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December 2, 1970

Mr. John C. Kirk  
3969 Las Vegas Blvd. South  
Las Vegas, Nevada 89109

Dear Mr. Kirk:

Thank you for sending the information on the Tonopah Belmont mine for our consideration.

At Mr. Boltz's request we have made copies for our files and are returning your originals.

Sincerely,

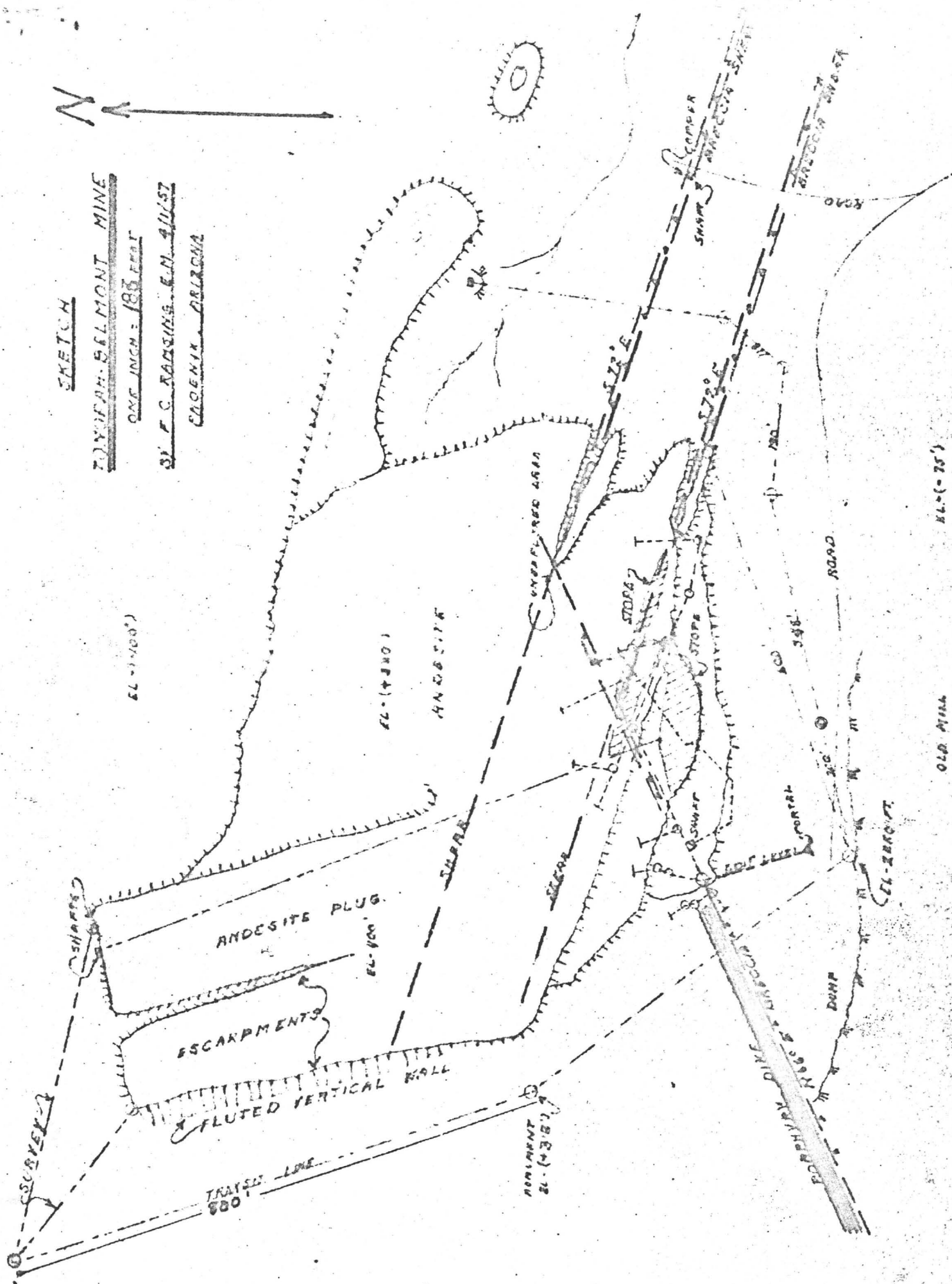
(Mrs.) Betty J. Dickie  
Geology Division  
NUCLEAR DYNAMICS, INC.

Enc. 2 mpps  
Press releases (1 page)  
Mining engineer's report (4 pages)  
Geologic report (3 pages)  
Title papers (14 pages)



ONE INCH = 188 Feet

PAICENIX, ARIZONA





1940s

The McNiel Group or Belmont-McNiel Mine was shown to have been leased through the 1940s by articles appearing in newspapers as follows:

8-14-41 - Pierre Perry of Buckeye leased the Belmont-McNiel Mine.

"Two veins, five and nine feet wide and traceable for 800 feet have been reported uncovered at the Belmont-McNiel mine at Palo Verde in western Maricopa County, Arizona, by Pierre Perry, Box 251, Buckeye. While there is no positive ore now exposed in the mine, it is believed that exploratory work will result in uncovering a substantial tonnage. Mining equipment includes an Ingersoll-Rand 220-cubic foot air compressor. During May 1941 Perry sold 2,724 pounds of ore to the Wickenburg Ore Market, yielding .04 ounce in gold, 6.80 ounces in silver, 11 per cent copper, and 7.50 per cent lead...."

3/31/42 Article shows Perry producing mineral from the Belmont-McNiel Mine.

"A ledge 3½ feet wide has been opened up in drifting on the 500-foot level of the Belmont-McNeil mine at Palo Verde in western Maricopa County, Arizona. The ledge is said to assay \$42.88 in gold, 16 ounces in silver, and 15 per cent copper per ton. A pump has been installed to handle the water which has been encountered in recent operations, and 500 feet of rails and pipe also have been put in. The mine is operated under lease by Pierre Perry, Box 275, Wickenburg, Arizona, who has been shipping an average of 200 tons of ore monthly to El Paso."

3-22-42 article shows Pierre Perry leasing the Belmont-McNiel mine and shipping 200 tons of ore monthly.

"Discovery of a ledge 3½ feet wide in drifting on the 500-foot level of the Belmont-McNeil mine at Palo Verde has been reported by Pierre Perry, Wickenburg, who is leasing the property. Perry, who has been shipping 200 tons of ore monthly, reported the vein to run high in gold, silver and copper."

3-30-43 Article shows George F. Reed shipping ore from the Belmont-McNeil mine:

"George F. Reed, Box F. Wickenburg, Arizona, reports the shipment of two cars of ore from the Belmont-McNeil mine located at Palo Verde in western Maricopa County, Arizona. He expects to produce on the average of two carloads weekly in the future. The ore was shipped to El Paso and Hayden, Arizona. Reed recently took over the property from Pierre Perry, Box 182, Mayer, Arizona, and started working the mine the first of February. Principal values are in lead and copper and main development work at present consists of drifting and raising operations."

November 28, 1967

Mr. John Kirk  
1626 Newport Boulevard  
Costa Mesa, California

Dear Mr. Kirk:

In response to your query concerning the Tonopah-Belmont Mine, situated in Maricopa County, State of Arizona, I am pleased to submit the following information.

Following is a summary of my conclusions based on a physical examination of the property, reasearch of available data pertinent to the mine and interviews with responsible men who worked in the mine during it's "peak production" years. This work was performed by me at the instance of the Onego Corporation of Pittsburgh, Pennsylvania starting in May, 1961 and ending in April, 1962. Time spent at the mine was intermittent due to other commitments but I spent a total of approximately four months on the property.

#### Location and Accessibility

The mine is located in Sections 21, 35 and 4, Tups 4 and 7, R7W of Maricopa County, State of Arizona in the Bighorn Mountains, 27 miles SSW of Wickenburg on the Santa Fe Railroad and 18 miles N from Tonopah Station from which all shipments were made to the smelter on the Southern Pacific Railroad.

The road from Wickenburg is a well travelled road and maintained by the County with the exception of the last three miles which is maintained by the mine owner, Mr. Kirk. The old haulage road from the mine to the loading ramp at Tonopah Station is washed out and no longer maintained.

#### History

The mine was first discovered in 1907 by a Mr. George Dillard and who is still alive and living in Wickenburg. He and his partners, Dan McNeil and Charles Wilcox located the property

performed their yearly assessment work and in 1926 they sold to a mining group from the Tonopah- Belmont Mining Company of Nevada who re-named the mine the Tonopah- Belmont Mine.

The new owners sank a 500' shaft and developed the mine properly and shipped a large amount of high grade ore to the smelter (see attached photostat taken from page 94, Arizona Bureau of Mines Bulletin #140). The mine closed down in 1930 due to the depression prices of copper and lead and silver (cu @ 6¢, pb @ 4¢, ag @ 28¢ and au @ \$20.86 per oz.)

In 1941 thru to 1947 Mr. Ernest Dickie, later associated with the Bagdad Copper Mine as part owner and general manager, acquired the Tonopah Mine. From my examination of the underground workings of the mine it is apparent that he did nothing to develop the mine but rather strip it of the easily available "backs," pillars, even to the point of mining the ore out on both sides of the shaft. During my tenure at the Tonopah I wished to do diamond drilling from the bottom of the mine and asked the State Mine Inspector for permission. He flatly refused this permission because of the condition of the shaft and posted a notice of condemnation on the headframe.

The production figures shown from 1942 thru 1947, as shown on the photostat of pg. 94 of the Arizona Bureau of Mines do not reflect the true production of the mine during this period as Dickie shipped only high grade to the smelter and the remainder went to the cyanide mill at the Vulture Mine. Dickie and his brother were operating the mill at the Vulture and feeding it with ore from the Tonopah, U.S. Mine and other small mines in the vicinity.

### Geology

The mineralization of the Tonopah Mine occurs in the fractured zones and in the brecciated perimeter of the andesite plug which rises high above the low lying hills in the immediate vicinity. The area is composed of pre-cambrian schists, gneisses and granites intruded by tertiary andesites, latite porphyries and basalt lava flows. The host rock of the mine is an andesite plug measuring approximately 1,000 feet square with nearly vertical walls. The plug was forced up thru the surrounding schist and

granites which are covered with an old basalt flow. Evidences of the old basalt can still be observed on the sides of the plug.

An analogy can here be drawn between the Tonopah plug and other successful mines of the same character where the ore bearing solutions come in, rise and fill the brecciated zones on the perimeter of the plug in the form of a corona and also cause the fracture planes in the plug itself to become mineralized. The mineralized corona showing copper is evident on the North, South and East sides of the plug.

The veins filling the fractures are 400' plus long and 4' wide until the intersection of veins #2, #3 and #4 are reached at which place they attain a width of up to 40'. The dip of the NE vein is 78 degrees S and the rake is eastward. The SE vein has almost a vertical dip and rakes N. These ore shoots were mined thru to the surface from the 400' level below the adit level. The adit level is 200' plus and minus (allowing for contour) below the surface.

The rake of the vein after intersection plunges sharply to the East and because of this deviation the shaft penetrated the end of the ore shoot. An X-cut was driven South from the bottom of the shaft to allow for the dip of the vein and then a drift tunnel was driven E to pick up the vein at the point where the vein raked into it. The vein at this point is eight feet wide and was drifted on for a distance of about 400'. The ore was stoped upward for about 15' and the vein is strong and consistent the full length of the drift from the point where the vein raked into the drift.

Two winzes were sunk to a depth of 20' on the level and both are damp from about 10' down and water about two feet deep is standing in the bottoms of each. They both contain sulphides and indicate that water level has been attained. There is no diminuation of the vein at the bottom of the winzes and it is my conviction that the vein will continue downward to a great depth. I cut chip samples from the faces at the bottom of the winzes and the assays revealed 12.2 % copper, .43 oz. gold, 3.6 oz silver and .82 % lead.



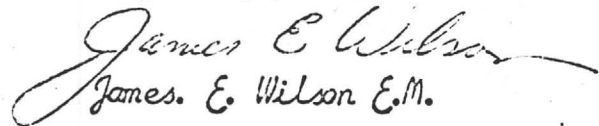
Conclusions and Recommendations

I believe that the Tonopah has the potential of becoming a large producer, ranking along with the other large underground mines of Arizona and that a modest drilling program will confirm this belief.

In spite of the good production record of the mine I am convinced that it's past production represents only a very small fraction of it's potential.

I recommend this mine without any reservations.

Very truly yours,

  
James. E. Wilson E.M.

## GEOLOGIC REPORT OF THE TONOPAH-BELMONT MINE

### Introduction:

The Tonopah-Belmont mine is located in the Bighorn Mountains of Arizona, which is about twenty-five miles southwest of Wickenburg, a station on the Santa Fe Ry., and a like distance northwest of Palo Verde on the Southern Pacific Ry. from which point the ore and concentrates were shipped to Texas.

The mine was discovered in 1904 and was subsequently named the Belmont-McNeal. The early day record of production and work is not available now. In the years 1926 to 1930 the mine was operated by a group of Nevada miners who renamed it the Tonopah-Belmont Mine. It is asserted on good authority, which seems logical, that the mine closed down because of low metal prices at the beginning of the Depression. Copper sold for 8¢, lead for 4¢, silver for 28¢ per ou. and gold for \$20.86. It has not been operated seriously since then. A 60 ton bulk flotation plant was built to beneficiate the ore, but a mine only 400 feet deep must be within the oxide zone at this location. It is obvious then that copper values would hardly be recovered because of its tendency to oxidize readily.

As stated the mine is 400 feet deep below the present adit level, however this fact cannot be verified now because the lowest accessible level is the 300. It is also stated that the ore was faulted off below the 400, and if this is true, there should be no difficulty in relocating it by present core drilling methods. The two present levels, the adit and the 300, have been surveyed by me using the Brunton Compass. The points exterior to the mine were surveyed by a standard and accurate transit and tied to the underground survey to correlate the data in plan.

My observation on the surface had indicated that there were two intersecting vein systems each containing at least two vein-fractures. One trends northeasterly and the other trends southeasterly. The southerly vein of the first system intersects the westerly vein of the second system to form expanded and large ore-shoots at their intersection. The fractures containing the veins of both systems are easily identified because they are filled with friction-breccia.

I am prepared to show that other ore-shoots can be expected at the intersection of the southerly vein of the first system with the easterly vein of the second system. This area has not been drilled or otherwise been prospected although it is only 125 feet from the eastern workings on the 300, where the exposed vein is known to continue eastward. I shall also indicate that the ore continues downward under the present ore-shoots into the sulfide zone.

### Topography:

The area surrounding the mine is typical semi-desert country, abounding in cacti but containing no desiduous trees. It lies in an old mid-tertiary lake bed out of which drownd mountain ranges arise. The latter are not over 1,000 feet above the lake beds in elevation, therefore the dirt roads leading to the mine are generally level and good until the mountains are reached. Even here the gradient is low and toward the shipping points, water exists in the washes at a depth about 700 feet below the present adit level. This is presumed to be the present ground water level based on wells of the area.



### Stratigraphy and Petrography:

The immediate area of the mine contains no recent i.e. post-cambrian sedimentary rocks. It is an area of precambrian schists, gneisses and granites intruded by tertiary andesites, latite porphyries, basalts flows. There is good reason to believe that granitic monzonites underlie this area also.

The host rock of this mine is an andesite plug which is roughly prismatic and approximately 900 feet square. Its intrusive nature is indicated by its nearly vertical and fluted walls that simulate a volcanic plug. This has been forced up through the surrounding schist and old granites which had been covered by an old basalt flow. The remnants of the latter can be seen on the steep slopes of the plug. This ejection movement was no doubt part of a greater regional thrust, because the premineral fractures containing breccia extend at least a mile to the west, and the second system is said to extend far to the southeast. Both of these transect the plug, but in the outer reaches of the fractures and perhaps in the plug itself they are in part filled by the latite porphyry. There is definite evidence that the mineralizing solutions came up the sides of these dikes and into the breccia, partly filling it and partly replacing it to form the present ore-bodies.

### Veins:

The veins, filling the fractures are about 300 feet long and average four feet thick before the intersection is entered. At the latter point the ore pipe is roughly 30 feet wide and of varying length. The northeasterly vein dips south at an eighty degree angle. The rake is eastward or vertical. The southeasterly vein has a vertical dip and rakes northward. The shoots now indicate that they were mined from the surface to the present 300 foot level below the adit. This height is a maximum of 500 feet. It is at once obvious that the lower portions of these veins are still in the oxidized zone, and it is unusual in Arizona to find a vein as large as either of these to end or bottom at this depth. It is presumed for this reason as well as the fact that this mine has not been diamond drilled to our knowledge, that the sulfide ore will be found below the present ore-shoots. As stated previously there is also the intersection of the northeasterly vein with the second parallel fracture which can easily be seen on the surface. The latter can be shown to be heavily mineralized at one point, where copper ore has been uncovered just east of the plug at the surface. This fracture is also brecciated.

### Future prospecting:

The two good possibilities for discovering new ore can be made by the use of the diamond drill. One to three holes at least 150 feet deep must be drilled horizontally to intersect the intersection of the two veins to the east. This would prove or disprove this premise of another large ore-shoot. These are best drilled from the present 300 foot level below the adit. The other premise is that of the underlying primary sulfide zone. This can be drilled from the 300 or the cleaned out 400 or from the surface. From the 400 foot level the drill holes should reach down at least 200 feet. Five holes should be planned. From the 300 these holes would be 300 feet deep. The surface holes would have to be about 600 feet deep. The first case east of the 300 and at the intersection of the vein may also be drilled from the outside but the depth of the holes have not been computed. This same intersection may be found by drifting eastward 125 feet on this level.

### Ore shipments and sampling:

The ore concentrates in the past were shipped to El Paso, Texas. This is a lead smelter and would not pay for copper from this bulk flotation. Obviously much of the latter went into the tails because of its oxidized nature. These tails were later recovered during the last war by leasers. Nothing remains from these tailings. Between the years of 1926 to 1930 the following record is available on production: Copper - 700,000 lbs; lead - 6,000,000 lbs; gold - \$210,000.00; silver - \$120,000.00.

On April 2, 1957 two miners were instructed to take samples on the 300 foot level. In view of the difficulty and danger of getting down the present shaft I did not witness the sampling. I presume the samples are better than average, so I discarded the two high readings for copper and the three high readings for lead. Gold and silver cannot be seen or identified as such in the ore and are therefore taken at face value. The corrected values are as follows from twenty-one samples-

Lead	2.96%	59.2 lbs.	X .95 X	.125 (Conc.val)	\$ 7.00	gross
Copper	4.3	86.0	.95	.30	24.50	"
Gold		.406 Oz.	.95	35.00	13.50	"
Silver		2.95	.95	.90	2.52	"
Total per ton					\$ 47.52	"

### Conclusions:

I believe this is one of the best prospective mines that it has been my pleasure to examine in Arizona.

Respectfully submitted to the,  
Bradford Mining Co.

D. C. Blossom, President.  
May 20, 1957.

By F. C. Ramsing, B. M.



1st Natl B - Redg. Ths

Endorsed No. C-11455  
Filed: WILSON D. PALMER, Clerk

Dkt 7265 PAGE 675

SEP 13 1968  
4:36 PM

At  
By J. EARL PUGH, Jr.

155082  
STATE OF ARIZONA  
County of Maricopa  
01-DEED

I hereby certify that the  
within instrument was filed and  
recorded at request of

Tonopah  
Pugh

IN THE SUPERIOR COURT OF THE STATE OF ARIZONA

1968 SEP

13 4 49

IN AND FOR THE COUNTY OF MARICOPA

in Docket 7265  
on per 675578

Witness my hand and official  
seal the day and year foregoing.  
CLIFFORD H. WARD

By E. Pugh  
Deputy Recorder

JOHN CHARLES KIRK and MARY C.  
KIRK,

Plaintiffs,

vs

NO. C 211455

DAN McNIEL, his unknown heirs if  
deceased; CHARLES T. WILCUTT, his  
unknown heirs if deceased; JESUS  
O. DIAZ, his unknown heirs if deceased;  
J. B. ALEXANDER, his unknown heirs  
if deceased; D. J. CURRY, his un-  
known heirs if deceased; JOHN LIVEZEY,  
his unknown heirs if deceased; S. H.  
STEWART, his unknown heirs if de-  
ceased; EMMA McNEIL, her unknown  
heirs if deceased; ARCHIE BABB, his  
unknown heirs if deceased; ALVIN  
SMITH, his unknown heirs if deceased;  
HARRY S. WILLIAMS, his unknown  
heirs if deceased; TONOPAH BELMONT  
DEVELOPMENT COMPANY, a Nevada  
corporation; JOHN DOE, JANE DOE  
and DOE CORPORATION,

Defendants.

DECREE QUIETING TITLE



This cause came on regularly to be heard before the Court  
sitting without a jury on the 13th day of September, 1968. The  
plaintiff, John Charles Kirk, was represented by his counsel, S.  
Earl Pugh, Jr., and was present in person.

None of the defendants appeared either in person or by  
attorney. The fictitious defendants designated by the names of  
JOHN DOE, JANE DOE and DOE CORPORATION are non-existent.

It appears from the records of this cause that the summons  
issued in this action was served upon Tonopah Belmont Development  
Company by serving the Arizona Corporation Corporation and upon

all other defendants set forth in the caption hereto by publication in the Arizona Weekly Gazette, Phoenix, Arizona, once a week for four (4) consecutive weeks, the first publication being on April 30, 1968, in accordance with Rule 4(e), Rules of Civil Procedure, and that all of said defendants failed to appear or answer within the time provided by law, or at all, and that their defaults have been duly and regularly entered.

It further appears from the record that defendant Dan McNiel is also known as Dan McNeil.

Evidence both oral and documentary was received on behalf of the plaintiffs. The Court, being fully advised in the premises, and having determined that there is no just reason for delay, finds the allegations of the plaintiffs' complaint are true and that the plaintiffs are entitled to judgment as prayed.

NOW, THEREFORE, it is ORDERED, ADJUDGED and DECREED:

1. The above-entitled action be and the same is hereby dismissed as to the defendants JOHN DOE, JANE DOE and DOE CORPORATION.

2. The plaintiffs, JOHN CHARLES KIRK and MARY C. KIRK, are the owners of and entitled to the exclusive possession of the real property described on Exhibit A, attached hereto and made a part hereof, subject only to paramount title of the United States, the same being unpatented mining claims in Maricopa County, Arizona, the location notices of which are recorded in the office of the recorder of Maricopa County as set forth on said Exhibit A.

3. The plaintiffs' vested possessory interest in the unpatented mining claims set forth on Exhibit A is established and

mining claims set forth on Exhibit A attached hereto and by this reference made a part hereof which are situated in the Vulture Mining District, County of Maricopa, State of Arizona, the location notices of which are recorded in the office of the County Recorder of Maricopa County, Arizona as set forth in Exhibit A.

III.

Plaintiffs have a vested possessory interest in said unpatented mining claims subject only to the paramount title of the United States.

IV.

Plaintiffs are informed and believe that the defendants above named claim and assert an interest in and to said mining claims adverse to the plaintiffs. The claims of the defendants are without any right whatever as the plaintiffs have obtained title through other persons who assert that they, as grantors, have all of the interest in said mining claims. If the defendants, or any of them, have any interest in or liens upon said mining claims, the interest, lien or remedy for the enforcement thereof is barred by limitation.

V.

The true names of some of the defendants are unknown to the plaintiffs and for that reason are designated herein by fictitious names. When the true names of unknown heirs or successors or others are determined, leave of the court will be requested to amend the complaint accordingly.



## EXHIBIT A

<u>Name of Claim</u>	<u>Date Located</u>	<u>Recorded</u>	
		<u>Book</u>	<u>Page</u>
Southern Cross	9-20-06	17	192
Mammoth	8-8-06	17	193
Climax	8-8-06	17	194
J. B. Placer	10-20-06	17	195
Copper Canyon	1-21-07	18	74
Dewey	1-1-07	18	76
President	1-1-07	18	78
Roosevelt	1-1-07	18	79
Uncle Sam	1-1-07	18	81
Washington #	1-1-07	18	82
Washington #	3-15-07	18	196
Champion	4-3-07	18	525
Silver	5-2-07	18	526
Copper Belt	4-1-07	18	527
Copper Cave	4-4-07	18	528
Alexander	4-25-07	18	529
Black Copper	6-12-07	19	165
Evening Star	6-4-07	19	166
Morning Star	6-26-07	19	165-166
Elmore	7-28-08	19	440
Jane Elmore	7-28-08	19	441
R. M. Todd	7-28-08	19	441
McKinley	5-12-08	19	448
Julia	5-12-08	19	449
William Penn	3-10-14	22	215
Black Hill	3-20-15	22	434
Aetna	9-18-25	30	261
Aetna No. 1	9-18-25	30	262
Jackson	9-18-25	30	263
Fraction	9-18-25	30	264
Lincoln	9-18-25	30	265
Coolidge	9-18-25	30	266
Contact	9-18-25	30	267
Harding	9-18-25	30	268
Blue Ridge	9-18-25	30	269
White Cap	9-18-25	30	270
Roadside	9-18-25	30	271
Oversight	9-18-25	30	272
Butte	9-18-25	30	273
Alta	9-18-25	30	274
Liberty	9-18-25	30	275
Polk	9-18-25	30	276
Madison	9-18-25	30	277
Big Ledge	9-18-25	30	278
Blue Ridge No. 1	12-12-25	30	422
Aetna No. 3	12-1-25	30	423
Aetna No. 4	12-1-25	30	424
Jefferson	12-12-25	30	425
Grant	12-31-25	30	426
Adams	12-31-25	30	427
Taft	12-31-25	30	428

the defendants, and each of them, are hereby barred and forever estopped from having or claiming any right or title to the said mining claims.

DONE IN OPEN COURT this 13<sup>th</sup> day of September, 1968.

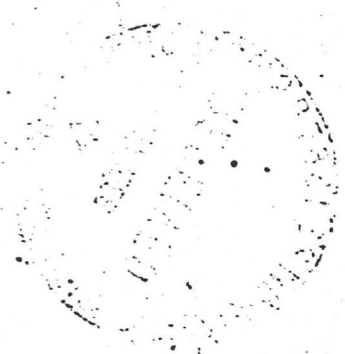
EDWIN D. GREEN  
Court Commissioner  
\_\_\_\_\_  
Court Commissioner

The foregoing instrument is a full, true and correct copy of the original on file in this office.

Attest SEP 13 1968 19\_\_\_\_  
WILSON D. PALMER, Clerk of the Superior Court of the State of Arizona, in and for the county of Maricopa.

By [Signature] Deputy

E. FAIR



<u>Name of Claim</u>	<u>Year</u>	<u>Recorded</u> <u>Book</u> <u>Page</u>	<u>Filed By:</u>
Henry M. Love	1908/Sept.	22      203	Dan McNiel
Alexander & Washington	1908/Sept.	19      460	
Washington	1908/March	20      364	
Washington, Wm. Penn, Dewey, President, Roosevelt, Alexander, McKinley, Uncle Sam	1908/Nov.	24      197	

1914

The following claim was located in 1914

<u>Name of Claim</u>	<u>Name of Locator</u>	<u>Date</u> <u>Located</u>	<u>Date</u> <u>Recorded</u>	<u>Recorded</u> <u>Book</u> <u>Page</u>
William Penn	John Livezey	3-10-14	4-6-14	22      215

Affidavits of labor were filed in November, 1914 on the Independence Group by Dan McNiel.

<u>Name of Claim</u>	<u>Year</u>	<u>Recorded</u> <u>Book</u> <u>Page</u>	<u>Filed By:</u>
Independence Group	1914/Nov.	22      203	Dan McNiel

1915

The following affidavits of labor were filed during 1915

<u>Name of Claim</u>	<u>Year</u>	<u>Recorded</u> <u>Book</u> <u>Page</u>	<u>Filed By:</u>
Washington & Washington Group	1915/Feb.	22      400	Dan McNiel & Joe
Black Hill	1915/ Mar.	22      434	Alexander

The following claim was located in 1915

<u>Name of Claim</u>	<u>Name of Locator</u>	<u>Date</u> <u>Located</u>	<u>Date</u> <u>Recorded</u>	<u>Recorded</u> <u>Book</u> <u>Page</u>
Black Hill	Dan McNiel	3/20/15	4/2/15	22      434



1917

The following affidavits of labor were filed in 1917

<u>Name of Claim</u>	<u>Year</u>	<u>Recorded</u> <u>Book</u> <u>Page</u>	<u>Filed By</u>
Washington, Wm. Penn, Dewey, President, Roosevelt & Alexander	1917/Jan.	23      320	Dan McNiel, C.T. Wilcutt, Joe Alexander

1924

The following quitclaims were recorded in 1924

<u>Name of Claim</u>	<u>From</u>	<u>To</u>	<u>Date</u>	<u>Recording</u> <u>Book</u> <u>Page</u>
1/2 of Washington, 1/3 of Wm. Penn, 1/2 of Dewey 1/2 of President 1/2 of Roosevelt 1/2 of Alexander 1/2 of McKinley 1/2 of Uncle Sam	Dan McNiel & Wife	Emma McNiel	3-12-24	186      561

1925

The following quitclaims were recorded in 1925

<u>Name of Claim</u>	<u>From</u>	<u>To</u>	<u>Date</u>	<u>Recording</u> <u>Book</u> <u>Page</u>
1/3 of William Penn Emma C. McNiel (Estate of) C. T. Wilcutt			11-19-25	198      75
Alexander	Dan McNiel & Emma McNiel	Tonopah-Belmont	12-14-25	200      86
1/2 of Washington 1/3 of Wm. Penn 1/2 of Dewey 1/2 of President 1/2 of Roosevelt 1/2 of Alexander 1/2 of Uncle Sam 1/2 McKinley	Dan McNiel & Emma McNiel	Tonopah Belmont	11-19-25	200      87
1/2 of Washington 1/3 of Wm. Penn 1/2 of Dewey 1/2 of President 1/2 of Roosevelt 1/2 of Alexander 1/2 of McKineley 1/2 of Uncle Sam	Charles T. Wilcutt	S. H. Stewart	12-14-25	198      243

<u>Name of Claim</u>	<u>From</u>	<u>To</u>	<u>Date</u>	<u>Recorded</u> <u>Book</u> <u>Page</u>
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½ of Washington

1/3 of William Penn J.L.B. Alexander Tonopah-Belmont 12/14/25 200 89

1925

The following claims were located by Tonopah-Belmont in 1925:

<u>Name of Claim</u>	<u>Name of Locator</u>	<u>Date</u> <u>Located</u>	<u>Date</u> <u>Recorded</u>	<u>Recorded</u> <u>Book</u> <u>Page</u>
Aetna	Tonopah Belmont	9-18-25	10-9-25	30 261
Aetna No. 1	Tonopah Belmont	9-18-25	10-9-25	30 262
Jackson	Tonopah Belmont	9-18-25	10-9-25	30 263
Fraction	Tonopah Belmont	9-18-25	10-9-25	30 264
Lincoln	Tonopah Belmont	9-18-25	10-9-25	30 265
Coolidge	Tonopah Belmont	9-18-25	10-9-25	30 266
Contact	Tonopah Belmont	9-18-25	10-9-25	30 267
Harding	Tonopah Belmont	9-18-25	10-9-25	30 268
Blue Ridge	Tonopah Belmont	9-18-25	10-9-25	30 269
White Cap	Tonopah Belmont	9-18-25	10-9-25	30 270
Roadside	Tonopah Belmont	9-18-25	10-9-25	30 271
Oversight	Tonopah Belmont	9-18-25	10-9-25	30 272
Butte	Tonopah Belmont	9-18-25	10-9-25	30 273
Alta	Tonopah Belmont	9-18-25	10-9-25	30 274
Liberty	Tonopah Belmont	9-18-25	10-9-25	30 275
Polk	Tonopah Belmont	9-18-25	10-9-25	30 276
Madison	Tonopah Belmont	9-18-25	10-9-25	30 277
Big Ledge	Tonopah Belmont	9-18-25	10-9-25	30 278
Blue Ridge No. 1	Tonopah Belmont	12-12-25	2-3-26	30 422
Aetna No. 3	Tonopah Belmont	12-1-25	2-3-26	30 423
Aetna No. 4	Tonopah Belmont	12-1-25	2-3-26	30 424
Jefferson	Tonopah Belmont	12-12-25	2-3-26	30 425
Grant	Tonopah Belmont	12-31-25	2-3-26	30 426
Adams	Tonopah Belmont	12-31-25	2-3-26	30 427
	Tonopah Belmont	12-31-25	2-3-26	30 428

1926

George Dillard stated in his affidavit of January 29, 1964 that in 1926 said mining claims known as the McNiel Mine were sold to the Tonopah-Belmont Mining Company and became known as the Tonopah Belmont Mine.

An article subsequently reported:

"OLD BELMONT-McNEIL SHIPMENTS REPORTED

"PALO VERDE, Dec. 20 -- Shipments of ore are being made regularly from the old Belmont-McNeil mine here by Pierre Perry of Wickenburg, who took over the property several months ago.

"The mine has been worked at intervals during the last few years by lessees, but has made no substantial production since 1930.

"However, between 1926 and 1930 it was operated by the Tonopah Belmont Development Company and \$610,000 in copper, lead, gold and silver was produced."

1927

Between 1927-1930 Tonopah Belmont mined and relocated the following claims and filed affidavits of labor:

<u>Name of Claim</u>	<u>Date</u>	<u>Recording</u>	
		<u>Book</u>	<u>Page</u>
Washington, Wm. Penn Dewey, President, Roosevelt, & Alexander	1927/July	29	318
	1928	29	328
	1928/May	29	365
	1929	29	450
	1929	29	451
	1930	29	529

1930

These claims called the McNeill group (35) claims were leased to George Hay on October 15, 1930, said lease to run until October 15, 1940. Dan McNeill and C. T. Willcut on the lease. Book 18, Page 76, Book 29, Page 448, Book 22, Page 215, Book 30, Page 261.

## EXHIBIT A

<u>Name of Claim</u>	<u>Date Located</u>	<u>Recorded</u>	
		<u>Book</u>	<u>Page</u>
Southern Cross	9-20-06	17	192
Mammoth	8-8-06	17	193
Climax	8-8-06	17	194
J. B. Placer	10-20-06	17	195
Copper Canyon	1-21-07	18	74
Dewey	1-1-07	18	76
President	1-1-07	18	78
Roosevelt	1-1-07	18	79
Uncle Sam	1-1-07	18	81
Washington #	1-1-07	18	82
Washington #	3-15-07	18	196
Champion	4-3-07	18	525
Silver	5-2-07	18	526
Copper Belt	4-1-07	18	527
Copper Cave	4-4-07	18	528
Alexander	4-25-07	18	529
Black Copper	6-12-07	19	165
Evening Star	6-4-07	19	166
Morning Star	6-26-07	19	165-166
Elmore	7-28-08	19	440
Jane Elmore	7-28-08	19	441
R. M. Todd	7-28-08	19	441
McKinley	5-12-08	19	448
Julia	5-12-08	19	449
William Penn	3-10-14	22	215
Black Hill	3-20-15	22	434
Aetna	9-18-25	30	261
Aetna No. 1	9-18-25	30	262
Jackson	9-18-25	30	263
Fraction	9-18-25	30	264
Lincoln	9-18-25	30	265
Coolidge	9-18-25	30	266
Contact	9-18-25	30	267
Harding	9-18-25	30	268
Blue Ridge	9-18-25	30	269
White Cap	9-18-25	30	270
Roadside	9-18-25	30	271
Oversight	9-18-25	30	272
Butte	9-18-25	30	273
Alta	9-18-25	30	274
Liberty	9-18-25	30	275
Polk	9-18-25	30	276
Madison	9-18-25	30	277
Big Ledge	9-18-25	30	278
Blue Ridge No. 1	12-12-25	30	422
Aetna No. 3	12-1-25	30	423
Aetna No. 4	12-1-25	30	424
Jefferson	12-12-25	30	425
Grant	12-31-25	30	426
Adams	12-31-25	30	427
Taft	12-31-25	30	428

<u>Name of Claim</u>	<u>Grantor</u>	<u>Grantee</u>	<u>Date</u>	<u>Recording</u> <u>Book</u> <u>Page</u>
Tonopah Belmont Well	Bradford Blossom	Bradford Enter- prises	10-30-57	
Crazy Belmont #4	Harry S. Williams	Bradford Mining Co.	10-30-57	
Crazy Belmont Nos. 1 through 4, Tonopah Belmont Mark II Nos. 1 thru 8	Bradford Mining	Bradford Enter- prises	10-30-57	2460 47
Crazy Belmont Nos. 1 through 4, Tonopah-Belmont Mark II Nos. 1 through 8	Bradford Enter- prises	John Charles Kirk	11-8-60	3483 372
Tonopah-Belmont Tonopah-Belmont Nos. 1 through 3	Ike W. Kusisto W. H. Wright	John Charles Kirk	12-3-60	3517 346

STATE OF ARIZONA     )  
                                  ) ss  
County of Maricopa)

JOHN CHARLES KIRK, being first duly sworn, deposes and says:

That he is one of the plaintiffs herein; that he has read the foregoing complaint and knows the contents thereof; that the matters and things therein stated are true to the best of his knowledge, information and belief.

Subscribed and sworn to before me this \_\_\_\_ day of

\_\_\_\_\_, 1968, by John Charles Kirk.

\_\_\_\_\_  
Notary Public

My commission expires:  
\_\_\_\_\_

LAW OFFICES  
TOGNONI & PUGH  
FIRST NATIONAL BANK BUILDING  
PHOENIX, ARIZONA 85004

STATE OF ARIZONA     )  
                              ) ss  
County of Maricopa)

JOHN CHARLES KIRK, being first duly sworn, deposes and says:

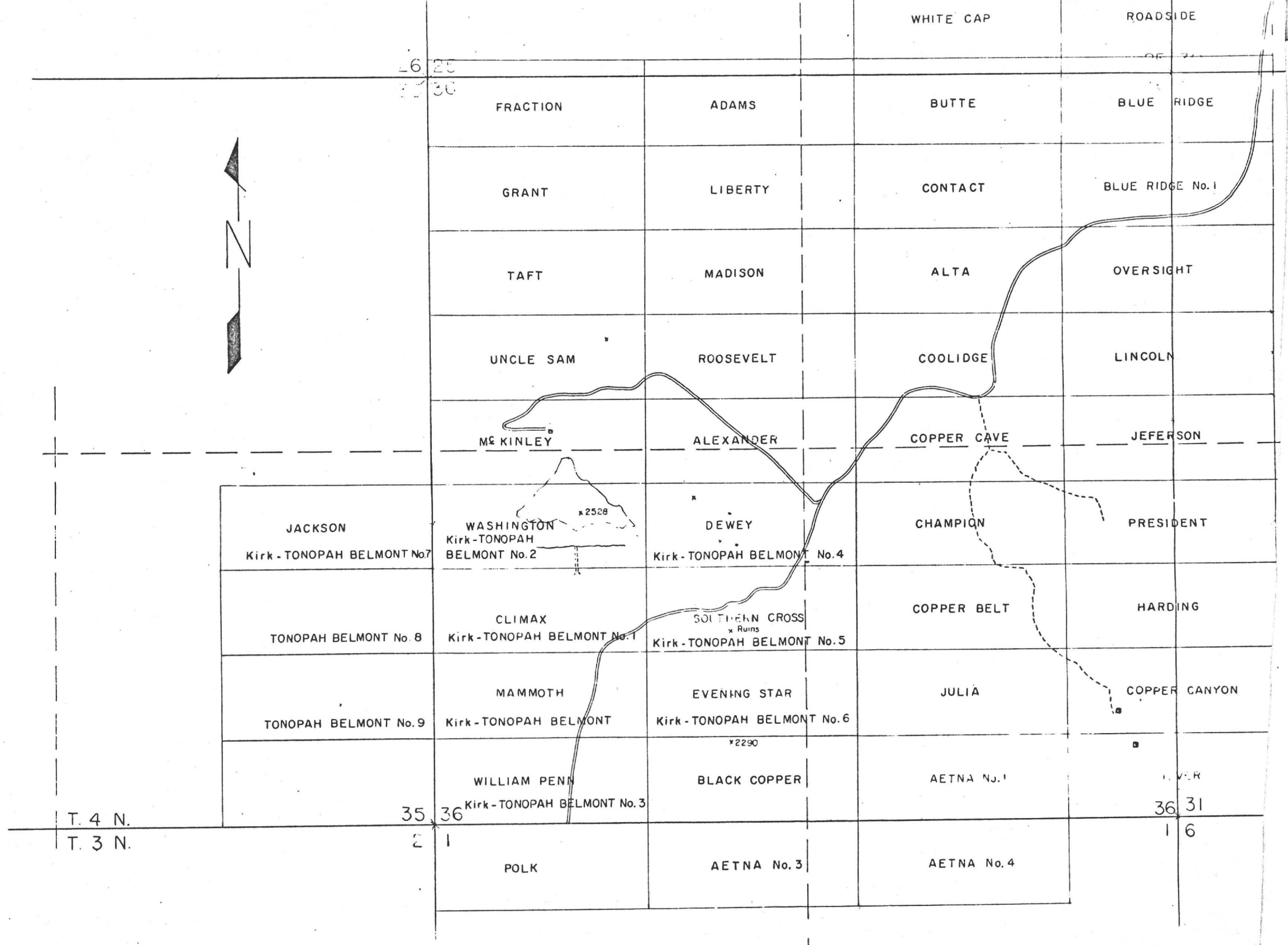
That he is one of the plaintiffs herein; that he has  
read the foregoing complaint and knows the contents thereof;  
that the matters and things therein stated are true to the  
best of his knowledge, information and belief.

Subscribed and sworn to before me this \_\_\_\_ day of  
\_\_\_\_\_, 1968, by John Charles Kirk.

\_\_\_\_\_  
Notary Public

My commission expires:  
\_\_\_\_\_

LAW OFFICES  
TOGNONI & PUGH  
FIRST NATIONAL BANK BUILDING  
PHOENIX, ARIZONA 85004





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May 8, 1969

Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

The Tonopah Belmont Mine is located 26.9 miles from U. S. Highway No. 60-70 (on the Vulture Mine Road), and is 28.9 miles from Wickenburg, Arizona. This location is in Sec. 36, T. 4 N., R. 7 W., Gila and Salt River Meridian. It is in the Osborn Mining District, Belmont Mountains Quadrangle, Maricopa County, Arizona.

The Geologic Map of Maricopa County, Arizona, prepared by the Arizona Bureau of Mines, University of Arizona, Tucson, Arizona shows that the Tonopah Belmont Mine area is located in an area of Precambrian schist intruded by Laramide plugs, rhyolitic to andesitic in composition.

History:

No published information is known of this mine or area.

The total mining and production record of this mine and area is unknown. The University of Arizona Bulletin, Vol. VII, No. 2, Arizona Bureau of Mines, Economic Series No. 19, Bulletin No. 140, Approximate Production of Maricopa County Mines, February 16, 1936, page 94, shows the following: Belmont-McNeill, 1926-30, Vulture Mining District, 700,000 pounds copper; 6,000,000 pounds lead, \$ 210,000 in gold, and \$ 120,000 in silver, for a total value of \$ 610,000.

No geologic maps of the surface, or underground workings are known or have been seen.

The only private report known is that of Mr. F. C. Ramsing, Registered Mining Engineer, dated Nov. 20, 1957 for Mr. D. C. Blossom, President, Bradford Mining Company. Mr. Ramsing makes the following observations:

1. The mine was discovered in 1904, and was named the Belmont-McNeal.

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Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

2. In the years 1926 to 1930 the mine was operated by a group of Nevada miners who renamed it the Tonopah Belmont Mine.
3. A 60-ton bulk flotation plant was built to beneficiate the ore. The ore concentrates were shipped to a lead smelter in El Paso, Texas.
4. The mine is 400 feet deep below the adit level, the lowest accessible was the 300-foot level.
5. It was stated to him that the ore was faulted off below the 400 level.
6. Two veins are present, one strikes to the northeast, and one strikes to the southeast. At the intersection of the two veins the ore shoot expanded. The fractures containing the veins of both systems are filled with friction breccia. The veins are about 300-feet long and average four feet in width. At the intersection of the veins the ore zone is 30-feet wide. The ore shoots were mined from the surface to 300 foot level below the adit. The lower portion of these veins are in the oxide zone.
7. Water exists in the washes at a depth of about 700 feet below the adit level.
8. On April 2, 1957 two miners were instructed to take samples on the 300 foot level. Because of the difficulty and danger of getting down the shaft, Mr. Ramsing did not witness the sampling, and no mention of the sampling widths are made. His corrected values for 21 samples was 2.96% lead, 4.3% copper, 0.406-oz. gold, and 2.95-oz. silver.
9. Mr. Ramsing's report also has a sketch of the Tonopah Belmont Mine, at a scale of one inch to 183 feet, and is dated 4/1/57.

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Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

Mr. John Charles Kirk, the present owner of the Tonopah Belmont Mine, acquired the property in December 1960. Mr. Kirk stated the following on April 9, 1969:

1. He had found a rather rare lead mineral (Minium,  $Pb_3O_4$ ) on the dump of the Tonopah Belmont Mine. This mineral is a bright reddish-orange in color. He collected about 100 pounds of it, and sold it for \$ 4.00 per pound as specimens.

2. In 1952, Mr. Kirk contracted with Boyles Brothers to drill a diamond drill hole. The collar of this diamond drill hole is located 315-feet, S.  $68^\circ$  E. from the Tonopah Belmont Adit portal. This hole was drilled N.  $10\frac{1}{2}^\circ$  W., at minus  $56^\circ$ , for a total depth of 1050-feet. He contracted with Eastman to survey the diamond drill hole. This hole survey showed that the hole curved downward, and near the end of the hole was going down at  $90^\circ$ . Mr. Kirk stated that the core was black andesite, and was very hard near the bottom; that he had seen nothing in the core, and had junked it.

The collar of this hole is shown on the geologic map made by the writer.

3. Mr. Kirk stated that he had talked with Mr. B. S. Butler at the University of Arizona, Tucson in 1960 about any data the Arizona Bureau of Mines might have on the Tonopah Belmont Mine. Mr. Butler told him that he had visited the Tonopah Belmont Mine several times trying to get the owners to give the Arizona Bureau of Mines facts, figures, and maps of the property, but that they had refused to cooperate with the Arizona Bureau of Mines.

Mr. Kirk worked with the writer during the underground mapping of the Tonopah Belmont Mine Adit level.

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May 8, 1969

Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

Purpose and Scope of the Geological Investigation:

The purpose of this geologic investigation was to determine if there were any surface indications of alteration zones or mineralization zones that would warrant a geophysical investigation (induced polarization).

This work was done for Mr. Hale C. Tognoni, Mineral Economics Corporation, 1525 West Northern Avenue, Phoenix, Arizona 85021.

The writer mapped in the field from April 3, 1969 to and including April 13, 1969. A Brunton and Tape survey geologic map, at a scale of one inch to 200 feet was made. This map was tied to some of the re-monumented claim corners established by Mineral Economics Corporation. On April 28, 1969, a colored pencil tracing of the geologic field notes, with three proposed induced polarization lines indicated, was mailed to Mineral Economics Corporation for drafting onto the maps of the Tonopah Belmont Mine Area being made.

Seven chip samples were taken near and in the Tonopah Belmont Mine Adit. These samples were given to Mr. Tognoni, in the field, on April 13, 1969. The samples were assayed by the Arizona Testing Laboratories, 817 West Madison Street, Phoenix, Arizona 85001.

On April 16, 1969, at 8:30 AM at the Lucerne Motel, Las Vegas, Nevada a meeting was held with Mr. H. Clyde Davis, Director of Mineral Development, Brigham Young University, Provo, Utah. Mr. Davis went over the geologic field notes. He stated that in flying the area they had not come as far to the south-east as the workings of the Tonopah Belmont Mine Area, but were instead further to the west. He wanted to know the position of the proposed induced polarization

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Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

lines and the writer sketched on his map the location of three proposed lines, not exactly the same as those later put on the finished pencil tracing, but close enough when working with unassembled field sheets. Mr. Davis stated that if any induced polarization anomalies were found, he would be interested in seeing the results; but that if no anomalies were found, they were not interested in vein mining, and thought we should forget about the area.

General Geology:

This area is from 2,000 feet to about 2,400 feet in elevation, in the Belmont Mountains. The Tonopah Belmont Mine is about 1.3 miles southwest of the Beer Bottle Well.

According to the Geologic Map of Maricopa County, Arizona, this area is one of Precambrian schist intruded by Laramide plugs of rhyolitic or andesitic composition.

(Igneous Rocks):

The igneous rocks of this area, megascopically from field examination (no thin sections have been made, and no petrography has been done), appear to be of three types: (1) intrusive rhyolite, (2) intrusive andesite, and (3) volcanic surface flows of andesitic to basaltic composition.

The intrusive rhyolite forms the main mass of the central intrusive stock of the area. The plug is about 1,000 feet wide in a northerly direction, and 1,500 feet long in an easterly direction. It outcrops with nearly vertical walls, and forms the ridges and the sharp ragged peaks of the area. It is

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Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

thought to be of later age than the intrusive andesite, for it has been found cutting the intrusive andesite. The rhyolite is generally light gray in color, has an aphanitic texture, and has a few phenocrysts of quartz. The rock weathers a light reddish tan in color. In areas the rhyolite has been sheared and brecciated. At 270-feet N. 85° W. from the Tonopah Belmont Adit portal is found a silicified rhyolite breccia zone; a sample was taken that assayed:

Sample No. 200, 5-foot chip sample, 0.01-oz. Au, Nil Ag, 9 ppm Ni, 130 ppm Cu, 84 ppm Pb, 120 ppm Zn, Nil Mo, Nil Barite, and 1.0% Fluorite.

The intrusive andesite is found around the rhyolite plug. The largest mass mapped is found on the south and east side of the rhyolite plug, and is about 2,000 feet long in an easterly direction and from 300 feet to 500 feet wide in a northerly direction. The intrusive andesite has been found cutting Precambrian schist. This andesite is thought to have been intruded first, and then has been later broken, brecciated, and altered by the rhyolite intrusion.

The andesite is generally gray-green in color, aphanitic in texture, and fairly soft. It has been so brecciated and altered, that identification by thin section will be difficult. The best exposed cross-section of this rock type is found from the portal of the Tonopah Belmont Mine Adit for 140-feet into the mine. The altered andesite is thought to have a high  $\text{CaCO}_3$  content, for a reaction with dilute HCl has been noted. Some introduced fluorite is present too, for five samples taken of this altered, brecciated andesite assayed from 1.2% to 1.6% fluorite.

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Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

The volcanic surface flows of probable andesitic to basaltic composition are found about 3,000 feet east of the Tonopah Belmont Mine Adit, and have been mapped in a southerly direction for about 4,000 feet.

(Metamorphic Rocks):

Precambrian mica schist is exposed in patches nearly surrounding the rhyolite plug. In the vicinity of the rhyolite plug, the schist strikes from N. 35° E. to about N. 70° E. and dips 35° to 70° SE. In the area of from 3,000 feet to about 5,000 feet to the southeast, from the Tonopah Belmont Mine, the schist strikes from North to about N. 25° E. and dips from 40° to 70° SE.

Some epidote was noted in the schist. In some areas the schist, where cut by northwest trending mineralized faults, has been altered and impregnated with  $\text{FeO}_x$ .

It is to be noted that in the Precambrian mica schist area mapped west of the U. S. Mine (7.5 miles to the northwest of the Tonopah Belmont Mine), while the strike of the schist was to the northeast, all the dips recorded in that area were to the northwest. Here, in the Tonopah Belmont Mine area all the dips recorded of the schist are to the southeast. Thus, one would expect to find the crest of a major anticlinal structure in the schist between the two properties.

(Structure):

The most pronounced geologic structure in the area is the rhyolite



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Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

plug that has intruded what is thought to be an older andesite plug.

The vein system mined at the Tonopah Belmont Mine appears to be confined to a fault breccia zone, from one to four feet wide. The one mapped underground strikes N. 55° E., and dips 75° to 80° SE. The portions of the vein material remaining show that the vein breccia was completely silicified, and that it cut silicified andesite breccia. North of the shaft, on the adit level, the silicified vein breccia separates silicified andesite on the footwall from highly altered, fractured rhyolite on the hanging wall. The highly altered rhyolite is cut by tiny stringers of  $\text{FeO}_x$  and  $\text{CuO}_x$ .

The major faulting in the district is thought to strike from N. 30° to 35° W. and to dip 60° to 80° NE. There are thought to be four of these structures in the district from the mapping done to date (these are indicated on the geology map).

One of the best exposed, of these major faults, is found in the underground workings of the Tonopah Belmont Mine on the adit level; and, on the surface croppings above the adit level, on the west end of the stopes that come thru to the surface. The fault, on the adit level, strikes N. 30° W. and dips 80° NE. It cuts the vein, yet the offset is very minor, indicating slight movement since the introduction of the vein filling material. The shearing in the altered andesite is very strong, and to the northwest of where the fault cuts the vein, rhyolite is exposed on the footwall, with highly sheared andesite on the hanging wall, the fault being marked by a red clay. In and near this fault zone, five samples were taken of the sheared altered andesite breccia. The location of



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these samples is shown on the geology map of the adit level. These samples assayed:

Sample No. 201, 5.0-foot chip sample, 0.01-oz. Au, Nil Ag, 37 ppm Ni, 115 ppm Cu, 1500 ppm Pb, 2900 ppm Zn, Nil Mo, Nil Barite, and 1.4% fluorite.

Sample No. 202, 5.0-foot chip sample, Tr. Au, 0.6-oz. Ag, 62 ppm Ni, 86 ppm Cu, 175 ppm Pb, 340 ppm Zn, Nil Mo, Nil Barite, and 1.6% fluorite.

Sample No. 203, 5.0-foot chip sample, Tr. Au, Nil Ag, 67 ppm Ni, 40 ppm Cu, 265 ppm Pb, 700 ppm Zn, Nil Mo, Nil Barite, and 1.6% fluorite.

Sample No. 204, 10-foot chip sample, 0.01-oz. Au, 0.8-oz. Ag, 61 ppm Ni, 68 ppm Cu, 135 ppm Pb, 530 ppm Zn, Nil Mo, Nil Barite, and 1.6% fluorite.

Sample No. 205, 5.0-foot chip sample, 0.01-oz. Au, 2.8-oz. Ag, 61 ppm Ni, 120 ppm Cu, 1000 ppm Pb, 3400 ppm Zn, Nil Mo, Nil Barite, and 1.2% fluorite.

What is thought to be the same (fault seen underground) northwest trending fault zone is seen on the surface at 540 feet, S. 40° E. from the Tonopah Belmont Adit portal. This location is on the lower road, below the old mill foundation. Here the fault zone cuts altered Precambrian schist. The fault zone contains some altered andesite, some vein type quartz, and a little FeO<sub>x</sub>. A sample was taken at this location, it assayed:

Sample No. 206, 2.0-foot chip sample, Tr. Au, 1.6-oz. Ag, 60 ppm Ni, 170 ppm Cu, 290 ppm Pb, 800 ppm Zn, Nil Mo, Nil Barite, and 1.2% fluorite.

The second most prominent northwest trending mineralized fault is found at 3,370 feet, S. 83° E. from the Tonopah Belmont Adit portal. This structure has been traced on the surface for about 1,400 feet. This structure strikes N. 32° W. and dips 60° to 78° NE. This structure cuts and in some places appears to be the boundary between a reddish andesite on the east (hanging wall) and a greenish colored andesite on the west (footwall). From the central part of this

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Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

cropping to the north, this structure is marked by a highly altered white zone that is thought to be argillized andesite. This white rock gives a lime reaction when tested with dilute HCl.

Three shafts have been sunk on this northwest trending mineralized fault zone. Dump material from these shafts have limonite pseudomorphs after pyrite in some of the rock. Pyrite as well as a little  $\text{CuO}_x$  is present. The most northern shaft dump rock contains the greater amount of finely disseminated pyrite.

Structure, other than that trending to the northwest is found in the district too. Three examples of these are (1) those on the north side of the rhyolite plug, (2) those of the Wonder Mine area, and (3) those of the Morning Star area.

On the north side of the rhyolite plug is found a mineralized fault that appears to be the contact between the altered andesite breccia and the rhyolite. In the four outcrops mapped, the mineralized fault strikes N.  $60^\circ$  E. to N.  $80^\circ$  E. and dips from  $70^\circ$  to  $75^\circ$  SE. The mineralized fault has been prospected by two shafts and several prospect pits. More vein type calcite is found in this area, than in the rest of the district. In the most westerly shaft (as shown on the geology map), the silicified fault zone is about 12-feet wide and contains  $\text{FeO}_x$  and  $\text{CuO}_x$ .

On the east side of the district, in the Wonder Mine area, small mineralized faults strike N.  $20^\circ$  to  $60^\circ$  E. and dip  $68^\circ$  to  $78^\circ$  SE. The leakage

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of  $\text{CaCO}_3$  and  $\text{CuO}_x$  found in this area does not appear to be confined to the mineralized faults, but rather appears to be filling very small shears random oriented, in dark gray and reddish andesite. This window with  $\text{CuO}_x$  staining appears to be about 250 feet in diameter.

On the far east side of the district, at the Morning Star Mine, the mineralized faults appear to be almost random oriented. An area stoped thru to the surface had a strike of N.  $80^\circ$  E. and dipped about  $15^\circ$  NW. The shearing in the gray to black andesite, at the collar of the incline, strikes N.  $45^\circ$  W. and dips  $45^\circ$  NE. A structure that had been drifted had a strike of N.  $70^\circ$  E. and dipped  $80^\circ$  NW. It is thought there is more  $\text{CuO}_x$  in the dumps in this area, than any seen in the district.

Structurally, brecciation, is an important feature of this district. The most intense area of brecciation is that found on the south and east side of the rhyolite plug, at the Tonopah Belmont Mine. Here, what is considered to be an intrusive andesite has been brecciated and altered. The area is large, possibly 2,000 feet by 300 to 500 feet. Mr. Kirk put down a diamond drill hole in this material, and stated that near the bottom the rock got real hard; this could indicate silicification of the breccia. He also stated there was nothing in the rock; but if no assays were made, how can one tell. He was looking for a vein, this he did not find. The samples (Sample No. 201 to and including Sample No. 205) taken of the altered andesite breccia on the Tonopah Belmont Adit level, by the writer, where nothing could be seen megascopically, is

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Las Vegas, Nevada 89104

May 8, 1969

Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

definitely mineralized. What is not known at this time is, (1) if the metallization of the altered andesite breccia has been caused by the nearness to the major northwest trending fault, or (2) if the entire altered andesite breccia has been metallized from below like a normal breccia pipe?

(Mineralogy):

Two sulfide minerals were seen. Pyrite, as finely disseminated crystals, in dump rock, was found on the east side of the district. A small piece of sphalerite with quartz was seen in the altered andesite breccia of Sample No. 205 from the Tonopah Belmont Mine Adit level.

Vein type calcite was noted in the district. The largest amount was seen in the diggings at 1,250-feet N. 4° E. from the portal of the Tonopah Belmont Mine Adit. Rather massive gray calcite is found in the veins at this location.

MnO<sub>x</sub> dendrites are common in the area.

FeO<sub>x</sub> staining is present, but not in great amounts.

No barite was seen, and none was found in the assays.

No fluorite was seen or identified as such in the field, however fluorite was found in the altered andesite breccia with assays ranging from 1.2% to 1.6%.

Minium, the bright reddish orange lead oxide (Pb<sub>3</sub>O<sub>4</sub>), was shown the writer by Mr. Kirk, and was said to have been collected from the dump of the Tonopah Belmont Mine. None was found by the writer.

The most common copper mineral seen was malachite. Some azurite was

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Las Vegas, Nevada 89104

May 8, 1969

Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

noted. The  $\text{CuO}_x$  seen on the dumps of the Wonder Mine area, were thought to have a peculiar green color that might be associated with nickel.

The most abundant mineral seen was introduced silica as the matrix of the veins and in the silicified breccia areas.

Bleaching is most pronounced on the mineralized fault zone found at 3,370 feet S.  $83^\circ$  E. from the Tonopah Belmont Adit portal. For about 700-feet along this structure a highly altered white zone from two to ten feet wide is seen. This white zone is thought to be argillized andesite. The white rock does react with dilute HCl. About 300-feet west of the bleached zone is a brown of silicified andesite containing limonite pseudomorphs after pyrite.

Alteration of the andesite breccia at the Tonopah Belmont Mine has made the rock a gray-green in color. The rock is generally soft, in that it can be scratched with a knife. The amount of added  $\text{CaCO}_3$  is thought to be high, for although very few small stringers of calcite can be seen, the rock when scratched does react with dilute HCl.

(Geochemical Studies):

Geochemical samples were taken along the claim endlines by Mineral Economics Corporation. The completed series has not been studied by the writer.

Harry E. Nelson  
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Las Vegas, Nevada 89104

May 8, 1969

Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

(Geophysical Studies):

No prior geophysical studies have been known to have been made in this area.

Three proposed induced polarization geophysical lines are shown on the colored pencil tracing of the geology field notes mailed on April 28, 1969, to Mineral Economics Corporation. The general location of these lines are as follows:

1. Induced polarization, with both 600-foot dipoles and 1,200-foot dipoles, to be run at S. 83° E. for 4,800-feet. West end of line to be 700-feet, N. 83° W. from Tonopah Belmont Mine Adit portal.
2. Induced polarization, with both 600-foot dipoles and 1,200-foot dipoles, to be run at N. 30° W. for 3,000-feet. Center of line to be 370-feet, N. 30° E. of Tonopah Belmont Mine Adit portal.
3. Induced polarization, with both 600-foot dipoles and 1,200-foot dipoles, to be run at N. 33° E. for 3,000-feet. South end of line to be 500-feet, S. 33° W. from Wonder Claims location post near shaft.

Geonics Inc., 9107 Wilshire Blvd., Suite 810, Beverly Hills, Calif. 90210, have contracted to do this geophysical survey.

Conclusions:

1. The recorded production of the Tonopah Belmont Mine (Belmont-McNeill) is estimated to be \$ 610,000, with values in lead, copper, silver, and gold. This

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Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

production came from mineralized fault breccia, from the surface to about 400 feet in depth. A 60-ton bulk flotation plant treated the ore. The ore concentrates were shipped to a lead smelter in El Paso, Texas.

2. The most prominent structural feature in the Tonopah Belmont Mine area is the intrusive rhyolite plug.

3. The rhyolite is thought to be intruding an older andesite intrusive; and that, the older andesite has been broken and brecciated by the intrusion of the later rhyolite.

4. The andesite breccia has been altered and has been mineralized. What is not known at this time is, (a) if the metallization of the altered andesite breccia has been caused by the nearness to the major northwest trending fault, or (b) if the entire altered andesite breccia has been metallized from below?

5. Major faulting is found in the area, four of these faults have been mapped. The strike of these faults is from N. 30° to 35° W., and the dip 60° to 80° NE. Some of these faults appear to be mineralized.

6. Pyrite, as finely disseminated crystals, in dump rock, was found on the east side of the district. Sphalerite with quartz was seen in the altered andesite breccia from the Tonopah Belmont Mine Adit level.  $\text{FeO}_x$  staining is present, but not in great amounts. No barite was seen, and none was found in the assays. No fluorite was seen, however fluorite was found in the altered andesite breccia with assays ranging from 1.2% to 1.6%. The most common copper mineral seen was malachite. Some azurite was noted. The  $\text{CuO}_x$  seen on the dumps of the Wonder Mine area, were thought to have a peculiar green color that might be associated with nickel. The most abundant mineral seen was introduced silica



Harry E. Nelson  
1018 East Norman Avenue  
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May 8, 1969

Notes on the Tonopah Belmont Mine Area, Maricopa County, Arizona

as the matrix of the veins and in the silicified breccia areas.

7. Bleaching is most pronounced on the mineralized fault zone found at 3,370 feet S. 83° E. from the Tonopah Belmont Mine Adit portal. The white zone is thought to be argillized andesite.

8. In the Wonder Mine area, the leakage of  $\text{CaCO}_3$  and  $\text{CuO}_x$  does not appear to be confined to the mineralized faults, but rather appears to be filling very small shears, random oriented, in dark gray and reddish andesite.

9. There is thought to be more  $\text{CuO}_x$  in the mine dumps of the Morning Star Mine area than any seen in the district.

10. It is thought that at least three induced polarization lines are needed, as geophysical reconnaissance for the district.

11. It is thought that a surface grid of geochemical samples should be taken of the altered andesite breccia, in the area south and east of the rhyolite plug.

12. It is to be noted, that in the Precambrian mica schist area mapped west of the U. S. Mine (7.5 miles to the northwest of the Tonopah Belmont Mine), while the strike of the schist was to the northeast, all the dips recorded in that area were to the northwest. Here, in the Tonopah Belmont Mine area all the dips recorded of the schist are to the southeast. Thus, one would expect to find the crest of a major anticlinal structure in the schist between the two properties.

R E P O R T O N

TONOPAH-BELMONT MINE

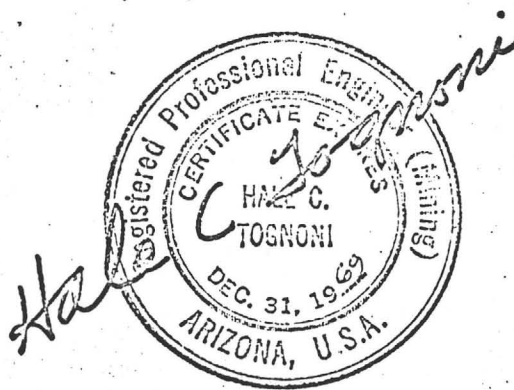
Section 36, Township 4 North, Range 7 West  
G&SRB&M, Maricopa County, Arizona

May 21, 1969

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COMPILED BY:

Hale C. Tognoni, P.E. #2084  
Mineral Economics Corporation  
1525 West Northern Avenue  
Phoenix, Arizona 85021



DISCIPLINE SERVICES:

Geochemistry: Personnel of Mineral Economics Corporation and  
Mineral Services Corporation

Geophysics: Brian Krogseng, Geonics, Inc.  
9107 Wilshire Boulevard  
Gibraltar Square, Suite 810  
Beverly Hills, California

Geology: Harry E. Nelson, Geological Engineer, Nevada #891  
1018 East Norman Avenue  
Las Vegas, Nevada

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# Mineral Economics Corporation

CONSULTING MINING ENGINEERS AND GEOLOGISTS

1525 WEST NORTHERN AVENUE  
PHOENIX, ARIZONA 85021  
WI 4-2124

HALE C. TOGNONI, P.E. 2048  
MINING AND GEOLOGICAL ENGINEER  
GEORGE-ANN TOGNONI, CARTOGRAPHER

TONOPAH-BELMONT MINE

May 21, 1969

## INTRODUCTION (Hale C. Tognoni P.E.)

The Tonopah-Belmont Mine is located 26.9 miles from U.S. Highway 60-70 on the Vulture Mine Road and is 28.9 miles south from Wickenburg, Arizona

Mining claims essentially cover Section 36, Township 4 North, Range 7 West, G&SRB&M, Osborn Mining District, Belmont Mountain Quadrangle, Maricopa County, Arizona.

The Tonopah-Belmont property consists of 53 unpatented lode mining claims and one millsite. Forty five of the claims were mapped and considered in this program.

The first of these claims, the Climax, was located August 8, 1906 and the principal claim, the Washington, was located on January 1, 1907. Periods of active location were 1906 through 1908, 1914 and 1915, then the year 1925. Only two of the claims were located after 1925 and they are the Tonopah-Belmont #8 and #9. The claims are all properly recorded in the Maricopa County Recorder's Office. A Quiet-Title Action on the same was completed in September, 1968 with the title quieted in John C. Kirk.

Names of claims, dates of location and recording data is set forth on page 7 of this report.

Previous mining activity has been principally on the Washington, Copper Canyon, Silver and the Morningstar claims.

## SCOPE OF REPORT

### a. Sources of Information:

Information in this report was gathered from the Maricopa County Recorder's Office, local prospectors and old-time residents,

## Tonopah-Belmont Mine Report - con't

the owner John C. Kirk and the report of F. C. Ramsing.

Information by personal observation on the ground was collected by Hale C. Tognoni, Registered Professional Mining Engineer #2048; Harry E. Nelson, Registered Professional Geological Engineer in Nevada #891; Brian Krogseng and his crew from Geonics, Inc.; personnel of Mineral Economics Corporation, Mineral Services Corporation, the law firm of Tognoni & Pugh and by Charles Lawrence, agent for Wilson P. Abraham.

The geological map of Maricopa County prepared by the Arizona Bureau of Mines, University of Arizona, Tucson, Arizona also served as a source of information, along with the U.S.G.S. quadrangle sheet of the Belmont Mountain area.

### b. Procedure:

During the months of March and April and through May 15, 1969, the following procedure was followed:

1. Property map compiled from existing property map previously prepared by Mineral Economics Corporation with topography taken from the U.S.G.S. Belmont Mountain Quadrangle sheet.
2. Brunton and tape survey made of claims and all claims remonumented and marked at each corner and end-center monument.
3. Geochemical soil samples taken at each of the claim corners and end-center monuments.
4. Geochemical samples analyzed by Arizona Testing Laboratories with Atomic Absorption Spectrograph for copper, lead, zinc, silver, nickel and molybdenum in parts per million and plotted on the original property map, with profiles showing the amounts of each mineral found thereon. The profiles were made up with the lead-nickel on one map and the copper-zinc on another. In most cases the molybdenum was nil and the silver in such small amounts that a profile would not properly portray that information.
5. Geology mapped by Harry E. Nelson at principal places of interest within mineralized area on the claims.
6. Two geophysical induced polarization line surveys conducted by Geonics, Inc.

## Tonopah-Belmont Mine Report - con't

7. Preliminary negotiations begun on Wonder claims to the south of the Tonopah-Belmont claims.

8. Geochemical samples were taken starting at the northeast corner of Section 36, proceeding north 45° west taking samples every 100 feet to the center of Section 25.

9. Geochemical samples were taken along lines running from the northwest corner of Section 36 south 60° east across the Wonder claims and north 60° west across Section 35.

10. Compilation of all of the above information (excepting 9 above, the geochemical samples of which were not analyzed) in order to draw conclusions and make recommendations.

### ABSTRACT

#### a. Title

Since the title to the 53 mining claims concerned in the Tonopah-Belmont property and the Tonopah-Belmont Millsite and Water Well had been quieted in September, 1968, very little title problems could arise other than those which are apparent in possessory mining claims, and on a section of land which was subsequently acquired by the State of Arizona.

A question of ownership was raised as to the ownership of the Morning Star claim by Mr. Bodioga and as to the relative position of his Wonder claims to the south of the Tonopah-Belmont Mine. Negotiations were undertaken with Mr. Bodioga. He has orally agreed that he would lease the Wonder claims to Mr. Abraham with 90 days free time and a royalty of \$50.00 per month for each claim that is leased for a maximum of \$500.00 per month, or an end price of \$10,000.00 per claim with a 5% net smelter return applying against that end price. All returns received from the Morning Star claim would be placed in an escrow pending a decision as to whether the source of title of the Morning Star claim is from Mr. Bodioga or from Mr. Kirk. That agreement is still in the oral state and has not been reduced to writing.

#### b. Geological Considerations:

Harry E. Nelson's notes on the "Tonopah-Belmont Mine Area,



## Tonopah-Belmont Mine Report - con't

Maricopa County" dated May 8, 1969 are included in the Appendix of this report.

The Tonopah-Belmont area has been classified by the Arizona Bureau of Mines as being in precambrian schist intruded by laramide plugs, rhyolitic to andesitic in composition.

Two veins are present, one strikes to the northeast and one strikes to the southeast. At the intersection of these two veins, the ore shoot expanded. The fractures containing the veins of both systems are filled with friction breccia. The veins are about 300 feet long and average four feet in width. At the intersection of the veins, the ore zone is 30 feet wide. The ore shoots were mined from the surface to the 30 foot level below the adit. The lower portion of these veins are in the oxide zone.

The intrusive rhyolite forms the main mass of the central intrusive stock of the area. The plug is about 1,000 feet wide in a northerly direction and 1,500 feet long in an easterly direction. It outcrops with nearly vertical walls and forms the ridges and sharp ragged peaks of the area. It is thought to be of later age than the intrusive andesite for it is observed cutting the intrusive andesite. The rhyolite is generally light gray in color, has an aphanitic texture and has a few phenocrysts of quartz. The rock weathers a light-reddish tan in color. In some areas the rhyolite has been sheared and brecciated. At 270 feet north 83° west from the Tonopah-Belmont adit portal is found a silicified rhyolite breccia zone, the sample of which assayed 130 ppm in copper, 84 ppm in lead, 120 ppm in zinc.

The rhyolite is thought to be intruding an older andesite intrusive which was broken and brecciated by the intrusion of the later rhyolite.

The andesite breccia has been altered and has been mineralized, but it is not known at this time if the mineralization of the altered andesite breccia has been caused by the nearness to the major north-west trending fault or if the entire altered andesite breccia has been metalized from below.

Pyrite as finely disseminated crystals was found in the dump rock on the east side of the district. Sphalerite with quartz was seen in the altered andesite breccia from the Tonopah-Belmont Mine

## Tonopah-Belmont Mine Report - con't

adit level. Iron oxide staining is present, but not in great amounts. Barite was seen, but none was found in the assays. No fluorite was seen, however, fluorite was found in the altered andesite breccia with assays ranging from 1.2% to 1.6%.

The most common copper mineral seen was malchite - some azurite was noted. The copper oxide seen on the dumps on the Wonder Mine area are thought to have a peculiar green color that might be associated with nickel. In the Wonder Mine area, leakage of calcium carbonate and copper oxide does not appear to be confined to the mineralized faults, but rather appears to be filling very small shears. The most abundant mineral seen was induced silica as the matrix of the veins and in the silicified breccia areas.

### c. Geochemical Considerations:

The geochemistry profile as plotted on the property maps show a considerable high in lead and zinc around the rhyolite plug area, principally to the south of it. Three highs in nickel are shown along the line to the west of the rhyolite plug, two of which are in phase with the lead and zinc highs and the third one is out of phase, indicating that it may be on a basic dike. The lead highs are in the magnitude of 440 to 500 ppm, while the zinc highs are in the magnitude of 580 to 1200 ppm and are principally located running across on the south side and through the old Tonopah-Belmont adit.

### d. Geophysical Considerations:

As a result of the geochemistry and geology surveys conducted on the Tonopah-Belmont property, three induced polarization lines were thought needed as geophysical reconnaissance for the district and recommended as follows:

1. Line running for 4800 feet north  $80^{\circ}$  west through the portal of the old Tonopah-Belmont adit.
2. One line running north  $20^{\circ}$  west for 3000 feet crossing an area 150 feet east of the Tonopah-Belmont adit.
3. One 3000 foot long line north  $36^{\circ}$  east running over the Wonder claim area and through the Morning Star claim.

Number one and number two lines were run by Geonics, Inc. with apparent resistivities varied from approximately 150 ohm-meters to

## Tonopah-Belmont Mine Report - can't

1,000 ohm-meters. These variations are thought to be due to the different rock types in the area. The percent frequency effects are generally in the background range of 0% to 3% with only a few scattered readings of 3% or greater. Metal content figures are low because of the low frequency effect and the high resistivity. Results of the surveys on the two lines indicate that no appreciable concentrations of polarizable metallic sulfides were detected.

The third line was not completed, but should be run because it does cross an area that has shown more copper mineralization than either of the areas crossed by the other two lines.

### CONCLUSIONS

- a. Rhyolite intrudes older andesitic intrusives.
- b. A lead-zinc geochemical high is indicated over the brecciated andesite south of the portal to Tonopah-Belmont adit.
- c. Copper mineralization increases to south of Tonopah-Belmont on Morning Star claim and Wonder claims.
- d. The background of nickel content is higher than normal.
- e. An induced polarization work indicates low percent frequency effect in Tonopah-Belmont area.

### RECOMMENDATIONS

- a. Do a geochemical grid on 100 foot centers (2500' x 1000') on the south side of rhyolite plug over andesitic breccia.
- b. Complete the analysis of geochemical soil samples taken from starting point on the southwest corner of Section 36 and in the vicinity of the Tonopah-Belmont Mine and plot same.
- c. Negotiate lease on Wonder claims with Bodioga.
- d. If the geochemical samples on the grid and southwest corner line further delineates the geochemical lead-zinc-high, drill on the high to investigate source of same.

TONOPAH-BELMONT PROPERTY

Name of Claim	Date Located	Recorded		Name of Claim	Date Located	Recorded	
		Book	Page			Book	Page
Southern Cross	9-20-06	17	192	Mammoth	8-8-06	17	193
Climax	8-8-06	17	194	Copper Canyon	1-21-07	18	74
Dewey	1-1-07	18	76	President	1-1-07	18	78
Roosevelt	1-1-07	18	79	Uncle Sam	1-1-07	18	81
Washington #	1-1-07	18	82	Champion	4-3-07	18	525
	3-15-07	18	196	Silver	5-2-07	18	526
Copper Belt	4-1-07	18	527	Copper Cave	4-4-07	18	528
Alexander	4-25-07	18	529	Black Copper	6-12-07	19	165
Evening Star	6-4-07	19	166	Morning Star	6-26-07	19	165-166
McKinley	5-12-08	19	448	Julia	5-12-08	19	449
William Penn	3-10-14	22	215	Aetna No. 1	9-18-25	30	262
Jackson	9-18-25	30	263	Fraction	9-18-25	30	264
Lincoln	9-18-25	30	265	Coolidge	9-18-25	30	266
Contact	9-18-25	30	267	Harding	9-18-25	30	268
Blue Ridge	9-18-25	30	269	White Cap	9-18-25	30	270
Roadside	9-18-25	30	271	Oversight	9-18-25	30	272
Butte	9-18-25	30	273	Alta	9-18-25	30	274
Liberty	9-18-25	30	275	Polk	9-18-25	30	276
Madison	9-18-25	30	277	Big Ledge	9-18-25	30	278
Blue Ridge No. 1	12-12-25	30	422	Aetna No. 3	12-1-25	30	423
Aetna No. 4	12-1-25	30	424	Jefferson	12-12-25	30	425
Grant	12-31-25	30	426	Adams	12-31-25	30	427
Taft	12-31-25	30	428	Tonopah Belmont No.8		3741	156
Tonopah Belmont No.9		3741	157				
Tonopah Belmont Mill Site and					NOT MAPPED		
Water Well, Sec. 11, T3N, R7W.		3741	150	J. B. Placer	10-20-06	17	195
				Elmore	7-28-08	19	440
				Jane Elmore	7-28-08	19	441
				R. M. Todd	7-28-08	19	441
				Black Hill	3-20-15	22	434
				Aetna	9-18-25	30	261

## A P P E N D I X

### I. MAPS

- a. Property Map of Tonopah-Belmont ✓
- b. Geochemical Profile - Copper, Lead ✓
- c. Geochemical Profile - Zinc, Nickel ✓
- d. Geochemical Profile - Total Metal Content
- e. Geology Map - Harry E. Nelson
- f. Geophysical Profiles - (Geonics, Inc.) ✓
  - i. 2 IP Line Sections ✓
  - ii. 1 IP Line Location Plat ✓

### II. "NOTES on Tonopah-Belmont Mine Area, Maricopa County, Arizona" ✓ May 8, 1969 - Harry E. Nelson

### III. ASSAY RETURNS

- a. Geochemical Soil Samples - Arizona Testing Laboratory Analysis
- b. Nelson Samples - Arizona Testing Laboratory Analysis
- c. Wonder Mine Sample - Arizona Testing Laboratory Analysis

### IV. REPORT of GEOPHYSICAL SURVEY on the Tonopah-Belmont ✓ Property (Geonics, Inc.)

REPLY

Paige C. Francis  
Land Department

December 15, 1970

Law Offices  
Tognoni & Puch  
610 First National Bank Building  
Phoenix, Arizona 85004

RE: Tonopah-Belmont  
Property

Gentlemen:

Enclosed is all the data received from you concerning the Tonopah-Belmont Property.  
We have made copies of the data.

Very truly yours,

NUCLEAR DYNAMICS, INC.



Paige C. Francis  
Land Department

PCF/plw

Enclosures: Reports as listed 11-21-70

HALE C. TOGNONI  
WILLIAM K. STRONG  
S. EARL PUGH, JR.  
WILLIAM N. HACKENBRACHT

LAW OFFICES  
**TOGNONI & PUGH**  
610 FIRST NATIONAL BANK BUILDING  
PHOENIX, ARIZONA 85004

FREDERIC W. HEINEMAN  
COUNSEL  
TELEPHONE [602] 258-6481

November 21, 1970

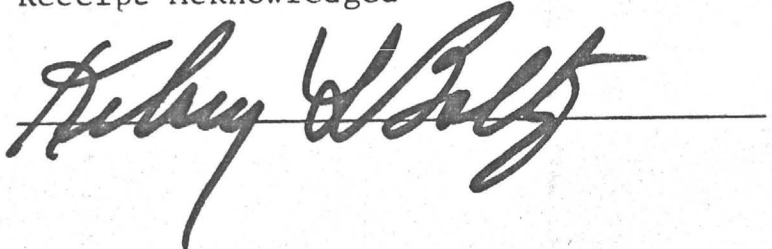
Re: Tonopah-Belmont Property

Received this date from Hale C. Tognoni the following items in connection with the Tonopah-Belmont Property:

- I. MAPS:
  - 1. Property Map of Tonopah-Belmont
  - 2. Geochemical Profile - Copper, Lead
  - 3. Geochemical Profile - Zinc, Nickel
  - 4. Geophysical Profiles - Geonics, Inc.
    - i. 2 IP Line Sections
    - ii. 1 IP Line Location Plot
- II. "NOTES on Tonopah-Belmont Mine Area, Maricopa County, Arizona", May 8, 1969 - Harry E. Nelson
- III. REPORT of GEOPHYSICAL SURVEY on the Tonopah-Belmont Property (Geonics, Inc.)

The above items to be returned to Tognoni & Pugh upon copying same.

Receipt Acknowledged

A handwritten signature in dark ink, appearing to read "Harry E. Nelson", is written over a horizontal line.

Dated: November 21, 1970



GEONICS, INC.

Mining Geophysics • Geology • Property Evaluation

9107 Wilshire Blvd., Gibraltar Square, Suite 810 • Beverly Hills, Calif. 90210

Mr. Hale C. Tognoni  
MINERAL ECONOMICS CORPORATION  
1525 W. Northern  
Phoenix, Arizona

SUBJECT: Report of Geophysical Surveys on the Tonopah-Belmont Property.

INTRODUCTION

An induced polarization survey was performed on the Tonopah-Belmont property by GEONICS, INC. during April and May, 1969. The property is located in Maricopa County, Arizona about 25 miles southwest of Wickenburg.

The induced polarization (IP) surveys were performed using dual-frequency equipment built by Geoscience, Inc. of Cambridge, Massachusetts. A somewhat modified pole-dipole configuration was used where the far current electrode for a given line remains stationary but the distance between the current electrodes is not considered to be infinity. The general equation for resistivity is used to compute the apparent resistivities rather than the standard pole-dipole equation. The data is plotted on a 45 degree diagonal from a point at a distance equal to half the potential dipole distance back from the near current electrode. This method is satisfactory for a reconnaissance survey to locate anomalous areas but care must be taken for precise interpretation. Both 600 foot and 1200 foot potential dipoles were used on all lines. The data taken at the 600 foot dipoles provides better resolution while the 1200 foot dipole readings were taken to get additional depth penetration. Frequencies of 3.0 and 0.1 cycles per second were used for all lines.


RESULTS

Two induced polarization lines were run as shown on the included line location plot. The results are shown on the included geophysical sections and include apparent resistivity sections and IP sections with both percent frequency effect (PFE) and metal conduction factor (MCF).

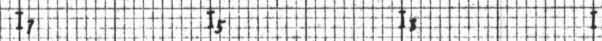
MINERAL ECONOMICS CORPORATION  
RE: Tonopah-Belmont Property  
page 2

The apparent resistivities vary from approximately 150 ohm-meters to 1,000 ohm-meters. These variations are due to the different rock types in the area. The PFE's are generally in the background range of 0 to 3 percent with only a few scattered readings of 3 percent or greater. The MCF's (a computed number proportional to PFE and inversely proportional to resistivity) are low because of the low PFE's and high resistivities. The results of the survey indicate that no appreciable concentrations of polarizable metallic sulfides were detected.

GEONICS, INC.

  
Brian L. Krogseng  
Vice President





MAY 1969 GEONICS, INC.



Handwritten notes on graph paper showing various fractions and numbers:

Top row:  $\frac{0.4}{2}$ ,  $\frac{1.1}{15}$ ,  $\frac{1.3}{10}$ ,  $\frac{3.1}{50}$ ,  $\frac{1.6}{15}$

Second row:  $\frac{0.7}{4}$ ,  $\frac{2.5}{8}$ ,  $\frac{1.1}{9}$ ,  $\frac{1.7}{10}$ ,  $\frac{0.4}{2}$ ,  $\frac{0.5}{1}$ ,  $\frac{2.2}{10}$

Third row:  $\frac{1.9}{13}$ ,  $\frac{1.7}{6}$ ,  $\frac{1.9}{12}$ ,  $\frac{1.9}{18}$ ,  $\frac{1.9}{10}$ ,  $\frac{1.6}{15}$

Fourth row:  $\frac{1.9}{8}$ ,  $\frac{3.7}{14}$ ,  $\frac{2.9}{3}$ ,  $\frac{1.7}{5}$ ,  $\frac{2.2}{14}$ ,  $\frac{NR}{1}$ ,  $\frac{1.6}{8}$

Fifth row:  $\frac{1.6}{3}$ ,  $\frac{2.5}{8}$ ,  $\frac{2.3}{11}$ ,  $\frac{2.2}{6}$ ,  $\frac{1.9}{5}$ ,  $\frac{2.5}{15}$ ,  $\frac{0.4}{8}$

1.9  
1

1.7  
2

2.2  
6

1.5  
9

2.2  
3

2.6  
4

2.2  
5

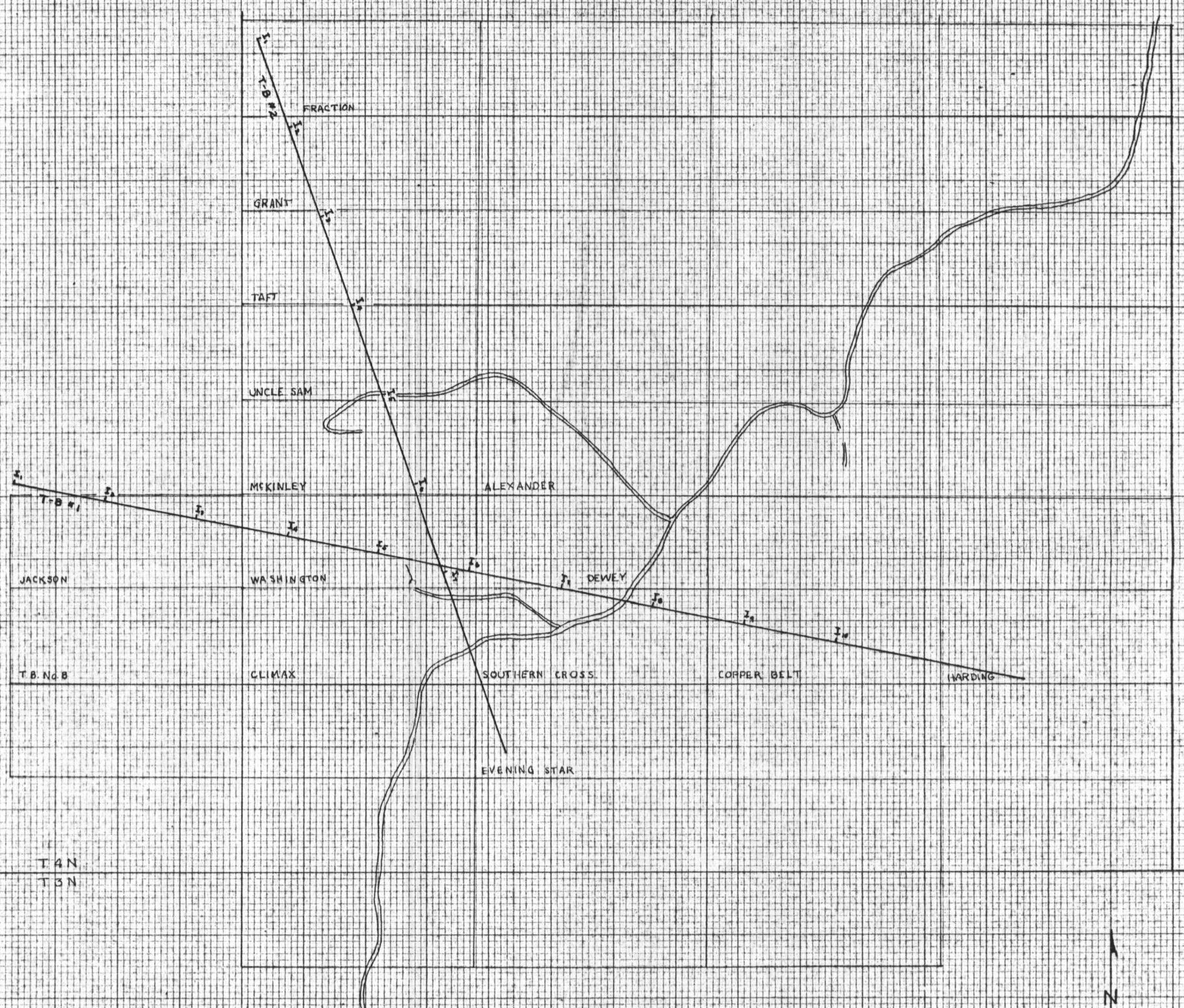
1.5  
8

1.1  
1

2.5  
3

1.8  
6





TONOPAH-BELMONT IP LOCATION PLOT  
MAY 1969 GEONICS INC.

SCALE 1" = 400'



580°E

TB-2

P<sub>a</sub> (OHM-METERS)

600' DIPOLES

	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	I <sub>6</sub>	I <sub>7</sub>	I <sub>8</sub>	I <sub>9</sub>	I <sub>10</sub>
		215	193	348	313	275	182	257	229	184
	212	189	311	445	416	280	285	337	243	182
		167	297	447	579	310	320	335	304	219
			272	452	583	426	404	386	297	251
				380	619	431	520	416	311	242
									241	322
										1334

INDUCED POLARIZATION SURVEY

TONOPAH - BELMONT

LINE TB-1

Scale: 1 inch = 600 Feet

Frequencies: 3 & 0.1 cps

May, 1969 GEONICS, INC.

P<sub>a</sub> (OHM-METERS)

1200' DIPOLES

	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	I <sub>6</sub>	I <sub>7</sub>	I <sub>8</sub>	I <sub>9</sub>	I <sub>10</sub>
		199		353		382		304		238
			324		572		422		278	279
				528		550		334		280
									1490	

PFE

MCF

600' DIPOLES

MCF CONTOURS

	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	I <sub>6</sub>	I <sub>7</sub>	I <sub>8</sub>	I <sub>9</sub>	I <sub>10</sub>
		1.3	0.8	0.6	1.3	1.0	1.1	1.0	1.6	1.1
	1.0	1.2	0.1	0.8	0.3	0.4	2.2	1.1	1.7	1.1
		1.3	1.0	1.0	1.3	1.8	0.6	1.6	2.2	1.7
			1.3	1.0	1.3	1.2	1.0	1.6	1.0	1.7
				1.3	1.3	1.2	1.0	1.6	1.0	1.7
					1.3	1.2	1.0	1.6	1.0	1.7
						1.3	1.2	1.0	1.6	1.7
							1.3	1.2	1.0	1.7
								1.3	1.2	1.7
									1.3	2.0

PFE

MCF

1200' DIPOLES

MCF CONTOURS

	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	I <sub>6</sub>	I <sub>7</sub>	I <sub>8</sub>	I <sub>9</sub>	I <sub>10</sub>



# WILSON P. ABRAHAM

## TONOPAH BELMONT MINE PROJECT

G.B.S.R.B.M. MARICOPA COUNTY, ARIZ.

Information from:

U.S. Quad. BELMONT MTS

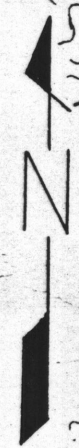
Compiled by: MINERAL ECONOMICS CORP.

HALE C. TOGNONI P.E. No. 2048

G.A. TOGNONI, cartographer

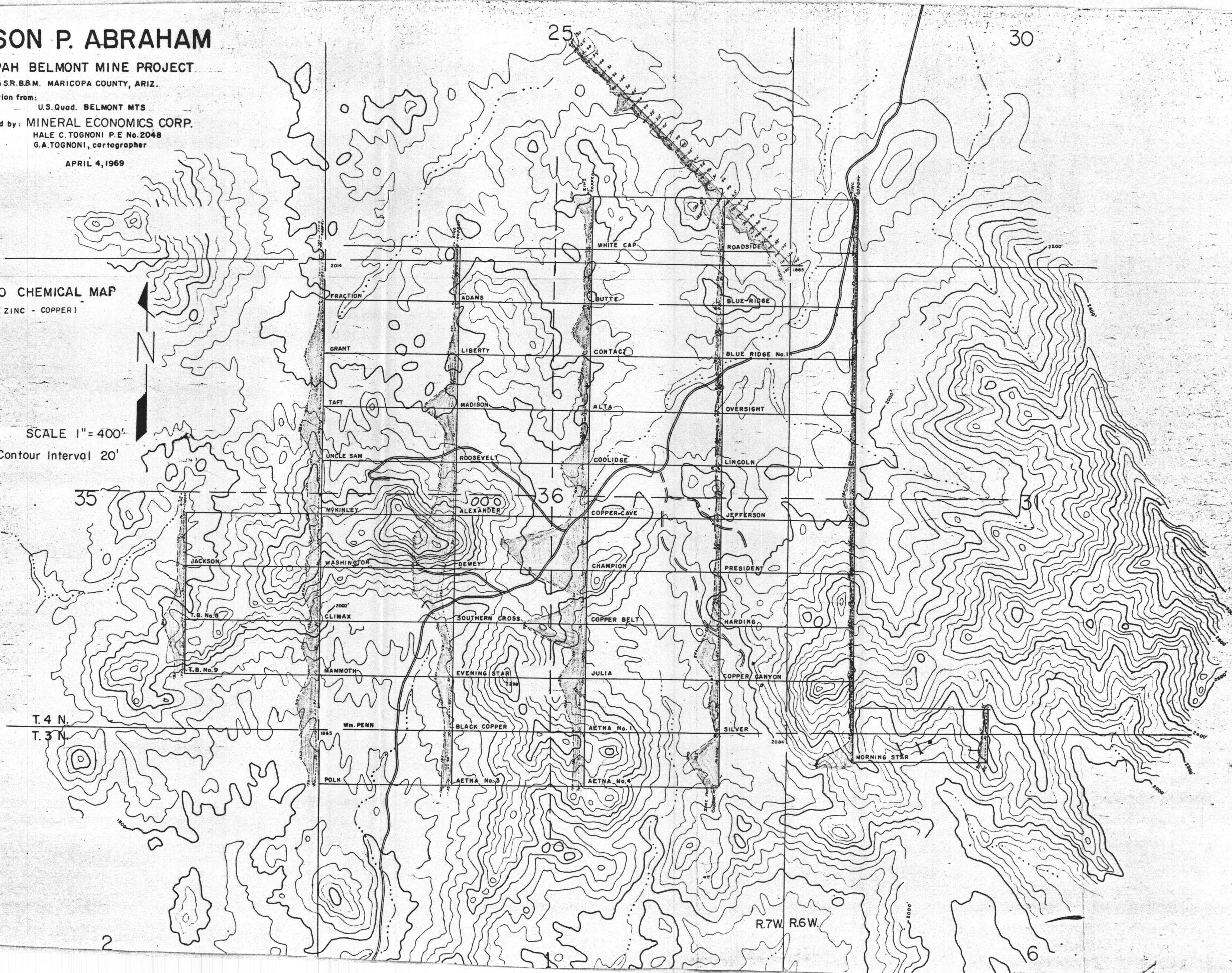
APRIL 4, 1969

### GEO CHEMICAL MAP (ZINC - COPPER)



SCALE 1" = 400'

Contour Interval 20'





# WILSON P. ABRAHAM

## TONOPAH BELMONT MINE PROJECT

G.B.S.R.B.M. MARICOPA COUNTY, ARIZ.

Information from: U.S. Quad. BELMONT MTS

Compiled by: MINERAL ECONOMICS CORP.  
HALE C. TOGNONI P.E. No. 2048  
G.A. TOGNONI, cartographer

APRIL 4, 1969

GEO CHEMICAL MAP  
(LEAD - NICKEL)

SCALE 1" = 400'  
Contour Interval 20'

T. 4 N.

T. 3 N.

R. 7W. R. 6W.