CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: TRIPLE H

ALTERNATE NAMES:
BROWN-SWISHER LEASE

LA PAZ COUNTY MILS NUMBER: 348

LOCATION: TOWNSHIP 2 S RANGE 23 W SECTION 35 QUARTER SE
LATITUDE: N 33DEG 12MIN 16SEC LONGITUDE: W 114DEG 36MIN 10SEC
TOPO MAP NAME: HIDDEN VALLEY - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
MANGANESE

BIBLIOGRAPHY:
KEITH, S.B., 1978, AZBM BULL. 192, P. 181
ADMMR TRIPLE H FILE
IC 7843, P. 80

TRIPLE H 9/84

YUMA COUNTY
T2S R23W Sec 34, 35 ?
OR
T3S R23W Sec 36 SW

AKA: J.P.Jr. #1 & #2, Rosie

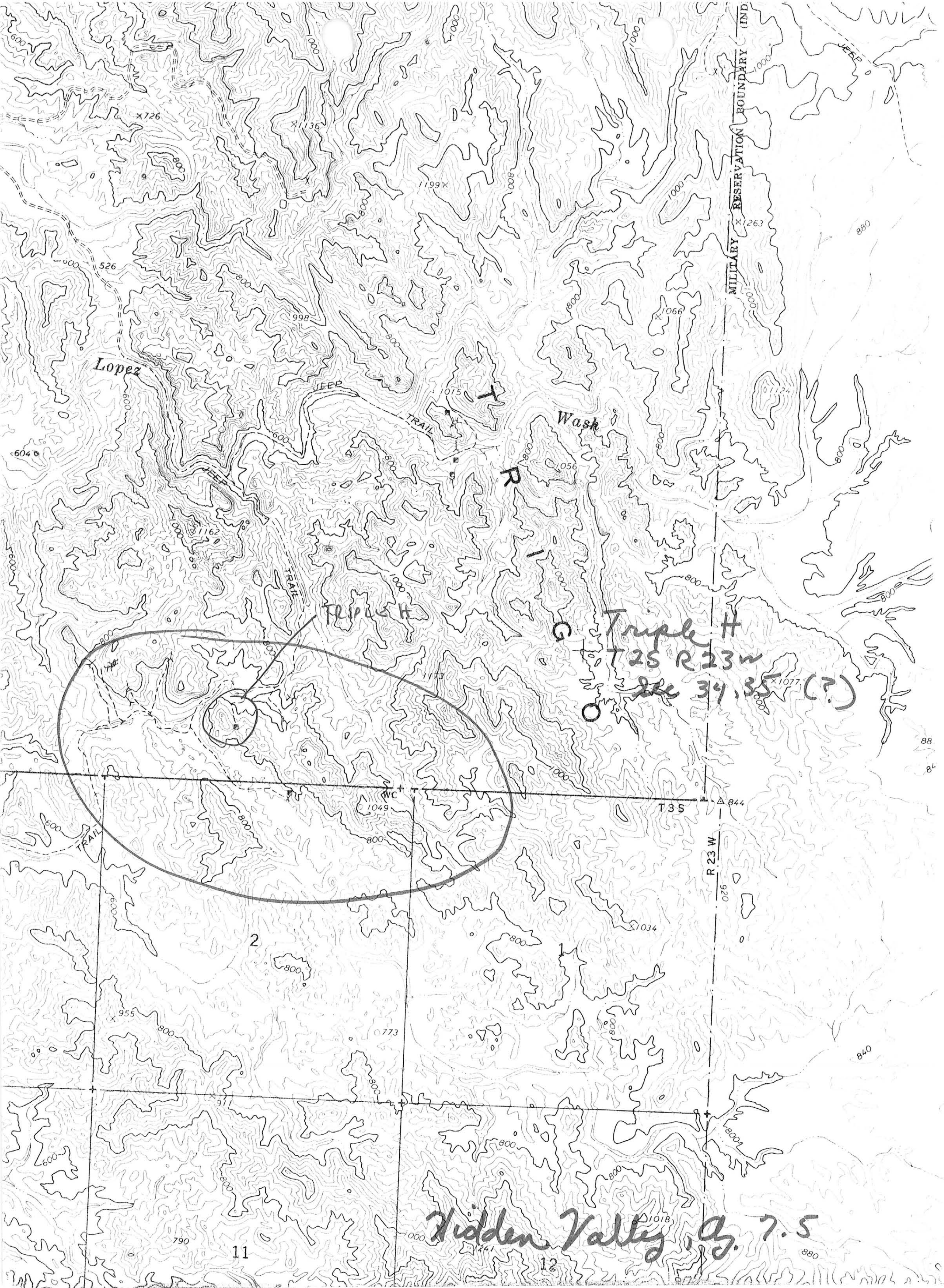
MILS Yuma Index #348

ABM Bull #192, p. 181

Geo. File: Geoexplorers International Vol 6

IC 7843, p. 80

USGS Hidden Valley, Az. 7.5 Quadrangle Map


Lopez
Wash
TRIGO
JEEP TRAIL
MILITARY RESERVATION BOUNDARY
T 3 S
R 23 W
WC
2
1
11
12
TRIPLE H
Triple H
T2S R23W
Sec 34,35 (?)
Hidden Valley, Az. 7.5

was mined in open stopes. Only stulls were needed to support the e blast holes were drilled with light rock drills. The broken ore was by hand into wheelbarrows and o the shaft, where it was hoisted face in a small skip. The ore was and-sorted before it reached the

on from this deposit on May 1, rding to Power, had aggregated 00 tons of ore averaging about 25 nganese. In May 1954, 150 to 200 was being produced monthly. or equipment consisted of a portable iven compressor, a 10-hp. gasoline 2 dump trucks.

, and Lilly Claims

up, known locally as the H. H. and y, is about 4 miles southeast of Jim's n sec. 4, T. 3 S., R. 23 W. The along a road that branches south Cibola road (fig. 25).

ms were located in 1953 by Hess and later were acquired and explored by Lea, realtors of Bell, Calif. So far , the production has amounted to w truckloads of sorted ore, which to Joe Lowe contained about 30 nanganese. When visited in May property was idle, and all the equip- been removed.

ization occurs within a brecciated strikes northeast and dips steeply lcanic rocks. The deposit had been by a shallow open pit about 75 feet 10 to 20 feet wide. The manganese xposed in the pit occurred in irregular, ous masses and veinlets surrounded of unreplaced lava. Several hundred ineralized material had been removed excavation and placed in stockpiles road.

nganese minerals, consisting of psilom- l pyrolusite, occur in a gangue of olcanic rock.

r group of claims known as New Year d 3, held by Kirk and Lea, is a short southwest of the H. H. and L. claims. ganese occurrence on this property was that found on those claims. About f sorted ore had been shipped. At the e visit 3 men were employed in break- orting ore from an opencut about 40

Claim

ggy B group of two unpatented claims a mile east of the H. H. and L. deposit. ns were located early in 1954 by John M. Brown, of Blythe, Calif. When visited in May of that year, mining operations were just getting under way, and only a few tens of tons of ore had been produced.

Manganese mineralization occurs along a vein or fracture zone trending north in volcanic rocks. The vein dips about 30° W. and was exposed for about 100 feet along the surface. The higher grade ore within the fracture ranged from 2 to 3 feet in width. Two lenticular ore shoots about 25 feet long were being explored from inclined shafts that had reached a depth of about 20 feet below the surface. The principal manganese mineral was pyrolusite occurring in a gangue of calcite and wall-rock inclusions.

Triple H

The Triple H claims are approximately in unsurveyed sec. 34, T. 2 S., R. 23 W., about half a mile west of the Cibola No. 3 claim.

The group was located in 1954 by Robert Bishop, of Blythe, Calif. When visited in May 1954, the property had recently been leased to Floyd Brown, of Wenden, Ariz., and exploration of the deposit was just getting under way.

Manganese mineralization was exposed in a shallow opencut for about 75 feet along the strike. The higher grade ore, ranging from 2 to 3 feet in width, occurs along the footwall of a steeply dipping fracture trending north and cutting volcanic rocks. In places, lower grade mineralization up to 10 feet in width was exposed along the hanging wall of the fracture zone. About 30 tons of the higher grade ore had been mined from the cut and was awaiting shipment to the Wenden purchase depot. A lot of similar ore that had been shipped to Wenden contained about 23 percent manganese.

Black Diamond Group

The Black Diamond group, comprising 6 unpatented claims, is in the south central part of unsurveyed T. 2 S., R. 22 W., about 14 miles by road east of Cibola Lake. The property is accessible over 9 miles of a road that branches east from the access road to the Cibola claims about 5 miles east of Jim's Landing. When visited in May 1954, a new road extending northeast was under construction; this will make the property more readily accessible from State Route 95 and materially shorten the distance to the Wenden purchase depot.

The claims originally were located in 1953 by Cornelius Lopez and were acquired a short time later by K. C. Gibson, of Roll, Ariz. By the end of April 1954 about 800 tons of ore containing 21 to 34 percent manganese had been shipped to the Wenden purchase depot. Several hundred tons of similar ore had been mined and stockpiled, awaiting the completion of the new road before being trucked to Wenden.

ABM Bull 192

Trigo Mountains (Cibola) District, Table 4 Cont.

MINING DISTRICT AND MINES	LOCATION T.	R.	Sec.	MINERAL PRODUCTS	GEOLOGY	TYPE OF OPERATION AND PRODUCTION	REFERENCES
1. ABC mine (Self, Cockrum & McNelly)	2S	22W	SE¼ 1 Protracted	Mn	Psilomelane in brecciated wall rock in parallel shear veins in Tertiary andesitic volcanics.	Open cut operations, worked in 1948-1950 and in 1954-1955, producing some 400 long tons of about 41% Mn.	Farnham & Stewart, 1958, p. 81 ABM Bull. 180, p. 219 ABM file data
2. Andrus claims (M & A; Tenny, Western Exploration & Development Co.)	2S	22W	SE¼ 20 Protracted	Mn	Psilomelane in bunches and veinlets along a fracture zone in Tertiary andesitic volcanics.	Open cut and pit operations. Some 50-100 long tons of sorted 40%± Mn ore shipped and 3000 long tons of low grade Mn ore sent for experimental concentration.	Farnham & Stewart, 1958, p. 81 ABM file data
3. Black Diamond mine group (Myrtle; Gibson, Todd & Smith, J. P. Stewart & Associated, Todd & Allen, Western Exploration & Development Co.)	2S	22W	E Cen 29 Protracted	Mn, Pb-, Zn-	Pyrolusite and psilomelane, mixed with calcite and brecciated rock, in lenticular shoots along an extensively brecciated shear zone in Tertiary andesite porphyry. Trace amounts of lead and zinc.	Open cut, shaft, and adit operations. Worked from 1953 through 1959, producing some 4600 long tons of plus 40% Mn and 9000 long tons of about 30% Mn.	Mining World, Vol. 19, Dec. 1957, p. 65 Farnham & Stewart, 1958, p. 80-81 ABM file data
4. Black Jack mine (Montoya, Gerlack, J. P. Stewart & Associates, Western Exploration & Development Co.	2S	23W	SW¼ 13 Protracted	Mn	Manganese oxides in disconnected, lenticular shoots, with calcite and brecciated rock, along a fracture zone in Tertiary andesitic volcanics.	Open cut and shaft operations. Worked from 1954 through 1959, producing some 650 long tons of plus 40% Mn sorted ore.	Farnham & Stewart, 1958, p. 81 ABM file data
5. Cibola No. 1 mine (N. & J. F. Powers)	3S	23W	N Cen 2	Mn	Pyrolusite with some manganite and psilomelane, mixed with calcite and quartz, in lenticular shoots, fracture fillings, and narrow seams cementing brecciated wall rock along an extensive and wide, brecciated zone at the fault contact between Mesozoic granitic schist and Tertiary andesitic volcanics.	Incline shaft operations. Worked from 1953 through 1954, producing some 2000 long tons averaging about 30% Mn.	Mining World, Vol. 19, Dec. 1957, p. 65 Farnham & Stewart, 1958, p. 79 ABM file data
6. Cibola No. 3 mine (N. & J. F. Powers, Manganese Mg. & Mllg. Co.)	2S	23W	S Cen 35 Protracted	Mn	Pyrolusite with manganite and psilomelane, mixed with quartz and calcite, in irregular shoots in a lensing brecciated zone in Tertiary andesitic volcanics.	Adit and shaft operations. Worked from about 1953 into 1958, producing some 500 tons of 30-40% Mn ore.	Farnham & Stewart, 1958, p. 79 ABM file data
7. Cibola No. 7 mine (J. F. Powers)	2S	23W	SW¼ 25 Protracted	Mn	Pyrolusite mixed with wall rock breccia and calcite in a steeply dipping fracture zone with disconnected, lenticular, mineralized lenses in Tertiary andesitic volcanics.	Shaft, tunnel, and open cut operations. Worked from 1955 into 1959, producing some 4000 long tons averaging about 30% Mn.	ABM file data
8. Cibola No. 8 mine (N. & J. F. Powers)	2S	23W	SW¼ 25 Protracted	Mn	Pyrolusite with calcite, other carbonates, and wall rock breccia in discontinuous, lenticular shoots along a strong fracture zone cutting Tertiary andesitic volcanics.	Shaft and open stope operations. Worked from 1953 to 1956, producing some 3000 long tons of 25-30% Mn ore.	Farnham & Stewart, 1958, p. 79-80 ABM file data
9. Fools Folly mine (Snipers, Smith, Jarroll, and Richardson) (Not shown on district map)	1N	21W	W Cen 1 E Cen 2	Mn	Pyrolusite mixed with brecciated wall rock in shoots along a fracture zone in Tertiary andesitic volcanics.	Shaft, adit, and open cut operations. Worked as early as 1930 and later in 1954-1955, producing some 300 long tons averaging about 20% Mn.	Farnham & Stewart, 1958, p. 82
10. Grand Central mine (Mexican operators, Hardt)	1S	23W	Cen 36 Protracted	Au, Ag-	Spotty, high-grade gold with minor silver, with banded quartz, iron oxides, ferruginous calcite, pyrite crystals and bunches, in cavities and fracture fillings along a fault zone cutting Mesozoic schist, intruded by granite porphyry dikes. Other similar deposits 1 to 2 miles to south (Jupiter, Boardway).	Shaft and open cut operations. Worked sporadically in early to late 1890's and again in 1930's. Total estimated and reported production from all the deposits would be some 52 tons of ore averaging better than 1 oz. Au/T and minor silver.	Wilson, 1933, p. 72; 1934 (rev. 1967), p. 148 ABM file data
11. H. H. and L. mine group (Cass, New Year Nos. 2 & 3; Hess, Hess & Lilly, Kirk & Lea)	3S	23W	NW¼ 3, NE¼ 4	Mn	Psilomelane and pyrolusite in irregular, disconnected masses and veinlets in brecciated and silicified Tertiary andesitic volcanics along fault zones.	Open pit operations. Worked in 1953 and 1954, producing some few hundred long tons of 20-40% Mn ore.	Farnham & Stewart, 1958, p. 80 Parker, 1966 ABM file data
12. Peggy B mine (Brown)	3S	23W	NE¼ 3	Mn	Pyrolusite, mixed with calcite and brecciated wall rock, in lenticular shoots along a fracture vein in Tertiary andesitic volcanics.	Shaft operation. Worked in 1954-1955, producing some 100 long tons of 20-30% Mn ore.	Farnham & Stewart, 1958, p. 80 Parker, 1966
13. Trigo gold placers (Various operators)	2S	23W	1 & 2	Au	Spotty gold placer deposits in stream beds draining from small gold quartz veins in Mesozoic schist.	Dry placer operations on small scale, and intermittently, from as early as 1860's into 1940's. Possibly as much as some 323 ounces of gold were recovered containing a few ounces of silver.	Wilson, 1961, p 25 Johnson, 1972, p. 75-76 ABM file data
14. Triple H mine group (Rosie, J. P.; Bishop, Brown, Western Exploration & Development Co.)	2S	23W	SE¼ 39, SW 35	Mn	Manganese oxides, with calcite and brecciated wall rock, in irregular bunches and lenses along strong fracture zones in Tertiary andesitic volcanics.	Open cut and adit operations. Worked intermittently from 1954 through 1959, producing some 2000 long tons of low grade Mn ore for concentration.	Farnham & Stewart, 1958, p. 80 ABM file data
XXIX. Yuma District (Yuma area)	8S-9S	23W	---	Au, Ag, Fe	Gold-bearing quartz veins and stringers along fault and fractures in Mesozoic or Laramide granitic gneiss.	One mine operation as noted below.	Wilson, 1933, p. 221 ABM file data
1. Jude mine group (Silverfields; Hedgepeth, Timmons & Gutchmaker, Burton, Fay Mg. Co.) Figure 2	8S	23W	N Cen 34	Au, Ag, Fe	Gold-bearing, iron-stained quartz, with local pyrite and pockets of limonite, in stringers and veins along fractures and faults in Mesozoic or Laramide gneiss.	Shaft and open cut operations. Worked originally in early 1900's and later in 1939-1940, and 1947, producing some 450 tons of ore averaging about 0.3 oz. Au/T with minor Ag.	

Reference: IC 7843, p. 80

PRELIMINARY EXAMINATION

OF

CLAIMS & SURFACE FACILITY

of

J. P. STEWART & ASSOCIATES

LOCATION - Trigo Mountains, Yuma County, Arizona

TYPE OF EXAMINATION - Visual Preliminary

DATE OF VISIT - September 16 and 17, 1958

EXAMINATION CONDUCTED BY: Jack Pierce - A. W. Jeffers - B. R. Waples, Jr.

I. INTRODUCTION

General Extent of Examination:

In the company of Mr. Lew Smith, the representative of J. P. Stewart and Associates, Messrs. Jack Pierce, A. W. Jeffers and B. R. Waples, Jr. visited the sintering plant, milling facilities, and the Black Diamond, M & A, Black Jack and Fools Folly claims on September 16th. In the company of Mr. Hermanson, the representative of J. P. Stewart and Associates, Mr. A. W. Jeffers and B. R. Waples, Jr. visited the Triple H, JP Jr. #1 and #2, Rosie, and 3 other claims on September 17th. No samples were taken and no maps or records were available during this examination.

All grades of ore bodies, ratios of concentration, assays of concentrates, production figures, and costs were by verbal communication.

II. MINES

A. Black Diamond Group (Gibson Pit)

1. Location

This group of four claims is located 9 miles east of the

concentrator, and is reached over a fair dirt road. This region is about the center of the Trigo Mountains, and the range has a general Northwest-Southeast strike.

2. Geology

The group consists of Andesite breccia that has been cemented with psilomelane. Steeply dipping stringers cut the area in a general NW-SE direction with some local bending. A large horse of Andesite cuts off the SE end, an east west fault with a limey bed cuts off the stringers on the north, and a large center horse of Andesite gives the pit the shape of the letter "C" with the open ends pointing south. The east and west sides of the "C" form the sides of steeply rising hills, and the center of the "C" is in a canyon, possibly a fault, that has a general north-south strike. It is approximately 450 feet across the pit and 150 feet in depth.

3. Mining

The general mining method follows, although indications show in the pit that poor management has hurt production. The pit is set up for 20 ft. benches, and the benches are drilled with a Gardner Denver Wagon drill using a 2¼" bit. Toe holes are drilled for relief and fragmentation. Very little secondary blasting was reported. Trucks are loaded with a 2½ yd. Northwest Diesel shovel and ore is hauled about a mile to an up-grading grizzly. The reported stripping ratio was 1 waste to 3 ore. All mining is being done on a contract basis by the Wells Cargo Trucking Firm that handles the haulage of both ore to the mill and concentrates to the railhead.

Experimentation in the pit on blasting powders has been limited, and at present Government supplus TNT and some nitrate fertilizers are being used. The holes are primed with 80% Geletin and fired electrically. No stemming is used.

A 50KW International TD 18000 generator supplies lights and power to run a conveyor belt at the grizzly.

The up-grading grizzly consists of bars set at 3", the minus product loading into a truck for mill shipment; the plus 3" is conveyed away - drops to the ground and is dozed over the waste dump. A man picks any large lumps of ore from the belt. In this way the general 3% pit ore is up-graded to 6% for delivery to the mill. The waste dump runs about 1%.

The general pit condition is poor; benches have been blasted off, and shovel access is limited. The stripping ratios as reported are unrealistic; as for any future mining, the stripping ratio may climb to as high as 4 waste to 1 ore for the remainder of the ore body. It appears the pit is bottomed and the life of the Gibson pit will be short.

B. M & A (Andrus)

1. Location

This group of four claims lies just to the west of the Gibson Pit and can use the same up-grading grizzly for its ore.

2. Geology

The ore occurrence is the same as on the Gibson; however the NW-SE striking stringers in the ore zone run thru the top of a steep hill. The ore zone appears to be 20 to 30 feet wide and its length is doubtful, possibly 500 to 800 feet.

3. Mining

About 3000 tons reportedly have been removed and indications at the crest show some work. If the ore is continuous, one cut could be taken thru the hill at reasonable cost. Additional cuts will require high stripping ratios on the sides. The general grade is reported the same as the Gibson, and the up-grading possibilities look to be the same.

The ore grade and poor continuity of the ore zone makes this a poor prospect for consideration as an underground property.

C. Black Jack

1. Location

This claim lies about 3 miles west of the Gibson Pit and just off the road from the pit to the mill.

2. Geology

In general, the area is similar to the Gibson and M & A. The stringers have the NW-SE strike but are more pronounced and wider. The zone is dipping to the west and a high grade streak that varies from 4 inches to 3½ feet in width lies against the hanging wall. In general the ore zone runs along a ridge with a NW-SE strike, and the ridge falls off

into a deep canyon to the east and into a shallow saddle to the west. The ore zone is approximately 8 feet wide but the grade is higher than either the Gibson or M & A.

3. Mining

About 1200 tons have been mined from this claim. The ore zone was shot and the cut loaded out with a front end loader. The east footwall side has been leveled out while the stronger hanging wall side remains in place. Stripping ratios will climb as the cuts are taken out, but the visible faces looked good. Considerable exploration would be required to determine reserves. The grade looks good, but the overall ore body is probably small.

D. Fools Folly

1. Location

This 2-claim group is located near the north end of the Trigo Mountains, and is reached over a dirt road that parallels the Colorado river for 17 miles, then a very poor road turns to the east for 4 miles into the claims. The mine to mill total distance is 21 miles.

2. Geology

This area typifies the entire region with the same stringer structure. The Andesite in this area however is cemented with manganite and the character of the stringers have a darker appearance, very fine grained, and a metallic lustre on a fresh surface. The NW-SE stringers cut into the east side of a steep hill and parallel the side of the canyon.

The stringers are not continuous thru the hill, and the ore body in plain view has the shape of an elipse. The ore zone is approximately 50 feet wide by 100 feet long. The depth is approximately 60 feet. Parallel to this zone, but separated by a 150 ft. wide Andesite horse, is another ore zone on the west side of the hill. The visible outcropped stringers are about 6 feet wide and the zone runs for about 50 feet in length along the strike.

3. Mining

All the mining has been done on the east eliptical-shaped ore zone. Some underground mining was done on the major stringers in this zone. A small adit is visible near the south end of the zone. No records are available concerning this work. Recent mining has been of the open pit nature but little production has come from the claim. The overall ore body is small.

E. Triple H - J. P. Jr. #1 & 2, Rosie and 3 other Boundary Claims

1. Location

This group of 7 claims is located in the south central portion of the Trigo Mountains. The claims are reached by driving south from the mill 6½ miles, then turning east over 3½ miles of bulldozed trails up stream bottoms. Altho it was reported that this road was operational during the mining of this group, the present condition is very bad.

2. Geology

The general structure is again typical in this region. The strike of the stringers in most cases follows a NW-SE trend, altho some right angle fracturing is evident. Stringers on the western-most portion form the Rosie ore zone. In the center are the J. P. Jr. #1 & 2 which show some cross fracturing, and the most easterly claim is the Triple H which has a NW striking zone that is flat dipping to the west.

3. Mining

The Rosie ore zone is about 14 feet wide. It has been mined about 30 feet along the strike; the cut has left a steep overhanging wall on the west that will require considerable stripping for further work. Underground methods appear impractical.

The J. P. Jr. #1 & 2 are situated on the top of a peak and a mining bench has stripped away part of the side and one stringer was followed into the mountain. About 50 feet below the summit a raise broke the surface and ore from the bench was transferred down the raise and drawn out thru an adit in the side of the mountain. The adit mouth was about 150 feet from the summit. Any remaining ore would prove costly and reserves would require a more extensive examination. The Triple H follows the Rosie pattern and further development will be costly.

GENERAL INFORMATION

The general opinion of mining men and geologists is that the ore zones within the area are shallow in nature, 100 to 150 feet will be the maximum depth, and the cemented breccia's will continue only to that depth. Possible ore horizons below this depth are not considered good.

The rich pockets are small and the lower grade fringe zones tend to be high in silica and iron that are penalizing factors in the sale of the finished product. For a one year operation, enough ore of millable quality is available, but for a long range continuous operation more time for exploration and examination would be required. This preliminary report covers only visual observations of a small section of the area.

III. PRODUCTION

Production figures obtained were slight, but from verbal reports, production from the various mines appears to be within the following limits:

1. Gibson

   Most production this year was from this mine, but increasing silica content in the concentrate has forced purchase of high grade fines to be added to this concentrate to make marketable grade. No definite figures were reported on tonnage.

2. M & A

   Approximately 3000 tons were produced for experimentation in concentration.

3. Black Jack

   No production this year; however, last year they shipped about

1000 tons of ore to the mill to produce 2 cars of concentrate. Previously the original owner had mined about 240 tons to make 1 car of concentrate.

4. Myrtle

Mr. Smith was vague about the Myrtle, but apparently there has been no commercial production this year.

5. Fool's Folly

On an experimental basis this year they shipped 137 tons of ore to the mill to produce 11 tons of concentrate.

6. Rosie, J. P. Jr. and Triple H

Mr. Hermanson reported that no ore was hauled from these three properties this year. During 1956 some ore was hauled to the mill. Apparently silica content from these properties was lower than from the Gibson and M & A mines.

IV. CONCENTRATION

Three steps of concentration are practiced on ore from these mines: 1.) grizzly concentration at the mine whereby the grade is raised from 3% manganese to 6-7% by rejecting plus 3 inch size on a grizzly at the mine loading ramp; 2.) milling which includes crushing to 1 inch, followed by Heavy Media separation of the 1 inch to 1/8 inch size and tabling of the minus 1/8 inch material; and 3.) sintering of mixed heavy media concentrate and table concentrates.

CONCENTRATOR

The coarse crushing plant consists of a primary 15 x 28 Pacific

jaw crusher which reduces the ore to approximately 2 inch size. This is followed by a screen set at 1 inch. The undersize goes to the fine ore storage; the oversize goes to a 3' Traylor secondary crusher in open circuit to the belt feeding fine ore storage. The fine ore is stockpiled over a feed belt to the scalping screen of the Heavy Media Plant.

The minus 1/2 inch undersize from the scalping screen, amounting to 33% of the feed, goes to 4 roughing tables which make a finished table concentrate of from 40 to 46% manganese. Middling from the roughing tables goes to two cleaning tables, which produce a concentrate of about 38% manganese.

Oversize from the scalping screen goes to a 7' cone of a Wemco Mobil Mill for heavy media separation at 3.20 specific gravity. Ferrosilicon consumption is reported to be 3/4 pound per ton of feed to the plant.

The concentrator is rated at 1000 tons per day. Power is supplied by a D 17000 Caterpillar Diesel Generator.

Eleven men per day are employed at the mill. On day shift there is a boss, two maintenance men, one chemist, one crusherman, and two operators. Afternoon and night shifts consist of two operators each.

From 1000 tons feed per day of 7% ore it was reported the mill produces from 60 to 90 short tons of combined heavy media and table concentrates. Tailing from the heavy media section is reported to contain from 1.5 to 3% manganese, and tailing from the table section contains 6% manganese.

Calculations based on 90 tons of 40% concentrate from 1000 tons of ore at 7% manganese indicate mill recovery is 51%.

SINTERING PLANT

The sintering plant, located at Ripley, California, eighteen miles from the mill, is capable of producing 60 tons of sintered concentrate per 24 hours. It consists of a blender, a storage bin, and a 4-hearth down-draft batch sintering plant. Two men are employed on each of the three shifts.

V. MISCELLANEOUS

Labor

Sufficient labor is available at Blythe, California for milling and sintering operations. Some of the men who worked for Stewart and Smith as operators are still in the area and are available. Labor rate is $1.50 per hour, and operator rate is $2.00 per hour. Heavy equipment operator rate is $2.50 per hour. The men are not unionized.

Housing

Living conditions at the mine and mill are poor. Some personnel live in trailers. Housing should be available at Blythe, which is about 28 miles away.

Transportation

Wells Cargo from Las Vegas, Nevada has trucking and mining contracts. Ore is mined and delivered to the mill at $2.00 per ton. Ore haulage alone is 63 cents per ton from the mines to the mill. Concentrate haulage from the mill to the sintering plant is $1.40 per ton.

Toll Bridge

At Cibola there is a toll bridge across the Colorado River. Toll fares are $1 per car each way, and $2 per truck each way. Stewart and Associates pay a flat fee of $4000 per year to cover all their traffic across the bridge.

Government Inspection

A government inspector from Wenden, Arizona visits the sintering plant twice a week to sample concentrates. Cars can be grouped into ten car lots to average out silica and iron irregularities, but no averaging has been allowed to cover excessive fines. The government accepts the concentrate at the sintering plant.

Publication

Attached is an Information Circular from the U. S. Bureau of Mines on "Manganese Deposits in Western Arizona". It contains the history of this area through 1954, showing the relationship between the various mines.

A. W. JEFFERS

B. R. WAPLES, JR.

CHARLES H. DUNNING
Mining Engineer

Phoenix, Arizona

Office
817 W. Madison
Phone ALpin 3-6272

Residence
1635 W. Earl Dr.
Phone AMherst 5-1132

To: Mr. Jack Stewart & Associates,
800 No. Central Ave.,
Phoenix, Ariz.

Manganese Mines Near Cibola.

Following your request I have made a new examination of the manganese properties you hold near Cibola, Arizona. A previous examination and report was made in July, 1955. Reference is made to that report for some details, such as the geological treatise, and same will not be repeated here. This report will be mostly confined to the changes that have taken place in the past two years.

You have several separate properties, or manganese deposits, and they are all within a ten mile radius of your centrally located mill. A brief description of each will follow:

GIBSON. The Gibson deposit was not owned at the time of my previous examination, although it was visited then. I understand that it has since been purchased. It consists of two large orebodies with a narrower neck connecting them. The northern part was formerly called the Allen. A sharp canyon, over 100 feet deep separates the two parts. An open pit has been started on the northern segment and promises well.

Bore holes put down in the north orebody, together with the croppings in the canyon below, give reasonable assurance that the ore continues for over 100 feet in depth. The south orebody is being mined now with a 2½ yard power shovel, starting in the canyon over 100 feet below the ore apex, as shown in the picture.

Altogether these two orebodies comprise an area at least 500 by 300 feet, which at 100 foot depth, would furnish over 1,000,000 tons. A test run was made on ore produced by the shovel, and some 650 tons produced over 100 tons of concentrates. This ratio of 6½ to 1 is probably a little better than would be maintained in mining the entire orebody, but an expected ratio of 9 to 1 would seem conservative.

May it be explained here that it has become the custom to speak of the grade and character of the crude ore in terms of its concentration ratio. No matter what the grade of the ore may be, the grade of the concentrates is quite uniform at about 42% Mn. Better or poorer ore simply makes more or less concentrates. Such concentrates are worth $90.00 per ton. Therefore if an ore yields concentrates at a ratio of 9 to 1, the gross value of the crude ore is $10.00 per ton.

M-A DEPOSIT. This deposit is on the strike of the Gibson, about one-half mile north. It has only been slightly opened up. It appears to be another orebody

similar to either body of the Gibson, and will furnish large tonnage by open pit methods.

Centrally located near the Gibson and the M & A you have facilities for hand sorting the crude ore from the pits. There, approximately 30% of the bulk is removed in the form of coarse chunks of waste. This waste is quite clean of manganese, and the expense of hauling to the mill, and milling, is thus reduced. This is good practice and should be continued.

BLACK JACK AND MYRTLE. These deposits are nearer the mill, seven and eight miles, respectively. They are vein-like orebodies along a vertical wall, which is a fault. The vein averages 10 to 30 feet wide. The ore is considerably higher grade than the general average, concentrating about 5 - 1. Mining will be more expensive although a slusher drag line could be used for awhile. The 5 to 1 ratio might well support the extra cost of underground mining. No very large tonnage is indicated.

JOHN P and TRIPLE H. These properties of nine and four claims, respectively, were not revisited, as little had been done there since my last visit. They do have large potentialities and when needed could furnish considerable tonnage.

MILL. The mill results have been greatly improved and the capacity increased several fold. These improvements include a heavy-media plant, several more concentrating tables, and adequate crushing equipment. You should now have no trouble in handlin 1000 tons of ore per day. Extraction has apparently been brought up to around 75%, which is very good considering that andesite gangue minerals, such as hornblende, usually carry manganese, which would be quite impossible to separate by any mechanical means. It would be interesting to sample various bands of tailings as they come off the tables, to determine whether some bands, such as the coarsest and the finest, carry a preponderance of the lost values. If so, some further recovery might be easily made. However, it may not be worth while to go into such refinements until you have finished more essential things.

GENERAL DISCUSSION and RECOMMENDATIONS. Ordinarily I am very insistent on the positive proving by drilling or development of adequate tonnage before making other heavy expenditures. But your case is now different, and in my opinion you have sufficient proof of tonnage to warrant the expenditures necessary for you to reach a high plane of efficiency and economy.

Although your ore does not meet the strict interpretation of proved or developed ore, I believe you have reasonable assurance of over 1,000,000 tons, and probably double that. This opinion is based on the wide diversification amongst your several orebodies, and the way they act or "shape-up" on development. It is of course a pleasure to note that the geological deductions and opinions expressed in my previous report have been so well born out. There have been no disappointments - in fact wherever development has progressed, results have been a bit better than anticipated.

Petty troubles, causing production delays, are the bane of most small mine operations. Weak points, causing such delays, should be sought out, anticipated,

and eliminated. I could not give your operation sufficient study to make an extended list of suggestions, but the following are apparent:

(1) General improvement in getting the ore from the pit to the mill is needed. This requires improvement in road conditions, and acquiring better trucking facilities.

(2) Better camp facilities, so you can acquire and retain a more dependable labor force.

(3) Adequate power with stand-by facilities to prevent shutdowns.

Assuming an operation of 1000 tons per day on a 10 to 1 ore, you would produce 100 tons of concentrates per day, worth $9,000.

My estimate of costs to do so are as follows:

Mining 1300 tons by shovel, including necessary deadwork	1000.
Sorting out 300 tons of coarse waste near mine (4 men)	80.
Hauling 1000 tons, including road maintenance	700.
Milling 1000 tons, including upkeep, repairs, and improvements	1000.
Shipping 100 tons, concentrates, via Ripley	100.
Prospecting and development on other properties	200.
General Overhead, inc: Management, engineering, basic taxes, camp losses, accounting, assays, legal, etc.	250.
Contingencies. Unexpected items	170.
Total expected daily expense	3500.

Analysis of above:

Profit per day	$5500.
Profit per ton 5500/1300	4.20
Cost per unit Mn. 3500/4000	.87

It is evident from the above that you have a very large potential profit. The important point is get your operation in shape to produce it, and keep it so doing.

Respectfully Submitted,

Aug. 13, 1957

Charles H. Dunning

(SEAL)