(SIGNED) Elgin B. Holt.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
OWNERS MINE REPORT

Date

Mine Cashier

Mining District & County - Wallapai Dist.
Mohave County

Location - 10 miles S. of Chloride
6 miles E. of Boulder Dam
highway. 15 miles N. of Kingman.

Former Name

Owners - Bert Abelman, J. A. Bell,
A. A. Rose

Address - Chloride, Arizona

Operator

Address

President

Gen. Mgr.

Mine Supt.

Mill Supt.

Principal Metals - Gold, Silver, Lead

Men Employed

Production Rate

Mill: Type & Cap.

Power: Amt. & Type

Operations: Present

Operations Planned - Cross cut 1000 feet to cut every vein on surface.

Number Claims, Title, etc. - Five claims - Cashier, Cashier No. 1, Cashier Extension,
Panama, New Year.

Description: Topography & Geography

Mine Workings: Amt. & Condition - 1000 feet crosscut. June 1, was in good
condition.

(SIGNED)
Bert Abelman, Agent
Chloride, Arizona

Geology & Mineralization - Gold, Silver, Lead.

Cross Section Positive & Probable, Ore Dumps, Tailings

Vein Width, Length, Value, etc.

Mine, Mill Equipment & Flow Sheet

Road Conditions, Route - Old Kingman road south 7 miles, 3 miles east.
Good condition.

Water Supply - Plenty of water from tunnel

Brief History - Jennison on west side line has been heavy producer. Night Hawk on south line high grade gold -silver. Alpha Co. east line has been heavy producer. Summit east line heavy producer.

Special Problems, Reports Filed

Remarks

If property for sale: Price, terms and address to negotiate - \$50,000 Bond and Lease Terms to suit buyer.

(SIGNED)

Bert Abelman, Agent.
Chloride, Arizona

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

MC-42
SPECIAL

Mine Cashier Date July 29, 1940

District Wallapai, Mohave County, Ariz. Engineer Elgin B. Holt
P.O. Box 288
Kingman, Ariz.

Subject: SYNOPSIS REPORT

OWNERS: Bert Abelman, J. A. Bell and A. A. Rose.
Bert Abelman, Agent, Chloride, Arizona.

LOCATION: Property is located on the west side of the Cerbat range at an approximate elevation of 4,500 feet.

METALS: Gold, Silver, Lead, Zinc and Copper; Silver and Gold predominating.

GEOLOGY: The rocks of this area are essentially of the pre-Cambrian complex, consisting of granite, gneiss and dark schists. These older rocks are intruded by younger masses of granite-porphry.

AREA: The Cashier group consists of 5 mining claims, covering three or four prominent veins, including the Alpha vein, which traverses the Cashier claim for 1,500 feet; this claim being the northwest extension of the Alpha mine.

DEVELOPMENT WORK consists of a crosscut tunnel 1,000 feet in length, the object of which was to cut the Cashier, Alpha, Summit, and many other veins. The tunnel was driven many years ago; but was never completed. About 75 feet from face of tunnel a vein was intersected, which may or may not be the Cashier vein. This vein is 5 feet wide and an 18-inch pay streak from which less than a carload of ore was shipped, assaying \$23 per ton in gold and silver.

By driving the Cashier tunnel an additional 250 feet it should intersect the Alpha vein 800 feet below the surface and at a point 50 feet northwest of the northwest end of the Alpha claim. Also, should this tunnel be continued about 2,200 feet beyond the Alpha vein, the Summit vein should be cut at a depth of approximately 2,000 feet from the surface. Also there are a number of undeveloped ore-bearing veins between the Alpha and Summit veins. Hence if this tunnel could be driven an additional distance of 2,500 or 3,000 feet a vast amount of commercial ore should be exposed in the various veins it would open up.

Work on surface outcrop of the Cashier vein consists of open cuts, showing vein to be 3 feet wide, from which 3 lots of ore were shipped, assaying as follows: One car of 30 tons, \$48 per ton; 1/2 car of 20 tons, \$64 per ton; 1/2 car of 20 tons, \$51 per ton; two other cars were shipped; but the assay results of these are not available. This data was furnished by Mr. Abelman.

WATER now flowing from the Cashier tunnel fills a 1.5-inch pipe. It is believed that after the Alpha and other veins are cut by this tunnel a great deal more water will be encountered sufficient to supply a large milling plant which could be located directly below the portal of said tunnel.

NOTE: As the Alpha vein traverses Cashier ground for 1,500 feet, as above set forth, a brief description of the Alpha property is submitted, as follows:

The ALPHA MINE is located on the west side of the Cerbat range, at an elevation of 5,300 feet, more or less, at a point about 2,200 feet south-southwest of the Summit property. It was worked up to 1939 by the Alpha-Keystone Mines, Inc., and ore produced, averaging around \$12 per ton in gold and silver alone, was hauled to the Keystone mill for treatment.

The Alpha property is opened by tunnels on vein, striking south 30 deg. east. The croppings are a prominent reef of black iron and manganese stained quartz. The vein ranges from 4 to 20 feet wide and ore contains silver sulphide, assaying up to 1,000 ounces silver to the ton. Iron pyrite, galena, zinc blende and chalcopyrite are also present in the ore. Hence all values can readily be recovered by selective flotation.

The mine has been an excellent producer of shipping and milling ores through the years and a great deal of money has been made out of it by various owners.

According to F. C. Schrader (1909): "A consignment of 400 tons of ore, shipped from Alpha mine, is reported to have netted \$125 per ton.

In Conclusion, the Cashier property is recommended to anyone looking for an attractive development setup on which to spend some money, with the end in view of opening up a large amount of mill tonnage out of which considerable money should be made. However, any company taking over the Cashier group should also secure, if possible, both the Alpha and Summit properties.

(SIGNED) Elgin B. Holt.

CASHIER MINE

MOHAVE COUNTY

Earl Baier, 12813 N. 30th Dr., Phoenix and Roy Montague have the Jamison and Cashier Mines. Cashier reportedly has 51,000 tons of silver, lead, gold ore that will assay \$127.00/ton (hearsay).

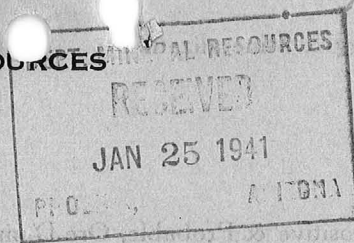
FTJ WR 1/7/66

See: Nighthawk Mine (file) Mohave - article from Mohave County Miner dated 9/5/74

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

OWNERS MINE REPORT



Date

Owner

1. Mine **Cashier**
2. Mining District & County **Wallapai**
3. Former name
4. Location **10 miles S. of Chloride
6 miles E. of Boulder Dam
highway.
15 miles N. of Kingman.**
5. Owner **Bert Abelman, J. A. Bell,
A. A. Rose**
6. Address (Owner) **Box 156**
7. Operator
8. Address (Operator) **Chloride**
9. President
10. Gen. Mgr.
11. Mine Supt.
12. Mill Supt.
13. Principal Metals **Gold, silver, lead**
14. Men Employed
15. Production Rate
16. Mill: Type & Cap.
17. Power: Amt. & Type
18. Operations: Present
19. Operations Planned **Crosscut 1000 feet to cut every vein on surface**
20. Number Claims, Title, etc. **Five - Cashier, Cashier #1, Cashier Extension, Panama,
New Year.**
21. Description: Topography & Geography
22. Mine Workings: Amt. & Condition **1000 feet crosscut. June 1st was in good condition.**

23. Geology & Mineralization. **Gold, Silver, Lead.**

24. Ore: Positive & Probable, Ore Dumps, Tailings

24-A Vein Width, Length, Value, etc.

25. Mine, Mill Equipment & Flow Sheet

26. Road Conditions, Route **Old Kingman Road south 7 miles,
3 miles east. Good condition.**

27. Water Supply **Plenty of water from tunnel**

28. Brief History **Jennison on west side line has been heavy producer. Night Hawk on
south line high grade gold silver. Alpha Co. east line has been
heavy producer. Summit east line heavy producer.**

29. Special Problems, Reports Filed

30. Remarks

31. If property for sale: Price, terms and address to negotiate. **\$50,000 Bond and Lease
Terms to suit buyer**

32. Signed Bert Ableman

33. Use additional sheets if necessary.

Box 156 Chloride Arizona

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA

For Abelman

FIELD ENGINEERS REPORT

Mine CASHIER

Date July 29, 1940.

District Wallapai, Mohave County, Ariz.

Engineer Elgin B. Holt,
P. O. Box 298,
Kingman, Ariz.

Subject:

SYNOPSIS REPORT

OWNERS: Bert Abelman, J. A. Bell and A. A. Rose.
Bert Abelman, Agent, Chloride, Arizona.

LOCATION: Property is located on the west side of the Cerbat range at an approximate elevation of 4,500 feet.

MINERALS: Gold, silver, lead, zinc and copper; silver and gold predominating.

GEOLOGY: The rocks of this area are essentially of the pre-Cambrian complex, consisting of granite, gneiss and dark schists. These older rocks are intruded by younger masses of granite-porphry.

AREA: The Cashier group consists of 3 mining claims, covering three or four prominent veins, including the Alpha vein, which traverses the Cashier claim for 1,500 feet; this claim being the northwest extension of the Alpha mine.

DEVELOPMENT WORK consists of a cross-cut tunnel 1,000 feet in length, the object of which was to cut the Cashier, Alpha, Summit and many other veins. This tunnel was driven many years ago; but was never completed. About 75 feet from face of tunnel a vein was intersected, which may or may not be the Cashier vein. This vein is 3 feet wide and has an 18-inch pay-streak from which less than a car load of ore was shipped, assaying \$23.00 per ton in gold and silver.

By driving the Cashier tunnel an additional 250 feet it should intersect the Alpha vein 300 feet below the surface and at a point 50 feet northwest of the northwest end of the Alpha claim. Also, should this tunnel be continued about 2,200 feet beyond the Alpha vein, the Summit vein should be cut at a depth of approximately 2,000 feet from the surface. Also there are a number of undeveloped ore-bearing veins between the Alpha and Summit veins. Hence if this tunnel could be driven an additional distance of 2,500 or 3,000 feet a vast amount of commercial ore should be exposed in the various veins it would open up.

Work on surface outcrop of the Cashier vein consists of open cuts, showing vein to be 3 feet wide, from which 3 lots of ore were shipped, assaying as follows: One car of 30 tons, \$48.00 per ton; $\frac{1}{2}$ car of 20 tons, \$64.00 per ton; $\frac{1}{2}$ car of 20 tons, \$51.00 per ton; two other cars were shipped; but the assay results of these are not available. This data was furnished by Mr. Abelman.

WATER now flowing from the Cashier tunnel fills a 1.5-inch pipe. It is believed that after the Alpha and other veins are cut by this tunnel a great deal more water will be encountered sufficient to supply a large milling plant which could be located directly below the portal of said tunnel.

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The Alpha property is opened by tunnels on vein, striking South 30 deg. East. The workings are a prominent reef of black iron and manganese stained quartz. The vein ranges from 4 to 20 feet wide and ore contains silver sulphide, assaying up to 1,000 ounces silver to the ton. Iron pyrite, galena, zinc blende and chalcopyrite are also present in the ore. Hence all values can readily be recovered by selective flotation.

The mine has been an excellent producer of shipping and milling ores through the years and a great deal of money has been made out of it by various owners.

According to F. C. Schneider (1909): "A consignment of 400 tons of ore, shipped from the Alpha mine, is reported to have netted \$155.00 per ton."

In Conclusion, the Cashier property is recommended to anyone looking for an attractive development set-up on which to spend some money, with the end in view of opening up a large amount of mill tonnage out of which considerable money should be made. However, any company taking over the Cashier group should also secure, if possible, both the Alpha and Summit properties.


Elgin B. Holt.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

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Date July 29, 1940.

District Wallapai, Mohave County, Ariz.

Engineer Elgin B. Holt,
P. O. Box 238,
Kingman, Ariz.

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Elgin B. Holt.

DEPARTMENT OF MINERAL RESOURCES

News Items

Date

7/30/40

Mine

CASHIER MINE

Location

GERBAT MOUNTAINS - MOHAVE COUNTY

Owner

✓ BERT ABELMAN - J.A. BELL

Address

& A.A. ROSE ALL OF KINGMAN.

Operating Co.

LEASE TAKEN BY

Address

J.E. DIETRICH OF

SUNLAND - CALIF.

Pres.

Genl. Mgr.

Mine Supt.

Mill Supt.

Principal Metals

AU-AG-CU-PB.ZN.

Men Employed

JUST TAKEN OPTION

Production Rate

—

Mill, Type & Capacity

—

Power, Amt. & Type

PLAN TO EXTEND CASHIER TUNNEL

& DEVELOP.

Signed

J.E.C.

(Over)

Kingman, Arizona, July 30, 1940.

To: J. S. Coupal, Director,
From: Elgin B. Holt
Subject: ✓ Cashier Mine - Cashier Tunnel

The inclosed data is all about the Cashier Mine, or more particularly about the Cashier Tunnel, which I looked over carefully when I was making the Smelter examinations.

You will no doubt remember that Forest V. Phillips, former Gen. Manager of Alpha-Keystone Mines, Inc., had a long term option on all this property, including the Cashier Tunnel and claims, the Alpha mines, the Summit, Jamieson and all the Stockton Hill properties.

In fact, Phillips had the right idea - he wanted to build a large mill below the Cashier tunnel in order to work ores from all that country. Of course, he expected to drive the Cashier Tunnel forward in order to cut the Cashier, Alpha, Summit and a score of other veins. So much for the history.

Harry Lennox asked me to call on Bert Abelman, one of the owners of the Cashier group and tunnel. I did so and found this property was open for a deal for the first time in some years.

A day or two later, J. E. Dietrich came along looking for properties. I took him to Chloride, introduced him to Abelman and he now has an option on the property in question.

The object of this memo is this:

Kindly keep this data in your active files so that in case Dietrich fails to make a deal, you can present it to some live wire who might be interested in taking property over with a view to carrying out the plans Phillips had in mind.

E. B. Holt

Examinations, Surveys
Appraisals, Assays
Confidential Reports

E. ROSS HOUSHOLDER

Residence-Office
431 E. Spring Street
Telephone SK 3-2097

Registered Professional Engineer No. 257, Arizona
Registered Land Surveyor No. 3065, Arizona
Licensed Land Surveyor No. 2641, California
and Mohave County Engineer
P. O. Box 1107

Kingman, Arizona

COURTESY of
C.R. WARD CORP.

Refer: Ref 217, Claride

Property of Mrs. Eve Sawyer Mortgage
~~Buy with 7440 Ariz~~

Extracts From 1955
E. Ross Housholder's
Mining Report
On
Cashier Mine
Wallapai Mining
District
Mohave County, Arizona

Note: Photographs & Maps From
Original Report Are Available
If Not Here Included.

REPORTS BLUE PRINTS BLDG. & W. PRINTS MINE, RANCH COUNTY MAPS

TERMINOLOGY: Standard terms used in this report follow definitions of those relating to the metal mining industry obtained from "A Glossary of the Mining and Mineral Industry by Albert H. Fay, published 1920, by the U. S. Bureau of Mines.

"Ore" Page 475 Bull. 95, Bur. of Mines, Dept. Int.

A natural mineral compound, of the elements of which one at least is a metal. The term is applied more loosely to all metalliferous rock, though it contain the metal in a free state, and occasionally to the compounds of non-metallic substances, as sulphur ore. (Raymond).

Also, material mined and worked for nonmetals, as pyrite is an ore of sulphur (Webster).

A mineral of sufficient value as to quality and quantity which may be mined with profit. (Hlseng).

A mineral, or mineral aggregate, containing precious or useful metals or metalloids, and which occurs in such quantity, grade, and chemical combination as to make extraction commercially profitable. (Robert Peele, Min. & Met. Soc. of America, Bull. 64, p. 257)

A metalliferous mineral, or an aggregate of metalliferous minerals, more or less mixed with gangue, which from the standpoint of the miner, can be won at a profit, or from the standpoint of a metallurgist can be treated at a profit. The test of yielding a metal or metals at a profit seems to me, in the last analysis, to be the only feasible one to employ. (J. F. Kemp, Trans., Canadian Min. Inst., 1909, p. 367).

"Ore blocked out" - P. 476

Ore exposed on three sides within a reasonable distance of each other. (H. C. Hoover, p. 17)

"Ore developing" - P. 476

Ore exposed on two sides. See Probable ore. (H. C. Hoover, p. 17). First class, blocks with one side hidden; second class, blocks with two sides hidden; third class, blocks with three sides hidden. (Philip Afsall, Min. and Met. Soc. of Am., Bull. 64, p. 250)

"Probable ore" P. 540

Any blocked ore not certain enough to be "in sight" and all ore that is exposed for sampling, but of which the limits and continuity have not been proved by blocking. Also, it includes any undiscovered ore of which there is a strong probability of existence. Ore that is exposed on either two or three sides. Whether two or three sides be taken as a basis will depend on the character of the deposit. (Min. and Met. Soc. of Am., Bull. 64, pp. 258 and 262).

"Ore developed" P. 476

Ore exposed on four sides in blocks variously prescribed.

E. Ross Housholder

"Deposit" p. 211

The term mineral deposit or ore deposit, is arbitrarily used to designate a natural occurrence of a useful mineral ore in sufficient extent and degree of concentration to invite exploitation. (Raymond)

"Exploitation" p. 255

The extraction and utilization of ore. Often confused with "exploration." (Richard)

"Exploration" p. 255

The work involved in looking for ore. Often confused with "exploitation". (Richard)

"Exploring mine" p. 255

(Scot.) A working place driven ahead of the others to explore the field. (Barrowman) Prospect.

"Prospect" p. 540

To examine land for the possible occurrence of coal or valuable minerals by drilling holes, ditching, or other work. (Steel)

"Prospect hole" p. 540

Any shaft, pit, drift, or drill hole made for the purpose of prospecting the mineral-bearing ground.

"Prospecting" p. 540

Searching for new deposits; also, preliminary exploration to test the value of lodes or placers already known to exist.

"Development" p. 214

Work done in a mine to open up ore bodies, as sinking shafts and driving levels, etc. (Skinner).

and

"Resources"

(Re. S. G. Lasky, (with U.S. Geol.Surv.) p. 15, Vol. 23, No. 8, Aug. 1955, Western Mining)

"Resources include" all material in the ground, discovered or undiscovered, usable at present, or not, rich or lean, considered within the context of all factors -- that may influence its conversion into a reserve."

"Reserves" (Re. A. P. Butler, Jr. (with U.S. Geol.Surv), p. 15, Vol. 23, No. 3, Aug. 1955 Western Mining.

Apply to known deposits that have aspects of usability within a specified set of economic and technological conditions.

E Ross Hausholder

"Positive ore" P. 530 Bull. 95

Ore exposed on four sides in blocks of a size variously prescribed. See "Ore developed," also "Proved ore." (B. C. Hoover, p.17)

Ore which is exposed and properly sampled on four sides, in blocks of reasonable size, having in view the nature of the deposit as regards uniformity of value per ton and of the third dimension, or thickness. (Min. and Met. Soc. of Am., Bull. 64, p. 262)

"Proved ore". p. 541

Ore where there is practically no risk of failure of continuity (H. C. Hoover, p. 19). See also Positive ore.

"Possible ore" p. 531

Ore which may exist below the lowest workings, or beyond the range of actual vision. (Min. and Met. Soc. of Am., Bull. 64, p. 262).

"Ore expectant" p. 476

The whole or any part of the ore below the lowest level or beyond the range of vision. See Possible ore, also Prospective ore. (H. C. Hoover, p. 17). The prospective value of a mine beyond or below the last visible ore, based on the fullest possible data from the mine being examined, and from the characteristics of the mining district. (Phillip Argall, Min. and Met. Soc. of Am., Bull. 64, p. 260)

"Prospective ore" p. 540

Ore that cannot be included as proved or probably, nor definitely known or stated in terms of tonnage. See Possible ore, also Ore expectant. (H. C. Hoover, p. 19)

"Low grade" p. 409

A term applied to ores relatively poor in the metal for which they are mined; lean ore.

"Ore faces" p. 476

Those ore bodies that are exposed on one side, or show only one face, and of which the values can be determined only in a prospective manner, as deduced from the general condition of the mine or prospect. (Min. and Met. Soc. of Am., Bull. 64, p. 255)

"Ore partly blocked" p. 477

Those ore bodies that are only partly developed, and the values of which can be only approximately determined. (see Probable ore)

"Ore in sight" p. 477, Bull. 95

A term frequently used to indicate two separate factors in an estimate, namely

(a) Ore blocked out, that is, ore exposed on at least three sides within reasonable distance of each other;

(b) Ore which may be reasonably assumed to exist, though not actually blocked out;

these two factors should in all cases be kept distinct, because

(a) is governed by fixed rules, while

(b) is dependent upon individual judgment and local experience.

The expression "ore in sight" as commonly used in the past appears to possess so indefinite a meaning as to discredit its use completely.

The terms Positive ore, Probable ore, and Possible ore are suggested. (Min. and Met. Soc. of Am., Bull. 64, pp. 258 and 261)

E. Ross Housholder

TRANSPORTATION & SUPPLIES

A good mine road of easy down grade leads from the present workings of the Cashier mine, connecting with the Arizona State oil cake paved U.S. 93 highway which is about 2-3/4 miles westerly from the property, thence 13 miles over paved highway to Kingman, the chief distributing center for northwestern Arizona, where ample supplies of all kinds needed in mining are kept in stock.

CLIMATE

The district has a healthful climate with mild winters which permits good working conditions the year around. The vegetation is typical of semi-arid mountain regions. The rainfall is about 10 to 12 inches per year.

WATER SUPPLY

Domestic water can now be secured from several good springs on the property. Water from the present underground workings is in excess of any development requirements, and as development proceeds it is believed sufficient water will be obtained for other purposes.

TOPOGRAPHY

The district ranges in elevation from 3,000 feet in the foothills on the west to 5,000 feet on the east, at the crest of the Cerbat Mountain Range. Lane Springs, along which the Cashier mine is located, is a short, deeply cut side valley situated northeast of Todd Basin and the Golconda Mine, from which it is separated by a prominent ridge extending northwestward from the axis of the range. Lane Springs canyon empties into Long Wash the principal drainage of the immediate section, which leads northward and westward into Sacramento Valley. The mountain sides on either slope of Lane Springs canyon has a steep pitch. These slopes are deterial covered but permit the ready construction of trails and roads to all parts of the group.

ORE DEPOSITS OF THE DISTRICT

The ore deposits of this district contain principally lead, zinc, silver and gold, and sometimes copper. They occur in fissure veins which have a generally northwesterly trend and a steep northeasterly dip. Those situated north of Cerbat Wash including Lane Springs canyon section contain principally lead, zinc, silver and gold. The gangue is mainly quartz and the values usually favor the hanging wall. The principal minerals are pyrite, chalcopyrite, galena, spalerite, stibnite, and native gold. Near the surface native silver, argentite, and ruby silver appear, together with free gold, but the water level is often less than 80 feet, and subsequently primary ores come in at relatively slight depth.



GEOLOGY OF THE LAKE SPRINGS SECTION

The country rock is the pre-Cambrian granite, gneiss, and schist complex. It is intruded by dikes of minette, granite, granite porphyry, rhyolite and other rocks, some of which are associated with workable veins and are too greatly sericitized for determination. The complex is also flanked on the west by masses of Tertiary volcanic rocks, principally rhyolite.

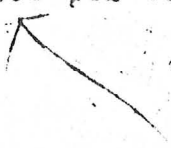
The veins for the most part are regular and persistent with well defined walls. They occur chiefly in the pre-Cambrian granitic fissures. Oxidation has altered the upper part to a depth ranging from 50 to 300 feet, and this oxidized zone changes to the primary ore within a vertical range of 10 to 40 feet. At the present time operators utilize the sulphide ores. The old time miners were unable to market the sulphide ores at a profit such as has been mined during the past several decades in the district. Only the oxidized and secondary enriched ores were they able to treat and ship. Therefore today there are mines being developed which may be capable of important production. The veins have suffered great erosion, and their mode of occurrence leads to the belief that they were deposited at comparatively great depths by hot circulating waters.

GEOLOGY AND VEINS OF THE CASHIER GROUP

The geology of the Cashier group corresponds to that of the district. The country rock is pre-Cambrian gneiss, extensively intruded by granite porphyry. In the shallow underground workings the granite porphyry seems to be associated with the veins and is finer grained than the outcrops. There are evidences of five major veins on this property, together with smaller ones that will bear investigation as the development of the mine proceeds.

CASHIER VEIN

The Cashier vein is in the central part of the group. It might be well to here record that Bert Ableman, a former owner of this mine group in 1927 told me personally that "a good tonnage of heavy lead ore has been extracted from its workings, especially from the 85 foot shaft, known as the Cashier shaft," which is within 500 feet of the westerly endline of the Night Hawk mine, and from the Ableman tunnel. This vein has a northwestward strike and the similar dip as the Night Hawk vein, of which it is undoubtedly the western extension. It is a large vein dipping to the northeast between 70 and 80 degrees. It contains sulphide ores of lead, silver, zinc and gold, and in places carrying some copper. None of the present workings are many feet below the grass roots. The ore shoots that have been exposed, I believe however, have promise to become producers, following an intelligent development program. Based on his office records in 1927, Bert Ableman told me personally that "the ores thus far shipped from the Cashier vein ranged between \$48 and \$200 per ton."



E. ROSS HOUSHOLDER, E. M.
CHEMIST
ASSAYER

REGISTERED PROFESSIONAL ENGINEER

MEMBER
 SOCIETY OF AMERICAN MILITARY ENGINEERS
 AMERICAN ASSOCIATION OF ENGINEERS
 AMERICAN SOCIETY OF ENGINEERS

KINGMAN, ARIZONA.

July 18, 1927

WE HEREBY CERTIFY THAT THE SAMPLES ASSAYED FOR

Cashier Mine,
 Kingman, Arizona.

HAVE THE FOLLOWING RESULTS:

OWNER'S MARK	GOLD		SILVER		GOLD AND SILVER		COPPER PER CENT	LEAD PER CENT	ZINC PER CENT
	GR. PER TON	VAL. PER TON	GR. PER TON	VAL. PER TON	VAL. PER TON DOLLARS	CENTS			
Ore from Wedge vein near face	0.85	\$10.42	5.44	\$499@90¢/oz	\$5.59		0.6%	5.2%	13.44%
Select ore Ableman tunnel dump	0.78	\$16.71	35.72	\$33.15@90¢/oz	\$58.74		2.5%	44.0%	3.32%
Select ore Cashier shaft	0.36	\$7.44	23.00	\$20.70@90¢/oz	\$32.30		0.88%	41.4%	7.61%
Ore from main tunnel 100 feet from portal	0.12	\$0.42	3.32	\$2.99@90¢/oz	\$3.69		0.7%	1.3%	3.25%

GOLD AT \$20.67 PER OUNCE.

SILVER AT PER OUNCE.

CHARGES \$ Paid

E. Ross Housholder
 ASSAYER

82

GOLD \$20 PER OUNCE
 SILVER 50 CENTS PER OUNCE

Wm. L. Kern
 ASSAYER

WE HAVE ASSAYED YOUR 125 SAMPLES AND FIND them TO CONTAIN AS FOLLOWS:

DESCRIPTION	NO.	GRS. GOLD PER TON	GRS. SILVER PER TON	PER CENT LEAD	PER CENT COPPER	PER CENT ZINC	INSL. PER CENT	PER CENT IRON	PER CENT	VALUE OF GOLD PER TON
Picked Shaft Panama	125-1	0.13	13.00		0.90	11.70				\$ 4.95
10 Ft. from Portal 20 Ft. Vias	125-2	0.14	1.85	1.70	0.90					\$ 4.90
20 Ft. from Portal 20 Ft. Vias	125-3	0.06	32.40	2.80	0.90					\$ 2.20
Upper Shaft 8 Ft. From Portal	125	0.08	8.95		0.90					\$ 2.80

REMARKS

CHARGES \$ 2.50

CRISMON & NICHOLS
[Signature]

R. R. GASTO P. H. CRISMON ORRIN FISHER HAROLD E. GILVER

CRISMON & NICHOLS
ASSAYERS AND CHEMISTS
229-231 SOUTH WEST TEMPLE STREET P. O. BOX 1700

PHONE 3-7417

REPORT OF ASSAY

Exploration Mining Co. SALT LAKE CITY, UTAH July 5, 1955

WE HAVE ASSAYED YOUR 126 SAMPLES AND FIND them TO CONTAIN AS FOLLOWS:

DESCRIPTION	NO.	GRS. GOLD PER TON	GRS. SILVER PER TON	PER CENT LEAD	PER CENT COPPER	PER CENT ZINC	INSL. PER CENT	PER CENT IRON	PER CENT	VALUE OF GOLD PER TON
Hanging Wall 30 in	126-5	0.03	17.20	6.70	3.70					\$ 1.05
Dump-Cashier Cross cut	126-6	0.06	3.40	4.40	0.45	6.15				\$ 2.10
Cashier 30 ft. from Portal Cross Cut Cob	126-7	0.01	0.60	0.60	0.40					35

SAMPLES 1
SAVS 2

REMARKS

SAMPLES 2
RECVS 1

CHARGES \$ 10.00

CRISMON & NICHOLS
[Signature]

July 26, 1955

WE HAVE MINED FROM

OFFICE NUMBER	OWNER'S MARK	GOLD PER TON OUNCES VALUE	SILVER PER TON OUNCES VALUE	TOTAL VALUE GOLD & SILVER	COPPER PER CENT	LEAD PER CENT	ZINC PER CENT
227	Panama #3 ft wall 10ft portal 10" wide floor	.05	1.6		.4	1.51	.0
228	Portal 30ft wide-hunging wall	Trace	18.0		3.9	0.50	
229	Cashier #6 dump at cross cut	.02	.7		.2	7.25	
230	Cashier #7 30ft portal cross cut	Trace	Trace		Trace	.0	
231	Upper shaft	.02	8.0				
232	Panama #1 picked sample	Trace	34.8		.6	12.76	
385	Aug. 16, 1955 Cashier cross-cut 50 ft in #1	Trace	.50				
386	Cashier cross-cut 50 ft in #2	.16	7.50		.1	4.8	4.

GOLD \$35 PER OUNCE
SILVER 80 CENTS PER OUNCE

[Signature] ASSAYED

OUTCROP OF THE ALPHA VEIN.

Looking southeast from the center of the New Years claim of the Cashier group, along the outcrop of the Alpha vein, showing the dumps of the Alpha mine in the central background from which many thousands of dollars worth of ore have been mined and shipped from this same vein according to production records published concerning this mine I believe and expect this vein will be cut by the proposed Cashier development tunnel.

ALPHA VEIN

1152 #1 The Alpha vein is about 400 feet northerly from the Cashier vein and practically parallels it although trends more to the north, almost directly across the strike of the pre-Cambrian gneiss complex. (Outcroppings are both prominent on the Cashier property and the patented Alpha estate to the east, as can readily be noticed in the above photograph. This vein being for the most part a prominent reef of black iron and manganese stained quartz. The vein varies in width from 4 to 30 feet, and consists principally of a gangue in which the ore occurs. The ore contains silver sulphide, pyrite and chalcopyrite. Another almost parallel vein to this Alpha vein outcrops a couple hundred feet northerly which has the same general character as this one. Both have a steep dip to the northeast. The latter vein apparently enters the old Summit property.

WEDGE VEIN

Note #1 The Wedge or Main working tunnel has been driven about 900 feet, of which 375 feet has been on the Wedge vein itself, exposing ore of a possible milling grade. The wedge vein has a west northwest strike with a dip ranging between 75 and 86 degrees to the northeast. This vein is several hundred feet southwesterly from the Ableman tunnel on the Cashier vein. According to the observed strike and dip of the wedge vein it is expected that it will coincide with the Cashier vein upon the Cashier property near its easterly endline, not far from the boundary of the Night Hawk mine.

Note #2 A short distance from the Cashier shaft to the southwest there is a marked quartz stringered blowout on the wedge vein that would lead me to believe that there could be an ore body beneath the surface at this point. The present face of the main working tunnel is now in what is believed by me to be of a grade that will probably make milling ore and it just entering beneath this widened portion of the vein which would bear out the supposition mentioned above. An assay taken from this ore gives 5.44 ounces silver, 5.2% lead and 15.44% zinc together with a low percentage of copper. The ore is encountered over the whole face of the drift in three parallel streaks varying in width between 6 inches to 2 feet, with streaks of gangue material between 3 to 6 inches wide. Much water has been encountered at this place which is typical of ore bodies in the sulphide zone, in this district.

Between the Cashier vein and this Wedge vein there is another vein that outcrops prominently but on which there has been little prospecting.

DEVELOPMENT & ORE EXPOSURES

Note #3 As just stated the Wedge vein has been opened 375 feet by the present working tunnel. A 500 foot crosscut has been started toward the Cashier and Alpha veins as is recorded in the accompanying map. One hundred feet from the portal there has been some zinc ore exposed. This ore occurs in a lense about 60 feet long, and varying from 8 inches to 2½ feet in width carrying from 2 to 6 per cent zinc and a few ounces in silver according to mine records. In places lead occurs in appreciable quantities. The ore shoot at the face of the tunnel has already been exposed for 40 feet carrying values in lead, zinc, silver and copper. There is a marked increase in the silica or quartz content where the ore occurs in this vein.

Note #4 The Ableman tunnel on the Cashier vein has been driven about 60 feet in a southeasterly direction along the vein at a shallow depth. Bert Ableman, the locator of this group, after whom this tunnel is named, made a shipment during December 1924, that had according to Mr. Ableman's records shown to me in 1927 and my belief "a gross value of \$316 per ton from an underhand stop in the heading of this tunnel. The following month he made another small shipment that had a gross value of \$64 per ton. These shipments were sent to the sampling works at Kingman. French and

Winters, two contractors and leasors, shipped 8 tons from this tunnel in the spring of 1925 that brought them \$51 per ton. The values were in lead, silver, gold, and zinc." A selected sample from ores left on the dump gave assay returns of 35.72 ounces in silver, \$16.71 in gold, 2.5% copper, 44.0% lead and 3.32% zinc, which checks the reported value of the shipments made from this tunnel.

One noticeable feature of the ore deposits in this tunnel was that a horizontal bedding or "floor" of mica schist was found above each of the lead ore shoots.

7511

Then there is the Cashier shaft on this same vein several hundred feet to the southeast that is 85 feet deep. Jack Connelly who owned this claim between 45 and 55 years ago told me personal in 1924 that he "sunk this shaft, from which he shipped a carload of ore that brought him \$48 per ton even with an exceedingly low price for lead. The claim was then known as the Hasyampa. The companion claim which is now partially covered by the New Years claim, being the westerly extension of the Alpha vein was then known as the Sun Yan." There is today a 16 inch exposure of lead sulphide ore at the bottom of this shaft contained in a 3-1/2 foot face of lower grade ore of milling grade. A selected sample from the old dump gave in 1927 returns of \$5.44 in gold, 23.00 ounces silver, 0.8% copper, 41.4% lead and 7.61% zinc.

For the most part the other openings on the property consist of location and assessment holes on the various veins which have uncovered considerable ore of varying grade. In general the Cashier group lies in the heart of a mineralized area from which much ore has been extracted, but the development of the group itself has been neglected in the past, for the superficial work that has been done thus far has only scratched the veins. The showings thus far made have been good and the property, I believe, has much promise in a mining way.

SHIPPING ORES TO CUSTOM PLANTS SUGGESTED

Until the time arrives when the development of the Cashier mining property uncovers an extent of ore of sufficient size to justify the expenditure necessary for constructing and equipping a milling plant of its own on the estate itself, it is preferable to mine, sort or select, and ship to custom milling plants or custom smelters, even though the ore responds to milling treatment at a reasonable cost per ton. With present competition for ores by smelting plants and the more efficient operation of large custom milling plants as compared to small size plants, it will figure to your advantage to ship to those plants rather than consider the erection of a small plant on the Cashier mine group at this time.

ADVANTAGES OF SHIPPING TO CUSTOM PLANT

Advantages to be gained by shipping rather than constructing a small smelting or mill treatment plant on the Cashier mine group, may be summarized as follows:

- (1) a large developed body of ore is not initially required.

(2) Initial plant cost, including development of considerable amounts of water, is not necessary.

(3) The risk involved in the proposition as a whole when no mill treatment plant or smelter is erected at the mine itself, is not as great, due to the smaller investment necessary.

ORE VALUE DETERMINED BY SHIPPING RETURNS

Note C. D. (Blackie) McGovern, was mine superintendent in charge of underground operations at the Cashier mine during the 1938 activity and on the fifth of September 1955, personally told me that "the ore, taken from a 35 to 40 foot wing in the Cashier tunnel at about 740 feet from the portal, where they cut the Cashier Vein and the ore shoot uncovered above near the surface (see sketch map) in the Ableman Tunnel, contained an average of \$68 in gold (Au) and silver (Ag) and 5 to 6 per cent lead (Pb) and from 2 to 4 per cent copper (Cu). On the Cashier tunnel level at this point they drifted in ore to the northwest on the Cashier vein about 35 to 40 feet. They also, at that time drifted southeast about 25 to 30 feet. The shipping grade ore average (according to McGovern) about 18 inches in width, although in places the width dropped to 4 and/or 5 inches in width. The mill grade ore varied from 26 inches to 38 inches in addition to the width of the shipping ore."

Note Mr. McGovern also stated that "at 1,100 feet in from the tunnel portal the Alpha Vein was out and a short drift run to the northwest about 18 feet, and about 12 feet to the southeast. Ore was extracted from these drifts and some underhand stopping to make up a shipment to the Keystone mill, then operating at Mineral Park, about 8 miles by road to the north of the Cashier mine. This ore contained \$64 in gold and silver, a little lead, some zinc and a small amount of copper. The vein was similar in width to that of the Cashier Mine, both as to the higher grade streak in the milling grade ore, which they were not interested in mining at that time." Mr. M. B. Maxwell who had worked in the Cashier mine agreed with the statement made by Mr. McGovern.

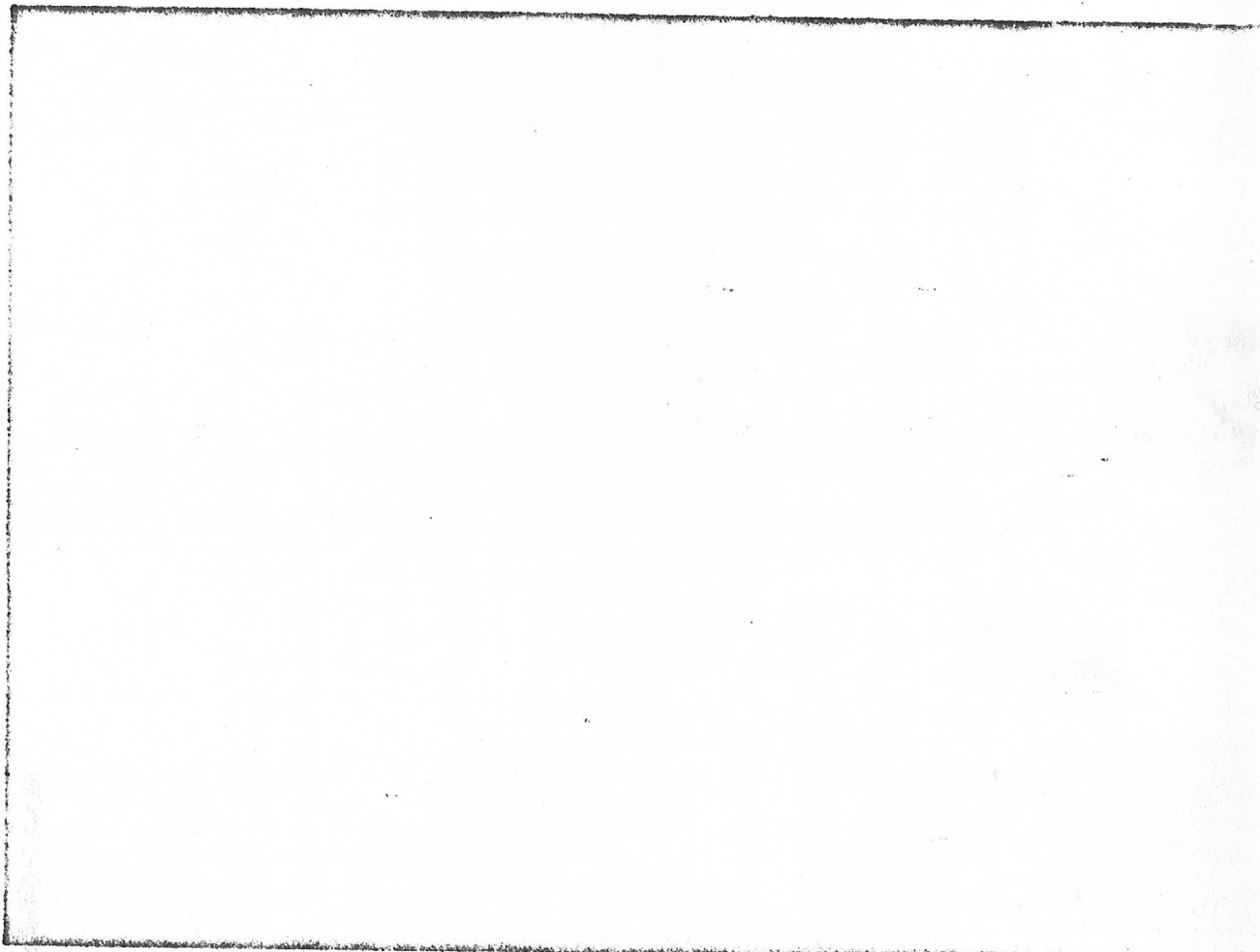
The footage from the Cashier Tunnel portal of about 740 feet to the Cashier Vein corresponds closely with the 80 degree dip noted on the surface, although the recorded dip of the vein was 72 degrees at the point of contact. Also the 80 degree dip of the Alpha Vein would indicate that it would be encountered at near 1,100 feet from the tunnel portal (see sketches).

After careful calculations, and in keeping with the definitions of standard terms, relating to the metal mining industry, I have tabulated the resulting information, in the following table. Note carefully the terminology and language.

Tonnage estimates by E. Ross Hornholder, E. G., Sept. 1958

Type of ore*	Type of vein or Occurrence		Total
	Banker vein	Alpha vein	
Provable Ore (A)	1,640	700	2,340
Additional Discovered Ore (B)	3,000	1,280	4,280
Total Proved Ore (A, B)	4,640	1,980	6,620
*See accompanying sketch visible projection maps	**	**	**
Additional Possible ore	5,900	3,500	9,400
Total of ore in sight	10,540	5,480	16,020

Based on the knowledge of the lead, zinc, copper sulphide deposits carrying gold and silver values in this area and mining district and the existing characteristics in evidence at this lead-zinc-copper with gold and silver mine property, I estimate and expect your future development of these deposits, will necessarily uncover an additional tonnage, hereby tabulated.			
Additional Ore expected	27,000	8,000	35,000
Total for all expected ore	38,140	13,480	51,620



AT THE PORTAL OF THE CASHIER TUNNEL

This shows a portion of the Big dump at the main Working Tunnel, and the track leading from the portal.

LOCATION & TRANSPORTATION

The Cashier group is located in the southwest portion of Township 23 North, Range 17 West, in the Wallapai Mining District in the Coconino Mountain Range, Mohave County, Arizona, at an elevation ranging between 4000 and 4500 feet above sea level. The group is 2-3/4 miles in an easterly direction by road from the junction with Arizona State Highway U.S. 95 oil cake paved highway leading southeasterly into Kingman, the Mohave County seat, on the main line of the Atchison, Topeka & Santa Fe railroad; also the junction with Arizona State oil cake paved highway U.S. 66.

SUMMARY

note After a careful preliminary examination of the six lode mining claims, comprising the estate of the Cashier group, located in the Gallup Mining District, Mohave County, Arizona, it would seem to me that the indications on the property; such as the prominent vein exposures, whose characteristics are similar to the production veins of the district, the same general strike and dip of the veins to those in the geological formations recognized as favorable in which to expect commercial ore deposits in the district, and to the discovery of ore, of commercial grade, carrying a mineral content; indicated by the assay and shipping records mentioned above, warrants further exploration and development to open up the ore bodies believed by me to exist on the group, especially those on the Wedge, Cashier and Alpha veins, that have already exposed ore at or near the surface.

Because the ores of this mine already show a value as indicated above supplemented by a development program to explore and determine their extent have the possibility to prove profitable to the owners.

In going over this property and examining the large veins having widths up to 40 feet, and obtaining samples carrying from a few dollars up to better than \$100 in values, supplemented by the favorable geological conditions, I was impressed with the possibilities of this property. It is my opinion that when these ore bodies have been opened up to several hundred feet in depth, supplemented with suitable lateral work, that it will prove to be one of the important mines of the district, as is attested by the persistent length and width of the outcrops and the type of deposition.

These veins are strong and well defined, and in my opinion there is no question as regards their permanency and continuity to a great depth. It can be expected that the base metals content will materially increase as the openings penetrate below the leached surface area. This has already been proven in the shallow openings already made. Then too, samples taken from the various openings on these veins, all carry encouraging values. This opinion is based also on my observation and knowledge of similar prospects that have become important producers in this area.



APPENDIX

A condensed description of ROCKS is here included, gleaned from pages 94 and 95 in Arizona Bureau of Mines Bulletin No. VI, No. 6 (1935, by Dr. G. Montague Butler. In so far as any of these terms are used in this report, the definitions of such terms are intended to conform to the following data.

E. Ross Hausholder
E. ROSS HAUSHOLDER, E.M.
Registered Professional Engineer #25

ROCKS

Five classes of rocks are generally recognized, namely: igneous, clastic, chemical precipitates, organic, and metamorphic. Each class may be briefly defined and described as follows:

IGNEOUS ROCKS

Igneous rocks are formed by the solidification of once molten earth material--magma. Three subdivisions of igneous rocks may be recognized, namely: plutonic, minor intrusive, and extrusive. Most igneous rocks are very hard when fresh.

PLUTONIC ROCKS: Such igneous rocks have usually cooled slowly far below the surface where the pressure is very high. They ordinarily occur in masses of great size, although relatively narrow dikes of some plutonic species, such as pegmatite, are common in some localities. Plutonic rocks are compact, composed of interlocked grains large enough to be seen with the unaided eyes, which consist of two or more ingredients each of which may be readily recognized by a mineralogist, and, with very rare exceptions, the more plentiful ingredients do occur in well-formed crystals.

MINOR INTRUSIVE ROCKS: Such igneous rocks are formed from magma that has risen toward the surface of the earth through cracks (forming dikes) or has spread between layers of earth material (forming sills, etc.) Part, at least, of the ingredients are forced to crystallize with relative rapidity when the magma comes in contact with cool earth material (resulting in fineness of grain) and, although the pressure on the solidifying magma averages less than on plutonic magmas, it is still relatively great, so the resulting rock is compact. All of the ingredients of some of the minor intrusive rocks are so small that none of them may be identified or even seen with the unaided eyes, but, typically, these rocks show well-formed crystals of one or two minerals embedded in a finer groundmass.

EXTRUSIVE ROCKS: Such igneous rocks have solidified on or relatively close to the surface of the earth and occur typically in surface flows, volcanic necks, and dikes. Otherwise, but the latter are frequently porous, are more commonly composed of lava glass (obsidian), and they are sometimes banded (show flow texture).

E. Ross Hausholder

CLASTIC ROCKS

Clastic rocks are composed of fragments of other rocks, produced by weathering or mechanical disintegration. The fragments may be several inches or feet in diameter (conglomerates and breccias), much smaller, but visible to the unaided eyes (arkose, grit, and sandstone), or microscopic (shale, clay, and some limestone). The fragments may be transported by wind and water and are usually stratified (laid down in distinct layers), especially if finally deposited in water, when they are called sediments or sedimentary rocks. The fragments are often eventually cemented together more or less firmly, but all degrees of hardness are found in clastic rocks. Such rocks contain shells or other remains of organisms (fossils).

CHEMICAL PRECIPITATE ROCKS

Chemical precipitate rocks are composed of material deposited by precipitation from water solutions, usually as the result of evaporation. The precipitate rocks are commonly interbedded with sediments that were washed into the evaporating body of water. Rock salt and gypsum are illustrations of this type of rock.

ORGANIC ROCKS

Organic rocks are composed of

- (1) Material secreted or deposited by animals or plants, or
- (2) Made up of animal or plant remains.

Illustrations are some limestone and coal.

METAMORPHIC ROCKS

Metamorphic rocks are made up of other rocks that have been changed in appearance or composition, or both, by pressure, heat, or solutions that have percolated through them. Two types are recognized, namely: regional or dynamometamorphic rocks and contact or thermometamorphic rocks.

REGIONAL OR DYNAMOMETAMORPHIC ROCKS: Such rocks are composed of earth material that has been deeply buried and, therefore, subjected to enormous pressure and some heat. Such rocks are often banded, hard, and composed of interlocked grains visible to the unaided eyes. They sometimes contain well-formed crystals. Illustrations are mica schist, gneiss, slate, quartzite, and some marble.

CONTACT OR THERMOMETAMORPHIC ROCKS: Such rocks are composed of material that has been changed and often baked by the heat of intrusions of molten magma and by the chemically active solutions expelled by such magma as they cool. Illustrations are garnet and epidote rocks.

E. Ross Housholder

DESCRIPTION OF ROCK SPECIES
MENTIONED IN THIS REPORT

ALASKITE: A granular plutonic igneous rock composed almost entirely of the relatively light colored minerals, quartz and feldspar. Like granite (which see), but lacking dark colored constituents.

ANDESITE: An extrusive igneous rock that usually contains glassy, light colored, plagioclase feldspar crystals in a darker colored, fine-grained groundmass. Does not contain visible quartz, but may contain black hornblende or black augite pyroxene crystals. The groundmass may be porous and the rock then has a very rough texture.

BASALT (MALPAIS): An extrusive igneous rock that often contains small, black crystals of pyroxene or dark green or brown crystals of olivine in a somewhat lighter colored groundmass in which may be imbedded, however, numerous small, very slender, glassy plagioclase feldspar crystals. Usually very dark colored and relatively heavy and frequently decidedly porous.

BRECCIA: A clastic rock that is composed of angular broken fragments of other rock, more or less firmly cemented together. The fragments are often large, and must exceed 1/8 inch in diameter.

CONGLOMERATE: A clastic rock that is composed of large, rounded fragments of other rock more or less firmly cemented together; otherwise like a breccia (which see).

DIABASE: A minor intrusive igneous rock that shows numerous slender, dull or stony lustered, usually white plagioclase feldspar crystals, pointing in all directions, imbedded in a dark colored (often black on fresh surfaces) groundmass that is composed of pyroxene.

DIORITE: A plutonic igneous rock like granite (which see) in texture, but it contains no visible quartz and is usually predominantly composed of white plagioclase feldspar and black hornblende.

GABBRO: A plutonic igneous rock like granite (which see) in texture, but it contains no quartz and is usually predominantly composed of dark colored pyroxene and lesser amounts of white or light green plagioclase feldspar.

GNEISS: A regional metamorphic rock usually associated with other schists and much like granite (which see) in composition. In fact small specimens cannot always be distinguished from granite, but the rock is plainly banded when seen in the field, and white mica (muscovite) is a very common constituent.

GRANITE: A plutonic igneous rock that consists essentially of pinkish to white orthoclase feldspar and quartz, but mica, especially black mica (biotite), is a common constituent and other and other minerals may be present in subordinate amounts.

E. Ross Hausholder

LIMESTONE: A rock composed essentially of carbonate of lime which dissolves with the emission of bubbles when a drop of dilute or concentrated muriatic acid is placed upon it. Depending upon its origin it may be either a clastic or an organic rock or a chemical precipitate. Most limestones are finely granular and light colored. They are often flint-like in appearance when freshly broken. They may contain fossils which are usually composed of quartz.

MARBLE: A regional or contact metamorphic rock that is formed from limestone and has the same composition as limestone, but it is rather coarsely granular so that the individual grains, which are usually glassy, and have the perfect cleavage of calcite (which see), are visible to the unaided eyes.

MONZONITE: A plutonic igneous rock like diorite (which see), but it contains both orthoclase (often pinkish in color) and plagioclase (often white or greenish in color) feldspar.

PEGMATITE: A plutonic igneous rock that occurs in dikes and is much like granite (which see) in texture and composition, but the individual grains or crystals are very large (often several inches long, or larger), and white mica (muscovite) is a much commoner constituent than black mica (biotite). May contain beryl, topaz, tourmaline, and even rarer minerals.

PERIDOTITE: A basic plutonic rock that is usually dark colored and relatively heavy. It contains no feldspar or quartz. Dark brown or green pyroxene (hypersthene, enstatite, or diallage) and olivine are the most plentiful ingredients, but it may also contain magnetite, chromite, and pyrrhotite.

PHONOLITE: An extrusive igneous rock, sometimes has a somewhat greasy luster, occurs in various tints of dull green, gray, and brown, and shows few easily identifiable minerals other than small, scanty crystals of glassy feldspar and, sometimes, numerous very thin, slender black crystals of aegerite pyroxene. One peculiarity of these rocks is that thin slabs, when suspended or held in proper way and struck with a hammer or pick, ring like a bell, hence the name, from two Greek words meaning "sound" or "tone" and "stone." Usually formed when the phonolite breaks as a molten lava up through crater fillings, and quickly solidifies in the form of dikes. Phonolite can rarely be recognized with certainty by other means than a microscopic examination of a thin section. Its presence does not necessarily indicate the near presence of any particular metal or mineral.

PORPHYRY: A minor intrusive igneous rock that, typically, shows well-formed crystals of light colored, stony lustered orthoclase feldspar, and, more rarely, quartz in a dense, fine-grained ground-mass.

QUARTZITE: A regional metamorphic rock formed from sandstone. The openings between the grains in the sandstone have been filled with quartz and the resulting rock is very dense.

E. Ross Hornselder

SANDSTONE: A clastic rock that is composed of grains of other substances, usually largely or almost entirely quartz, which are more or less firmly cemented by silica, calcium carbonate, iron oxide, or some other substance. The individual grains are visible to unaided eyes and are of the size of coarse granulated sugar, or smaller.

SCHIST: A regional metamorphic rock that has, typically, a banded (schistose) texture and often breaks readily along the bands. There are many varieties, such as mica schist, tremolite schist, etc., each being usually named by prefixing the name of the most prominent mineral or minerals.

SERPENTINE: A rock formed by the alteration of very basic igneous rocks like peridotite (which see). It is usually soft enough to be easily scratched with a knife, has a somewhat waxy or greasy luster, feels smooth, breaks with a smoothly curving fracture, is most often some shade of green (commonly dark) in color, and light may frequently be seen through thin edges.

SHALE: A clastic rock made of layers (often as thin as cardboard, or thinner) or particles, too small to be visible to unaided eyes, of various hydrous aluminum silicates (of which kaolinite is one), quartz and other impurities. It is usually soft, smells like clay, especially when moistened, and breaks along the layers. The color is usually brown or gray.

SLATE: A regional metamorphic rock like shale in composition but much harder. It breaks into strong, thin sheets perpendicular to the pressure that produced it and the color is most frequently black.

SYENITE: A plutonic igneous rock like granite (which see), but it contains no visible quartz and black hornblende is more often present than is black mica.

RHYOLITE: An extrusive igneous rock that is usually light colored and relatively light in weight. It often contains glassy, colorless or white orthoclase feldspar crystals and, less frequently, quartz crystals imbedded in a fine grained groundmass that often feels rough. It sometimes shows flow texture (is banded) and may be glassy (obsidian). When it is very finely porous and contains no grains of minerals visible to unaided eyes, it is called pumice.

TRACHYTE: Exactly like rhyolite (which see), but no quartz, or practically none, is visible even in thin sections under the compound microscope. It cannot usually be distinguished from rhyolite in the field.

TUFF: Composed mostly of the fine material (particles of volcanic glass) called volcanic ash that is thrown into the air during volcanic eruptions. It is usually white or light tinted, porous, light in weight, and soft. It feels rough and commonly contains angular fragments of extrusive rocks.

VOLCANIC BRECCIA: A breccia (which see) that contains numerous angular fragments of extrusive rocks.

E. Ross Howsholder

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The following list of publications and sources of information, used as part of the references in compiling this report, is here included for the information of those who may be interested.

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MOHAVE CO. MILS

NUMBER: 112A

NAME: CASHIER

ALTERNATE NAMES:

WEDGE

ABLEMAN TUNNEL

HASYAMPA

CURRENT STATUS: PAST PRODUCER MAP NAME: CERBAT- 7.5 MIN

LATITUDE: N 35DEG 20MIN 15SEC LONGITUDE: W 114DEG 07MIN 45SEC

TOWNSHIP: 23 N RANGE: 17 W SECTION: 31 QTR.: SE

COMMODITY:

GOLD- (M) LODE-PRIMARY

LEAD- (M) SULFIDE-PRIMARY

SILVER- (M) SULFIDE-COPRODUCT

ZINC- (M) SULFIDE-BYPRODUCT

COPPER- (M) SULFIDE-BYPRODUCT

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YSGS CERBAT QUAD

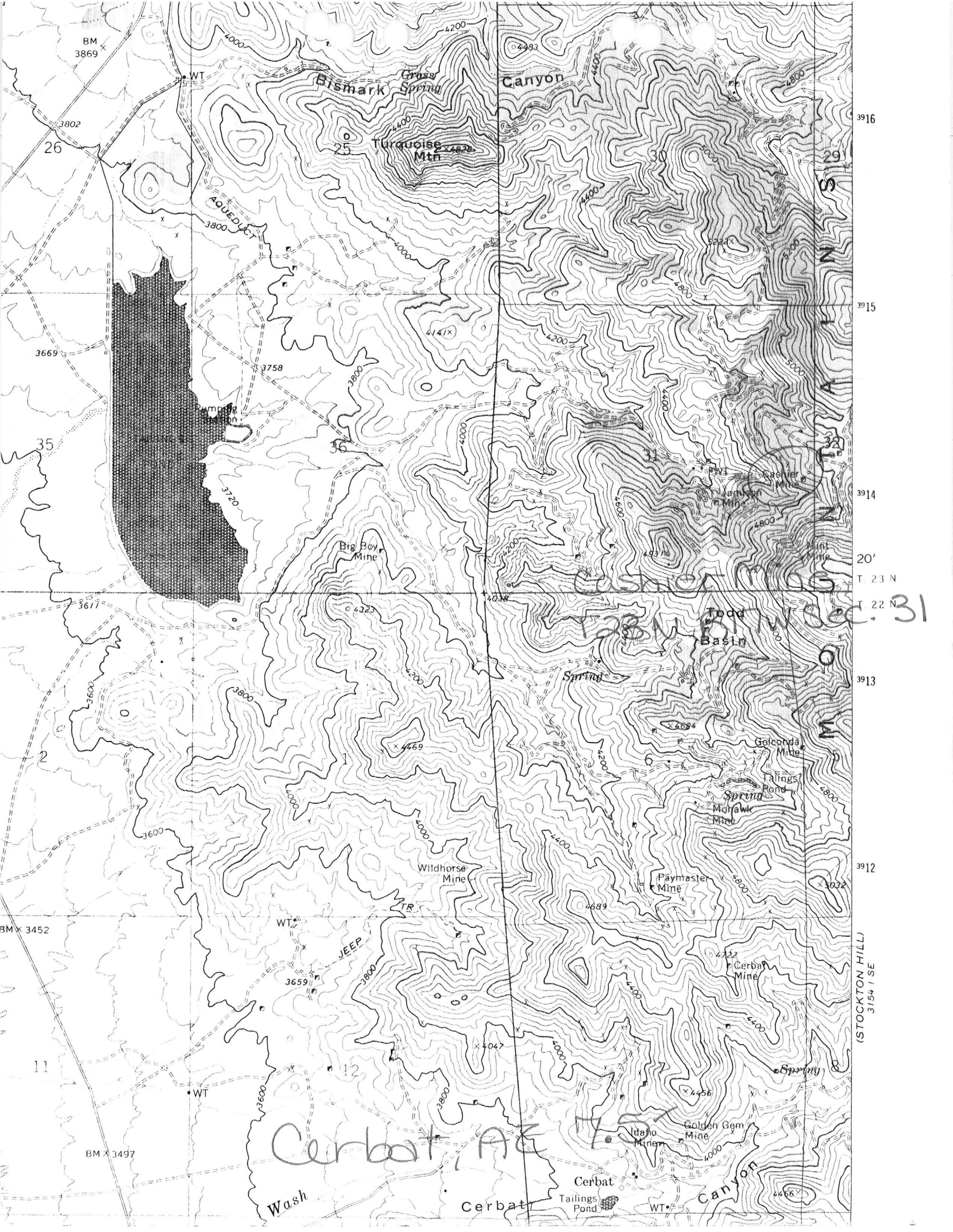
ADMR MOHAVE CUSTOM MILL PROJ. CARD FILE

ADMR MOHAVE CARD FILE

ADMR CASHIER MINE FILE

ADMR ALPHA MINE FILE

ADMR-MAPS UPSTAIRS IN DRAWER 6 - FLAT FILE



Bismark Canyon

Turquoise Mtn

CASHIER MINE

Todd Basin

Cerbat, AZ

Cerbat

Cerbat Canyon

(STOCKTON HILL)
3154 1 SE

28 N 12 W Sec. 31

20' T 23 N
22 N

3915

3914

3913

3912

3911

3910

3909

3908

3907

3906

3905

3904

3903

3902

3901

3900

3899

3898

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September 15, 1941

✓
Mr. Bert Abelman
Chloride, Arizona

Dear Mr. Abelman:

L. S. Hackney, 132 North Kenmore Avenue, Los Angeles, California, has expressed an interest in your ✓
Cashier Mine and we have sent him your name and address. You will no doubt hear from him.

If you do make a contact with him that results in business done, we would appreciate your advice for the records of the department.

Hoping that you will hear from him further, I
am

Yours very truly,

Chairman, Board of Governors
Arizona Department of Mineral Resources

CFW:LP

July 30, 1940

P. O. Box 288,
Kingman, Ariz.

Subject: Cashier Mine

Mr. J. E. Dietrich,
10347 Whitegate St.,
Sunland, Calif.

Dear Mr. Dietrich:

Referring to the Cashier Mine, on which you secured an option from Mr. Bert Abelman, of Chloride, Arizona, on July 27th, per your request I am herewith inclosing a copy of a brief report on this property by myself, which may be of some assistance to you in presenting this property to your clients.

I believe if you can find the money with which to drive the Cashier tunnel forward to the Alpha and other veins, you can make considerable money out of this enterprise. However, as stated in the report mentioned, you should arrange, if possible, to secure at least the Alpha group, on which there is considerable ore opened up.

Adjoining properties are the Summit, located on top of the Cerbat mountains and which property is now in ore, the Night Hawk, Mint and Jamieson. Suggest you look some of these mines over, when you examine the Cashier. Also the road leading from Highway 93 to the Cashier mine is County maintained the year round. This road leads on over the mountain to Stockton Hill, where there are a number of mines, some of which are being operated and shipping ore. Hence, if you had a good sized flotation mill located below the Cashier Tunnel, you could get considerable customs ore, and be in line also to pick up the better properties.

The Cashier Tunnel is a splendid bet all around - not only because a goodly amount of milling ore is now already indicated in that area; but also because this tunnel produces mill water, which is a scarce article in that neck of the woods. The Alpha mine workings struck considerable water mainly in a winze sunk from the lower tunnel of that property; so when the Alpha vein is out, the present water now flowing from the portal of the Cashier Tunnel will be more than doubled. I hardly think there is any doubt of this. All veins in the Cerbats carry water.

With kind personal regards, I am

Very sincerely yours,

Elgin B. Holt,
Field Engineer.

cc - J. S. Coupal

July 30, 1940

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Kingman, Ariz.

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With kind personal regards, I am

Very sincerely yours,

Elgin B. Holt,
Field Engineer.

cc - J. S. Coupal