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James Doyle Sell Mining Collection

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AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 13, 1970

MEMORANDUM

Edwards Mine Area
Arivaca District
Pima County, Arizona

Mr. George Morse of Willcox and Tucson (latest phone Tucson 793-0466) recently submitted a sample from the Edwards Mine Adit which was cut from a point about 400 feet inside. The sample MAE-1 assayed 0.010 oz. Au, 0.53 oz. Ag, 1.20% copper, and 0.0035% moly. The sample was apparently of a restricted area and in a shear-vein structure. The Edwards Mine is in the NW 1/4, Sec. 8, T22S, R10E, southwest of Arivaca. The workings are south of the main workings of the Ajax group, which may be the newer name for the Arivaca group as noted in the files.

Morse also submitted several reports on the area, and as they are not duplicated in our files I have had them copied as submitted.

Morse, in conjunction with some Mexican miners, has also been cleaning out the old "El Palcar" mine located in the Sierra Manzanal south of Cananea. A sample (MSP-1) submitted from the east end of the 200-level assayed 0.005 oz. Au, 0.47 oz. Ag, 0.05% copper, and 0.0005% moly.

Further inspection of either property is not of priority at this time.

James D. Sell

JDS/kvs

cc: Report copies to File only.

3226 East 46th Street

Phone 624-0049

AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

SAMPLE SUBMITTED BY American Smelting & Refining Company DATE March 21, 1970

SAMPLE MARKED	GOLD OZ./TON	SILVER OZ./TON	PER CENT COPPER	PERCENT LEAD	PERCENT ZINC	PERCENT MOLYBDENUM	PERCENT IRON
MSP-1	.005	0.47	0.05			.0005	
MAE-1	.010	0.53	1.20			.0035	

U.S.D.S. MAR 26 1970

Pete J. Stone 3/21/70

CHARGES $ 17.00

ASSAYER, CHEMIST

AMERICAN SMELTING AND REFINING COMPANY
EXPLORATION DEPARTMENT
SOUTHWESTERN UNITED STATES DIVISION
P. O. BOX 5747, TUCSON, ARIZONA 85703

1150 NORTH 7TH AVENUE
TELEPHONE 602-792-3010

May 13, 1970

Mr. George Morse

Dear George:

I am returning your Edwards Mine reports along with a copy of the assay certificate on the two samples you submitted.

The MSP-1 is from the mine south of Cananea while MAE-1 is from the Edwards Adit in the Arivaca District.

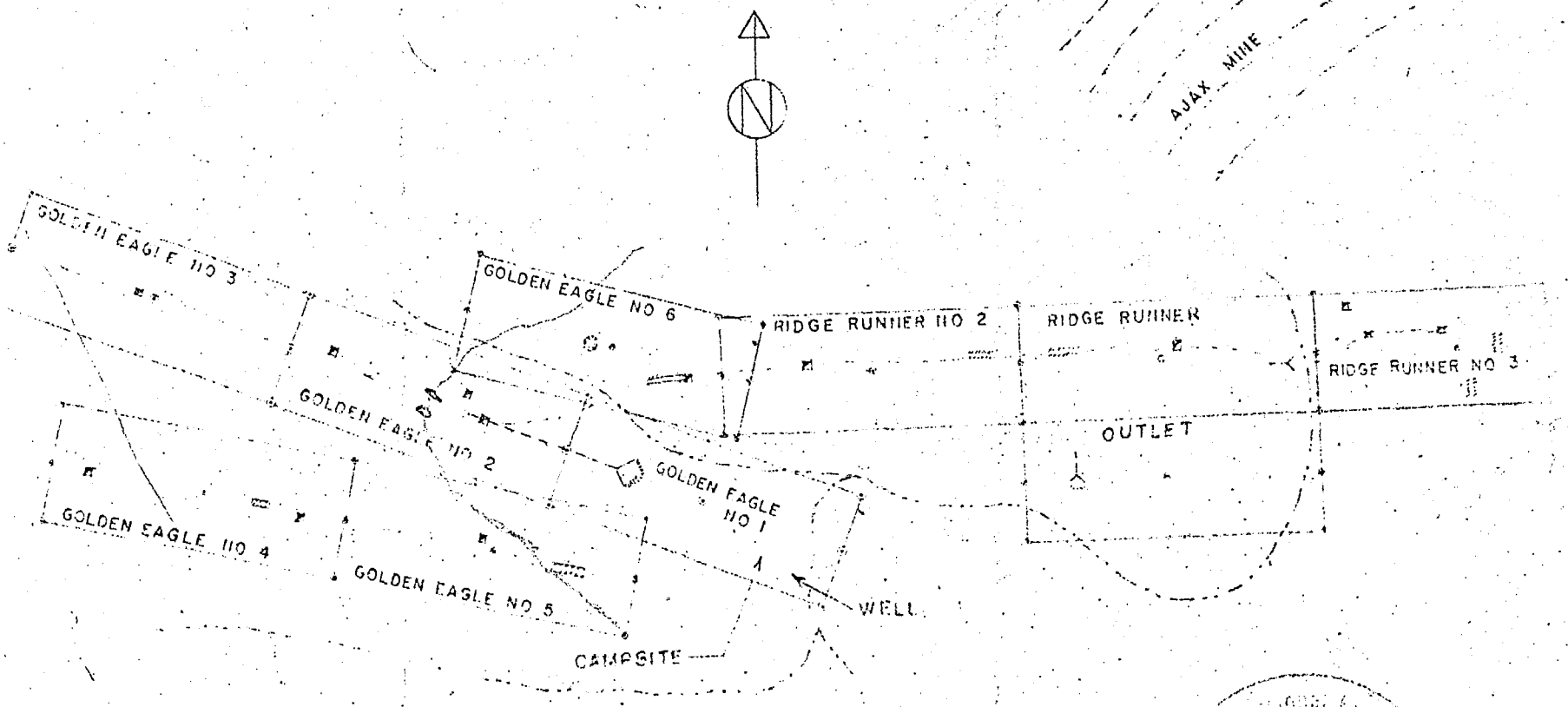
At the present time neither of the properties appear to be of sufficient size for further investigation but I would appreciate hearing of any new developments on these and other properties of interest.

Sincerely,

James D. Sell

JDS/kvs
Enclosures

SKETCH MAP OF CLAIMS
EDWARDS MINE
ARIVACA ARIZONA



SCALE 1 IN = 800 FT

LEGEND
- ADIT
- SHAFT
- OPEN CUT
- MONUMENT
- VEIN OUTCROP
- WASH

10-14-55

Phoenix, Arizona,
December 9,1930.

Mr. H. T. Edwards
1880½ Weat 22nd St.,
Los Angeles California.

Dear Sir :

The following is a brief outline of the conditions in the Arivaca- Oro Blanca District of Pima County, Arizona, with particular reference to the group of claims owned by in the Fraguitas section.

Mining in this district dates back to the earliest white settlements in this country and was carried on by the Spanish Fathers who founded the Missions of Tubac and Del Bac in about 1530. Evidences of even earlier placer workings by the Aztecs are to be found in many places. The ruins of over 70 ancient arastas and several mud smelters are scattered over the area within the limits of about 15 miles in length and two to five miles in width. The later stamp mill period opened several of the most promising veins to depths of 200 to 400 ft. to the point of change to sulphide or base ores that could not be worked by that method. During the recent years the district has been overlooked in the rapid and extensive developments of other fields in Arizona, and little if any development or production made with the exception of the Montana Mine at Ruby. This property has been worked by shaft to the 800 ft level and diamond drilling carried on to the 2000 ft. level and proved the ore bodies to this depth. It is equipped with a 300 ton concentrator in whigh a very satisfactory recovery of the metals was made.

The Geology of this district has been fairly well covered by the U.S. Geological Survey and their map shows the various formations in this Quadrangle, placing the rocks in the series of older lavas with an area of granite lying to the west of the district. The principal rocks include an extensive flow of andesite, rhyolite, dacite and latite in the vicinity of which the ore fissures and veins occur. To the South in the Black Diamond- Tres Amigos section, several dykes of a dark blue and gray limestone were noted, along the contacts of which are to be found lead-silver bodies, with some sills of banded aplite in the vicinity, that are heavily capped with a silicious gossan of iron and manganese . In the Fraguitas area is shown a small section of a hard black fine grained formation containi ng white to gray phenocrysts. No classification is at hand on this rock , but it is perhaps a Plutonic phase of andesite.

The property known as the Edwards Mine consists of seven claims all in one contiguous group. The group covers a series or system of more or less parallel veins and an outcrop of soft white sericitic formation that appears to be a shearzone of considerable extent. This is opened up by surface cuts and trenching for a width of 30 feet, and to a depth of 50 feet. Assays up to $12.00 per ton in gold are shown in this material over width of several feet.

Through the crest of the hill above the shearzone is the large perpendicular vein known as the Mother Lode. This fissure is covered for 4500 feet in length by three Mother Lode claims and has been exposed in several places, showing a width of over 18 feet, and at one place, in the fissure a shaft about 60 feet deep was sunk.

Assays from this shaft for 4 feet in width show values up to $65.00 per ton in gold and silver. Joining the Mother Lode in the east a region contains a favorable site for a tunnel into the shearzone and also the Mother Lode fissure, through which a depth of some 800 feet can be had in about 1200 feet of drifting, mostly along the fissure. Teh Side Line has a 240 ft. tunnel driven along a three foot vein and reaching a depth of 60 feet from surface. A shaft from the surface, extended down through this tunnel and for some 40 feet below, shows a 3 to 4 foot fissure with from 12 to 24 inches of ore all the way down to water level, about 10 feet under the tunnel. Ore from the bottom of this shaft is said to have been shipped to Yuma by teams in the early days. Fifty feet of the ore shoot in this tunnel show about 18 inches of ore ranging from $7.20 to $16.80 gold 16 to 23 ounces silver, 13.1per cent lead and 3.6 to 6.5 per cent copper. The rest of the tunnel shows about 2 feet of $25.00 ore.

The Side Line claims no. 1 and 2 join Mother Lode on the west and cover 3000 feet of a 4 to 5 foot fissure. Only discovery work has been done at this point and the assay lists that contained the samples from here have been lost.

The 4 Metals claim is in the andesite -breccia showing two parallel veins converging at face of cut with a width of 12 inches to 3 feet respectively. A sample here showed $35.00 gold and 23 ounces of silver.

These Claims are only 2 ½ miles off the main highway on a good road and about 25 miles to rail at the station of Amada on Tucson-Nogales line. Fraguita Canyon has a considerable flow of water throughout the year.

This group of claims contains many shoots of ore at the several exposures that are exceptional in value and a considerable portion could be sorted out for direct shipment to outside smelters. A reasonable amount of development through the tunnel site into the Mother Lode - shearzone area, with a shaft under the crest of the hill from the tunnel floor should be put through. The Character, value and quantity of ore blocked out in this work would determine the size and flow sheet of a plant to get the values in marketable shape.

The conditions here present an attractive opportunity for development beginning in a small way that should eventually expand into one of the large producers of the Southwest.

Yours very truly,

C. K. Tibbets Signed
C.K Tibbets.

February 15, 1955

REPORT AND EXAMINATION OF H.T. EDWARDS MINING PROPERTY:

Property known as the Golden Eagle Mine, located several miles south-westerly direction out of Arivaca, Arizona. The property consists of six mining claims in a continuous group. Claims cover 4,500 feet along strike of ore bearing outcrops.

The above mentioned claims cover a series or system of parallel veins striking N 70 W degrees W with a vertical dip or nearly so. Out crops of these veins are quartz and white sericitic material. These veins have been subjected to shearing forces quite extensively. Developing a shearzone which is more prominent in some of the outcrop than others. The wall rock appears to be volcanic origin on the S. W. and also volcanic on the N.E. Thickness of the vein vary from about two feet wide to 18 feet wide. Prospecting has been done on most of these outcrops. Covering this formation is a cap rock believed to be a volcanic breccia only exposing out crops in spots. Several shafts about 35 feet to 40 feet deep have been sunk on the exposed veins. Ores of Au, Ag, Pb, & Cu were extracted of economic value. There are assays and smelter returns to substanuate the values of these ores.

The nature of the mineral as it occurs in the veins or formation is as follows: The Au can be found asfree gold throughout the quartz, also concentration in the oxide of Fe and Cu along the fissues and pockets. The Ag is also found in the quartz and concentrated in the oxide. The copper is mostly oxide (Malicite, Azurite and Chryscolla). Small amounts of Chalcopyrite and Chalcocite have been found as the sulphide. The Pb occurs as the sulphide in small quantities.

Structural features seem to influence the mineralization along the intersection of fractures and fissues. Mineralization is greater along where structural weakness occur. Pockets of high value ore are found. There should be more work done on the structure of this area to explain and clarify the effect these fractures have on the mineralization. The ore appears to form in pockets of high value but some mineralization is found consistently through the vein.

PROSPECTING AND DEVELOPMENT WORK DONE:

Location pits and several shafts around 35 feet deep sunk on the out crops.

An addit was driven roughly along the strike of what is believed to be the main vein around 500 feet long into the mountain. The opening started several feet from the stream bed up the hill and about 162 feet lower than a 55 foot shaft sunk on the main vein. The face of this addit is about 20 feet further into the mountain than the shaft is projected down. Mineralization was good in the shaft but does not seem to be as rich in the addit.

There has been no geologic mapping done at present. Just reconnaissance work done on the above mentioned claims.

There is some geophysical preliminary work being done at present. Expect this work to help locate the ore body more definitely.

POSSIBILITY OF MINING THE ABOVE MENTIONED PROPERTY:

Evidence that ore body exists.

Ore that has been shipped from various out cropping.

The fact that the core of these out dropping at depth has not been investigated.

The main vein has been cut by an addit around 162 feet below a shaft sunk on the out crop.

Mineralization of economic value is evident in shaft and addit.

VALUES AND TONNAGE OF SHIPPED ORE FROM OUTCROPS:

	Net Dry Weight	Net Value/Ton
Sept. 4, 1934	5,381	$ 43.27
Dec 7, 1934	8,993	13.33
May 25, 1936	2,289	42.22
June 26, 1936	2,565	34.40
June 7, 1937	2,900	43.52
Feb. 5, 1935	12,786	257.50
Dec. 23, 1940	3,564	41.89
	19.24 Tons	Avge $ 68.01/ton

DIFFICULTIES INVOLVED:

Mine area has running water about eight months out of the year. Water for mine use available all year round.

Mine would be operated from drifts eliminating hoisting for the time being. Small ore bin could be constructed with not too much effort.

Some road work would have to be done to make hauling easier. Probably several days for a dozer. Most of the road is in good shape to smelter and would be open the year around.

Power source would have to be gasoline or diesel, as power lines are several miles away at Arivaca, Arizona. This will bring up the power cost on the operation.

There are two mining methods applicable to this type of ore body.

1. Stulled stopes.
2. Shrinkage stopes.

Both of the above methods can be used on this ore body as the ore body has strong walls and fairly strong ore zone. Also the veins are narrow, less than 10 feet wide average. The dip of the ore is vertical or nearly so.

STULLED STOPES:

Advantages:

1. Small amount of capital to put mine in production.
2. Short period of time to produce.
3. High grade can be sorted in stopes.

Dis-advantages:

1. Production per man shift is low.
2. A large amount of timber is necessary.

SHRINKAGE STOPES:

Advantages:

1. Lower cost of mining.
2. Small amount of timber used.
3. High production per man shift.

Dis-advantages:

1. Two-thirds of ore remains in stope until stope is completed.
2. Considerable capital is tied up in broken ore.
3. No sorting of waste from ore in stopes.

TENTATIVE DIRECT COST ESTIMATION:

		Cost per ton
1.	Breaking, mucking, tramming, emplosived, general supplies and labor.....	$ 1.90
2.	Timbering and labor.....	0.79
3.	Power	1.26
4.	Mine shop, general supplies and labor.....	0.51
5.	Engineering, Surveying, maintenance, pumping, Superintendence, pipe fittings, general supplies, labor & Miscellaneous....	0.50
	Approximate cost per ton	$ 4.96

The above cost estimation refers to the cost per ton of ore as an operating mine. This does not cover the overhead cost of equipment to begin mining.

To truck from mine to smelter at Ajo, Arizona $ o.10/ per ton per mile. From mine site to Ajo it is approximately 100 miles, @ $0.10/per mile it would cost about $10.00 per ton of ore shipped. The above figure is a little high, that would depend upon the agreement between the company and contractor.

The possibility of a cheaper shipping rate is being investigated, by trucking from mine to Amado, Arizona and shipping by rail to Ajo, Arizona.

Smelter charges are about $7.50/ton. With a S I O_2 contract with smelter the charge can be dropped around $1.50 per ton, provided the S I O_2 content is above 80%.

SURFACE PLANT:

1. Air compressor 200- 220
2. Air legs & hammer (2)
3. Water resorvoir
4. Rail #20 - 18" gage
5. Air hose
6. Water hose
7. Small water pump
8. Drill steel
9. Axes, picks, shovels and double jacks
10. Pipe 2" and 1/2"

The above is just a rough list of surface gear.

It will take around $5,000.00 to start the operation. That will cover equiping and operation expense until shipping starts.

The value of rock per ton will have to be $ 35.00 for the mine to operate

Cost per ton to mine	$ 4.96
Trucking to smelter	10.00
Smelter charges with SIO_2 contract	7.00
	$ 21.96
Overhead	2.50
	$ 24.46 Cost per ton

These costs are liberal in some cases.

RECOMMENDATION:

That the property be subjected to and exploration and development program to block out this ore body. There is not enough information yet to outline a definite ore body. Information at hand only proves that high grade pockets have been worked, but no continous body, practically all of the rock in these veins carry some gold and silver although it has to be high enough to run $35.00/ton. In some places this is true but there is need to block out more of this.

The addit mentioned in early part of report should be sampled every 10 feet through out. If this proves economical you have a nice block of ore outlined.

The geophysical work done so far looks favorable. There should be more done, covering all of the entire area. Also the geology of the area done in conjunction with magnotometer work.

The exploration program can be carried out along with the mining. The tonnages would be small at first until more ore was blocked out.

With the information we have, there is an ore body, how big, how rich and how best way to mine it, has to be determined. That is why I suggest an exploration program.

The two programs can be carried out together easily because of the low cost of mining these parallel veins. Drifts should be driven along these veins and stoped out as ore is blocked out, using one of the two methods suggested early in report.

Examination carried out and report submitted by:

S/ Dave Turberville

Dave Turberville
Geological Engineer

DT/rt

Copy

REPORT ON A PRELIMINARY EXAMINATION OF THE EDWARDS MINE
LOCATED IN THE ARIVACA DISTRICT, PIMA COUNTY, ARIZ.

By
R.O. Bellsmith
Registered Mining Engineer.

CLAIMS

The property comprises ten full size (600 x 1500 ft.) mining locations in two groups, all contiguous.

The first group consisting of the Golden Eagle Nos. one to six inclusive. The second group consisting of Ridge Runner, Ridge Runner # 2, Ridge Runner # 3, and Outlet, all recorded in the county court house at Tucson.

Location

The property is situated within the sections 5,6, and 8, T 22 S, R 10 E. Arizona Rectangular Coordinate System, and lies approximately 55 miles (air line) in a southwesterly direction from the city of Tucson.

ACCESSIBILITY

From Tucson the property is reached by proceeding South On U.S.Highway 89 to the town of Kingsley, a distance of approximately 37 miles, thence westerly 22miles southwesterly, over a good county highway to the town of Arivaca, thence south 5½ miles via a graded road to the property. The last 3/4 mile of this road is along the Fraguita wash and will require some wirk to place it in serviceable condition.

The nearest railroad shipping point is the station of Amada on the S.P . About 2 miles from Kingsleys. At this point car loading facilities are available for ore shipment, in the form of truck ramps.

The total hauling distsnce from the property to shipping point is approximately 29 miles.

History

The history of the property is somewhat obscure although it is authoritively reported that at least one shaft was sunk before the Civil War (under guard of soldiers to prevent indian raids) and the ore hauled to Yuma by team & wagon for shipment to Wales. When the soldiers were with drawn for duty the shaft was Bulk Headed at 100 ft. and filled up to prevent pilfering.

GEOLOGY

The topography may be described as quite rugged. The country rock is unquestionably of plutonic origin consists principally of Andesite. The mineralization consists of two or more parallel veins with a strike of N. 70dec. W. and nearly vertical dip.

These veins vary in width from 4 to 20ft.and are readily traceable on the surface for a length of about 9000 ft. The

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These veins vary in width from 4 to 20ft.and are readily traceable on the surface for a length of about 9000 ft. The vein filling is principally a blue quartz, carrying values in Gold,Silver Copper and in some places lead.The Copper is in the form of both sulphide (Chalcopyrite) and a carbonate (Malachite).

The area around the middle portion of these claims,shows some indication of a Seismic disturbance with consequent faulting and folding.

Development

The development consists of a number of shallow shafts, pits and opencuts along the outcrop of the veins. the rims and collars of these workings have sluffed off and caved in and the veins in place are not all accessible to examination, however the comparatively small amount of dump rock at these workings indicate that the major portion of ore taken out has been shipped.

The shallowness of the workings is accounted for by the fact that all work pereformed heretofore has been done by hand drilling and hoisting by hand winch.

The most extensive workings consist of an adit approximately 650 ft. in length, various open cuts to 20 ft. deep ,with several shafts from 12 to 50 feet deep.

Production

Some values and tonnages shipped from 1934 to 1940 are quoted from settlement sheets.

Net Dry Weight	Net value per ton
5,381	$ 43.27
8,993	13.33
2,289	42.22
2,900	43.52
12,786	257.50
3,564	41.89
19.24 tons Avge.	$ 68.01 / Ton.

Water

Fraguita wash crosses 3 of these claims and is said to flow on the surface about 9 months of the year, though it is possible there is a sub-surface flow the year round. A dug well on one claim would provide domestic water for camp use.

IMPROVEMENTS

The only surface improvements are 3 one room frame cabins and one tool house

Equipment

There is at present no mining equipment on the property except mine car and rails in the big tunnel.

Adjacent Property.

Lying to the north of and adjoinijg this property is the Ajax Mine now inactive. From a Cursory Observation this Ajax has been extensively worked through 5 to 9 parallel veins the course of which is approximatelyN. 65dr. E. and if projected would intersect the Ridge Runner vein at an angle of approximately 45 degrees. Insufficient time was available to make a detailed study of the formation in this area to determine the relationship between these formations, but the ores from each seem to be very much the same character

Suggestion

It is suggested that a working plan be adopted with the

several shafts from 12 to 30 feet deep.

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Suggestion

It is suggested that a working plan be adopted with the initial objective of mining and shipping the crude ore direct to one of the several smelters. Plans contemplate an output of at least 50 to 100 tons per day with provisions for expansion as the mine is opened up.

July 20, 1956
COPY.

R. O. Bellsmith
Register Engineer

Mr Sell:
Mr Morse owes
[illegible] thus
up
11.

[illegible]
thus
to Mrs
Morse
Will [illegible]
[illegible]
[illegible]

AMERICAN SMELTING AND REFINING COMPANY
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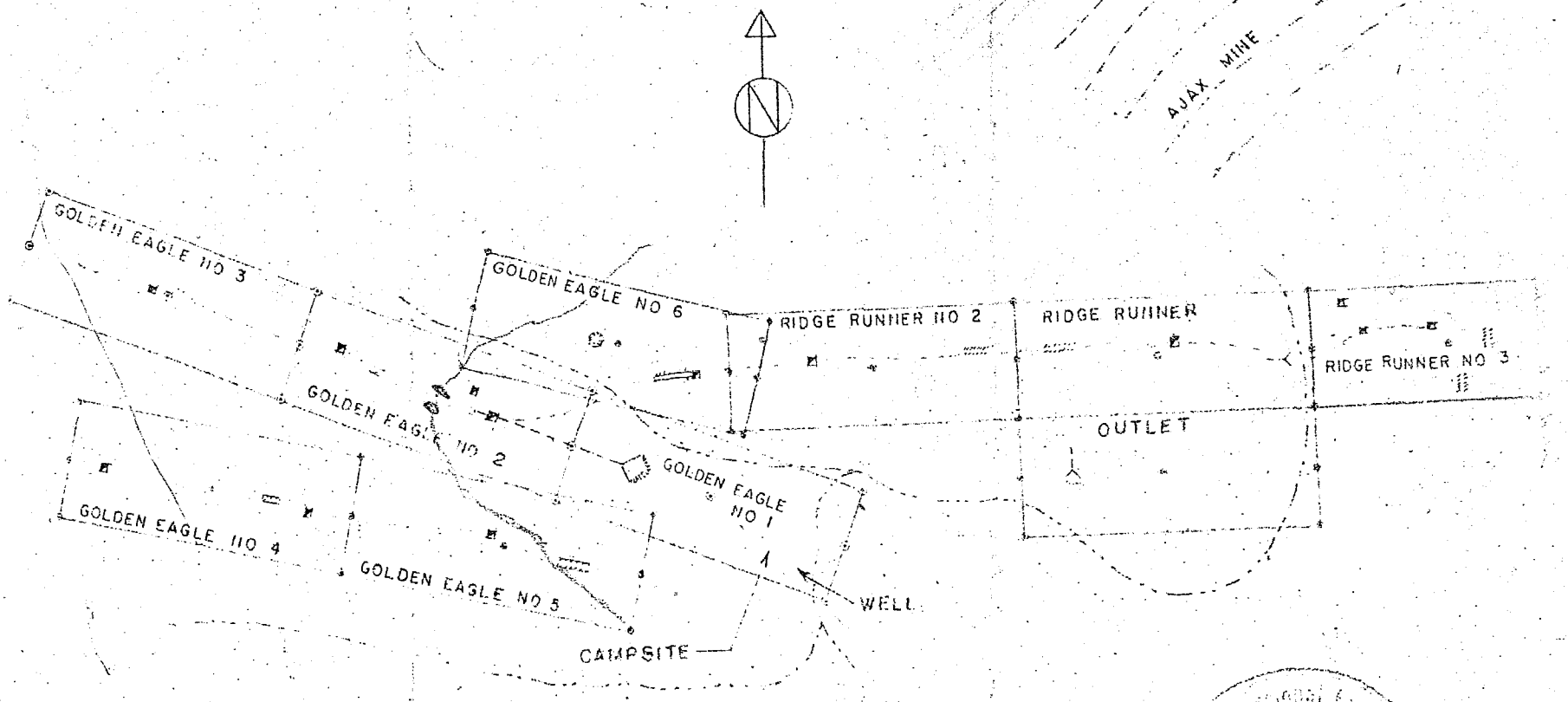
K.V.D.S. MAR 26 1970

Pete S. Hines 3/21/70

CHARGES $ 17.00

ASSAYER - CHEMIST

SKETCH MAP OF CLAIMS
EDWARDS MINE
ARIVACA ARIZONA



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Mining in this district dates back to the earliest white settlements in this country and was carried on by the Spanish Fathers who founded the Missions of Tubac and Del Bac in about 1530. Evidences of even earlier placer workings by the Aztecs are to be found in many places. The ruins of over 70 ancient arastas and several mud smelters are scattered over the area within the limits of about 15 miles in length and two to five miles in width. The later stamp mill period opened several of the most promising veins to depths of 200 to 400 ft. to the point of change to sulphide or base ores that could not be worked by that method. During the recent years the district has been overlooked in the rapid and extensive developments of other fields in Arizona, and little if any development or production made with the exception of the Montana Mine at Ruby. This property has been worked by shaft to the 800 ft level and diamond drilling carried on to the 2000 ft. level and proved the ore bodies to this depth. It is equipped with a 300 ton concentrator in whigh a very satisfactory recovery of the metals was made.

The Geology of this district has been fairly well covered by the U.S. Geological Survey and their map shows the various formations in this Quadrangle, placing the rocks in the series of older lavas with an area of granite lying to the west of the district. The principal rocks include an extensive flow of andesite, rhyolite, dacite and latite in the vicinity of which the ore fissures and veins occur. To the South in the Black Diamond- Tres Amigos section, several dykes of a dark blue and gray limestone were noted, along the contacts of which are to be found lead-silver bodies, with some sills of banded aplite in the vicinity, that are heavily capped with a silicious gossan of iron and maganese . In the Fraguitas area is shown a small section of a hard black fine grained formation containi ng white to gray phenocrysts. No classification is at hand on this rock , but it is perhaps a Plutonic phase of andesite.

The property known as the Edwards Mine consists of seven claims all in one contiguous group. The group covers a series or system of more or less parallel veins and an outcrop of soft white sericitic formation that appears to be a shearzone of considerable extent. This ism opened up by surface cuts and trenching for a width of 30 feet, and to a depth of 50 feet. Assays up to $12.00 per ton in gold are shown in this material over width of several feet.

Through the crest of the hill above the shearzone is the large perpendicular vein known as the Mother Lode. This fissure is covered for 4500 feet in length by three Mother Lode claims and has been exposed in several places, showing a width of over 18 feet, and at one place, in the fissure a shaft about 60 feet deep was sunk.

Assays from this shaft for 4 feet in width show values up to $65.00 per ton in gold and silver. Joining the Mother Lode in the east a region contains a favorable site for a tunnel into the shearzone and also the Mother Lode fissure, through which a depth of some 800 feet can be had in about 1200 feet of drifting, mostly along the fissure. Teh Side Line has a 240 ft. tunnel driven along a three foot vein and reaching a depth of 60 feet from surface. A shaft from the surface, extended down through this tunnel and for some 40 feet below, shows a 3 to 4 foot fissure with from 12 to 24 inches of ore all the way down to water level, about 10 feet under the tunnel. Ore from the bottom of this shaft is said to have been shipped to Yuma by teams in the early days. Fifty feeet of the ore shoot in this tunnel show about 18 inches of ore ranging from $7.20 to $16.80 gold 16 to 23 ounces silver, 13.1per cent lead and 3.6 to 6.5 per cent copper. The rest of the tunnel shows about 2 feet of $25.00 ore.

The Side Line claims no. 1 and 2 join Mother Lode on the west and cover 3000 feet of a 4 to 5 foot fissure. Only discovery work has been done at this point and the assay lists that contained the samples from here have been lost.

The 4 Metals claim is in the andesite -breccia showing two parallel veins converging at face of cut with a width of 12 inches to 3 feet respectively. A sample here showed $35.00 gold and 23 ounces of silver.

These Claims are only 2 ½ miles off the main highway on a good road and about 25 miles to rail at the station of Amada on Tucson-Nogales line. Fraguita Canyon has a considerable flow of water throughout the year.

This group of claims contains many shoots of ore at the several exposures that are exceptional in value and a considerable portion could be sorted out for direct shipment to outside smelters. A reasonable amount of development through the tunnel site into the Mother Lode - shearzone area, with a shaft under the crest of the hill from the tunnel floor should be put through. The Character, value and quantity of ore blocked out in this work would determine the size and flow sheet of a plant to get the values in marketable shape.

The conditions here present an attractive opportunity for development beginning in a small way that should eventually expand into one of the large producers of the Southwest.

Yours very truly,

C. K. Tibbets Signed
C.K Tibbets.

February 15, 1955

REPORT AND EXAMINATION OF H.T. EDWARDS MINING PROPERTY:

Property known as the Golden Eagle Mine, located several miles south-westerly direction out of Arivaca, Arizona. The property consists of six mining claims in a continuous group. Claims cover 4,500 feet along strike of ore bearing outcrops.

The above mentioned claims cover a series or system of parallel veins striking N 70 W degrees W with a vertical dip or nearly so. Out crops of these veins are quartz and white sericitic material. These veins have been subjected to shearing forces quite extensively. Developing a shearzone which is more prominent in some of the outcrop than others. The wall rock appears to be volcanic origin on the S. W. and also volcanic on the N.E. Thickness of the vein vary from about two feet wide to 18 feet wide. Prospecting has been done on most of these outcrops. Covering this formation is a cap rock believed to be a volcanic breccia only exposing out crops in spots. Several shafts about 35 feet to 40 feet deep have been sunk on the exposed veins. Ores of Au, Ag, Pb, & Cu were extracted of economic value. There are assays and smelter returns to substanuate the values of these ores.

The nature of the mineral as it occurs in the veins or formation is as follows: The Au can be found asfree gold throughout the quartz, also concentration in the oxide of Fe and Cu along the fissues and pockets. The Ag is also found in the quartz and concentrated in the oxide. The copper is mostly oxide (Malicite, Azurite and Chryscolla). Small amounts of Chalcopyrite and Chalcocite have been found as the sulphide. The Pb occurs as the sulphide in small quantities.

Structural features seem to influence the mineralization along the intersection of fractures and fissues. Mineralization is greater along where structural weakness occur. Pockets of high value ore are found. There should be more work done on the structure of this area to explain and clarify the effect these fractures have on the mineralization. The ore appears to form in pockets of high value but some mineralization is found consistently through the vein.

PROSPECTING AND DEVELOPMENT WORK DONE:

Location pits and several shafts around 35 feet deep sunk on the out crops.

An addit was driven roughly along the strike of what is believed to be the main vein around 500 feet long into the mountain. The opening started several feet from the stream bed up the hill and about 162 feet lower than a 55 foot shaft sunk on the main vein. The face of this addit is about 20 feet further into the mountain than the shaft is projected down. Mineralization was good in the shaft but does not seem to be as rich in the addit.

There has been no geologic mapping done at present. Just reconnaissance work done on the above mentioned claims.

There is some geophysical preliminary work being done at present. Expect this work to help locate the ore body more definitely.

POSSIBILITY OF MINING THE ABOVE MENTIONED PROPERTY:

Evidence that ore body exists.

Ore that has been shipped from various out cropping.

The fact that the core of these out dropping at depth has not been investigated.

The main vein has been cut by an addit around 162 feet below a shaft sunk on the out crop.

Mineralization of economic value is evident in shaft and addit.

VALUES AND TONNAGE OF SHIPPED ORE FROM OUTCROPS:

	Net Dry Weight	Net Value/Ton
Sept. 4, 1934	5,381	$ 43.27
Dec 7, 1934	8,993	13.33
May 25, 1936	2,289	42.22
June 26, 1936	2,565	34.40
June 7, 1937	2,900	43.52
Feb. 5, 1935	12,786	257.50
Dec. 23, 1940	3,564	41.89
	19.24 Tons	Avge $ 68.01/ton

DIFFICULTIES INVOLVED:

Mine area has running water about eight months out of the year. Water for mine use available all year round.

Mine would be operated from drifts eliminating hoisting for the time being. Small ore bin could be constructed with not too much effort.

Some road work would have to be done to make hauling easier. Probably several days for a dozer. Most of the road is in good shape to smelter and would be open the year around.

Power source would have to be gasoline or diesel, as power lines are several miles away at Arivaca, Arizona. This will bring up the power cost on the operation.

There are two mining methods applicable to this type of ore body.

1. Stulled stopes.
2. Shrinkage stopes.

Both of the above methods can be used on this ore body as the ore body has strong walls and fairly strong ore zone. Also the veins are narrow, less than 10 feet wide average. The dip of the ore is vertical or nearly so.

STULLED STOPES:

Advantages:

1. Small amount of capital to put mine in production.
2. Short period of time to produce.
3. High grade can be sorted in stopes.

Dis-advantages:

1. Production per man shift is low.
2. A large amount of timber is necessary.

SHRINKAGE STOPES:

Advantages:

1. Lower cost of mining.
2. Small amount of timber used.
3. High production per man shift.

Dis-advantages:

1. Two-thirds of ore remains in stope until stope is completed.
2. Considerable capital is tied up in broken ore.
3. No sorting of waste from ore in stopes.

TENTATIVE DIRECT COST ESTIMATION:

		Cost per ton
1.	Breaking, mucking, tramming, emplosived, general supplies and labor.....	$ 1.90
2.	Timbering and labor.....	0.79
3.	Power	1.26
4.	Mine shop, general supplies and labor.....	0.51
5.	Engineering, Surveying, maintenance, pumping, Superintendence, pipe fittings, general supplies, labor & Miscellaneous....	0.50
	Approximate cost per ton	$ 4.96

The above cost estimation refers to the cost per ton of ore as an operating mine. This does not cover the overhead cost of equipment to begin mining.

To truck from mine to smelter at Ajo, Arizona $ o.10/ per ton per mile. From mine site to Ajo it is approximately 100 miles, @ $0.10/per mile it would cost about $10.00 per ton of ore shipped. The above figure is a little high, that would depend upon the agreement between the company and contractor.

The possibility of a cheaper shipping rate is being investigated, by trucking from mine to Amado, Arizona and shipping by rail to Ajo, Arizona.

Smelter charges are about $7.50/ton. With a S I O_2 contract with smelter the charge can be dropped around $1.50 per ton, provided the S I O_2 content is above 80%.

SURFACE PLANT:

1. Air compressor 200- 220
2. Air legs & hammer (2)
3. Water reservoir
4. Rail #20 - 18" gage
5. Air hose
6. Water hose
7. Small water pump
8. Drill steel
9. Axes, picks, shovels and double jacks
10. Pipe 2" and 1/2"

The above is just a rough list of surface gear.

It will take around $5,000.00 to start the operation. That will cover equiping and operation expense until shipping starts.

The value of rock per ton will have to be $ 35.00 for the mine to operate

Cost per ton to mine	$ 4.96
Trucking to smelter	10.00
Smelter charges with SiO_2 contract	7.00
	$ 21.96
Overhead	2.50
	$ 24.46 Cost per ton

These costs are liberal in some cases.

RECOMMENDATION:

That the property be subjected to and exploration and development program to block out this ore body. There is not enough information yet to outline a definite ore body. Information at hand only proves that high grade pockets have been worked, but no continous body, practically all of the rock in these veins carry some gold and silver although it has to be high enough to run $35.00/ton. In some places this is true but there is need to block out more of this.

The addit mentioned in early part of report should be sampled every 10 feet through out. If this proves economical you have a nice block of ore outlined.

The geophysical work done so far looks favorable. There should be more done, covering all of the entire area. Also the geology of the area done in conjunction with magnotometer work.

The exploration program can be carried out along with the mining. The tonnages would be small at first until more ore was blocked out.

With the information we have, there is an ore body, how big, how rich and how best way to mine it, has to be determined. That is why I suggest an exploration program.

The two programs can be carried out together easily because of the low cost of mining these parallel veins. Drifts should be driven along these veins and stoped out as ore is blocked out, using one of the two methods suggested early in report.

Examination carried out and report submitted by:

S/ Dave Turberville

Dave Turberville
Geological Engineer

DT/rt

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REPORT ON A PRELIMINARY EXAMINATION OF THE EDWARDS MINE LOCATED IN THE ARIVACA DISTRICT, PIMA COUNTY, ARIZ.

By

R.O. Bellsmith
Registered Mining Engineer.

CLAIMS

The property comprises ten full size (600 x 1500 ft.) mining locations in two groups, all contiguous.

The first group consisting of the Golden Eagle Nos. one to six inclusive. The second group consisting of Ridge Runner, Ridge Runner # 2, Ridge Runner # 3, and Outlet, all recorded in the county court house at Tucson.

Location

The property is situated within the sections 5,6, and 8, T 22 S, R 10 E. Arizona Rectangular Coordinate System, and lies approximately 55 miles (air line) in a southwesterly direction from the city of Tucson.

ACCESSIBILITY

From Tucson the property is reached by proceeding South On U.S.Highway 89 to the town of Kingsley, a distance of approximately 37 miles, thence westerly 22miles southwesterly, over a good county highway to the town of Arivaca, thence south 5½ miles via a graded road to the property. The last 3/4 mile of this road is along the Fraguita wash and will require some wirk to place it in serviceable condition.

The nearest railroad shipping point is the station of Amada on the S.P . About 2 miles from Kingsleys. At this point car loading facilities are available for ore shipment, in the form of truck ramps.
The total hauling distsnce from the property to shipping point is approximately 29 miles.

History

The history of the property is somewhat obscure although it is authoritively reported that at least one shaft was sunk before the Civil War (under guard of soldiers to prevent indian raids) and the ore hauled to Yuma by team & wagon for shipment to Wales. When the soldiers were with drawn for duty the shaft was Bulk Headed at 100 ft. and filled up to prevent pilfering.

GEOLOGY

The topography may be described as quite rugged. The country rock is unquestionably of plutonic origin consists principally of Andesite. The mineralization consists of two or more parallel veins with a strike of N. 70dec. W. and nearly vertical dip.

These veins vary in width from 4 to 20ft.and are readily traceable on the surface for a length of about 9000 ft. The vein filling is principally a blue quartz, carrying values in Gold,Silver Copper and in some places lead.The Copper is in the form of both sulphide (Chalcopyrite) and a carbonate (Malachite).

The area around the middle portion of these claims,shows some indication of a Seismic disturbance with consequent faulting and folding.

Development

The development consists of a number of shallow shafts, pits and opencuts along the outcrop of the veins. the rims and collars of these workings have sluffed off and caved in and the veins in place are not all accessible to examination, however the comparatively small amount of dump rock at these workings indicate that the major portion of ore taken out has been shipped.

The shallowness of the workings is accounted for by the fact that all work pereformed heretofore has been done by hand drilling and hoisting by hand winch.

The most extensive workings consist of an adit approximately 650 ft. in length, various open cuts to 20 ft. deep ,with several shafts from 12 to 50 feet deep.

Production

Some values and tonnages shipped from 1934 to 1940 are quoted from settlement sheets.

Net Dry Weight	Net value per ton
5,381	$ 43.27
8,993	13.33
2,289	42.22
2,900	43.52
12,786	257.50
3,564	41.89
19.24 tons Avge.	$ 68.01 / Ton.

Water

Fraguita wash crosses 3 of these claims and is said to flow on the surface about 9 months of the year, though it is possible there is a sub-surface flow the year round. A dug well on one claim would provide domestic water for camp use.

IMPROVEMENTS

The only surface improvements are 3 one room frame cabins and one tool house

Equipment

There is at present no mining equipment on the property except mine car and rails in the big tunnel.

Adjacent Property.

Lying to the north of and adjoinijg this property is the Ajax Mine now inactive. From a Cursory Observation this Ajax has been extensively worked through 5 to 9 parallel veins the course of which is approximatelyN. 65dr. E. and if projected would intersect the Ridge Runner vein at an angle of approximately 45 degrees. Insufficient time was available to make a detailed study of the formation in this area to determine the relationship between these formations, but the ores from each seem to be very much the same character

Suggestion

It is suggested that a working plan be adopted with the initial objective of mining and shipping the crude ore direct to one of the several smelters. Plans contemplate an output of at least 50 to 100 tons per day with provisions for expansion as the mine is opened up.

July 20, 1956
COPY.

R. O. Bellsmith
Register Engineer