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REPORT ON THE ALTERED AREAS IN THE LOWER BLUE RIVER CANYON GREENLEE COUNTY, ARIZONA

BY:

RAYMOND F. ROBINSON
Consulting Geologist

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INTRODUCTION

The writer at the request of Mr. Kenneth Jones, Chief Geologist of the Essex International Company, Tucson, Arizona, has compiled some of the geologic data and recorded some geologic ideas and impressions that have been obtained from past work on some of the mineralized "windows" in the Tertiary Volcanic rocks at the Blue River, Greenlee County, Arizona. The area mainly considered here is the area located at the junction of the Blue River, Hobo and Maple Canyons.

LOCATION LAND HISTORY

The area is covered by about two hundred mining lode claims owned by the Stacy Brothers of Clifton, Arizona, who also own a ranch in the vicinity. The property lies north 30 East about twenty-two (22) airline miles from Morenci, Arizona. It is reached by Highway U.S. 666 from Clifton traveling north some twenty-two miles to the Blue River turnoff, about a mile north of the Juan Miller Forest Service campsite. Upon turning east on the Blue River turnoff, one travels easterly about twelve miles to the road junction with the Fritz ranch road from the north. The property lies about six miles north of that junction or three miles north of the Ranch. The road beyond the Ranch is merely a jeep trail and frequently obliterated by floods on the Blue River.

The Stacy Brothers have had the mining claims for years prior to 1963. They lie south of and partly within the Blue River Primitive area which is, and has been, open to mineral location. The Forest Service has on several occassions attempted to have the claims disqualified and have taken steps to inhibit exploration activity there and

elsewhere within the wilderness area unsuccessfully.

The property has been examined by several mining companies in the past including Bear Creek Mining Company, Phelps Dodge Corporation, Duval Corporation, Guggenheim Exploration Company, Humble Oil Company and W R. Roper. The U. S. Geological Survey examined the area also while making a general appraisal of the mineral potential of the Blue River Wilderness area in 1967. The area was also in dispute with the Phelps Dodge Corporation who staked over the existing claims in 1969 and did some of the drilling that has been done in the area. W. R. Roper drilled the first hole in the area in 1965 near the "breccia pipe" on the Blue River at Maple Canyon. Humble (Exxon) Co. drilled a hole about a mile south of Maple Canyon on the Blue River and were said to have reached the depth of 2,200 feet. W. R. Roper did the drilling on Rousenstock Creek. Phelps Dodge drilled at the junction of the Blue and Little Blue Rivers (1,300'?).

Other mining claims occur in the general region about the Blue River at present. However, when the writer was in the area in 1964, aside from the large group at the south boundary of the wilderness area, only the Pine claims owned by the Stacy Brothers on Rousenstock Creek were in existence. These claims later were overstaked by W. R. Roper.

In early 1964, the writer made a preliminary examination of the Blue River area for Bear Creek which covered Maple, Hobo, Parky, Horse Canyons as well as Rousenstock Creek and the Little Blue River. He recommended that the area about the junction of Maple, Hobo Canyons and the Blue River be geologically mapped, sampled, and possibly traversed with Induced Polarization equipment. In February 1964, the writer with

John Balla and David Blake carried out a reconnaissance mapping and sampling program which was followed up with a limited amount of Induced Polarization work in April 1964. The maps which have been supplied by Mr. Jones are copies of the writer's maps from the latter period. The writer has not yet been able to locate the sample data and notes from the preliminary work but the latter work augmented the impressions obtained at that time.

GEOLOGY

The area covered by the Bear Creek maps was considered to be an erosional window in the thick Tertiary basaltic to andesitic extrusive rocks consisting of flows, agglomerates, mud flows and tuffs which were post-sulfide mineralization and its associated hydrothermal alteration. The latter phenomena were confined to an older series of volcanic rocks, which consisted mainly of latite-dacite-rhyolite extrusives, mainly flows and tuffs. The thickness of the older formation is not know from the work in 1964 and the section was not specifically studied or measured. Numerous large dikes were found which cut the older formation but were not seen outside the window in the later basaltic rocks. These ranged from rhyolite to an andesite porphyry (possibly dacitic in part) which has characteristic color and texture and has been noted in numerous places in the pre-basalt rocks all along the front side (west) of the Gila Mountains and elsewhere. (Castle Rock - Wickenburg and Aguila areas.)

The tenative section of the older volcanic rocks is as shown on the geologic map. This was based upon a rapid reconnaissance of about a week's duration. It was judged that not over a thousand feet of the

older section was exposed but this was uncertain due to complication of faulting and flexuring.

The structure, as disclosed by mapping, faulting and shearing, was essentially another degree of the picture seen at Morenci or Safford and other disseminated deposits. In the window's older rocks, structural intersections occur which are dominated by northwest, northeast and east-west trends. The northwest trend appears to reflect the regional trend bending around the Mogollon Rim and the edge of the lower intermountain zone flanking it on the southwest. The northeast trend is the ubiquitous trend found in all the similarly mineralized areas of the state and which is usually strongly expressed in the porphyry copper deposits, particularly at Morenci and Safford. The east-west trend is the weakest of the three. It was supposed that the window was localized by a degree of doming and reoccurring fault activation initiated perhaps by a deeper intrusive and volcanic action suggested by the breccia pipe and other breccia structures (dikes?) noted in the window.

Hydrothermal alteration was widespread in the older rocks but only locally pervasive. The window also contained areas of fresh looking volcanic rocks. However, it was difficult to distinguish hydrothermal silicification from primary composition in the fine grained rocks. Propylitic alteration was abundant. Kaolinization and "bleaching" was particularly strong in the breccia, shear and fault zones and these appear to have been superimposed on propylitically altered rock at places. Possibly most of this latter type of alteration effect was due to the oxidation and leaching action of pyrite.(?)

Mineralization noted was for the most part pyritization which

was extremely fine grained and varied in concentration up to fifteen or twenty percent at places. It was most abundant in propylitically altered rock. At an area on Horse Canyon not identifiable on the maps, the writer found a silicified strong fault and dike zone which contained thick massive coating of black iridescent goethite which contained several percent zinc. The significance of this was not decided upon in the field and the intention was to return to the site and do detailed mapping. This site can easily be found again but the writer cannot spot the area on the present maps. While no copper sulfides were found at surface, some chrysacolla was found around the breccia pipe and sampled. At various places in the area an unusual green chlorite was noted that closely resembles malachite or chrysacolla for which it is often mistaken. It is widespread in the Tertiary volcanics of the region and investigation has shown it to be one of the chlorites. However fortuitous as it may be, this has been noted in the vicinity of copper mineralization both at Safford, here, and in the Duncan area.

The breccia pipe has been the subject of uncertainty and disagreement as to its actual identity and origin. It is associated with faulting that could be post-pipe in origin or causitive. Its geometry is that of an oblate steep sided entity with angular to sub-angular fragments, an autobreccia. It has been highly oxidized and formerly highly pyritized with little or no sulfide left in the outcrop. The soft matrix and fragments were however well coated with iron sulfate and occassionally blebs of chrysacolla were found. The writer still believes this is an expression of the "breccia pipe" features commonly associated with porphyry copper deposits. W. R. Roper attempted to diamond drill at the pipe in 1965 but had to abandon the work when the rods became stuck at

feet.

GEOPHYSICAL WORK

Bear Creek attempted to conduct I.P. surveys at Maple Canyon-Blue River in April 1964. A north-south line crossing Maple Canyon drainage along the east bank of the river was attempted and an east-west line across the Blue parallel to Maple Canyon was tried. Both surveys failed, probably because the generating unit was unable to project current beneath the extremely conductive wet surface and intensely pyritized rock at the sites tested. The work was abandoned with the intention of returning with a stronger generator but this was never accomplished while the writer was employed by Bear Creek. It would seem that an I. P. response would certainly have been obtained here unless the strongly mineralized rock was a thin stratigraphically controlled unit which might not be picked up by dipole spread designed to test greater depths for sulfide concentration. How useful the survey would be to the exploration problem was a matter of experimentation.

The magnetic features of the area are not strongly pronounced. However, the window does occur on the limb between a high to the southeast and a low to the northwest. This is the typical position of all the major deposits on the southwest and one which does not tend to narrow an exploration target to a desirable size.

GEOCHEMISTRY

Rock chip sampling of the window rocks and adjacent areas was also done during the February 1964 reconnaissance work. A grid sampling approach was not used although the density of the sampling roughly approximates one. Sampling was done for various reasons: specific sites of geologic interest, samples for background, altered versus unaltered

rock, dikes and wall rock, faults, shears, veinlets, etc. were sampled. It was hoped that a picture of mineral seepage might be developed. The results of this work is shown on the maps which Mr. Jones supplied the writer and which are the same as in his files. Essentially, the work showed a concentration of greatest metal values at the Blue River-Maple Canyon area. This could be considered to show a general channel way for up traveling metal bearing solutions from a buried source. Metal values of great intensity are lacking but perhaps on the order of magnitude that one would expect if the source is deeply buried.

At a later date, Mr. George Stacy did a widespread rock chip sampling program of his own, in part trying to develop a picture of silver distribution. His samples were assayed for him and the results of the work is shown on the sheet supplied by Mr. Jones containing samples 3951-1, etc. Only Mr. Stacy knows where these sample sites are located. He stated at one time that he had a map locating the sample sites. Mr. Stacy also sent in some samples from a rotary drill hole. The site of the hole is not known to the writer. The results are shown on the attached sheet which contains samples 3871-1 through 19 with the depths of the samples indicated. Sample 3872 is a spot sample taken by the writer at the Blue River breccia pipe where copper staining was observed. 3873 was a specimen sample of an intensely aluniti-zed-pyritized latite volcanic rock. 3874 was a specimen of an intensely silicified rhyolite from the window. From Eagle Creek: 3968 is a pebble dike in the upper Eagle Creek occurrence of the Stacy's. 3968-1 through 7 are samples taken on the Eagle Creek breccia pipe. Also shown are some x-ray scans on the rotary drill hole samples.

CONCLUSIONS

When one begins to scrutinize the categories of long range "long shot" exploration targets, the writer has always tended to be interested in this particular region. This area is envisioned as a possible typical surface expression of a disseminated sulfide, hopefully a porphyry copper, deposit in an intrusive located at some depth beneath its own volcanic debris. Depths are utterly speculative but as time has uncovered more and interesting data on the formation of these deposits, we find that they can form within a few thousand feet of depth instead of the many thousands as supposed twenty years ago. In fact, they may be forming in the island arc of the Pacific almost at the surface. However, I would suggest that in this area one would have to drill not less than three or four thousand feet to find geological data that would be helpful in interpreting its significance, mainly because of the results of drilling done at Turtle Mountain through the Basalts into the older intermediate volcanic rocks in 1957 or 1958.

While no age dating has been done on the Blue River-Maple Canyon site, similar rhyolitic rocks near Red Mountain sampled by the U.S. Geological Survey showed an age of only about twenty-three million years which is far later than ages for the other porphyry copper deposits in the area. At upper Eagle Creek, pebble dikes and breccia pipes occur concentrated in a relatively small area in the Gila conglomerate. These structures contain, at places, much visible copper oxide mineralization. A high gold content is also associated with one of the breccia pipes which has copper mineralization. A late weaker stage of mineralization in the Tertiary has been identified in the past in Arizona and

New Mexico which shows a relatively higher precious metal content to copper than the so called Laramide stage. It is difficult to decide if the mineralization evidenced at the present surface in the subject areas is in reality purely a late stage of the Tertiary mineralization or whether a late stage has plucked up some earlier copper mineralization at depth on its way toward the surface. It appears that some exploratory drilling will have to provide relevant answers.

Raymond F. Robinson

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

STACY - RFR Samples & Map

CERTIFICATE OF ASSAY

Special for Geol. Dept. (Geo-Chem & Assay)

July 22, 1965

BEAKER NOS.	MARKS, ETC.	SAMPLE GMS.	Cu PPM	Mo PPM	Au PPM	Ag PPM		
	EX-3968-1	Geo-Chem	61	Nil	Nil	Nil		
	2	"	67	Nil	Nil	Nil		
	3	"	50	Nil	Nil	Tr		
	4	"	+ 500	Nil	16.4	18.9		
	5	"	82	Nil	.5	Tr		
	6	"	+ 500	41	1.7	1.4		
	7	"	+ 500	Nil	27.8	82.2	NE Rim	
			% Cu	% Mo	% Pb	% Zn	Au oz/ton	Ag
	EX-3968 Pebble dike	Assay	1.64	Tr	.07	.02	.010	1.23

Stacy's Eagle Creek bronzite pipe RFR

FORM 311 O.S.

F.a.n.

BLUE RIVER PROSPECT. Ed Stacy
89 claims held at present 11-9-72
claims extend from first canyon
north of Horse Cy. to Jct. of Blue
& Little Blue Rivers, up Maple Cy.
a little way, up to cabin in
Horse Cy. ~~Sh~~ Th pasture area to
No. 5 NF of Cabin in Horse Cy.
is mineralized area.

Fritz & Partner (killed by Indians)
settled in 1880's at base line
near bx pipe on Blue River.

USGS workers:
Jim Rattè - reasonable, objective
now works for Standard Metals
Landis & Gaskill were anti-
mining.

DEAL

1) Front money $125 per each claim plus put in more claims - about 200 total

$$\begin{array}{r} 125 \\ \underline{89} \\ 1125 \\ \underline{990} \\ 11,0\text{22} \end{array}$$

2) 1 year no payments
3) Monthly payments to apply to final purchase price of $7 million paid over period of 5 to 10 years.

DH-1 drilled with Ropers drill cuttings not available, 200 ft ±, up to 1200 ppm Cu, ended in river.

DH-2 at 6X pipe ± 700 ft, fell a little short. Much FeS_2, up to 0.2 % Cu (spectrograph)

Geo Jim & Ed Stacey, plus brother in

law.

Ed Stacey
Box 1656 Clifton 85533

word out that PO has bought
EG Beth claims

58.4
39.9
18.5

39.9 Stacey Ranch
44.6 Blue River Crossing
46.1 XXX Ranch jct.
58.4 Highway 666

125
79
1125
875
9875

58.4
46.1
12.3

above Fritz Rch black hawk with
white band q' tail.

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
P.O. Box 50106, 1700 W. Grant Rd., Tucson, Arizona 85703

CERTIFICATE OF ANALYSIS

ITEM NO.	SAMPLE IDENTIFICATION	Au ppm		Cu ppm						
1	8007	<0.2		40						
2	8008	<0.2		120						
3	8009	<0.2		20						
4	8010	<0.2		50						
5	8011	<0.2		10						
6	8012	<0.2		25						
7	8013	<0.2		70						
8	8014	<0.2		40						
9	8015	<0.2		15						

Blue River Prospect
Greenlee County, Ariz.

TO:
Essex International, Inc.,
1704 West Grant Road
Tucson, Arizona 85705

Attn: Mr. Ken Jones

REMARKS:

Trace analysis

CERTIFIED BY:

ACCT.:	DATE REC'D:	DATE COMPL.:	
ESSEX INTERNATIONAL, INC.	6/29/73	7/5/73	347541

SKYLINE LABS, INC.

Hawley & Hawley, Assayers and Chemists Division
P.O. Box 50106 • 1700 West Grant Road
Tucson, Arizona 85703
(602) 622-4836

INVOICE

INVOICE NO.:
JOB NO.: 347541
P.O. NO.:

SOLD TO: Essex International, Inc.
1704 West Grant Road
Tucson, Arizona 85705

Attn: Mr. Ken Jones

DATE: July 5, 1973

TERMS: NET 30 DAYS

9 Silver (.2ppm) trace analysis @ $1.50.....	$13.50
9 Copper, trace analysis @ $1.00.....	9.00
Sub total	$22.50
9 Samples crushed, split and pulverized @ $0.75.....	$ 6.75
TOTAL	$29.25

Blue River Prospect
Greenlee County, Ariz

This is a memorandum of charges.
A Statement will be rendered at
the end of the Month.

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
P.O. Box 50106, 1700 W. Grant Rd., Tucson, Arizona 85703

CERTIFICATE OF ANALYSIS

ITEM NO.	SAMPLE IDENTIFICATION	Au ppm		Cu ppm						
1	8007	<0.2		40						
2	8008	<0.2		120						
3	8009	<0.2		20						
4	8010	<0.2		50						
5	8011	<0.2		10						
6	8012	<0.2		25						
7	8013	<0.2		70						
8	8014	<0.2		40						
9	8015	<0.2		15						

Blue Rain Prospect Area
Greenlee County.

TO:
Essex International, Inc.,
1704 West Grant Road
Tucson, Arizona 85705

Attn: Mr. Ken Jones

REMARKS:

Trace analysis

CERTIFIED BY:

REGISTERED ASSAYER

ACCT.:	DATE REC'D:	DATE COMPL.:	
ESSEX INTERNATIONAL, INC.	6/29/73	7/5/73	347541

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
P.O. Box 50106, 1700 W. Grant Rd., Tucson, Arizona 85703

CERTIFICATE OF ANALYSIS

ITEM NO.	SAMPLE IDENTIFICATION	Au ppm		Cu ppm						
1	8007	<0.2		40						
2	8008	<0.2		120						
3	8009	<0.2		20						
4	8010	<0.2		50						
5	8011	<0.2		10						
6	8012	<0.2		25						
7	8013	<0.2		70						
8	8014	<0.2		40						
9	8015	<0.2		15						

Blue River Prospect Ariz.
Greenlee County,

REGISTERED ASSAYER
CERTIFICATE NO.
6784
H/E.
RICHARD
Signed
ARIZONA U.S.A.

TO:
Essex International, Inc.,
1704 West Grant Road
Tucson, Arizona 85705

Attn: Mr. Ken Jones

REMARKS:
Trace analysis

CERTIFIED BY:

ACCT.:	DATE REC'D:	DATE COMPL.:	
ESSEX INTERNATIONAL, INC.	6/29/73	7/5/73	347541

RAYMOND F. ROBINSON, INC.

exploration/mining geologist

Raymond F. Robinson
180 West Laramie Drive
Reno, Nevada 89502
(702) 849-0820 (702) 329-8712

April 18, 1973

SXM

APR 20 1973

RECEIVED

Mr. Kenneth Jones, Chief Geologist
Essex International Inc.
1704 West Grant Road
Tucson, Arizona 85705

Dear Ken:

I enclose the report I have been able to put together with all available data and some of my ideas and impressions. Unfortunately, I have not yet been able to find my sketch maps and samples of the first trip in for Bear Creek. I do have these someplace but I do not believe they would change anything at this time. I would like to find the Kennecott Research Center data on three samples which were alteration studies. When I moved out of Holt Incorporated offices a few years ago, I had to push things in nooks and crannies at home. I shall keep looking.

I have a few more sample data which I included on copies outside the report. I had x-ray scans on many of these but most of them showed little of interest. I have copied those that had some information of possible interest.

I will look forward to the field trip whenever the run-off eases up.

Give my best regards to the gang.

Very truly yours,

Ray

RAYMOND F. ROBINSON

RFR/ls
Enclosure

MEMORANDUM ON
THE BLUE RIVER PROSPECT
GREENLEE COUNTY, ARIZONA

The Blue River prospect, consisting of 89 unpatented mining claims on the edge of the Blue Range Primitive Area in Greenlee County, Arizona, is owned by George, James, and Edward Stacy and Fred Eppinger. Spokesman for the group is Edward Stacy, P.O. Box 1656, Clifton, Arizona, 85533. Stacy's initial proposal for a deal involves a down payment of $125 per claim or $9,875. This proposed deal would also commit Essex to locate additional claims so the group would consist of about 200 claims or about 4000 acres. Starting at the end of one year would be an as yet unspecified monthly payment which would apply to a final purchase price of $7 million to be paid over a period of 5 to 10 years.

The owners have either not received or have lost nearly all records pertaining to development, although more than 1,000 samples are known to have been taken and two drill holes 200 and 700 feet deep have been drilled. The area is described in USGS Bulletin 1261-E, "Mineral Resources of the Blue Range Primitive Area, Greenlee County, Arizona and Catron County, New Mexico," in which the statement is made "Although the anomalous metal values are low and their distribution does not define a precise exploration target, they do suggest the possibility of ore bodies at depth beneath the altered rocks." Thorough examinations are reported to have been made by Ray Robinson of Bear Creek Mining Company who spent 2 to 3 months in the area in 1963 and by G.A. Barber of The Anaconda Company who mapped and sampled for 5 to 6 weeks in 1962.

Robinson, known to be a competent exploration geologist, is said to have recommended the property, but was overruled. In November 1969 Phelps-Dodge Corporation located an estimated 200 mining claims over the Stacy claims and moved a drill on to do validation work. One hole is reported to have reached a depth of 1200 feet. The Stacy group retained an attorney, Howard Twitty of Phoenix, and in January 1972 forced Phelps-Dodge to relinquish their claims. Phelps-Dodge is holding claims about 8 miles to the north nearly in the center of the Primitive Area, and has recently requested permission to build roads, drill sites, and conduct additional drilling operations in the vicinity of Oak Creek about 6 miles northwesterly from the Stacy claims.

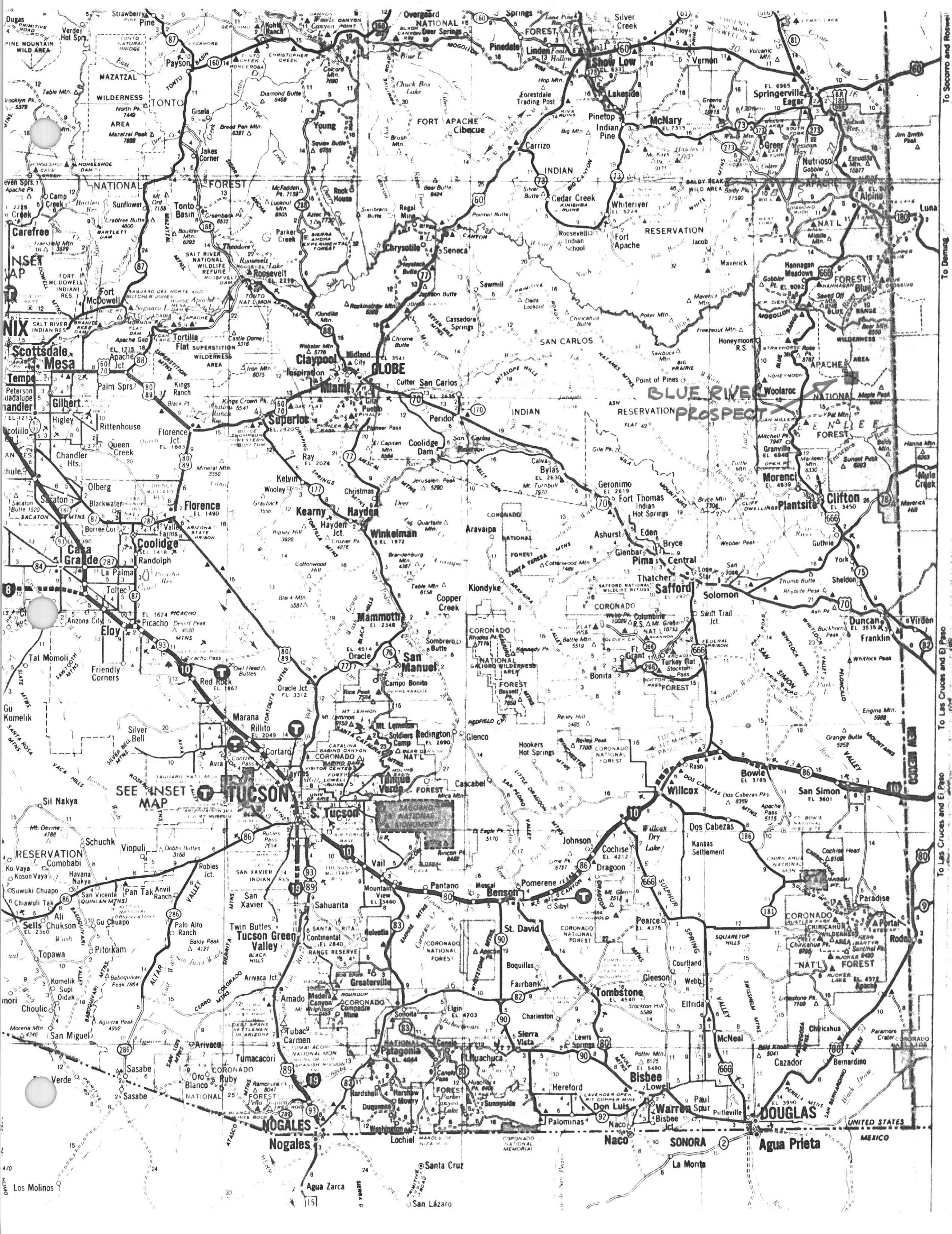
The prospect is reached by driving 24 miles north from Clifton on Highway 666, then easterly 12 miles on a graded dirt road, then northerly 3 miles to the Fritz Ranch, then northerly 3 miles on an unimproved road which crosses the Blue River at 11 places. During occasional periods of high water, most commonly in late summer and during some winter storms, the road in the river is impassible. Because of unusually severe fall and winter storms, three separate attempts to spend several days mapping and sampling the property have failed.

Exposed in the walls of the Blue River Canyon and in tributaries of Horse Canyon, Maple Canyon, and Hobo Canyon are several square miles of clay altered and iron stained volcanic flows and intrusives. These volcanic rocks have been age dated by radiometric methods as 23.4 to 37.4 million years which is younger than any porphyry copper deposit known in Arizona. The Morenci deposit 20 miles to the south has been dated as 55 million years old; however, the disseminated molybdenum deposit at Questa, New Mexico, is 22 to 23 million years old. Further, alteration in the Blue River area is reported to be associated with a caldera structure and with an intrusive-extrusive dome complex, features which are thought to be related to formation of mineral deposits in some instances. Geochemical sampling by the USGS indicates spotty but locally anomalous values in copper and other metallic elements. Stacy reports samples containing as much as 1% copper, but these were selected specimens of very strong hematite or visible oxide copper minerals. Pyrite is reported from scattered surface localities and from drill cuttings.

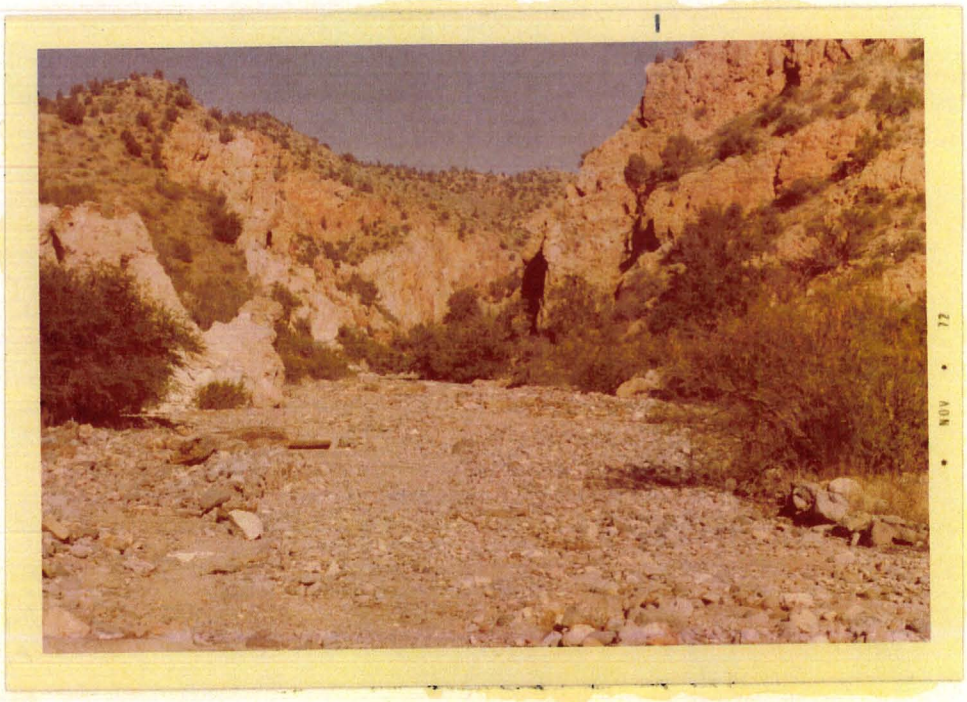
Five to ten field days are necessary to adequately evaluate this property. It probably is not the leached surface expression of a porphyry copper deposit, but could represent an alteration halo vertically above an ore deposit. Some problems with the U.S. Forest Service could be expected if an extensive exploration program were planned, as some roads and drill sites would have to be built within the boundaries of the Primitive area.

J. K. Jones

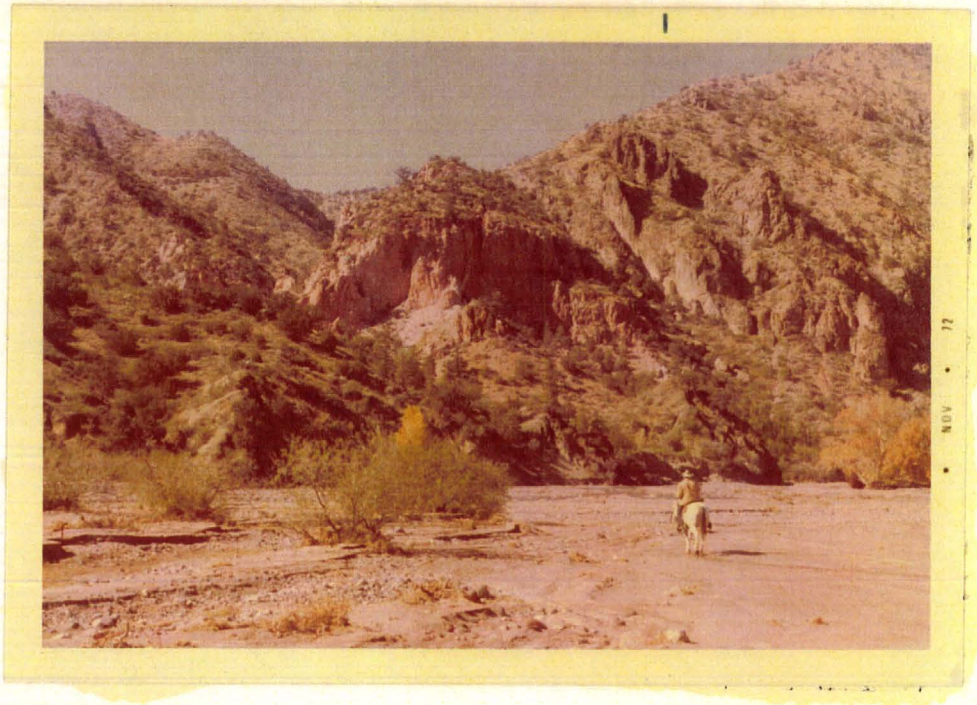
December 29, 1972



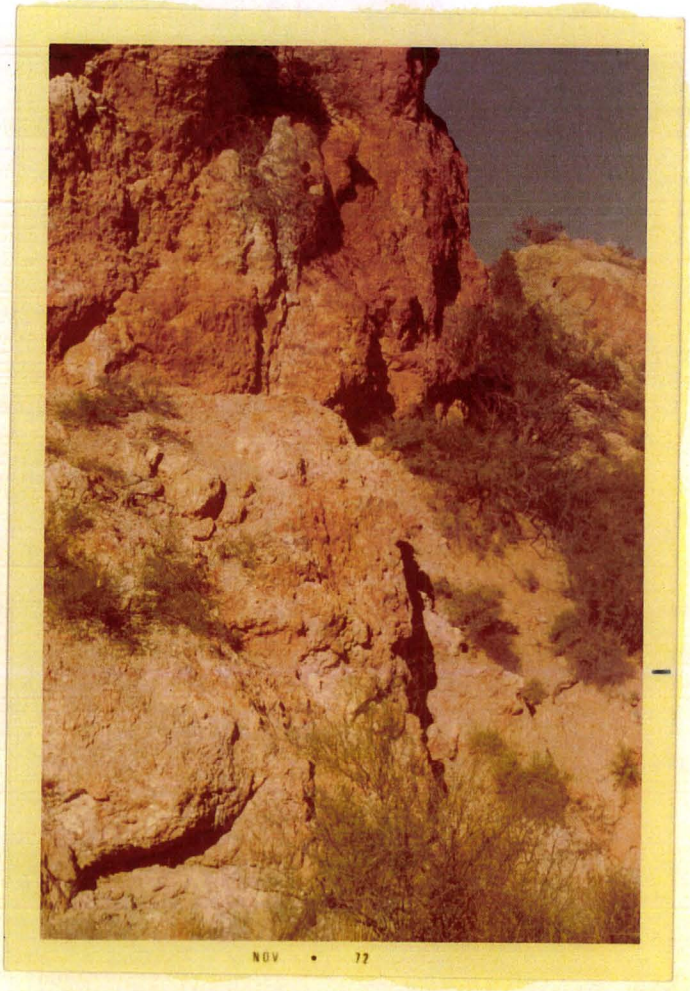
BLUE RIVER PROSPECT
Strawberry
Pine
Payson
Overgaard
Show Low
Pinedale
Linden
Silver Creek
Lakeside
Pinetop
McNary
Vernon
Springerville
Eagar
Greer
Nutrioso
Alpine
Luna
MAZATZAL WILDERNESS AREA
TONTO
NATIONAL
FOREST
Young
FORT APACHE
Cibecue
Carrizo
INDIAN
Cedar Creek
Whiteriver
Fort Apache
RESERVATION
Maverick
Hannagan Meadows
Blue
APACHE
NATIONAL
FOREST
Carefree
Fort McDowell
Scottsdale
Mesa
Tempe
Chandler
Gilbert
Higley
Tonto Basin
Roosevelt
Chrysotile
Seneca
Young
Claypool
Miami
GLOBE
San Carlos
Peridot
SAN CARLOS
INDIAN
RESERVATION
Point of Pines
Woolaroc
Morenci
Clifton
Plantsite
Superior
Florence
Queen Creek
Chandler Hts.
Coolidge
Coolidge Dam
Ray
Kearny
Hayden
Winkelman
Kelvin
Christmas
Bylas
Geronimo
Fort Thomas
Eden
Bryce
Pima
Central
Thatcher
Safford
Solomon
Duncan
Franklin
Virden
York
Sheldon
Guthrie
Casa Grande
Eloy
Picacho
Red Rock
Marana
Rillito
Cortaro
Mammoth
Oracle
San Manuel
Klondyke
Aravaipa
Bonita
Willcox
Bowie
San Simon
TUCSON
S. Tucson
SEE INSET MAP
Vail
Pantano
Benson
Cascabel
Redington
Dragoon
Cochise
Pearce
Sells
Three Points
Sahuarita
Continental
Green Valley
Amado
Tubac
Carmen
Arivaca
Sasabe
Tumacacori
Elgin
Sonoita
Patagonia
Ft. Huachuca
Sierra Vista
Tombstone
St. David
Bisbee
Lowell
Warren
Naco
Douglas
Pirtleville
Agua Prieta
NOGALES
Nogales
Lochiel
Hereford
Palominas
McNeal
Elfrida
Portal
Rodeo
Paradise
Cazador
UNITED STATES
MEXICO
SONORA
NEW MEXICO
To Socorro and Roswell
To Deming
To Las Cruces and El Paso



Looking east at
altered, stained volcanics exposed in mouth of Maple Canyon



Looking west at
"breccia pipe" opposite mouth of Maple Canyon



Close up view of "breccia pipe" looking northerly.

Detail of hematite-geothite stain in "breccia pipe"

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

Special for Geological Department (M.T.) 3/25/65

MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
Ex 3871-1	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba		✓				
	SR			✓			
	Rb		✓				

FORM 351

Note: All figures are estimates.

E

Ex 3871-3	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba		✓				
	SR			✓			
	Rb		✓				

FORM 351

Note: All figures are estimates.

F.

Ex 3871-4	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba			✓			
	SR			✓			

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

Special for Geological Department (M.T.) 3/25/65

	MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
	Ex 3871-6	Cu		✓				
		Mo	✓					
		Pb	✓					
		Zn		✓				
	(oz./ton)	Ag	✓					
		Ba		✓				
		Sr			✓			

FORM 351

Note: All figures are estimates.

	Ex 3871-5	Cu		✓				
		Mo	✓					
		Pb	✓					
		Zn		✓				
	(oz./ton)	Ag	✓					
		Ba			✓			
		Sr				✓		

FORM 351

Note: All figures are estimates.

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

Special for Geological Department

3/25/65

	MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
	Ex 3871-14	Cu		✓				
		Mo	✓					
		Pb	✓					
		Zn		✓				
	(oz./ton)	Ag	✓					
		Ba		✓				
		Sr			✓			
		Rb		✓				

FORM 351

Note: All figures are estimates.

H

	Ex 3871-19	Cu		✓				
		Mo	✓					
		Pb	✓					
		Zn		✓				
	(oz./ton)	Ag	✓					
		Ba		✓				
		Sr			✓			

FORM 351

Note: All figures are estimates.

H

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

Special for Geological Department (M.T.) 3/25/65

MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
Ex 3873	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba		✓				
	Sr			✓			
	Rb		✓				

FORM 351

Note: All figures are estimates.

Ex 3872	Cu				.96		
	Mo	✓					
	Pb	✓					
	Zn	✓					
(oz./ton)	Ag	✓					
	Ba			✓			
	Sr				✓		

FORM 351

Note: All figures are estimates.

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

Special for Geological Department

6/25/15

	MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
	Ex 3951-6	Cu		✓				
		Mo	✓					
		Pb	✓					
		Zn	✓					
	(oz./ton)	Ag	✓					
		Sr		✓				
		Rb		✓				

FORM 351

Note: All figures are estimates.

	Ex 3951-6A	Cu		.04				
		Mo	✓					
		Pb	✓					
		Zn	✓					
	(oz./ton)	Ag	✓					
		Ba		✓				
		Sr		✓				
		Rb		✓				
		Zn		✓				

FORM 351

Note: All figures are estimates.

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

Special for Geological Department

6/25/65

MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
Ex 3951-8	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba		✓				
	Sr		✓				
	Zr		✓				
	Ni		✓				
	Co		✓				

FORM 351

Note: All figures are estimates.

4

Ex 3951-9	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn	✓					
(oz./ton)	Ag	✓					
	Sr			✓			

FORM 351

Note: All figures are estimates.

4

Ex 3951-12 B	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn	✓					
(oz./ton)	Ag	✓					
	Ba		✓				
	Sr			✓			

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

Special for Geological Department

6/25/65

MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
Ex 3951-18	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn	✓					
(oz./ton)	Ag	✓					
	Zr		✓				

FORM 351

Note: All figures are estimates.

MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
Ex 3951-23	Cu		.05				
	Mo		.006				
	Pb		.06				
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba		✓				
	Zr			✓			
	Sr		✓				
	As		✓				

FORM 351

Note: All figures are estimates.

Ex 3951-25	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba		✓				
	Sr			✓			
	Rb		✓				

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

6/29/65

Special for Geological Department

MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
Ex 3957-36	Cu		.02				
	Mo	✓					
	Pb		✓				
	Zn	✓					
(oz./ton)	Ag	✓					
	Ba		✓				
	Zr		✓				
	Sr		✓				

FORM 351

Note: All figures are estimates.

Ex 3957-34	Cu					3.3	
	Mo		.002				
	Pb		✓				
	Zn		✓				
(oz./ton)	Ag		✓				
	Sb		✓				
	Sn		✓				
	As		✓				
	Bi		✓				

FORM 351

Note: All figures are estimates.

Ex 3957-33	Cu			+.10			
	Mo		.005				
	Pb		✓				
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba		✓				
	Sr		✓				
	Zr		✓				
	Rb		✓				

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

Special for Geological Department

6/25/65

	MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
	Ex 3952 - 4	Cu		✓				
		Mo	✓					
		Pb	✓					
		Zn		✓				
	(oz./ton)	Ag	✓					
		Ba		✓				
		Sr			✓			
		Rb		✓	✓			

FORM 351

Note: All figures are estimates.

	Ex 3952 - 5	Cu		✓				
		Mo		.003				
		Pb	✓					
		Zn	✓					
	(oz./ton)	Ag	✓					
		Ba			✓			
		Sr			✓			

Stain on qtz ck breccia like

FORM 351

Note: All figures are estimates.

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

X-RAY LONG SCAN

6/25/65

Special for Geological Department

MARKS, ETC.		NIL	TRACE	.1-.5	.5-1.	over 1.0%	Remarks:
Ex 3952-1, Stacy Coyote Creek Breccia Pipe	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn		✓				
(oz./ton)	Ag	✓					
3952-1-5 Taken by Geo. Stacy	Ba		✓				
	Sr			✓			

FORM 351

Note: All figures are estimates.

Ex 3952-2	Cu		.06				
	Mo		.005				
	Pb		✓				
	Zn		✓				
(oz./ton)	Ag	✓					
	Ba			✓			
	Sr			✓			
	Ni			✓			
	Mn				✓		

FORM 351

Note: All figures are estimates.

Ex 3952-3	Cu		✓				
	Mo	✓					
	Pb	✓					
	Zn	✓					
(oz./ton)	Ag	✓					
	Ba		✓				
	Sr			✓			

)(DUVAL CORPORATION
COPPER DIVISION — ESPERANZA PROPERTY
SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

Barstow Geo-Chem Samples

March 26, 1965

BEAKER NOS.	MARKS, ETC.	SAMPLE GMS.	Cu PPM	Zn PPM	Mo PPM	Ag PPM		
	EX-3866		675	4	19	.4		
	3867		200	13	23	.3		
	3868		220	14	22	.2		
	3869		107500	49	204	25.4		
	3870		108	6	15	0		
	3872 Mineralized Breccia Pipe Rx		10350	5	21	2.1	Stacy	Bros. Blue River
DDH core	3873 Pyrite-Alunite in bottle		34	46	13	.3	"	" " "
? Locality	3874 Silicified rhyolite		37	30	9	.2	"	" " "
DDH Cuttings	3871-1 @ -220'	220-230'	76	45	15	.3	STACY	Bros Blue River
"	" 2	370-380	56	38	14	.3		
"	" 3	400-410	51	36	9	.3		
"	" 4	420-430	51	42 38	9	.3		
"	" 5	440-450	52	48	17	.5		
"	" 6	500-510	47	44	16	.9		
"	" 7	510-520	50	46	11	.4		
"	" 8	540-550	123	32	11	.4		
"	" 9	560-570	79	40	13	.4		
"	" 10	580-590	65	43	10	.4		
"	" 11	600-610	63	54	11	.4		
"	" 12	620-630	62	64	11	.4		
"	" 13	640-650	61	51	11	.4		
"	" 14	650-660	75	53	11	.4		
"	" 15	670-680	65	44	13	.4		
"	" 16	690-700	61	54	11	.4		
"	" 17	710-720	50	50	8	.4		
"	" 18	730-740	53	43	8	.4		
"	" 19 Bottom	750-760'	63	52	8	.4		

FORM 311 M.L.

A.B

DUVAL CORPORATION

PPER DIVISION — ESPERANZA PROPE

SAHUARITA, ARIZONA

Stacy - RFR Samples Map

CERTIFICATE OF ASSAY

Special for Geol. Dept. (Geo-Chem & Assay)

July 22, 1965

BEAKER NOS.	MARKS, ETC.	SAMPLE	Cu	Mo	Au	Ag		
		GMS.	PPM	PPM	PPM	PPM		
	EX-3968-1	Geo-Chem	61	Nil	Nil	Nil		
Stacy Eagle Cache Breccia pipe RFR	2	"	67	Nil	Nil	Nil		
	3	"	50	Nil	Nil	Tr		
	4	"	+ 500	Nil	16.4	18.9		
	5	"	82	Nil	.5	Tr		
	6	"	+ 500	41	1.7	1.4		
	7	"	+ 500	Nil	27.8	82.2	NE Rim	
			% Cu	% Mo	% Pb	% Zn	Au oz/ton	Ag
	EX-3968 Pebble dike	Assay	1.64	Tr	.07	.02	.010	1.23

FORM 311 O.S.

P.O.D

6

DUVAL CORPORATION

CO. PER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

June 25, 1965

Barstow Geo-chem

BEAKER NOS.	MARKS, ETC.	SAMPLE GMS.	Cu PPM	Pb PPM	Mo PPM	Zn PPM	Au PPM	Ag PPM
	3953-23A Rea Ag Prosp.		30	6	6	8	Nil	Nil
	3950 " "		17	81	Nil	100	Tr	2.3
	3951-6 Stacy - Blue River		65	12	11	20	Nil	Nil
1st Guess	7		43	16	11	25	Nil	Nil
3951 Series	8		45	15	Nil	53	Nil	Nil
Drill cuttings?	9		46	2	Nil	4	Nil	Nil
sent in by Stacy	10		22	6	Nil	5	Nil	Nil
Location?	11		27	5	Tr	4	Nil	Nil
Probably Rogers	12		42	43	Nil	25	Nil	Nil
drill hole at	12 ?		800	16	26	24	Nil	Nil
Pipe. Numbers on	12 A		21	11	Nil	5	Nil	Nil
some bags were	12 B		10	12	14	6	Nil	Nil
duplicated by	13		20	23	Nil	13	Nil	Nil
Stacy - ?	14		7	13	Nil	5	Nil	Nil
	14 A		41	9	Tr	13	Nil	Nil
	14 B		100	12	Nil	17	Nil	Nil
apparently	15 these are random		31	12	Nil	8	Nil	Trace
Rock	16 Samples taken by		46	15	Nil	13	Nil	Nil
Geology over	17 the total property		13	18	Nil	7	Nil	Trace
locations	18 not determined		26	15	Nil	7	Nil	Trace
+ not drill	19 cuttings		32	31	Nil	95	Nil	.5
	20		+1000	20	Nil	12	.10	Nil
	22		75	11	Nil	120	Nil	.3
	24A		30	30	11	5	.15	Nil
	24		13	12	Nil	3	Nil	.3
	25		38	9	Trace	82	Nil	.3
	26		11	25	Nil	12	Nil	1.5
	26 A		9	12	Nil	6	Nil	.6
	27		12	22	Nil	8	Nil	.5
	28		130	28	Nil	190	Nil	.8
	29		42	27	Nil	17	Nil	.8
	30 A		19	20	26	7	Nil	.8
	31		105	28	Nil	130	Nil	.8
FORM 311 M.L.	30		155	85	Nil	10	.15	Nil

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

1% = .0292 ppm

CERTIFICATE OF ASSAY

June 25, 1965

Barstow Geo-chem

BEAKER NOS.	MARKS, ETC.	SAMPLE GMS.	Cu PPM	Pb PPM	Mo PPM	Zn PPM	Au PPM	Ag PPM
	3951-32		41	26	Nil	125	Nil	.6
	(33) 33		+1000	25	50	46	.15	.9 (48)
	3952-1 "Paper bag" Samples Blue Rv.		67	11	Nil	15	Nil	.3
	Same as 3951 2		600	25	52	170	Nil	.3
	series 3		20	14	Nil	11	Tr	.2
	4		29	10	Nil	66	Tr	.2
	(5)?		20	13	3	6	.20	30.7 (18?)

12

3.07 21

.024

.63

27.4

614.03

89

.2000

.009

18.000

-11

First sample from Eagle Creek, 33,000 Cu.

Factor % = PPM x .0292

~~.0292~~

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

Geo. Chem. Samples (Barstow)

June 17, 1965

BEAKER NOS.	MARKS, ETC.	SAMPLE GMS.	Pb PPM	Cu PPM	Zn PPM	Mo PPM	Au PPM	Ag PPM
Payson Ariz	3923-20 - Frenchie Mine		19	441	40	Nil	Nil	.5
	3951-6A Stacy Blue Ruv.		9	404	11	Nil	.05	.4
3951 Series	23 "		628	509	15	67	Nil	.7
	34 " (rich) "		210	33,000	49	23	28.7	77.6

Maybe from Eagle Creek Breccia pipe

BLUE RIVER PROSPECT EXPLORATION PROPOSAL

1. Preliminary geologic investigation (10 days)
2. Down Payment (July or August) $ 9875.00
3. Claim surveying, checking, location
4. Assessment work - road construction 4000.00
   drilling 2000 ft @ 7.50 15,000.00
   August, Sept.

STACY PROPOSITION

1. FRONT MONEY $9875.00
2. LOCATE 111 ADDITIONAL CLAIMS
3. AT END OF 1 YEAR MONTHLY PAYMENT
4. FINAL PURCHASE PRICE $7 MILLION TO BE PAID FROM YEAR 5 OVER PERIOD OF 5 to 10 YEARS

ESSEX PROPOSAL #1

1. NO FRONT MONEY
2. LOCATE ADDITIONAL CLAIMS IF ESSEX THINKS NECESSARY
3. AT END OF 1 YEAR PAYMENTS OF PER MONTH
4. ESSEX WILL CONDUCT MAPPING, AND DRILL HOLE TO SATISFY ASSESSMENT WORK ~~DURING~~ BEFORE SEPT. ~~1972~~ 1973
5. IF ESSEX ELECTS TO PURCHASE AT END OF ~~5 YE.~~
   a. 5 YEARS $1,000,000
   b. 10 YEARS 2,000,000
   c. 15 YEARS 5,000,000

ESSEX PROPOSAL #2

1. FRONT MONEY $9875.00
2. Same
3. same
4. Same
5.
   a) 5 YEARS $500,000
   b) 10 YEARS 1,000,000
   c) 15 YEARS 2,000,000

2200
750
2000
15000

COUNTY:	COUNTRY:	STATE:	NAME OF PROPERTY:
GREENLEE	U.S.A	Az.	BLUE RIVER PROSPECT

DISTRICT OR AREA:	METALS:	ACCOUNT NUMBER:	NUMBER:
	Cu, Mo		

GENERAL DESCRIPTION:
large clay altered, Fe stained zone in quartz latite & rhyolite volcanics 23.4 million years old.

EXAMINED BY:

DATE:

BRIEFED BY:

DATE:

STATUS:

TYPE OF DEPOSIT:

GEOLOGY

LOCATION:

ELEVATION:

LAT: LONG:

ACCESS:

DEVELOPMENT:

MINERALIZATION:

PROPERTY & OWNERSHIP:
Ed Stacey, Clifton, Az. (864-4362)

GEOPHYSICS:

AERIAL PHOTOGRAPHS:

GEOCHEMISTRY:

TOPOGRAPHIC MAPS:
FRITZ CANYON and DUTCH BLUE CREEK 1:24,000

MAPS & REPORTS:

MINERAL PROSPECT DEPOSIT DATA SHEET

ESSEX INTERNATIONAL, INC.
1704 WEST GRANT RD., TUCSON, ARIZONA 85705
PHONE (602) 624-7421

BY:

DATE:

NAME OF PROPERTY:	NUMBER:

REFERENCES:

PRODUCTION & RESERVES	SAMPLES:
METALLURGY:	ENGINEERING:
FACILITIES:	EXPLORATION POSSIBILITIES:

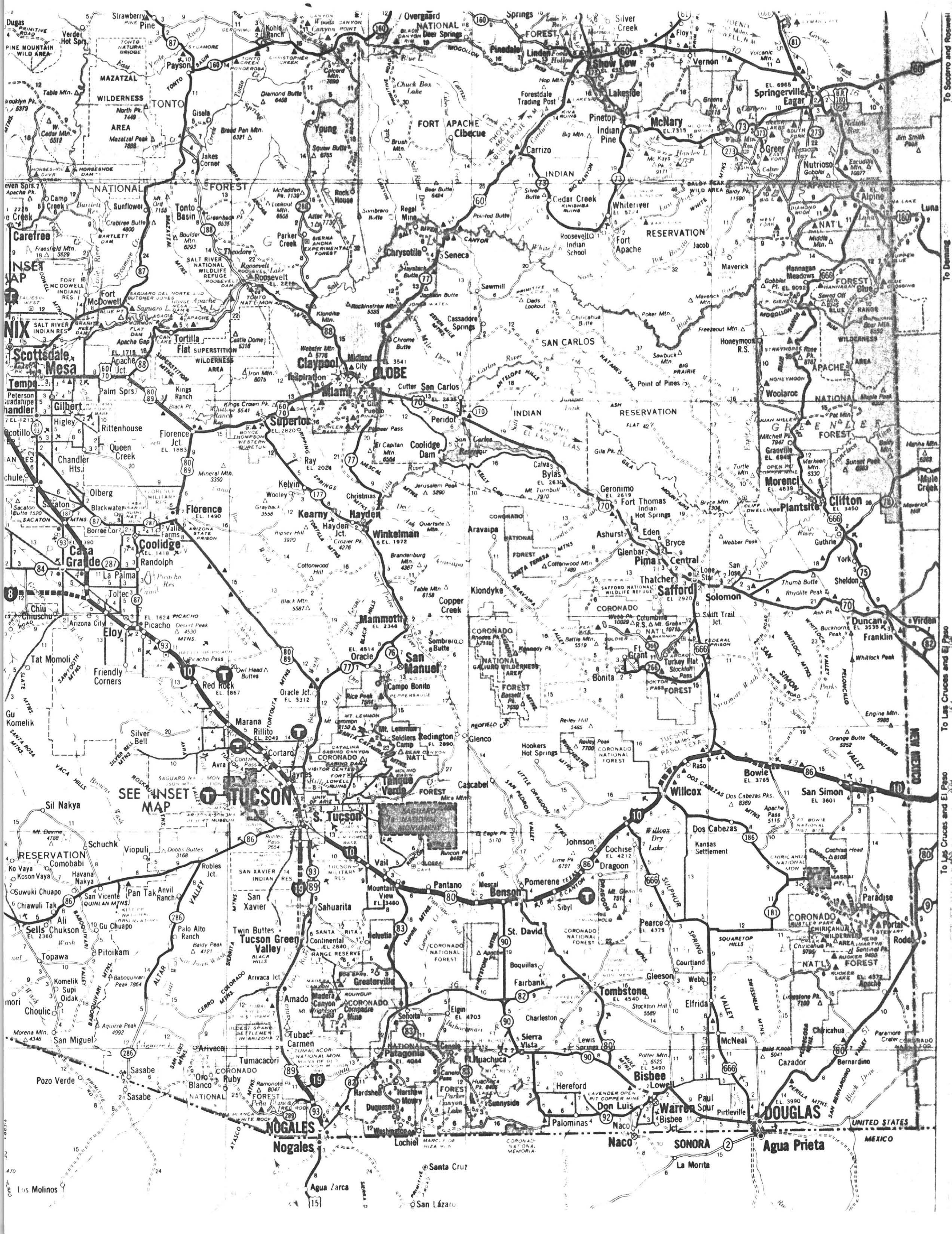
ADDITIONAL INFORMATION OR SKETCH MAP:

Looking east at
altered, stained volcanics exposed in mouth of Maple Canyon

Looking west at
"breccia pipe" opposite mouth of Maple Canyon

Close up view of "breccia pipe" looking northerly.

Detail of hematite-geothite stain in "breccia pipe"



Strawberry
Pine
Payson
Dugas
Verde Hot Sprs.
PINE MOUNTAIN WILD AREA
TONTO NATURAL BRIDGE
MAZATZAL WILDERNESS AREA
Overgaard
NATIONAL
Deer Springs
Heber
Pinedale
Linden
FOREST
Show Low
Silver Creek
Snowflake
Vernon
Springerville
Eagar
Lakeside
Pinetop
Indian Pine
McNary
Greer
Nutrioso
Alpine
Luna
Young
FORT APACHE
Cibecue
Carrizo
INDIAN
Cedar Creek
Whiteriver
Fort Apache
RESERVATION
Maverick
Hannagan Meadows
Blue
Carefree
SEE INSET MAP
Fort McDowell
Tonto Basin
Theodore Roosevelt
Roosevelt
Punkin Center
Jakes Corner
Rock House
Regal Mine
Chrysotile
Seneca
Sawmill
Cassadore Springs
SAN CARLOS
Honeymoon R.S.
Point of Pines
Scottsdale
Mesa
Tempe
Apache Jct.
Tortilla Flat
SUPERSTITION WILDERNESS AREA
Claypool
Midland City
GLOBE
Inspiration
Miami
Cutter
San Carlos
Peridot
INDIAN RESERVATION
Woolaroc
APACHE
NATIONAL
FOREST
Gilbert
Chandler
Higley
Rittenhouse
Queen Creek
Chandler Hts.
Florence Jct.
Superior
Coolidge Dam
Ray
Kelvin
Florence
Kearny
Hayden
Winkelman
Christmas
Calva
Bylas
Geronimo
Fort Thomas
Morenci
Plantsite
Clifton
Granville
Sacaton
Blackwater
Coolidge
Randolph
Casa Grande
La Palma
Toltec
Eloy
Picacho
Arizona City
Aravaipa
Klondyke
Ashurst
Eden
Bryce
Glenbar
Pima
Central
Thatcher
Safford
Lone Star
Solomon
Guthrie
York
Sheldon
Duncan
Franklin
Virden
Copper Creek
Mammoth
Oracle
San Manuel
Sombrero Butte
Oracle Jct.
Red Rock
Marana
Rillito
Cortaro
Silver Bell
Avra
Redington
Glenco
Hookers Hot Springs
Bonita
Ft. Grant
Swift Trail Jct.
Tat Momoli
Friendly Corners
Sil Nakya
SEE INSET MAP
TUCSON
S. Tucson
Tanque Verde
Cascabel
Willcox
Raso
Bowie
San Simon
Dos Cabezas
Kansas Settlement
Schuchk
Vioputi
RESERVATION
Comobabi
Robles Jct.
Vail
Pantano
Mescal
Benson
Pomerene
Johnson
Cochise
Dragoon
Sibyl
Paradise
Portal
Rodeo
Sells
Chukson
Pan Tak
Anvil Ranch
San Xavier
Sahuarita
Mountain View
Continental
Twin Buttes
Tucson Green Valley
Topawa
Palo Alto Ranch
St. David
Pearce
Courtland
Gleeson
Webb
Elfrida
Boquillas
Fairbank
Tombstone
Charleston
Amado
Arivaca Jct.
Arivaca
Greaterville
Elgin
Sonoita
Tubac
Carmen
Tumacacori
Patagonia
Canelo
Ft. Huachuca
Sierra Vista
Lewis Springs
Bisbee
Lowell
Warren
Paul Spur
Pirtleville
DOUGLAS
Agua Prieta
McNeal
Cazador
Bernardino
Sasabe
Pozo Verde
Oro Blanco
Ruby
NOGALES
Nogales
Washington Camp
Lochiel
Hereford
Palominas
Don Luis
Naco
Bisbee Jct.
SONORA
La Morita
Santa Cruz
San Lázaro
Agua Zarca
Los Molinos
UNITED STATES
MEXICO
NEW MEXICO
To Socorro and Roswell
To Deming
To Las Cruces and El Paso

MEMORANDUM ON
THE BLUE RIVER PROSPECT
GREENLEE COUNTY, ARIZONA

The Blue River prospect, consisting of 89 unpatented mining claims on the edge of the Blue Range Primitive Area in Greenlee County, Arizona, is owned by George, James, and Edward Stacy and Fred Eppinger. Spokesman for the group is Edward Stacy, P.O. Box 1656, Clifton, Arizona, 85533. Stacy's initial proposal for a deal involves a down payment of $125 per claim or $9,875. This proposed deal would also commit Essex to locate additional claims so the group would consist of about 200 claims or about 4000 acres. Starting at the end of one year would be an as yet unspecified monthly payment which would apply to a final purchase price of $7 million to be paid over a period of 5 to 10 years.

The owners have either not received or have lost nearly all records pertaining to development, although more than 1,000 samples are known to have been taken and two drill holes 200 and 700 feet deep have been drilled. The area is described in USGS Bulletin 1261-E, "Mineral Resources of the Blue Range Primitive Area, Greenlee County, Arizona and Catron County, New Mexico," in which the statement is made "Although the anomalous metal values are low and their distribution does not define a precise exploration target, they do suggest the possibility of ore bodies at depth beneath the altered rocks." Thorough examinations are reported to have been made by Ray Robinson of Bear Creek Mining Company who spent 2 to 3 months in the area in 1963 and by G.A. Barber of The Anaconda Company who mapped and sampled for 5 to 6 weeks in 1962.

Robinson, known to be a competent exploration geologist, is said to have recommended the property, but was overruled. In November 1969 Phelps-Dodge Corporation located an estimated 200 mining claims over the Stacy claims and moved a drill on to do validation work. One hole is reported to have reached a depth of 1200 feet. The Stacy group retained an attorney, Howard Twitty of Phoenix, and in January 1972 forced Phelps-Dodge to relinquish their claims. Phelps-Dodge is holding claims about 8 miles to the north nearly in the center of the Primitive Area, and has recently requested permission to build roads, drill sites, and conduct additional drilling operations in the vicinity of Oak Creek about 6 miles northwesterly from the Stacy claims.

The prospect is reached by driving 24 miles north from Clifton on Highway 666, then easterly 12 miles on a graded dirt road, then northerly 3 miles to the Fritz Ranch, then northerly 3 miles on an unimproved road which crosses the Blue River at 11 places. During occasional periods of high water, most commonly in late summer and during some winter storms, the road in the river is impassible. Because of unusually severe fall and winter storms, three separate attempts to spend several days mapping and sampling the property have failed.

Exposed in the walls of the Blue River Canyon and in tributaries of Horse Canyon, Maple Canyon, and Hobo Canyon are several square miles of clay altered and iron stained volcanic flows and intrusives. These volcanic rocks have been age dated by radiometric methods as 23.4 to 37.4 million years which is younger than any porphyry copper deposit known in Arizona. The Morenci deposit 20 miles to the south has been dated as 55 million years old; however, the disseminated molybdenum deposit at Questa, New Mexico, is 22 to 23 million years old. Further, alteration in the Blue River area is reported to be associated with a caldera structure and with an intrusive-extrusive dome complex, features which are thought to be related to formation of mineral deposits in some instances. Geochemical sampling by the USGS indicates spotty but locally anomalous values in copper and other metallic elements. Stacy reports samples containing as much as 1% copper, but these were selected specimens of very strong hematite or visible oxide copper minerals. Pyrite is reported from scattered surface localities and from drill cuttings.

Five to ten field days are necessary to adequately evaluate this property. It probably is not the leached surface expression of a porphyry copper deposit, but could represent an alteration halo vertically above an ore deposit. Some problems with the U.S. Forest Service could be expected if an extensive exploration program were planned, as some roads and drill sites would have to be built within the boundaries of the Primitive area.

J. K. Jones

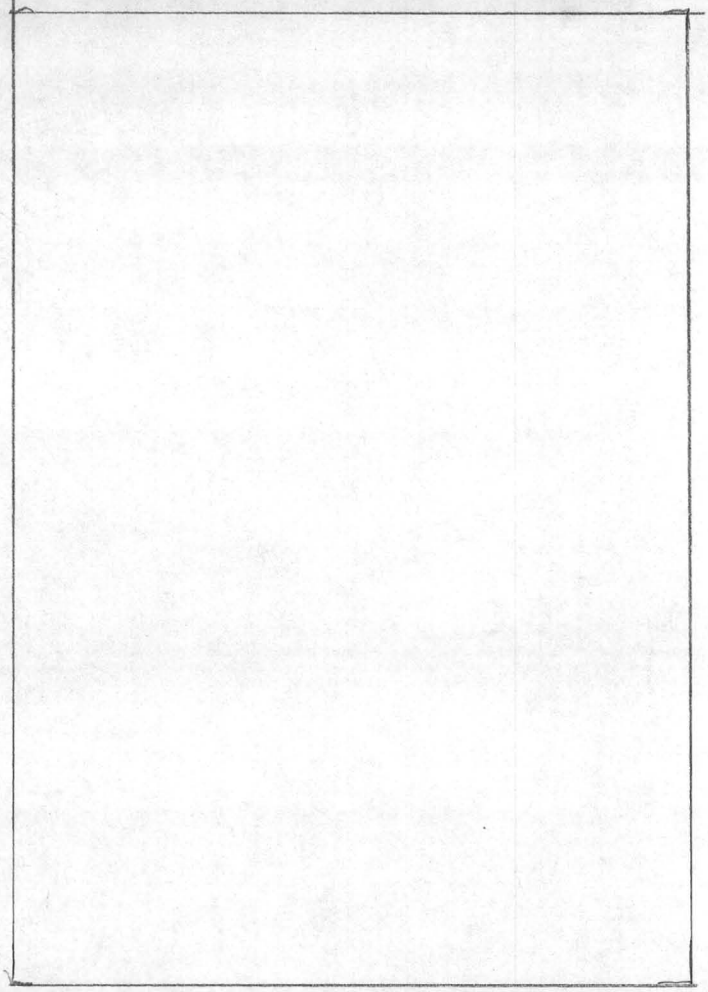
December 29, 1972

Close up view of "breccia pipe" looking northerly.

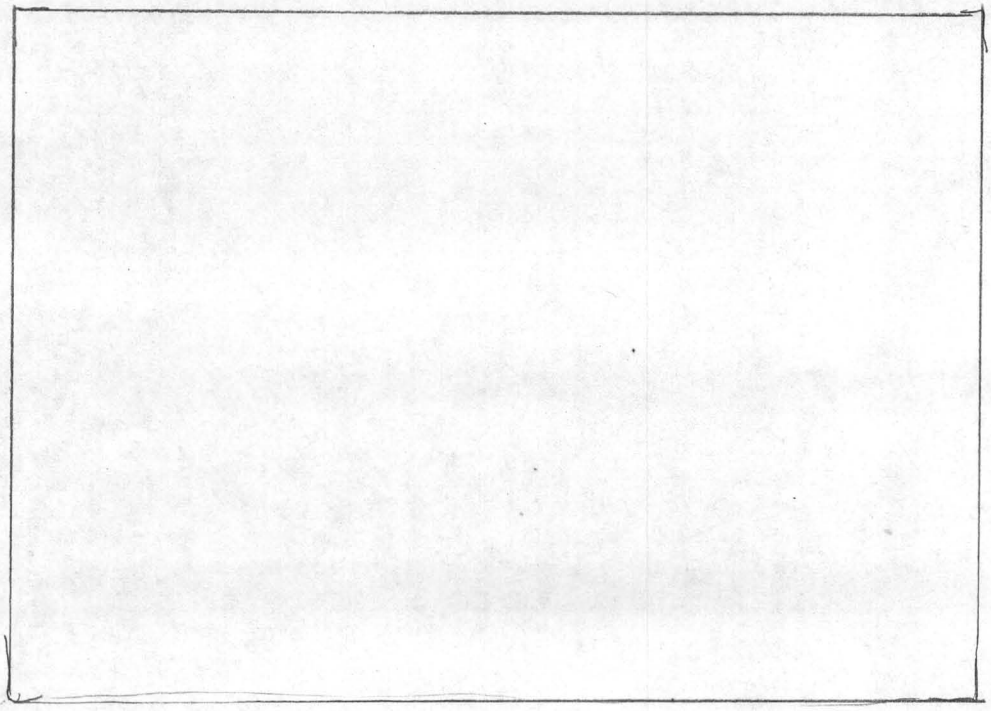
Detail of hematite-geothite stain in "breccia pipe"

Looking east at
altered, stained volcanics exposed in mouth of Maple Canyon

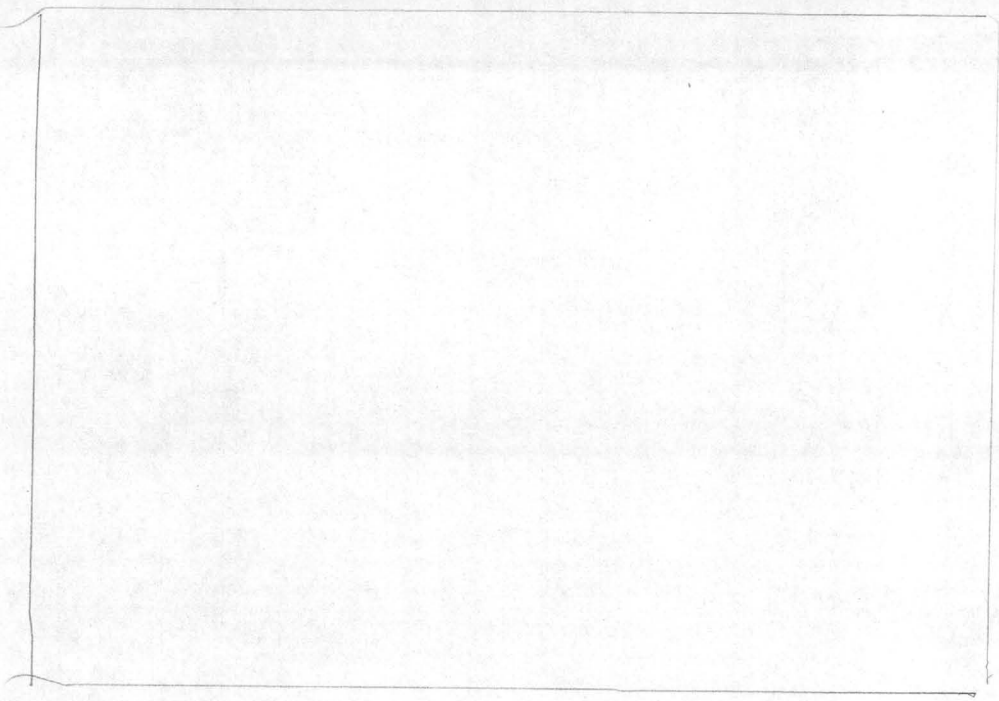
Looking west at
"breccia pipe" opposite mouth of Maple Canyon



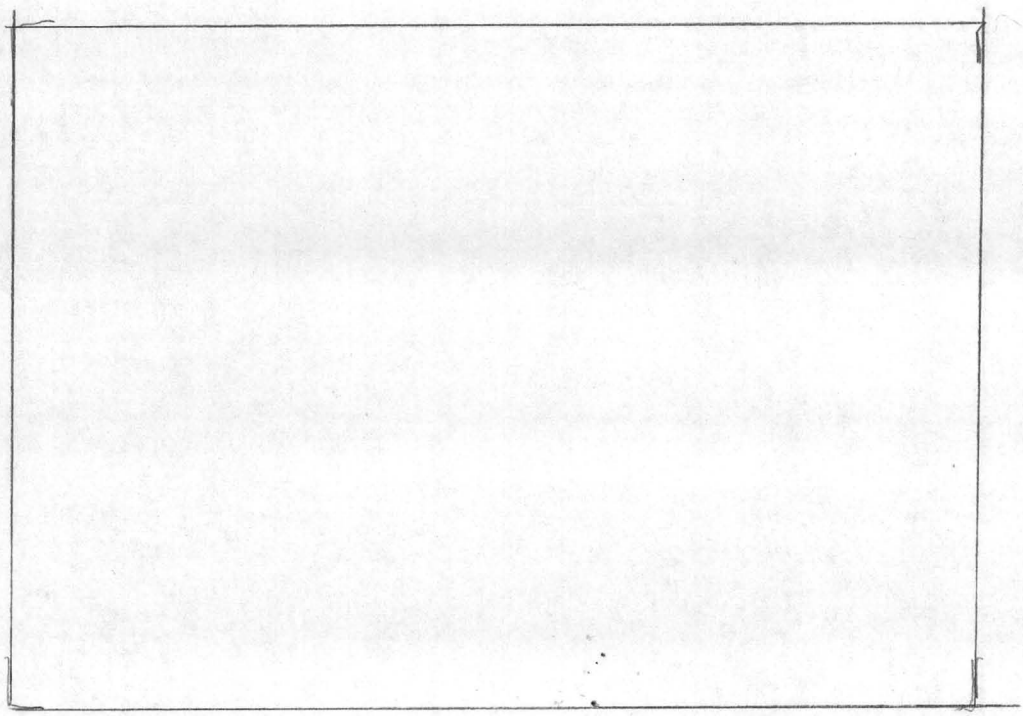
Close up view of "breccia pipe" looking northerly



Detail of hematite-goethite stain in "breccia pipe"



Looking east at
altered, stained volcanics exposed in mouth of Maple Canyon



Looking west at
"Breccia pipe" opposite mouth of Maple Canyon

ED STACEY PROSPECT
ON BLUE RIVER
GREENLEE CO., ARIZ.

95.5

72.4 Rte 666 @ jct with Morenci Road.

23.1 / 95.5 Juan Road, turn rt. Fritz Ranch

10.3 / 85.8 turn rt. on jeep trail

12.0 / 17.8 end of jeep road

Hunter has ± 700 claims North of Bluebird Group.

Large altered area, Blue Area, owned by Stacey et al – See 7½ min sheet.

P.D. drilling at Blue – Tornado Cr. jct.

Built dam 6X pipe on Eagle Creek.

SALT LAKE BLUE

FORM 1006

DUVAL CORPORATION

COPPER DIVISION — ESPERANZA PROPERTY

SAHUARITA, ARIZONA

CERTIFICATE OF ASSAY

June 25, 1965

Barstow Geo-chem

BEAKER NOS.	MARKS, ETC.	SAMPLE GMS.	Cu PPM	Pb PPM	Mo PPM	Zn PPM	Au PPM	Ag PPM
	3953-23A		30	6	6	8	Nil	Nil
	3950		17	81	Nil	100	Tr	2.3
	3951-6		65	12	11	20	Nil	Nil
	7		43	16	11	25	Nil	Nil
	8		45	15	Nil	53	Nil	Nil
	9		46	2	Nil	4	Nil	Nil
	10		22	6	Nil	5	Nil	Nil
	11		27	5	Tr	4	Nil	Nil
	12		42	43	Nil	25	Nil	Nil
	12 ?		800	16	26	24	Nil	Nil
	12 A		21	11	Nil	5	Nil	Nil
	12 B		10	12	14	6	Nil	Nil
	13		20	23	Nil	13	Nil	Nil
	14		7	13	Nil	5	Nil	Nil
	14 A		41	9	Tr	13	Nil	Nil
	14 B		100	12	Nil	17	Nil	Nil
	15		31	12	Nil	8	Nil	Trace
	16		46	15	Nil	13	Nil	Nil
	17		13	18	Nil	7	Nil	Trace
	18		26	15	Nil	7	Nil	Trace
	19		32	31	Nil	95	Nil	.5
	20		+1000	20	Nil	12	.10	Nil
	22		75	11	Nil	120	Nil	.3
	24A		30	30	11	5	.15	Nil
	24		13	12	Nil	3	Nil	.3
	25		38	9	Trace	82	Nil	.3
	26		11	25	Nil	12	Nil	1.5
	26 A		9	12	Nil	6	Nil	.6
	27		12	22	Nil	8	Nil	.5
	28		130	28	Nil	190	Nil	.8
	29		42	27	Nil	17	Nil	.8
	30 A		19	20	26	7	Nil	.8
	31		105	28	Nil	130	Nil	.8
	30		155	85	Nil	10	.15	Nil

FORM 311 M.L.

DUVAL CORPORATION
COPPER DIVISION — ESPERANZA PROPERTY
SAHUARITA, ARIZONA

1% = .0292 ppm

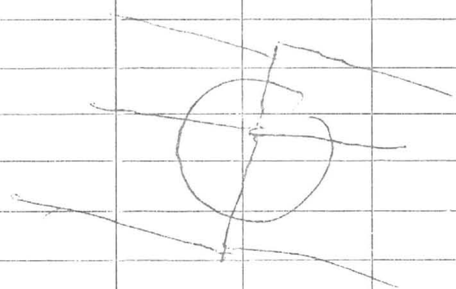
CERTIFICATE OF ASSAY

June 25, 1965

Barstow Geo-chem

BEAKER NOS.	MARKS, ETC.	SAMPLE GMS.	Cu PPM	Pb PPM	Mo PPM	Zn PPM	Au PPM	Ag PPM
	3951-32		41	26	Nil	125	Nil	.6
	(33) 33		+1000	25	.50	46	.15	.9 (43)
	3952-1		67	11	Nil	15	Nil	.3
	2		600	25	52	170	Nil	.3
	3		20	14	Nil	11	Tr	.2
	4		29	10	Nil	66	Tr	.2
	(5) 3		20	13	33	6	.20	30.7
								183

12
21
3.07
.029
2763
614
8903
08
.2000
.009
18.000



FORM 311 M.L.

DUVAL CORPORATION
COPPER DIVISION — ESPERANZA PROPERTY
SAHUARITA, ARIZONA

First sample from Eagle Ore Body 33,000 Cu.

Factor % = PPM x .0292
~~.0292~~

CERTIFICATE OF ASSAY

Geo. Chem. Samples (Barstow)

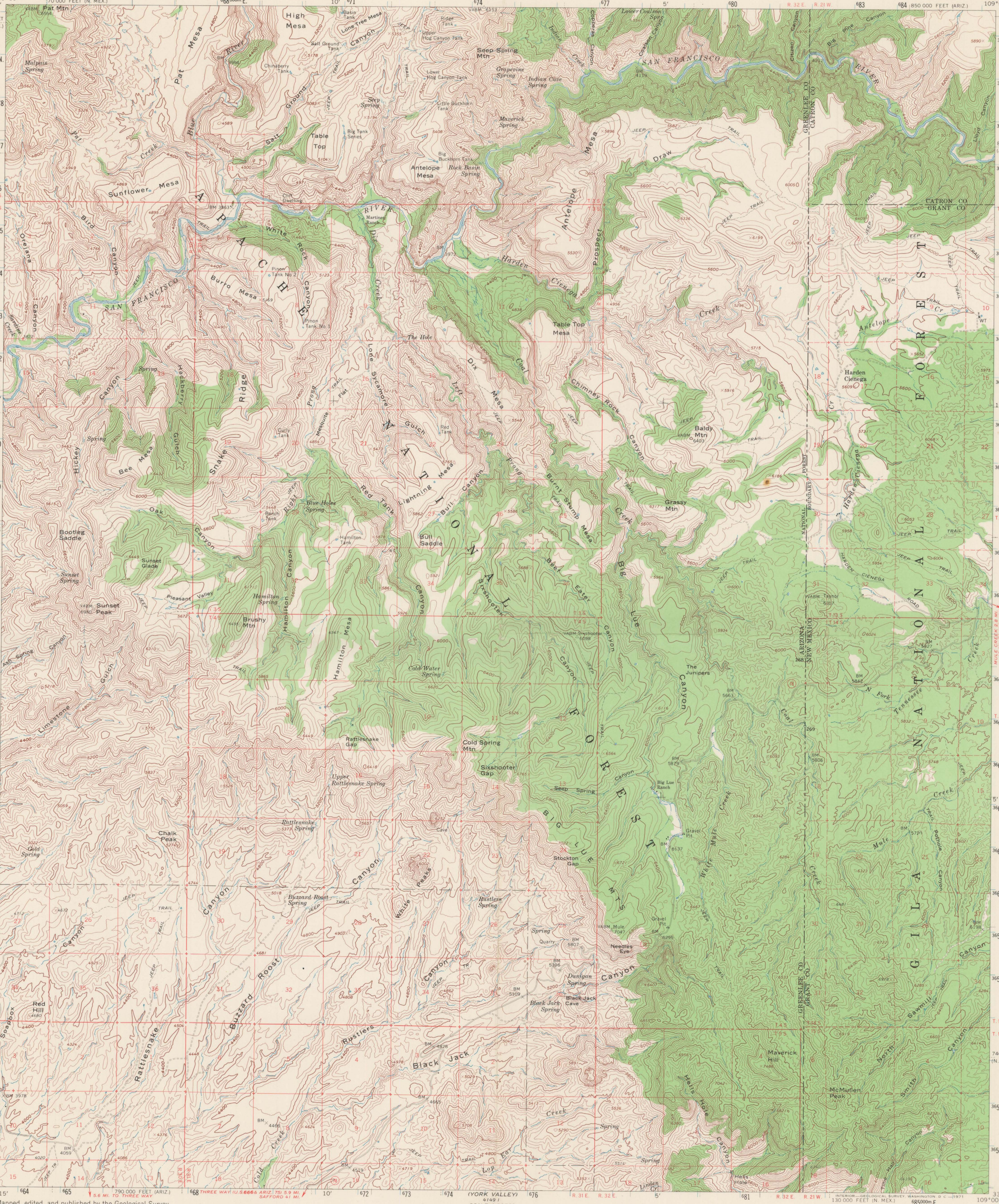
June 17, 1965

BEAKER NOS.	MARKS, ETC.	SAMPLE GMS.	Pb PPM	Cu PPM	Zn PPM	Mo PPM	Au PPM	Ag PPM
	3923-20		19	441	40	Nil	Nil	.5
	3951-6A		9	404	11	Nil	.05	.4
	23		628	509	15	67	Nil	.7
	34 3u (Ink)		210	33,000	49	28	28.7	77.6

4150 IV SE
(PIPESTEM MTN)
1:24 000

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BIG LUE MTS. QUADRANGLE
ARIZONA – NEW MEXICO
15 MINUTE SERIES (TOPOGRAPHIC)



(GUTHRIE)
4149 IV

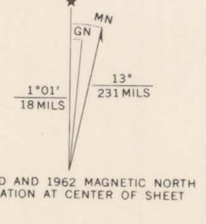
Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and U.S. Soil Conservation Service

Topography by photogrammetric methods from aerial photographs taken 1957 and 1959. Field checked 1962

Polyconic projection. 1927 North American datum
10,000-foot grids based on Arizona coordinate system, east zone and New Mexico coordinate system, west zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Where omitted, land lines have not been established



UTM GRID AND 1962 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:62 500

1 ½ 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 80 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Light-duty
Unimproved dirt
State Route

QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

BIG LUE MTS., ARIZ. – N. MEX.
N3300—W10900/15

1962

AMS 4150 II—SERIES V798

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DUTCH BLUE CREEK QUADRANGLE
ARIZONA—GREENLEE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

(HANNAGAN MEADOW) 4151 III 1:62 500

4151 I (BLUE 1:62 500)

109°15′ — 109°07′30″ — 33°30′ — 33°22′30″

Tornado Canyon · Strayhorse Creek · Board Canyon · Blue River · Paint Rock Prairie · Breeler Spring · Creek · Spring · Sycamore Canyon · Government Mesa · Auger Canyon · Auger Tank · Bonehead Basin · Dutch Creek · Blue Creek · Ladron Spring · Winter Cabin · Oak Creek · North Bull Creek Tank · Bull Creek · Horsehead Spring · Benton Tank · Thomas Creek · Roaysenseek Creek · Squaw Creek · Alder Peak · Ash Spring · Salt Basin · Little Blue Box · Hannah Hot Spring · Hannah Springs · Zuni Basin · Hobo Canyon · Hobo Creek · Little Blue Creek · Ash Creek · Dutch Creek · Blue Creek · Springs · Benton · Thomas · Roaysenseek

A P A C H E N A T I O N A L F O R E S T

H U Bar Box · H U Bar Ranch · White Rocks Cabin · BM 5136 · BM 4841 · BM 4689 · BM 4865

T. 2 N. · T. 1 N. · T. 1 S. · BASE LINE

R 30 E · R 31 E

4150 IV NE (ROSE PEAK) · 4150 I NE (ALMA MESA) · 4150 IV SE (PIPESTEM MTN.) · 4150 I SW (FRITZ CANYON) · 4150 I SE (MAPLE PEAK)

A D BAR RANCH 4.5 MI.

BLUE 13 MI.

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1966. Field checked 1967

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue

Fine red dashed lines indicate selected fence lines

Where omitted, land lines have not been established

UTM GRID AND 1967 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
(GN 1°00′ 18 MILS · MN 13° 231 MILS)

SCALE 1:24 000

1 MILE · 1000 0 1000 2000 3000 4000 5000 6000 7000 FEET · 1 .5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Unimproved dirt ----------

ARIZONA
QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

DUTCH BLUE CREEK, ARIZ.
N3322.5—W10907.5/7.5

1967

AMS 4150 I NW—SERIES V898

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1971

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

FRITZ CANYON QUADRANGLE
ARIZONA—GREENLEE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

4150 IV NE (ROSE PEAK)

4150 I NE (ALMA MESA)

4150 I NW (DUTCH BLUE CREEK)

4150 IV SE (PIPESTEM MTN.)

4150 II (MAPLE PEAK) SE

GRANVILLE 22 MI.

(CLIFTON 1:62 500) 4150 III

(BIG LUE MTS.) 1:62 500 4150 II

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1966. Field checked 1967

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue

Fine red dashed lines indicate selected fence lines

Land lines have not been established in this area

UTM GRID AND 1967 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

1 MILE
1000 FEET
1 KILOMETER

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Unimproved dirt

ARIZONA
QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D.C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

FRITZ CANYON, ARIZ.
N3315—W10907.5/7.5

1967

AMS 4150 I SW—SERIES V898

R 31 E

T 1 S

LITTLE BLUE CREEK

HOBO

BLUE RIVER

7 | 8
18 | 17

8 | 9
17 | 16

9 | 10
16 | 15

EXPLANATION

9 — MOLYBDENUM VALUE P.P.M.

ROCK CHIP SAMPLE LOCATION

STREAM SEDIMENT SAMPLE LOCATION

BEAR CREEK MINING COMPANY - SOUTHWEST DISTRICT

BLUE RIVER	ARIZONA
GEOCHEMICAL MAP (Mo)	GREENLEE
	T1S, R31E
ROBINSON, BALLA, BLAKE	0602-522
9 APR 1964 S. HUGHES	C5614
1250' 0 1250' 2500' SCALE 1" = APPROX. 1250'	PLATE

R 31 E

T 1 S

LITTLE BLUE CREEK

HOBO

BLUE RIVER

-5/5

-5/-5

10/15

-5/20

-5/35

-5/20

-5/5

-5/20

-5/-5

-5/5

-5/10

-5/25

-5/5

60/15

0/17

0/9

0/10

-5/14

0/5

-5/10

-5/10

20/20

-5/-5

10/15

7 | 8
18 | 17

8 | 9
17 | 16

9 | 10
16 | 15

EXPLANATION

ROCK CHIP SAMPLE LOCATION
ZINC VALUE PPM
10/15 LEAD VALUE PPM

STREAM SEDIMENT SAMPLE LOCATION

(-) INDICATES "LESS THAN"

BEAR CREEK MINING COMPANY - SOUTHWEST DISTRICT

BLUE RIVER

GEOCHEMICAL MAP (Zn, Pb)

ROBINSON, BALLA, BLAKE

9 APR 1964 | S. HUGHES

1250' 0 1250' 2500'

SCALE 1" = APPROX 1250'

ARIZONA

GREENLEE

T1S, R31E

0602-522

C5615

PLATE

R 31 E

T 1 S

LITTLE BLUE CREEK

HOBO

BLUE RIVER

7|8
18|17

8|9
17|16

9|C
C|5

EXPLANATION

COPPER VALUE P.P.M.

59 ROCK CHIP SAMPLE LOCATION

STREAM SEDIMENT SAMPLE LOCATION

BEAR CREEK MINING COMPANY - SOUTHWEST DISTRICT

PROJECT AREA: BLUE RIVER	STATE: ARIZONA
TITLE: GEOCHEMICAL MAP (Cu)	COUNTY: GREENLEE
	FIELD OR MINE: T1S, R31E
DRAWN BY: ROBINSON, BALLA, BLAKE — REVISIONS BY — DATE	MAP NUMBER: 0602-522
DATE: 9 APR 1964 — CHECKED BY: S. HUGHES	C5612
1250' 0 1250' 2500' SCALE 1" = APPROX 1250'	PLATE

R 31 E

T 1 S

EXPLANATION

QUATERNARY

- Qal — RECENT ALLUVIUM
- Qgt — OLDER GRAVELS AND TALUS
- QTd/50 — DIKES COMPOSED OF BASALT, LATITE, ETC.
- QTb — BASALT FLOWS, INCLUDING A LOCALLY BASALT CONGLOMERATE (?)
- Qt — TUFF, UNMINERALIZED

TERTIARY

- Trb — RHYOLITE, BRECCIA
- Tlu — FRESH LATITE, UPPER MOST MEMBER INCLUDES QUARTZ LATITE
- Tll — FRESH LATITE, LOWER MEMBER
- Tld — Tld - FRESH ISLANDS OF LATITE-DACITE IN THE ALTERED UNIT
  Tlda - ALTERED LATITE-DACITE TUFF W/STRONG FeO STAINING.
  Talp - ANDESITE LATITE PORPHYRY INTRUSIVES.
- Tlb — Tlb - LATITE-BASALT FLOWS, UNALTERED
  Tla - LATITE AGGLOMERATE, UNALTERED

- 40 — BEDDING, DIP
- ⊕ — HORIZONTAL BEDDING
- 20 — OBSERVED STRIKE AND DIP OF BEDS OR FLOWS
- 75 — FAULT, DIP
- OBSERVED FAULT
- 80 / 75 — FRACTURES SHOWING DIP
- 85 — SHEAR ZONE, DIP
- 75 — JOINTS

BEAR CREEK MINING COMPANY - SOUTHWEST DISTRICT

PROJECT AREA: BLUE RIVER	STATE: ARIZONA
TITLE: GEOLOGIC MAP	COUNTY: GREENLEE
GEOLOGIST - ENGINEER: ROBINSON, BALLA, BLAKE	TOWNSHIP & RANGE: T1S, R31E
DATE: 8 APR 1964	DRAFTSMAN: S. HUGHES
REVISIONS BY	DATE
GAR NUMBER: 0602-522 B5611	PLATE

1250' 0 1250' 2500'

SCALE 1" = APPROX. 1250'