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PRINTED: 03/13/2003

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: RIDENOUR MINE

ALTERNATE NAMES:

COCONINO COUNTY MILS NUMBER: 412

LOCATION: TOWNSHIP 31 N RANGE 8 W SECTION 6 QUARTER SE
LATITUDE: N 36DEG 06MIN 00SEC LONGITUDE: W 113DEG 10MIN 24SEC
TOPO MAP NAME: VULCANS THRONE SW - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
- COPPER OXIDE
- URANIUM
- VANADIUM
- GOLD
- SILVER
- COBALT

BIBLIOGRAPHY:

ADMMR RIDENOUR MINE FILE
YAVAPAI MAG, SHARLOT HALL MUS., MAY 1914
USAEC 172-479, P. 53, 54
BUTLER,A.,& BYERS,V., AZBM BULL. 180, P. 287
USBM CRIB PRINTOUT W016021
MILLER,R.D.,1954,COPPER-URANIUM DPST AT THE RIDENOUR MINE, AEC RME-2014
ADMMR PHOTO FILE RIDENOUR MINE CIRCA 1961
GJBX-143-81 RADIOACTIVE OCCURANCES AND PRODUCTION IN ARIZONA BY B. SCARBOROUGH, 1981
CHENOWETH,W.L.1988,PRODUCTION HISTORY & GEOL OF HACKS, RIDENOUR, RIVERVIEW AND CHAPEL BRECCIA PIPES, USGS OPEN FILE RPT 88-0648
VERBEEK, EARL R., RIDENOUR COPPER-VANADIUM-URANIUM MINE, USGS OPEN FILE RPT 88-006

09/07/89

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

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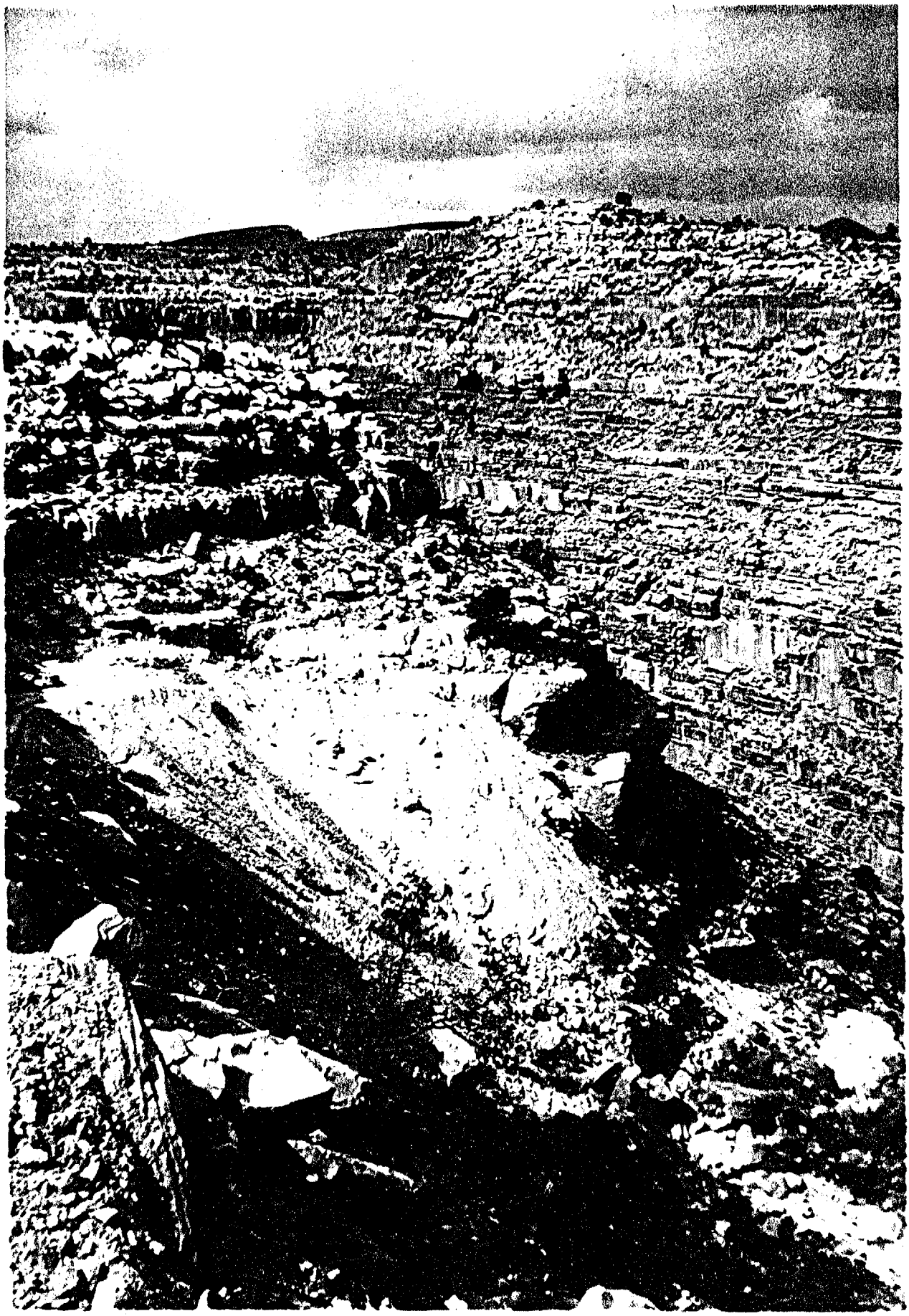
RIDENOUR MINE

COCONINO COUNTY
PEACH SPRINGS
T31N R8W Sec 6 ~~NE~~

MILS # 412
AZBM Bull 180, p. 287
A.E.C. 172-479, p. 53,54
FIELDNOTES, Dec. 1980, p. 3
Economic Geology, Vol. 80, 1985, PP 1722-1735
USBM List 1968 - Ashcraft Mining Co., 339 E. Main, Farmington, NM 87401 (at above mine)

FTJ WR 9/4/70 - Lynn Collins is reported working the Ridenour Mine
"Geology of the Grand Canyon" Edited by. William J. Breed & Evelyn C. Roat, 2nd Ed., 1976, At Library & archives, 3/30/79 a.p.



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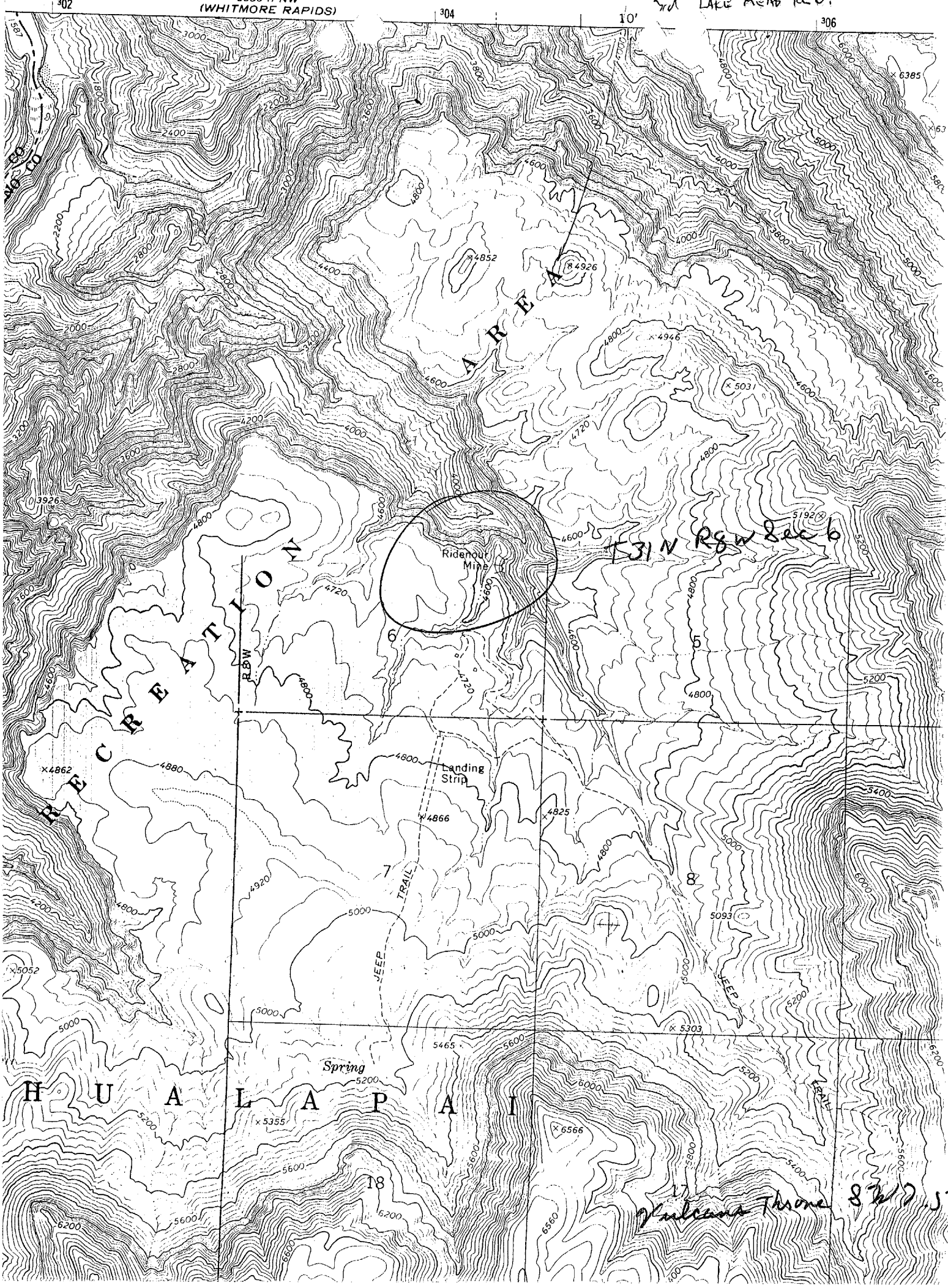
1961



(WHITMORE RAPIDS)
302
304
306
10'
RECREATION AREA
HUALAPAI
Ridenour Mine
Landing Strip
JEEP TRAIL
Spring
T31N R8W Sec 6
Vulcans Throne

RIDENOUR MINE COCONINO COUNTY

FTJ WR 9/4/70: Lynn Collins is reported working the Ridenour Mine.

NJN WR 5/28/82: Bureau of Geology statistics on production:

1913 - 1923 & 1961 - 1966	180,370 lb copper
	3,920 oz silver
	67 oz gold
1962 - 14 tons uranium at .15% U308	
2.38% vanadium	Total 380 short tons

NJN WR 6/11/82: Bill Roper of Kingman was in to research AEC and Bureau of Mines Publications on the Ridenour Mine, Coconino County. He is gathering data to make a lease application on it thru the BLM Park Service Secretary of the Interior, as the mine is in the Lake Mead National Recreation Area. Further research on the land status revealed the area is a joint use area with first rights in 1883 to the Hualapai Indians, second a withdrawal to the Bureau of Reclamation for water storage and lastly an inclusion as part of the Lake Mead National Recration area, subject to Hualapai Indian Tribal Council approval. This last has not been confirmed ao any plans for the mine should start with receiving approval of the Hualapai Indian Tribal Council.

NJN WR 12/29/87: Karen Wenrich of the USGS gave a presentation on the Ridenour Mine (file) Coconino County at the SME annual meeting. A Verbal Information Summary has been written and added to the file.

VERBAL INFORMATION SUMMARY

MINE: RIDENOUR DATE: January 29, 1988

ENGINEER: Nyal Niemuth

From presentation by Karen Wenrich, USGS, to the annual SME meeting held in Phoenix January 24 - 26, 1988 on the Ridenour Mine (file) Coconino County.

Energy Fuels has mined over 10 million pounds of U_3O_8 in Arizona from breccia type deposits. Containing a typical grade of .65% U_3O_8, Arizona deposits make attractive targets for exploration. Unfortunately, many of the old mines and breccia pipes in western Grand Canyon are too oxidized to host uranium deposits of economic grade.

The Ridenour Mine is hosted in the Esplanade Sandstone and is mineralized in the outer ring fracture. The key to finding breccia pipes in Grand Canyon is that they occur in N45W and N50E trends. These are joint trends that developed in the Redwall Limestone before deposition of the overlying rocks. The pipes and ring fractures developed in the Redwall Limestone propagated into upper rocks before the upper rocks formed joints.

Geochemically, the Grand Canyon pipes are typically anomalously high in silver, vanadium - +1%, arsenic, cobalt, copper, molybdenum, nickel, lead, uranium, zinc; elements notably decreased are manganese and magnesium. Structure mapping, combined with geobotanical sampling of plants, make good prospecting tools along with visual examination for small (less than 100 yard) internal drainages and actual pipe structure).

There are few primary minerals left at the Ridenour due to the oxidation. The coloration of the rocks at the Ridenour is due to the oxidation reduction process. This oxidation has been responsible for producing many unusual minerals, and, with sufficient X-ray analysis, new minerals are likely to be discovered here. These will probably include minerals high in vanadium and cobalt. Estimated temperature of formation is 80 to 170° Celsius, with a 17% sodium chloride by weight fluids. Volcanics to the south are a probable source of the mineralization. Only the Orphan and the Ridenour have had enough V_2O_5 for economic recovery. The oxidizing environment appears necessary to have the vanadium mineralization. Future exploration at the Ridenour is likely to be directed at the Wescogame Formation, possibly in the core of the pipe.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

DATE: March 29, 1961

RIDENOUR MINE
COCONINO Co. (file)

TO : November 24th Files

FROM : W. L. Chenoweth, Chief, Flagstaff Section, Grants Branch, PED

SUBJECT: RECENT DEVELOPMENTS AT THE RIDENOUR MINE, HUALAPAI INDIAN RESERVATION, COCONINO COUNTY, ARIZONA

PGR:WLC:pt

The Ridenour mine located in section 6, T31N, R8W, G&SR, Coconino County, Arizona was examined on March 27, 1961 by W. L. Chenoweth and D. N. Magleby. Present was Clyde Hutcheson, the present controller, his father, who acts as mine superintendent, and two Hualapai Indian miners.

Hutcheson has cleaned out the road that Western Gold and Uranium had built from the top of Ridenour Mesa to the campsite above the mine and has built a new road from the campsite over the rim to the mine workings.

Hutcheson is presently stockpiling what copper and uranium he can recover from the hanging wall of the shear that forms the perimeter of the pipe. Most of his work has been in the northern apex of the pipe. A short drift has been driven to explore the area outside the shear.

Ore is being hand sorted and all waste is broken off before it is stockpiled. At the time of the examination about 25 tons of carnotite-vanadium ore was stockpiled as was an equal amount of copper ore containing chalcocite, malachite and azurite. Ten tons of copper ore which assayed 8 per cent Cu was shipped to Superior, Arizona in February, Hutcheson reported. Hutcheson said he hopes to ship the uranium-vanadium ore to Shiprock in the near future.

The original November 24th reserves of 100 tons at .21% U_3O_8 is still valid and Hutcheson could not show any additional ore. Radiometric scanning of the stockpiled ore indicated it was about .10-.15% U_3O_8 and Hutcheson admitted he would have to resort it and pick out the waste before he could ship it. At the present time Hutcheson has not found enough copper with the uranium to consider a shipment to the Texas-Zinc mill.

On March 27, 1961, Chenoweth and Magleby contacted the Bureau of Indian Affairs, Truxton Canyon Sub-Agency at Valentine, Arizona to see what type of a lease Hutcheson had on the mine. The agency superintendent, Mr. Bobo, showed us the lease and let us trace the property map since it would not photo copy. Important items of the lease are noted below.

1. A ten-year mining lease was executed on May 21, 1960 between Clyde and Barbara Hutcheson and the Hualapai Tribal Council.

2. Description of the ground leased is as follows: Beginning at U. S. Mineral Monument No. 191, thence northerly 2,895 feet; thence westerly 1,160 feet, thence southwesterly 1,470 feet; thence southeasterly 2,360 feet to point of beginning; containing in all 76.5 acres more or less.

3. Terms of the lease are $1,000 per year and a yearly rental of $77.

4. Royalties on gold, silver, copper, vanadium minerals are 10 per cent of the market value.

5. Royalties on uranium ore is as follows:

Mine value dry ton	Royalty percentage per dry ton
$ .01 - 10.00	12%
10.01 - 20.00	13.3%
20.01 - 30.00	14.6%
30.01 - 40.00	15.9%
40.01 - 50.00	17.2%
50.01 - 60.00	18.5%
60.01 - 70.00	19.8%
70.01 - 80.00	21.1%
80.01 - 90.00	22.4%
90.01 - 100.00	23.7%
Over $100.00	25. %

Mine value is the base price before any grade premium, mine development allowance, or haulage allowance is paid.

Mr. Bobo mentioned that he had a copy of the lease for information only as the Bureau of Indian Affairs does have to approve leases of ten years or less according to the constitution of the Hualapai Tribal Council. He also discussed Hutcheson's operations and other

previous operations including Western Gold & Uranium's drilling of which the Tribal Council is still waiting to receive copies of the maps and logs. Mr. Cobo also described how the Hualapai Reservation was created and stated that the Ridenour heirs have no valid claim to the mine as some operators have been led to believe.

Distribution:
Grand Junction November 24th Files
Grants November 24th Files
W. L. Chenoweth

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

PERMANENT INDIVIDUAL MINE RECORD

(METAL OUTPUT OVER)

ARIZONA

Ridenour
(Name of group—Alphabetical Sailing)

ARIZONA (State) San Francisco (County) (District)

CLAIMS:

Ca man Section

*OVER SEC. TWP. RANGE:

CHARACTER OF DEPOSIT:

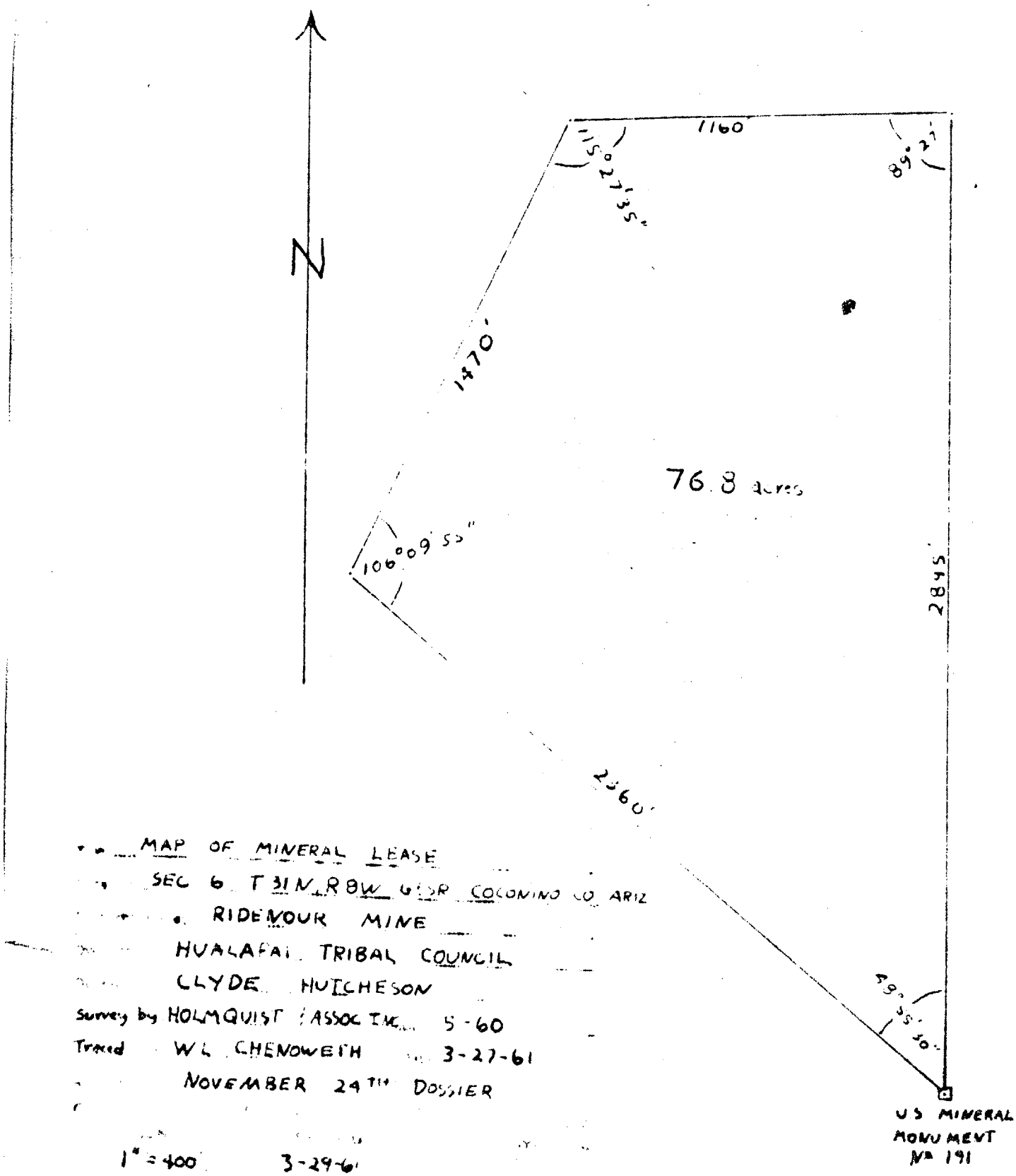
YEAR	* A B C	AV. ASSAY OZ. PER TON Au	Ag	AVERAGE ANALYSIS PERCENT Cu	Pb	Zn	SiO_2	Fe	Mn	S	Al_2O_3	CaO	MgO	OWNER (Name and address)	OPERATOR (Name and address)	DAYS OPERATED	DEVELOPMENT AND OTHER DATA
1934	none																
1935	"																
1936	"																
1937	"																
1938																	
1939	—														Ridenour, W. K.		
1940	—																
1941	—																
1942	—																
1943	—																
1944	—																
1945	—																

Bidenour

METAL PRODUCTION (Contents)

*A ORE MILLED AND BULLION PRODUCED.
B CONCENTRATES PRODUCED.
C ORE SMELTED.

YEAR	*A B C	Crude Ore Produced		Concentrates Produced		Gold (Ounces)			Silver (Ounces)			Copper (Pounds)		Lead (Pounds)		Zinc (Pounds)	
		Dry Tons	Class	Dry Tons	Class	Gross in Ore	Gross in Concentrates	Recovered	Gross in Ore	Gross in Concentrates	Recovered	Gross in Ore	Gross in Concentrates	Gross in Ore	Gross in Concentrates	Gross in Ore	Gross in Concentrates
1934		none															
1935		"															
1936		"															
1937		"															
	C	3	Au					25.			18						
1939		none															
1940		"															
1941																	
1942																	
1943																	
1944																	
1945																	



MAP OF MINERAL LEASE
SEC 6 T 31 N R 8 W G&SR COCONINO CO ARIZ
RIDEMOUR MINE
HUALAPAI TRIBAL COUNCIL
CLYDE HUTCHESON
Survey by HOLMQUIST & ASSOC INC 5-60
Traced W L CHENOWETH 3-27-61
NOVEMBER 24TH DOSSIER

1" = 400' 3-29-61
Traced from copy on file with BIA
Valentine, Arizona

SAWYER EXPLORATION COMPANY
SUITE 610 QUINBY BUILDING
650 SOUTH GRAND AVENUE
LOS ANGELES 17 CALIFORNIA

August [illegible], [illegible]

Mr. Ernest E. Thurlow, Chief
U. S. Atomic Energy Commission
Salt Lake Exploration Branch
Division of Raw Materials
Salt Lake City, Utah

Re: Ridenour Mine
Mojave County, Arizona

Dear Mr. Thurlow:

Recently we received a letter from the Atomic Energy Commission containing some abstracted information taken from a restricted report covering the Ridenour Mine.

For your files and records I enclose a Preliminary Report on the Ridenour Mine in which I have included abstracts of released A.E.C. data. Coupled with the Report is enclosed a preliminary map of the Mine workings made using a Brunton Compass and steel tape.

We are only able to find Uranium-Vanadium enrichment on this property on the hanging wall of the main vein in three separate localities (except for a minor Carnotite vein in [illegible]' drift at Station A). Radio activity throughout the Mine except for the mentioned localities is little more than background count for the immediate surface area of Mine. There are two workings that penetrate the hanging wall of the main vein; the first being the [illegible]' drift at Station A on the Main Mine level and the other is a drift on the 4900' level which extends a minimum of [illegible]' which, however, is filled with waste material.

It is our wish to try to find Uranium in commercial quantities in this Mine. We feel because of the present Uranium showings and their association with the strong persistent Copper vein that the property could be a potential Uranium producer. However, we have to date not arrived at a satisfactory solution to the problem of Uranium Ore, Genesis and its relationship to the structural conditions present in the Ridenour Mine.

I would appreciate any help you can give us on these two problems as set forth in the conclusion of my Preliminary Report on the Ridenour Mine.

Possibly your restricted report on the Ridenour Mine covers these two problems and we would appreciate any suggestions you may care to make as to a possible ore development program.

Yours very truly,

Ernest W. Sawyer, Jr.
Geologist.

Encls.

RECEIVED

August 25, 1955

PRELIMINARY REPORT ON RIDGEMOUR MINE
MOHAVE COUNTY, ARIZONA

Location: The Ridgemour (Grand Canyon) Mine is located in the Northwestern part of the Hualapai Indian Reservation, Mohave County, Arizona. More specific location is described as NE¼SW¼ Section 6, T. 31 N., R. 8 W., and is topographically located 1½ miles East of surface trace of Hurricane Fault and 1½ miles South of the Canyon of the Colorado River.

Title: The Grand Canyon Mining (Lode) Claim was filed on March 24, 1899 by William R. Ridgemour, et al in what was then part of Yavapai County, Arizona Territory. The Hualapai Indian Reservation was created by Executive Order on January 4, 1883. Said Reservation surrounds the Mining Claim. The property was worked for a number of years up to 1929 as a high grade copper property.

Sawyer Exploration Company holds a renewable five year lease executed March 30, 1953 from the heirs of William R. Ridgemour. Annual assessment work was performed for 1955 and Proof of Labor was filed on April 11, 1955.

Access: A small airstrip has been cleared on the Mesa about 1/2 mile South of the Mine. This airstrip is suitable for light planes during good weather. Good highspeed roads exist from Peach Springs to the turnoff of the Ridgemour Wagon Road in Prospect Canyon. From said turnoff a 4-wheel drive vehicle is almost a necessity. The Jeep and Wagon road now accessible to the old loading platform on top of the Mesa. The loading platform is located about 3½ miles South of the Mine. From the loading platform to the Mine a good Mule Trail is used.

Road Log: Peach Springs to U. S. Highway 66 turnoff - 7 miles

Mode of Travel -

Car	-- U.S. Highway 66 turnoff to Indian School -	23.4 "
Car	-- Indian School to Prospect Valley turnoff -	18 "
Jeep	-- Prospect Valley turnoff to loading platform	7.2 "
Horse, Mule or Foot	-- Loading platform to Mine	3.5 "

It is advisable to have a Guide to follow the Jeep Track from Prospect Valley turnoff to the Ridgemour Mine.
Elevation at loading platform estimated 7500'
Elevation at Ridgemour Mine estimated 3000'

The following information is quoted from technical information service - R.M.E. -2007 United States Atomic Energy Commission entitled:

Reconnaissance For Uranium In The Hualapai Indian Reservation Area, Mojave and Coconino Counties, Arizona.

By: Richard P. Miller
Salt Lake Exploration Branch
Division of Raw Materials
Salt Lake City, Utah

Dated - April, 1954

"Ridenour Mine

The Ridenour mine is in the northeastern part of the reservation on a northern promontory formed by a lower bench of Ridenour Mesa. This mesa is an elongated fault block between the Tapeats and Hurricane faults. Final access to the mine is by a winding trail about four miles in length. The difference in elevation is about 1,500 feet from the top of the rim to the mine.

"The Mine was worked intermittently for copper between 1870 and 1919. Local reports indicate that about 1,000 tons of hand-sorted high-grade copper ore were carried out by burro during World War I.

"The deposit is in bleached fine-grained sandstone members of the normally red Supai formation. Interbedded thin mudstone beds in the mine workings are altered to greenish gray. The ore minerals occur in veins and associated zones structurally controlled by shears and fractures following a semi-circular course in plan view. The shape of the ore body resembles part of a hollow-cut, truncated cone.

"The mine workings closely follow the geologic structure. Ore has been mined from caving narrow stopes to the 80-foot level, with no evidence of deeper workings. Means of access to the workings include two inclined shafts and two lower haulage ways.

"Copper minerals include chalcocite, malachite, and azurite, with smaller amounts of bornite, chalcopyrite, and chrysocolla. Pyrite and limonite are the chief gangue minerals. Vein quartz and other minerals usually associated with typical hydrothermal veins are notably absent.

"Uranium and vanadium minerals are found in three stopes with spotty occurrences elsewhere in the workings. Carnotite is the chief uranium mineral; other vanadium minerals include volborthite is yellow-to-dull-green basic copper vanadate and dark vanadium oxides. Uranium-vanadium form a separate thin zone on the outside or hanging wall side of the main copper zone where exposed in workings to the north and west. Carnotite is found in a very thin vein about 12 feet back of the main ore zone in one short crosscut. Elsewhere, workings do not penetrate the hanging wall into radioactive zone. Incomplete sampling from carnotite-bearing zones now exposed by the workings gave chemical analyses ranging from less than 0.1 per cent to over one per cent U_3O_8. Vanadium assays from the mineralized zone average about six per cent V_2O_5.

"The dump contains appreciable quantities of vanadium (from minerals other than carnotite) and copper with apparently little uranium."

Note:
Geological formations and faults and Ridenour mine location are shown on map on Page 13.)

CONCLUSIONS

"The Ridenour mine is the only uranium occurrence worthy of further attention discovered to date in the area. This deposit is discussed in a separate report."

Note: The mentioned separate report is not available for distribution. We have received some declassified information in a letter from the Salt Lake A.E.C. office.

Several points of further interest are as follows:

1. The existence of a drift running westward on the "80 foot level". This drift was following a thin copper stringer (1") that branches off the main vein at the "80 foot level". The drift is filled with waste material nearly to the roof. The drift extends at least 50-60 feet and possibly further, and this could be considered to be penetration of the hanging wall of the main vein at this point. However, the copper stringer which this drift follows (at roof level) appears to be following the bedding plane of the Supai Sandstone, which at this point dips 1"-2" to the West.

2. The Stopes were mined to an undetermined depth below the "80 foot level" and are in part filled with waste material.

3. The copper vein is very strong and persistent and is seen in place in most of the Stopes where work was stopped after World War 1. The present faces of the exposed vein varies between 4" and 16" in width containing primary copper ores in the center and Azurite and Malachite along the contacts with the country rock.

4. The Uranium and Vanadium mineralization insofar as we were able to determine occurs only in the hanging wall of main vein (except for one minor separate Uranium vein).

5. We have estimated there is possibly ten tons of Carnotite ore in sight as indicated in two separate locations. The A.E.C. in correspondence indicates Uranium Assays of 0.4 to 2.4% contained U_3O_8. These were selected samples.

We have had the following Assays made:

Assayer	Date	Results	Sample
Raymond G. Osborne Laboratories	4/21/55	Gold .01 Silver 22.34/ton Copper 31.2% Vanadium -0-	Across 12" in North end Stope near discovery monument.
Smith Emery Company	4/16/55	Silicon, Copper -Major) Aluminum, Iron-intermediate) Vanadium .01%) Silver - Present) Uranium - None found)	Same as above Spectrographic results of interest.
Bureau of Mines Tucson 5, Arizona	6/28/55	.79% U_3O_8 Radiometric Microscopic examination reveals sample is a Sandstone cemented with Calcite, Malachite, Azurite, Uranium bearing carbonaceous material and some Carnotite.	Grab sample from convenient drift.
Atomic Energy Commission Salt Lake	7/19/55	1.19% U_3O_8 (Radiometric) 1.2[illegible]% U_3O_8 (Chemical)	Chemical Lab. Report #73 Vein sample from hanging wall of Stope.
Grand Junction	7/7/55	.40% U_3O_8 (Radiometric) .36% U_3O_8 (Chemical) 0.12% V_2O_5 17.0% Fe.	Sample #41710 Vein sample from hanging wall of Stope.

Note: None of these Assays are meant to imply the existence of a commercial ore body; however, they are considered as indicating that certain ore possibilities exist on this property.

We surveyed all the accessible Mine workings using an SC-5 Scintillometer and found most of the workings gave readings only slightly above background count except in those three areas of visible Carnotite enrichment. Surface readings over the whole Claim and on the dump were close to background count (50 MR/HR.)

CONCLUSION:

The problem of finding Uranium ore in this Mine in commercial quantities is dependent upon the following factors:

1. Working out the structural relationship between the geological history of the formation of the "Truncated Cone" and its relationship to movements of the Hurricane Fault and possible pressure mechanics setup by erosion of sediments on projected Eastern extension of the Truncated Cone into the present Canyon.

2. To work out fully the genesis of the Uranium-Vanadium enrichment and its relationship to the Copper mineralization, the setting up of a plausible theory based on fact for these two correlated problems will indicate the best method of exploration on this property.

We have 70 pounds of Uranium-Vanadium and Copper samples from this property as well as photographs, maps and title search and related documents.

[illegible]:fd

[illegible], Jr.
Geologist

Enclosures:
(1) Map of [illegible]
(2) Photostat of Newspaper clippings

RICH COPPER ORE FROM PROPERTY IN THE GRAND CANYON

N7 [illegible]

A. W. Frazier arrived in Kingman yesterday from the Ridenour copper mine in the Grand Canyon, bringing with him some handsome specimens of high grade ore. Mr. Frazier reports that a carload of copper ore has just been shipped to the smelter that contains better than $8,000 in copper. This ore was taken from a superficial working at the property, the leasers having no equipment that will permit of sinking to a great depth.

The Ridenour mine is one of the oldest copper properties in this part of the state, having been discovered in the late seventies. W. B. Ridenour operated it for many years, taking a considerable fortune from it. Owing to the decline in copper, Mr. Ridenour allowed the property to lie idle for a number of years, but leasers finally went in and revived it. Whenever operated it has always given good results, the values being higher grade than ever shipped from any other copper mine in the state.

The leasers believe that with proper equipment and greater depth the mine will become a large producer. The walls of the vein are sandstone, the depth of this material being nearly 1000 feet and the lime coming up through a great crevice in the sandstone.

Grand Canyon Copper.

DEC 1 1915

Andy Frazier [illegible] days this week from his lease on the Ridenour copper mines, in the Grand Canyon. He reports that he and associates have shipped a carload of the richest copper ore ever sent out from that property. A new shaft has been sunk on the ore at a point where it had been popularly supposed there was no mineral and this shaft passed into immensely rich copper. While the ore body is not over two feet wide it is continuous and the values is above 65 per cent in the red metal, and also carries values in gold and silver. Another carload is now being prepared and will be shipped into the smelter about the first of August.

While in town Mr. Frazier purchased a light truck of Jesse Tarr and will use it in hauling supplies to the mines and to establish communication with the railroad, a distance of about 45 miles.

HUALAPAI INDIAN RESERVATION K
Data from BIA

bluegill in the larger stock tanks was the only recorded evidence of resource enchancement on the reservation (BIA, Agcy Recs, PGR 1946).

In the 1960's, vigorous attempts was made by the Bureau of Indian Affairs to increase reservation fish and wildlife resources. This included the release of trout in the cold water streams and larger tanks. The release program also included elk and javalina in selected portions of the reservation. Elk were transported from Montana to the reservation where they were released in the Frazier Well district. Javalina introduced in the lower elevations was not successful; and it is thought that these animals migrated off the reservation to the south. Elk, however, thrived to the point that the tribe introduced an annual hunt as part of the game management plan. In addition, big horn sheep are indigenous to the regions of Colorado River breaks. Fish and wildlife management is under the Hualapai Tribal Council. The tribe has instituted an annual hunt for deer, elk, and sheep which is held in the fall each year. The elk and deer hunt is conducted for a ten day period with a total of 35 licenses sold annually. Big horn sheep permits are also sold by the tribe.

RIDENOUR MINE (file)

4.2.5 Prospecting and Mining

The region of the reservation was prospected in the early years for metal ores. In the late 1800's, prospectors had discovered valuable silver and copper deposits in the Mineral Park region, which was one of the causes for the Hualapai removal in 1874 (?). Following the establishment of the reservation, a substantial interest in prospecting developed within the boundaries of the reservation. In 1910, E.B. Atkinson reported that a Mr. Ridenour had a mine or mining claim which he was working on the reservation. This mine was located 25 miles from Pine Springs near the Grand Canyon Rim. The claim was located in March 1880 and recorded April 6th in Yavapai County; and subsequently transferred to Coconino County. Reportedly, the mine had been worked

to a depth of 100 feet, where a vein of over 300 feet in length of high grade ore had been discovered. Yields of 50-56 percent copper and 15-20 percent silver per ton had netted over $100,000 for Ridenour (NA, RG75, File No. 330, Ltr. Nov. 10, 1910). It was subsequently discovered that no law existed to permit Ridenour to continue working the mine; and the matter turned over to the General Land Office for determing ther validity of the claim (NA, RG75, File No. 330, Ltr. Mar. 8, 1916).

In 1916, Bruce Hunter, a Hualapai Indian, located valuable mineral deposits located off the reservation. Charles Shell inquired if he had the right to work this as a claim but Hunter decided against this (NA, RG75, File No. 332, Ltr. Dec. 28, 1916). While the interest in proepecting existed, entry into the reservation was discouraged until after the act of June 30, 1919 (Sec. 26, 41 Stat. 31; amended by act of Dec. 26, 1926, 44 Stat. 922-3). In this respect, all unallotted Indian lands were subject to prospecting. In 1934, the Hualapai Indian Reservation was, thus, declared open to prospecting and leasing on the condition that "notice of location" be filed within sixty days (NA, RG75, File No. 332, Ltr. Jun. 16, 1934). This was followed by some prospecting which was not very successful. Bat guano was dicovered in caves on the canyon rim by a Carl G. Krook who requested permission to remove the deposits. Subsequent transmittals from Charles Light to the Commissioner revealed that Krook was not required to take guano as a placer locations since guano was not considered a mineral according to law. He was, however, required to have a permit and provide some form of compensation (NA, RG75, File No. 332, Ltr., Jul. 21, 1921).

There were interests, also, by various parties in Arizona that wished to enter the reservation for oil and gas exploration. These interests were expressed in 1923 and E.B. Merritt, Assistant Commissioner of Indian Affaires, notified Light that entry was permissable under the act of February 25, 1920 (41 Stat. 437). To enter the reservation, authority was needed from the General Land Office. M.D. Dudley of Phoe-