



CONTACT INFORMATION

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Arizona Department of Mines and Mineral Resources Mining Collection

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05/21/1999

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: TEXONA MINE

ALTERNATE NAMES:

GOLD NUGGET NO. 2
GOLD KINE
1914 NO. 1

PINAL COUNTY MILS NUMBER: 769

LOCATION: TOWNSHIP 2 S RANGE 13 E SECTION 26 QUARTER SW
LATITUDE: N 33DEG 13MIN 27SEC LONGITUDE: W 110DEG 59MIN 37SEC
TOPO MAP NAME: HOT TAMALES PEAK 7.5 MIN

CURRENT STATUS: EXP. PROSPECT

COMMODITY:

COPPER SULFIDE
LEAD
GOLD LODE
SILVER

BIBLIOGRAPHY:

ADMMR TEXONA MINE FILE
HOT TAMALES PEAK QUAD PREVIOUSLY CALLED SONORA

Receipt for Registered Article No. _____

Registered at the Post Office indicated in Postmark

Fee paid _____ cents Class postage _____

Declared value _____ Surcharge paid, \$ _____

Return Receipt fee _____ Spl. Del'y fee _____

Delivery restricted to addressee:

in person _____ or order _____

Accepting employee will place his initials in space indicating restricted delivery.

POSTMASTER, per _____ (MAILING OFFICE)

The sender should write the name of the addressee on back hereof as an identification. Preserve and submit this receipt in case of inquiry or application for indemnity.

Registry Fees and Indemnity.—Domestic registry fees range from 15 cents for indemnity not exceeding \$5 up to \$1 for indemnity not exceeding \$1,000. The fee on domestic registered matter without intrinsic value and for which indemnity is not paid is 15 cents. Consult postmaster as to the specific domestic registry fees and surcharges and as to the registry fees chargeable on registered parcel-post packages for foreign countries. Fees on domestic registered C. O. D. mail range from 25 cents to \$1.20. Indemnity claims must be filed within one year (C. O. D. six months) from date of mailing.

Form 3811
Rev. 1-4-40

RETURN RECEIPT

Received from the Postmaster the Registered or Insured Article, the original number of which appears on the face of this Card.

1 Edward A Hughes
(Signature or name of addressee)

2 _____
(Signature of addressee's agent—Agent should enter addressee's name on line ONE above)

Date of delivery MAY 1 1941, 194

ARIZONA DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA

August 8, 1958

To the Owner or Operator of the Arizona Mining Property named below:

Texona Mine (Pinal County)	gold, silver, lead
(Property)	(ore)



property which we would like to have

's Report form with as complete detail
; maps, assay returns, shipment returns
s before and which might interest a
perty.

Mr. Edward A. Hughes

Box 162

Mesa, Arizona

Frank P. Knight

FRANK P. KNIGHT,
Director.

Enc: Mine Owner's Report

(Edward)

HUGHES, P. A.

~~222 East McDowell Street~~ Box 162 (148)

Mesa, Arizona

See MT-22 - Re Mine Owner's Report 4-16-41 - TEXONA MINE, Pinal Co.

See DONNA MINE

Re - development loan

See OPA REPORTS - re gas application

12-26-44
5-9-45

05/21/1999

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HOT TAMALE PEAK QUAD PREVIOUSLY CALLED SONORA

30 April 1941

Mr. Edward A. Hughes,
Box 162,
Mesa, Arizona.

My dear Mr. Hughes:

I am enclosing herewith a copy of mines owners report filed in this office covering the TEXONA MINE in Pinal County.

I am also enclosing the COPY OF REPORT OF THE TEXONA GROUP, which you left with me. This report has been copied and placed in the files with the mine owners report.

Assuring you of my desire to be of assistance, and with best wishes, I am

Yours very truly,

J. S. Coupal
Director

JSCjrf
encls.

REGISTERED MAIL
Return Receipt Requested.

Thomas

July 7, 1942

MEMORANDUM

TO: Fred Perkins

FROM: J. S. Coupal

I am sending a copy of this memorandum to Mr. Hughes, making an appointment for you to meet him at noon on July 13 at the old adobe house alongside the road where you met him before.

I hope you will be able to straighten out Mr. Hughes and give him advice as to just how to fill out his application for the mine loan.

Memorandum

July 6th, 1942

From: Fred H. Perkins

TEXONA MINE
E. A. Hughes
(Ray)

To: J. S. Coupal

Since you have offered, I would be glad if you would get in touch with Mr. Hughes and make an appointment for me about noon of July 13th, 1942, and I will meet him on his ground at that time.

If possible notify me not later than Saturday, July 11th, 1942, at Globe, Arizona, if he can and will be at the old adobe house alongside the road where I have met him before.

I can't possibly be there at an earlier date.

If I don't hear from either you or Hughes, I'll know he will be there July 13, 1942, about noon.

fhp-k

FRED H. PERKINS

MEMORANDUM.

July 1, 1942.

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E. A. Hughes.
(Ray).

Fred H. Perkins.

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He has been waiting patiently for you to call at his mine and help him out. You talked with him at the Ray meeting and corrcctly told him that you could not do his job at that time.

Hughes hounded me to death until I went out and looked over other property he is holding on the road between Ray and Superior. I went out and locked his property but in the meantime he had an attorney help him file out an application for a \$ 150,000 loan and added a statement as follows "we are not mining men and we want you to grant this loan and send an engineer out to lay ut the work and tell us how it should be spent."

Needless to say he has not heard from his loan application.

He has two properties. The Texaona seems the best bet to try on for a loan. It is located about 2½ miles up Mineral Creek from Ray.

I know you are scheduled for Duncan to Willcox the week commencing July 6 and would not be available for Hughes until sometime after the 13th.

If you have made no definite committments for Friday of this week why not try to make the trip to Hughes' property the Texona on Friday. If you are tied up drop me a card and I will write Hughes and tell him you cannot make it until sometime on the 13th or after according to what best suits your plans.

If you can make it for Fríday I think you had best put in a phone call for Hughes and make such arrangements as you can to give him the much needed help.

Hughes says you can reach him by phoning the Greyhound Bus Station at Mesa and ask them to call Hughes to the phone, or you could phone me here at Phoenix and reverse the charges and I will then phone Hughes.

I told Hughes that we would assist him. To get the loan you will show him how to make out the application. I also said he would have to have certain assays made to convince the RFC that it was a worth while loan and that you would cut the samples but that he would have to stand the cost of assays.

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Advise me by a card or note if you make connections for Friday or if unable tell me when you can fit it into your plans.

Will mail expense check for last half of June just as soon as Imprest Fund is reestablished which should be in a day or two.

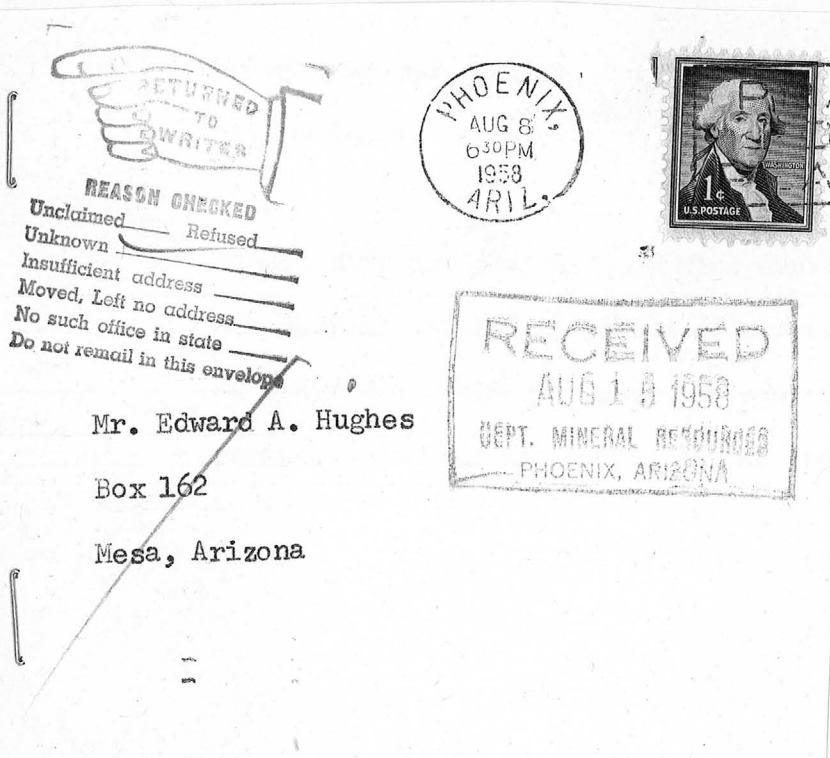
J. S. Coupal.

ARIZONA DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA

August 8, 1958

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Texona Mine (Pinal County) gold, silver, lead
(Property) (ore)



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Mesa, Arizona

property which we would like to have

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Frank P. Knight

FRANK P. KNIGHT,
Director.

Enc: Mine Owner's Report

(Edward)
HUGHES, E. A.
~~302 South McDonald Street~~ Box 162 ('48)
Mesa, Arizona
See MT-22 - Re Mine Owner's Report 4-16-41 - TEXONA MINE, Pinal Co.

See DONNA MINE
Re - development loan
See OPA REPORTS - re gas application

11-12-42
12-26-44
5-9-45

ARIZONA DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA

August 8, 1958

To the Owner or Operator of the Arizona Mining Property named below:

Texona Mine (Pinal County)	gold, silver, lead
(Property)	(ore)

We have an old listing of the above property which we would like to have brought up to date.

Please fill out the enclosed Mine Owner's Report form with as complete detail as possible and attach copies of reports, maps, assay returns, shipment returns or other data which you have not sent us before and which might interest a prospective buyer in looking at the property.

Frank P. Knight

FRANK P. KNIGHT,
Director.

Enc: Mine Owner's Report

(Edward)

HUGHES, E. A.

~~202 South McDonald Street~~ Box 162 (148)

Mesa, Arizona

11-12-42

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12-26-44
5-9-45

FD-3806 (Rev. Sept., 1932)

(POSTMARK OF)

Receipt for Registered Article No. 19132

Registered at the Post Office indicated in Postmark

Fee paid 15 cents Class postage 1

Declared value 200 Surcharge paid, \$

Return Receipt fee 3 Spl. Del'y fee

Delivery restricted to addressee:

in person , or order
Accepting employee will place his initials in space
indicating restricted delivery.

POSTMASTER, per



(MAILING OFFICE)

The sender should write the name of the addressee on back hereof as an identification. Preserve and submit this receipt in case of inquiry or application for indemnity.

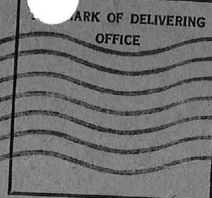
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U. S. GOVERNMENT PRINTING OFFICE: 1932

o 5-6852

Post Office Department
OFFICE OF BUSINESS

PENALTY FOR PRIVATE USE TO AVOID PAYMENT OF POSTAGE, \$300



Return to Dept. of Mineral Research
(NAME OF SENDER)

Street and Number,
or Post Office Box, Capital Bldg.

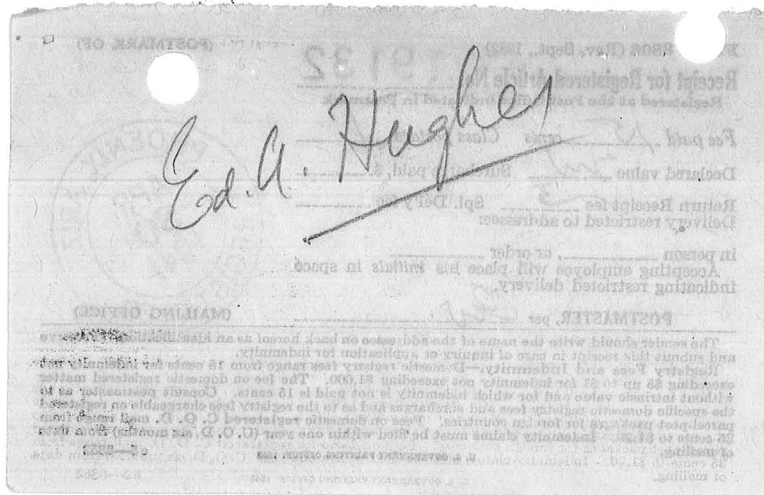
REGISTERED ARTICLE

No. 19132

INSURED PARCEL

No.

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DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNERS REPORT

Date April 16, 1941

Mine Texona Mine

Location - $2\frac{1}{2}$ miles NW of Ray on
west side of Mineral Creek.

Mining District & County - Mineral Creek Dist.
Pinal County

Former Name

Owner - Edw. A. Hughes

Address - Box 162, Mesa, Arizona

Operator

Address

President, Owning Co.

President, Operating Co.

Gen Mgr.

Principal Minerals - Gold, Silver,
Lead

Mine Supt.

Production Rate.

Mill Supt.

Mill: Type & Cap.

Men Employed

Power: Amt. & Type

Operations: Present - None

Operations: Planned - Requires financing for development and milling.

Number Claims, Title, etc. - 10 claims unpatented. Title clear and
assessment annually taken care of.

Description: Topography & Geography - Rather rugged country
located close to Mineral Creek.
Typical desert country vegetation.

Mine Workings: Amt. & Condition - On No. 1 claim a shaft 75 ft. deep with 25 ft.
drift at bottom. Several smaller shafts all in ore.

Geology & Mineralization - Altered metamorphosed schist porphyry and a large segment of lime laying above it.

Ore: Positive & Probable, Ore Dumps, Tailings - Veins show 4000 ft. in length.

Dimensions and Value of Ore body - Numerous veins from 6 inch up to 40 ft. Assays ran from trace to 1 oz. in gold - from 3 to 70 ounces in silver - from $4\frac{1}{2}$ to 36% in lead and from 1 to 18% copper, but no samples taken to show average value across veins.

Mine, Mill Equipment & Flow Sheet - None

Road Conditions, Route - $2\frac{1}{2}$ miles from Ray. Road fair and can be easily made good.

Water Supply - Ample water for milling can be pumped to proposed mill, which should be located on property.

Brief History - Roy's report claims by proper development property should stand a 500-ton mill.

Special Problems, Reports Filed - Report by Roy Griswald
Colorado Springs, Colo.
Jan. 25, 1927

Remarks - From present development work done there is enough ore opened up to warrant putting up a mill of 25 tons capacity a day; a crushing and concentrating plant.

If property for sale: Price, terms and address to negotiate - For sale or lease.
See owner.

SIGNED - Edw. A. Hughes
Box 162, Mesa, Arizona

Thompson

July 7, 1942

MEMORANDUM

TO: Fred Perkins

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JSCjrf
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If property for sale: Price, terms and address to negotiate - For sale or lease.
See owner.

SIGNED - Edw. A. Hughes
Box 162, Mesa, Arizona

(COPY)

COPY OF
REPORT OF THE TEXONA GROUP

LOCATION

These properties are located about two and one half miles to the northwest of the town of Ray on the west side of Mineral Creek in the Mineral Creek Mining District, Pinal County, Arizona.

AREA

This group is composed of 10 claims or an area of about 240 acres of ground.

FORMATION

The formation is altered of Metamorphosed schist porphyry and a large dyke of lime laying above these. The general trend is an easterly and westerly strike with veins having a dip to the North.

VEINS

On the Gold Nugget No. 2 claims are several small veins, one of them about 6 feet of vein matter with from 6 inches to over two feet of quartz carrying good values. This vein has a porphyry hanging wall and a metamorphosed schist foot wall. Ore from this vein was sorted and then amalgamated over \$20 per ton in gold. The values ran from \$6 to over \$70 in gold per ton carrying from 4 ounces to 20 ounces in silver values.

Other veins on this group are from 6 inches in width up to over 40 feet in vein matter in the main vein that is on the contact of this lime as a hanging wall, with Sulphide of Iron, Copper and Lead disseminated all through the Matrix of the veins.

The assays from this vein have given returns of from a trace in gold to one ounce gold, from 3 ounces in silver to 70 ounces in silver values, from $4\frac{1}{2}$ per cent lead to 36% lead and from 1% copper to 18% copper values, but no samples have been taken across the veins to get the general values of the whole veins.

As from the percentage of the sulphides through the veins there are several places that it looks to have enough sulphide carrying the values to pay for concentrating them. All of the assays have been taken from stringers in the vein for a distance of about 4000 feet in length.

DEVELOPMENT WORK

There is a shaft on the 1914 No. 1 claim 75 feet deep with a drift 25 feet towards the lime or hanging wall, the entire dump is a lead sulphide ore.

There are several small shafts and drifts in these claims all in ore from a few inches in width up to 6 feet in width.

SUMMARY

To open these properties the shaft on the 1914 No. 1 claim which is down 75 feet should be sunk to not less than 500 feet, with crosscuts across the vein at every 100 feet in depth, as well as drifts ran on the vein, especially on the richest stringers in the vein, also while sinking and developing all of the works assays should be taken every foot of the development work.

On the Gold Nugget No. 2 shaft should be sunk where on the surface shows an ore body of over 20 feet in width, also to the north west of this shaft in the bottom of the Gulch on the Gold King a tunnel should be run on the veins which here is over 45 feet in width, highly mineralized with some rich stringers of high grade lead and

copper values in them. These two veins from the surface indications and their trend show that they will come together in depth and this tunnel will not only get good depth but will also determine where the junction of these two veins is. At least every 100 feet in this tunnel crosscuts should be run and assays should be made of every foot of the development work done.

From the present development work done there is enough ore opened up to warrant putting up a mill of 25 tons capacity a day, a crushing and concentrating plant. The mill should be put on the property and water pumped from the Mineral Creek for its use.

From the widths of the vein on this group of claims, by the proper development work later it will produce enough ore to keep running a plant to treat not less than 500 tons production per day up to over 1000 tons daily.

ROY GRISWALD, C. & M. E.

COLORADO SPRINGS, COLORADO.

Jan. 25, 1927.

GEOLOGY OF THE RAY MINING DISTRICT
BY JOSIAH EDWARD SPURR

The ore magmas vol. 1 and vol. 2

The rocks in the Ray mining district have at the base a complex series of schists of both igneous and sedimentary origin, which after uplift and an immense period of erosion was covered by Paleozoic quartzite and limestone.

Probably near the close of the Cretaceous, a great dome or batholith of granite porphyry worked upward into the schists, and ore deposition of disseminated primary lean copper-bearing sulphides, which later were to be concentrated by surface waters to form the ore deposits now being worked.

Tertiary land deposits overlie the Paleozoic sediments, so that this was a land surface during the Tertiary, and perhaps long before. Desert wash deposits alternate with lava flows and accumulations of volcanic ash; and the last deposit, of Pleistocene, was also a desert wash deposit.

Directly subsequent to the ore deposition, the first strong faulting occurred especially along a great nearly vertical fault (the Ray fault) which cuts north and south through the mineralized district; and the district occupied by the present major mining operations on the west side of the fault was uplifted, relatively to the country on the east side, perhaps one or two thousand feet. Erosion attacked the uplifted block and reduced it to the level of the other block, and Tertiary deposits of lava and desert wash were laid down upon the leveled country. Again, at about the end of the Tertiary, the same block (west of the Ray fault) was once more powerfully uplifted, probably upward of a thousand feet, and the uplifted area was again attacked by erosion, and the Tertiary rocks were stripped off. Later there was a general uplift of the whole region, and at the same time a reverse movement of a few hundred feet along the Ray fault, the block on the west this time subsiding, in contrast to its earlier repeated uplifts.

Summarizing the history from the point of view I wish to bring out, there was in this district an apparent lack of either igneous intrusion or important faulting, from pre-Cambrian to probably Cretaceous time; at the last named period came the granite porphyry and allied minor intrusions; and this was followed by surface volcanics (fed from dikes below) at intervals in the Tertiary. Heavy faulting followed close upon the granite porphyry intrusion and continued to the present, and therefore the general period of igneous activity and faulting coincided and the two were evidently connected as to origin; the main mineralized area had an upward movement or growth of at least three thousand feet; which growth occurred in two distinct and separate waves, and finally, in recent times, subsided a few hundred feet. I must ascribe this uplift of the fault blocks in question to the upward pressure of the igneous magma body which we know (from its intrusion) existed below, and its occurrence in two distinct and separate waves indicates periods of accumulated pressure, which became strong enough to overcome the weight of the underlying rocks. It may be that each of these uplifts resulted in some volcanic discharge near this district, though not detected in it; and that therefore there was no further upheaval till the telluric pressure had been accumulated. Similarly, the very recent subsidence may be due to magma migration from below this block elsewhere; or to a discharge of the accumulating pressure in some nearby place, so that the weight of the block overcame the residual pressure exerted beneath. Therefore, recurrent periods of uplift of fault blocks, at Ray, or elsewhere are no irregular.

In some cases rocks have been shattered under strain, without definite persistent fissures having been developed. The main copper deposits at Ray, Arizona is an instance of this. For a belt whose horizontal length is over 12,000 feet, and whose horizontal width is from 1,000 to 3,000 feet, the Pre-Cambrian schists in this camp

have been thoroughly shattered, although without the development of important and definite fissure systems; and subsequently the whole rock had been permeated with magmatic ore solutions and, as a whole consequence, cupriferous pyrite, forming the original or primary ore. The pre-Cambrian schist in which this ore lies is overlain by quartzites and by Paleozoic limestones. Probably near the close of the Cretaceous period, diabase ascended in the dikes through the schist, spread out as thick sheets at the base of the quartzite and sent dikes into the overlying strata. Later a great mass (batholith) of granite porphyry welled up from below, through the schists, sending small dikes into the overlying strata. The Ray district lies on the borders of this batholith, in the overlying schist, which is cut by dikes and protuberances from the main mass not far below. The ore magma solutions followed, in point of time the granite porphyry intrusion and the beginning of faulting which accompanied the intrusion ensued. The sheets of rock which immediately overlie the schist - diabase and quartzite - appear to have exercised a blanketing influence on the solutions, which spread beneath these capping rocks and permeated the schists, and the granite porphyry, forming the disseminated deposits. A smaller part of the solutions escaped through fissures (generally along faults) into the overlying strata, and there formed fissure veins or lodé deposits, sometimes with impregnation of the wall rock with cupriferous pyrite. The solution was, therefore, plainly an aqueous or "pegmatitic" one, which is theoretically consistent with its derivation from a siliceous (granite) magma. Indeed, all the disseminated copper deposits were probably, from the aqueous or pegmatitic type of ore magma solution; and accordingly we find them invariably derived from intermediate siliceous magmas. They do not occur with basic magmas, although basic magmas may be cupriferous. In a more general way, also, this limitation probably applies to that class of deposits which are closely allied to the disseminated deposits; - - - - - the replacement deposits; and this is true whether they are replacement deposits accompanied by silicification of limestone or other rocks or those accompanied or preceded by the lime silication (at a higher temperature) of limestone or other rocks. The Ray ore body is an elongated belt; over 10,000 feet long and from 1,000 to 3,000 feet wide, in which the schist and intrusive bodies of granite porphyry have been intensely fractured, followed by impregnation throughout (replacing the rock and especially forming along the fracture plane) of cupriferous pyrite. This belt is underlain directly by the slope of a granite batholith, subsequent to whose upheaval into the schist terrane and to whose consolidation, the ore deposition took place.

In the ore belt there are certain areas relatively more highly mineralized than others, and one of the principal of these occurs in, over and around a small upreaching protuberant detail of the batholithic mass of granite porphyry beneath, so that the evidence of the close connection, genetically, of granite porphyry and primary ore is excellent. Now, since the complex fracturing which has afforded a site for ore deposition characterizes both porphyry and schist, the stresses which produced the fracturing obtained after the consolidation of the intrusion. What these stresses were I will not undertake to guess; they may have been due to the adjustment throughout the cooling magma. On the other hand, we have seen that such adjustments characteristically produce fissure veins. They may have been due, also, to a general upward escape of magmatic gases, and the relatively, local character of the elongated patch of mineralization, would not be out of harmony with this latter explanation. These mineralized disseminated copper areas are rarely found, though regions where the apparently requisite geological combinations occur are widespread.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNERS REPORT

Date April 16, 1941

Mine Texona Mine

Location - 2 $\frac{1}{2}$ miles NW of Ray on
west side of Mineral Creek.

Mining District & County - Mineral Creek Dist.
Pinal County

Former Name

Owner - Edw. A. Hughes

Address - Box 162, Mesa, Arizona

Operator

Address

President, Owning Co.

President, Operating Co.

Gen Mgr.

Principal Minerals - Gold, Silver,
Lead

Mine Supt.

Production Rate.

Mill Supt.

Mill: Type & Cap.

Men Employed

Power: Amt. & Type

Operations: Present - None

Operations: Planned - Requires financing for development and milling.

Number Claims, Title, etc. - 10 claims unpatented. Title clear and
assessment annually taken care of.

Description: Topography & Geography - Rather rugged country
located close to Mineral Creek.
Typical desert country vegetation.

Mine Workings: Amt. & Condition - On No. 1 claim a shaft 75 ft. deep with 25 ft.
drift at bottom. Several smaller shafts all in ore.

SIGNED - Edw. A. Hughes

Box 162, Mesa, Arizona

Geology & Mineralization - Altered metamorphosed schist porphyry and a large segment of lime laying above it.

Date: April 16, 1941
Ore: Positive & Probable, Ore Dumps, Tailings - Veins show 4000 ft. in length.

Dimensions and Value of Ore body - Numerous veins from 6 inch up to 40 ft. Assays ran from trace to 1 oz. in gold - from 3 to 70 ounces in silver - from 4 1/2 to 36% in lead and from 1 to 18% copper, but no samples taken to show average value across veins.

Mine, Mill Equipment & Flow Sheet - None

Road Conditions, Route - 2 1/2 miles from Ray. Road fair and can be easily made good.

Water Supply - Ample water for milling can be pumped to proposed mill, which should be located on property.

Brief History - Roy's report claims by proper development property should stand a 500-ton mill.

Special Problems, Reports Filed - Report by Roy Griswald
Colorado Springs, Colo.
Jan. 25, 1927

Remarks - From present development work done there is enough ore opened up to warrant putting up a mill of 25 tons capacity a day; a crushing and concentrating plant.

If property for sale: Price, terms and address to negotiate - For sale or lease.
See owner.

SIGNED - Edw. A. Hughes
Box 162, Mesa, Arizona

(COPY)

COPY OF
REPORT OF THE TEXONA GROUP

LOCATION

These properties are located about two and one half miles to the northwest of the town of Ray on the west side of Mineral Creek in the Mineral Creek Mining District, Pinal County, Arizona.

AREA

This group is composed of 10 claims or an area of about 240 acres of ground.

FORMATION

The formation is altered of Metamorphosed schist porphyry and a large dyke of lime laying above these. The general trend is an easterly and westerly strike with veins having a dip to the North.

VEINS

On the Gold Nugget No. 2 claims are several small veins, one of them about 6 feet of vein matter with from 6 inches to over two feet of quartz carrying good values. This vein has a porphyry hanging wall and a metamorphosed schist foot wall. Ore from this vein was sorted and then amalgamated over \$20 per ton in gold. The values ran from \$6 to over \$70 in gold per ton carrying from 4 ounces to 20 ounces in silver values.

Other veins on this group are from 6 inches in width up to over 40 feet in vein matter in the main vein that is on the contact of this lime as a hanging wall, with Sulphide of Iron, Copper and Lead disseminated all through the Matrix of the veins.

The assays from this vein have given returns of from a trace in gold to one ounce gold, from 3 ounces in silver to 70 ounces in silver values, from $4\frac{1}{2}$ per cent lead to 36% lead and from 1% copper to 18% copper values, but no samples have been taken across the veins to get the general values of the whole veins.

As from the percentage of the sulphides through the veins there are several places that it looks to have enough sulphide carrying the values to pay for concentrating them. All of the assays have been taken from stringers in the vein for a distance of about 4000 feet in length.

DEVELOPMENT WORK

There is a shaft on the 1914 No. 1 claim 75 feet deep with a drift 25 feet towards the lime or hanging wall, the entire dump is a lead sulphide ore.

There are several small shafts and drifts in these claims all in ore from a few inches in width up to 6 feet in width.

SUMMARY

To open these properties the shaft on the 1914 No. 1 claim which is down 75 feet should be sunk to not less than 500 feet, with crosscuts across the vein at every 100 feet in depth, as well as drifts ran on the vein, especially on the richest stringers in the vein, also while sinking and developing all of the works assays should be taken every foot of the development work.

On the Gold Nugget No. 2 shaft should be sunk where on the surface shows an ore body of over 20 feet in width, also to the north west of this shaft in the bottom of the Gulch on the Gold King a tunnel should be run on the veins which here is over 45 feet in width, highly mineralized with some rich stringers of high grade lead and

copper values in them. These two veins from the surface indications and their trend show that they will come together in depth and this tunnel will not only get good depth but will also determine where the junction of these two veins is. At least every 100 feet in this tunnel crosscuts should be run and assays should be made of every foot of the development work done.

From the present development work done there is enough ore opened up to warrant putting up a mill of 25 tons capacity a day, a crushing and concentrating plant. The mill should be put on the property and water pumped from the Mineral Creek for its use.

From the widths of the vein on this group of claims, by the proper development work later it will produce enough ore to keep running a plant to treat not less than 500 tons production per day up to over 1000 tons daily.

VEINS

ROY GRISWALD, C & M E

COLORADO SPRINGS, COLORADO.

Jan. 25, 1927.

Other veins on this group are from 6 inches in width up to over 40 feet in vein matter in the main vein that is in the contact of this time as a hanging wall. This vein has a porphyry hanging wall and a metamorphosed schist foot wall. The vein from this vein carries about 200 ounces of silver per ton in gold. The vein carries from 4 ounces to 20 ounces of silver values.

The assays from this vein have given returns of from a trace in gold to the ounce gold, from 3 ounces in silver to 70 ounces in silver values, from 4 per cent lead to 32 per cent and from 12 copper to 18 copper values, but no samples have been taken across the vein to get the general values of the whole vein.

As from the percentage of the sulphides through the veins there are several places that it looks to have enough sulphides carrying the values to pay for concentrating them. All of the assays have been taken from stringers in the vein for a distance of about 4000 feet in length.

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GEOLOGY OF THE RAY MINING DISTRICT
BY JOSIAH EDWARD SPURR.

The ore magmas vol. 1 and vol. 2 .

The rocks in the Ray mining district have at the base a complex series of schists of both igneous and sedimentary origin, which after uplift and an immense period of erosion was covered by Paleozoic quartzite and limestone.

Probably near the close of the Cretaceous, a great dome or batholith of granite porphyry worked upward into the schists, and ore deposition of disseminated primary lean copper-bearing sulphides, which later were to be concentrated by surface waters to form the ore deposits now being worked.

Tertiary land deposits overlie the Paleozoic sediments, so that this was a land surface during the Tertiary, and perhaps long before. Desert wash deposits alternate with lava flows and accumulations of volcanic ash; and the last deposit, of Pleistocene, was also a desert wash deposit.

Directly subsequent to the ore deposition, the first strong faulting occurred especially along a great nearly vertical fault (the Ray fault) which cuts north and south through the mineralized district; and the district occupied by the present major mining operations on the west side of the fault was uplifted, relatively to the country on the east side, perhaps one or two thousand feet. Erosion attacked the uplifted block and reduced it to the level of the other block, and Tertiary deposits of lava and desert wash were laid down upon the leveled country. Again, at about the end of the Tertiary, the same block (west of the Ray fault) was once more powerfully uplifted, probably upward of a thousand feet, and the uplifted area was again attacked by erosion, and the Tertiary rocks were stripped off. Later there was a general uplift of the whole region, and at the same time a reverse movement of a few hundred feet along the Ray fault, the block on the west this time subsiding, in contrast to its earlier repeated uplifts.

Summarizing the history from the point of view I wish to bring out, there was in this district an apparent lack of either igneous intrusion or important faulting, from pre-Cambrian to probably Cretaceous time; at the last named period came the granite porphyry and allied minor intrusions; and this was followed by surface volcanics (fed from dikes below) at intervals in the Tertiary. Heavy faulting followed close upon the granite porphyry intrusion and continued to the present, and therefore the general period of igneous activity and faulting coincided and the two were evidently connected as to origin; the main mineralized area had an upward movement or growth of at least three thousand feet, which growth occurred in two distinct and separate waves, and finally, in recent times, subsided a few hundred feet. I must ascribe this uplift of the fault blocks in question to the upward pressure of the igneous magma body which we know (from its intrusion) existed below, and its occurrence in two distinct and separate waves indicates periods of accumulated pressure, which became strong enough to overcome the weight of the underlying rocks. It may be that each of these uplifts resulted in some volcanic discharge near this district, though not detected in it; and that therefore there was no further upheaval till the telluric pressure had been accumulated. Similarly, the very recent subsidence may be due to magma migration from below this block elsewhere, or to a discharge of the accumulating pressure in some nearby place, so that the weight of the block overcame the residual pressure exerted beneath. Therefore, recurrent periods of uplift of fault blocks, at Ray, or elsewhere are no irregular.

In some cases rocks have been shattered under strain, without definite persistent fissures having been developed. The main copper deposits at Ray, Arizona is an instance of this. For a belt whose horizontal length is over 12,000 feet, and whose horizontal width is from 1,000 to 3,000 feet, the Pre-Cambrian schists in this camp

have been thoroughly shattered, although without the development of important and definite fissure systems; and subsequently the whole rock had been permeated with magmatic ore solutions and, as a whole consequence, cupriferous pyrite, forming the original or primary ore. The pre-Cambrian schist in which this ore lies is overlain by quartzites and by Paleozoic limestones. Probably near the close of the Cretaceous period, diabase ascended in the dikes through the schist, spread out as thick sheets at the base of the quartzite and sent dikes into the overlying strata. Later a great mass (batholith) of granite porphyry welled up from below, through the schists, sending small dikes into the overlying strata. The Ray district lies on the borders of this batholith, in the overlying schist, which is cut by dikes and protuberances from the main mass not far below. The ore magma solutions followed, in point of time, the granite porphyry intrusion and the beginning of faulting which accompanied the intrusion ensued. The sheets of rock which immediately overlie the schist - diabase and quartzite - appear to have exercised a blanketing influence on the solutions, which spread beneath these capping rocks and permeated the schists, and the granite porphyry, forming the disseminated deposits. A smaller part of the solutions escaped through fissures (generally along faults) into the overlying strata, and there formed fissure veins or lode deposits, sometimes with impregnation of the wall rock with cupriferous pyrite. The solution was, therefore, plainly an aqueous or "pegmatitic" one, which is theoretically consistent with its derivation from a siliceous (granite) magma. Indeed, all the disseminated copper deposits were probably, from the aqueous or pegmatitic type of ore magma solution; and accordingly we find them invariably derived from intermediate siliceous magmas. They do not occur with basic magmas, although basic magmas may be cupriferous. In a more general way, also, this limitation probably applies to that class of deposits which are closely allied to the disseminated deposits; - - - - - the replacement deposits; and this is true whether they are replacement deposits accompanied by silicification of limestone or other rocks or those accompanied or preceded by the lime silication (at a higher temperature) of limestone or other rocks. The Ray ore body is an elongated belt; over 10,000 feet long and from 1,000 to 3,000 feet wide, in which the schist and intrusive bodies of granite porphyry have been intensely fractured, followed by impregnation throughout (replacing the rock and especially forming along the fracture plane) of cupriferous pyrite. This belt is underlain directly by the slope of a granite batholith, subsequent to whose upheaval into the schist terrane and to whose consolidation, the ore deposition took place.

In the ore belt there are certain areas relatively more highly mineralized than others, and one of the principal of these occurs in, over and around a small upreaching protuberant detail of the batholithic mass of granite porphyry beneath, so that the evidence of the close connection, genetically, of granite porphyry and primary ore is excellent. Now, since the complex fracturing which has afforded a site for ore deposition characterizes both porphyry and schist, the stresses which produced the fracturing obtained after the consolidation of the intrusion. What these stresses were I will not undertake to guess; they may have been due to the adjustment throughout the cooling magma. On the other hand, we have seen that such adjustments characteristically produce fissure veins. They may have been due, also, to a general upward escape of magmatic gases, and the relatively, local character of the elongated patch of mineralization, would not be out of harmony with this latter explanation. These mineralized disseminated copper areas are rarely found, though regions where the apparently requisite geological combinations occur are widespread.

In some cases rocks have been shattered under strain, without definite fissure belts or fissures having been developed. The main copper deposits of Ray, Arizona is an instance of this. For a belt whose horizontal length is over 15,000 feet, and whose horizontal width is from 1,000 to 3,000 feet, the pre-Cambrian schist in this camp

MT-22

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNER'S REPORT

33. Geology & Mineralization

Date 4/16/41

1. Mine *Lexona Mine*

2. Location *2 1/2 miles N.W. of Ray
on West side of Mineral Creek*

3. Mining District & County *Mineral Creek Mining
District - Pinal County*

4. Former name

5. Owner *Edw. A. Hughes* ✓

6. Address (Owner) *Box 162 Mesa*

7. Operator

8. Address (Operator)

9. President, Owning Co.

9A. President, Operating Co. ✓

10. Gen. Mgr.

14. Principal Minerals *Gold and Silver
Lead* ✓

11. Mine Supt.

15. Production Rate

12. Mill Supt.

16. Mill: Type & Cap.

13. Men Employed

17. Power: Amt. & Type

18. Operations: Present *None*

19. Operations: Planned *Requires financing for development
and milling.*

20. Number Claims, Title, etc. *10 claims, unpatented. Title clear
and assessment annually taken care of.*

21. Description: Topography & Geography *Rather rugged country -
located close to Mineral Creek.
Typical desert country vegetation.*

22. Mine Workings: Amt. & Condition *On No. 1. Claim a shaft 75 feet deep
with 25 ft. drift at bottom. Several smaller shafts
all in ore.*

(over)

27. Water Supply

28. Brief History

29. Special Problems

30. Remarks

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

32. Signature

33. Use additional sheets if necessary

23. Geology & Mineralization *Altered metamorphosed schist porphyry and a large segment of lime - lying above it.*

24. Ore: Positive & Probable, Ore Dumps, Tailings *Veins show 4000 ft. in length.*

24A. Dimensions and Value of Ore body *Numerous veins from 6" up to 40 ft. Assays run from trace to 1 oz. in gold - from 3 to 70 ounces in silver - from 4 1/2 to 36% in lead and from 1 to 18% copper but no samples taken to show average value.*

25. Mine, Mill Equipment & Flow-Sheet *None.*

26. Road Conditions, Route *2 1/2 miles from Ray - road fair and can be easily made good.*

27. Water Supply *Ample water for milling can be pumped to proposed mill - which should be located on property.*

28. Brief History *Came report claims by proper development property should stand a 500 ton mill.*

29. Special Problems, Reports Filed *Report by Roy Griswald Colorado Springs, Colo. Jan. 25, 1927.*

30. Remarks *From present development work done there is enough ore opened up to warrant putting up a mill of 25 tons capacity a day, a crushing and concentrating plant.*

31. If property for sale: Price, terms and address to negotiate. *In sale - n lease see Owner.*

32. Signature *Edw. A. Hughes - Box 162. Mesa.*

33. Use additional sheets if necessary.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
MINE OWNERS REPORT

Date April 16, 1941

Mine Texona Mine

Location - 2 1/2 miles NW of Ray on west side of Mineral Creek.

Mining District & County - Mineral Creek Dist. Pinal County

Former Name

Owner - Edw. A. Hughes

Address - Box 162, Mesa, Arizona

Operator

Address

President, Owing Co.

President, Operating Co.

Gen Mgr.

Principal Minerals - Gold, Silver, Lead

Mine Supt.

Production Rate.

Mill Supt.

Mill: Type & Cap.

Men Employed

Power: Amt. & Type

Operations: Present - None

Operations: Planned - Requires financing for development and milling.

Number Claims, Title, etc. - 10 claims unpatented. Title clear and assessment annually taken care of.

Description: Topography & Geography - Rather rugged country located close to Mineral Creek. Typical desert country vegetation.

Mine Workings: Amt. & Condition - On No. 1 claim a shaft 75 ft. deep with 25 ft. drift at bottom. Several smaller shafts all in ore.

SIGNED - Edw. A. Hughes
Box 162, Mesa, Arizona

Geology & Mineralization - Altered metamorphosed schist porphyry and a large segment of lime laying above it.

Location - 2 1/2 miles NW of Ray on west side of Mineral Creek.

Mine Texas Mine

Ore: Positive & Probable, Ore Dumps, Tailings - Veins show 4000 ft. in length.

Final County

Owner Name

Dimensions and Value of Ore body - Numerous veins from 6 inch up to 40 ft. Assays ran from trace to 1 oz. in gold - from 3 to 70 ounces in silver - from 4 1/2 to 36% in lead and from 1 to 18% copper, but no samples taken to show average value across veins.

Address - Box 162, Mesa, Arizona

Owner - Edw. A. Hughes

Mine, Mill Equipment & Flow Sheet - None

Production Rate

Mine Dept.

Mill: Type & Cap.

Mill Dept.

Road Conditions, Route - 2 1/2 miles from Ray. Road fair and can be easily made good.

Operations: Present - None

Water Supply - Ample water for milling can be pumped to proposed mill, which should be located on property.

Operations: Planned - Requires financing for development and milling.

Brief History - Roy's report claims by proper development property should stand a 500-ton mill.

Special Problems, Reports Filed - Report by Roy Griswald Colorado Springs, Colo. Jan. 25, 1927

Remarks - From present development work done there is enough ore opened up to warrant putting up a mill of 25 tons capacity a day; a crushing and concentrating plant.

If property for sale: Price, terms and address to negotiate - For sale or lease. See owner.

Mine Workings: Amt. & Condition - On No. 1 claim a shaft 75 ft. deep with 25 ft. drift at bottom. Several smaller shafts in ore.

SIGNED - Edw. A. Hughes
Box 162, Mesa, Arizona