

PIUTE IRON MINE1. Location and Resources

The property consists of 36 unpatented mining claims, with an area of about 720 acres, located in Sections 24, 26 and 36, T35N, R32E, in Pershing and Churchill Counties, Nevada. (error--25N)

The ore body is estimated to contain a minimum of 300,000,000 long tons of iron ore and 50,000,000 long tons of this total is estimated to contain 50% Fe.

2. Development

The property has been drilled in the center of the southwest and northeast anomalies. The southwest hole was bottomed at a depth of 1,261 feet and the northeast hole at 1,728 feet. Both magnetometer and gravimeter surveys have been completed. Results of the drilling program are contained in the attached geological reports. Approximately \$128,000 has been expended on the drilling program to date.

3. Ownership

The property is owned by C.W. Hunley (78%), Roland Belanger (2%) and E.L. Stephenson (20%). An option to purchase the property is held by William B. Golden.

4. Current Mining Activity

The land is located near the Nevada Barth Corp. mine which is producing and shipping an estimated 3,000,000 tons of iron ore annually to Japan. Other small mines in the area ship an estimated additional 1.5 million tons. Kaiser Industries Inc. Eagle Mountain Mine is located to the southwest and ships 5.5 million tons of iron ore annually to Japan under contract to Mitsubishi Heavy Industries. The Eagle Mountain Mine also supplies the Kaiser Steel Corp. mill at Fontana, Calif. Canyon State Mining Co. is active in the area and it is rumored that they are considering construction of a pelletizing mill.

5. Area Reserves

The operating mines, with the exception of Kaiser, are currently working on small high grade, near surface ore bodies. Their reserves are estimated to be not more than 30,000,000 tons.

Six small properties in the immediate vicinity of the Piute are estimated to contain not less than 150,000,000 long tons of ore. These, together with the Piute, contain all of the known reserve ore in the district.

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Item 2

6. Operation

The property can be operated as an open pit mine or mined underground by block caving. Block caving would probably be the best method of operation and there is sufficient high grade tonnage available to permit direct shipment of ore without the necessity of concentrating. Magnetite ore of lower grade is now being mined by this same method in the Eastern United States. An estimate of mining costs has been prepared and is available to interested parties.

7. Economic Potential

The Piute is the largest remaining, corporately unowned, magnetite body in the United States, excluding Alaska.

Interest in Western iron deposits is increasing and shipments to Japan have grown. The property offers the investor the opportunity for substantial long term capital gains if held and resold at a later date. It would also be a source of continuing income if it were leased to a mining company on a royalty basis. Royalty rates are from 50 cents to 80 cents per ton of ore mined.

8. Purchase Price and Terms

The price of the property is \$850,000.00. A one year option can be arranged upon payment of 10% of the purchase price. Option payments would be applied toward the purchase price if the option was exercised. During the option period, the property would be available to the optionee for drilling, test pitting etc.

Interested parties are welcome to inspect the land at any time.

PIUTE IRON DEPOSIT

PERSHING COUNTY, NEVADA

The Piute Iron property was optioned to U. S. Steel in 1960 for 1.2 million dollars. Subsequently it was proved out by U. S. Steel and purchase agreed upon. However, during final phase of negotiations U.S. Steel discovered a larger deposit at Yerington, Nevada and dropped all options and leases on other properties.

The Property was optioned to Cleveland Cliffs Iron Corp. and W.S. Moore Co., Duluth, Minn. for 1.3 million dollars in 1961. Additional drilling was done and advance payment made to owners. The option was cancelled in May, 1962 at bottom of stock market break.

Another property located approximately nine miles to the Southeast and owned by Mineral Materials Corp. was sold to U.S. Steel in early 1960, before discovery of the Yerington ore bodies, for 4.5 million dollars. This land contains only 55 million tons of 38% iron as opposed to from 150 million to 300 million tons on the Piute.

The ore contains little phosphorus and is readily beneficiated. The 800 ft. of overburden is not excessive as iron mines in the East as well as Nevada are currently operating in pits and underground workings from 1200 to 3000 feet deep.

A portion of the deposit consists of ore containing in excess of 60% magnetite and could be shipped without beneficiation.

The owners are currently asking \$850,000 firm for the property, and are willing to pay a 20% commission on the sale.

Nevada Barth Corp., Nevada Nippon Mines and Nippon Bunsan, Tokyo are currently mining and shipping iron from nearby properties to Stockton and thence Japan. Kaiser Industries has a contract with Mitsubishi for an excess of 50 million tons of iron and is shipping from their Eagle Mt. Mine, near Gabbs, Nevada.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

AREA VI
MINERAL RESOURCE OFFICE

450 Golden Gate Avenue
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San Francisco, California
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Mr. E. L. Stephenson
1701 Lander Street
Reno, Nevada

Dear Mr. Stephenson:

Enclosed is a Xerox copy of our article on the Piute iron deposit as it now stands. I have made all the changes which you suggested.

The report hasn't been edited or reviewed but I expect that only grammatical changes will be made in the text.

If you have any further corrections or additions to make to the report please feel free to do so. We will send you a copy of the report when it is published.

Yours truly,

FOUR STAR

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WORTHINGTON

WORTHINGTON

Piute Prospect

Location and Ownership. - The Piute property is located in Pershing and Churchill Counties, Nevada, and may be reached from Lovelock by traveling south over State road 59 and the graded County road through Wildhorse Pass, a total of 19 miles. The County road continues northeastward to a junction with the Minerals Materials mine haulage road near the Iron Horse mine.

The property in secs. 24, 26 and 36 is owned 80% by C. W. Hunley and 20% by E. L. Stephenson. Secs. 19, 25 and 35 are owned by the Southern Pacific Company.

Physical Features. - The deposits are situated in a nearly flat to gently-sloping outwash plain at the foot of gravel and volcanic benches that lie between the West Humboldt Range on the northwest and the Carson Sink on the southeast at an elevation of 4,000 ft. Culinary water could be developed from springs 3 miles from the property but the only large source of industrial water is the Humboldt River 7 miles northwest and separated from the prospect by a 1,500-ft high ridge. The Southern Pacific Railroad siding of Granite is 15 miles from the property, as is a power line.

Geology. - The surface materials in the Piute area comprise outwash sand, gravel and boulders; low sand and gravel bars and fine sediments deposited in ancient Lake Lahontan; wind-formed sand dunes and scattered outcrops of volcanic rock. Just to the north, the gravels and Tertiary volcanic rocks occur in a series of well-defined benches, the steep fronts of which probably are fault scarps. In the immediate area of the anomalies an 800-ft. thickness of volcanic rocks occur beneath a shallow cover of more recent deposits.

The nearest exposures of pre-Tertiary rocks are in the West Humboldt Range but they have not been studied in any detail. The oldest formations are sedimentary, metavolcanic, and metamorphic rocks. The older rocks are cut by Jurassic or younger intrusions, and the entire complex is widely capped by Tertiary volcanic flows and pyroclastic rocks.

The horizons containing the iron deposits do not crop out in the anomaly areas and all present knowledge concerning their composition has been gained from the two drill holes which have penetrated them.

The mineralized metavolcanic rocks in the Piute deposit are very similar in appearance to the host rocks for the deposits in the Buena Vista Hills 10 miles to the southeast. These rocks are metavolcanics and, to a subordinate extent, metasediments which probably are of Triassic or Jurassic age. The metavolcanic rocks are dark-green, gray-green or gray and are most commonly fine-grained and even-textured. Mineralogically they are composed mainly of albite with smaller amounts of hornblende, augite, biotite, chlorite and magnetite.

Core from the Piute ore body shows heavy brecciation which has now been well-cemented by secondary albite, calcite, magnetite and other vein minerals. Much of the breccia in the drill cores has been heavily replaced by magnetite often in a highly selective manner. Some fragments being completely replaced by magnetite and other fragments being unmineralized. This could be the result of post mineral brecciation but the ores appearance suggests selective replacement. Each of the holes drilled was in the center of an

anomaly and each cut a large amount of brecciated rock. It is probable that a breccia zone in the center of each ore body formed the channel through which mineralization was effected but the outlying portions of each ore body may be composed of ore formed by the selective replacement of certain horizons and by deposition in veins. This relation was noted in the deposits in the Buena Vista Hills which have been exposed by open cut workings and similar relations at the Piute property, but on a larger scale, might provide an opportunity for selective underground mining.

Little is known of the subsurface structure of the anomalies except for the presence of the breccia zones. The 2 drill holes are 4,200 ft. apart and the best ore in each was found at about the same elevation. This may indicate that the strike of individual horizons is parallel to the trend of the two anomalies.

Development. - The deposit was found as a result of dip needle prospecting in 1952. Subsequently the area was thoroughly mapped with a magnetometer and two large anomalies were delineated.

Diamond Drill Hole No. 1 was put down vertically in the center of the southwest anomaly, and after cutting 744 ft. of barren Tertiary volcanic rocks and 242 ft. of barren metavolcanic rocks, intersected a zone of mineralized metavolcanic rock. The hole was bottomed at a depth of 1,261 ft. in material with a grade of 25 percent iron, and after 275 ft. of iron mineralization had been cored, which averaged 32% iron.

Diamond Drill Hole No. 2 was drilled vertically in the center of the northeast anomaly. After drilling 785 ft. through barren Tertiary volcanics, iron mineralization was encountered in meta-

volcanic rocks and the hole was continued to a depth of 1,728 ft. where it was stopped while in 34 percent iron mineralization. The 943 ft. averaged 28 percent magnetic iron. The 335-ft. section from 958 to 1,293 ft. in depth averaged 38.8 percent iron and the 90-ft. section from 1,115 to 1,205 ft. analyzed 59.4 percent iron.

This is all the subsurface development which has been done on the deposit. The lateral extent of the ore body is indicated by the size of the magnetic anomaly. The northeast anomaly has an area of 45 acres and the southwest anomaly has an area of 110 acres. The grade and thickness of the ore at the edges of the anomaly cannot be expected to be as high and large as at the center where the only testing has been done but it is obvious that an extensive area has been mineralized.

Resources. - The size of the deposit can be inferred from the area of the magnetic anomaly and from the width of ore encountered in the two holes drilled. It is apparently a very large deposit. The grade as shown by one drill hole in the center of each anomaly indicates an enormous amount of material carrying more than 20% iron, very large amounts containing over 30% and substantial amounts containing over 50%. On the basis of available information the deposit is estimated to contain 300,000,000 long tons of 28 percent Fe.

The ore as cored in the drill holes is magnetite occurring in disseminated grains, blebs, irregular stringers, solid massive bands and replacements of highly brecciated rock. A general average assay of the ore in the lower 275 ft. of Drill Hole 1 was 32.17% Fe, 0.14% P, 0.11% S, with 31.00% magnetic iron.

The top of the ore occurs at a depth of 800 ft. or more and consequently the stripping ratio will be at least 3.0 to 1 on a

weight to weight basis. Open pit methods would require the breaking of 10.4 tons of material in the pit and treatment of about 2.6 tons of ore in the mill for each ton of pellets produced. ^{of 7.2 tons of waste} Underground mining by somewhat selective methods would allow the production of 1 ton of pellets from the mining and treatment of approximately 2 tons of ore. If underground mining were confined to ore with a plus 50% iron grade, a ratio of 1 ton of pellets to 1-1/2 tons of ore mined and treated could be maintained. Drill Hole 2 contained 90 ft. of continuous core containing 59.4% iron and it is very possible that a drilling program would develop adequate reserves of plus 50% iron ore. Magnetite ore of much lower grade is now being mined by underground methods both in the eastern United States and abroad.

Some metallurgical testing was done on the core recovered from the two holes and the results were as follows:

	Percent <u>% Fe</u>	<u>% MagFe</u>	<u>% SiO₂</u>	<u>% Al₂O₃</u>	<u>% P</u>	<u>% S</u>	<u>% TiO₂</u>	<u>% Rec</u>
Heads	47.2	43.7						
Conc. from 100-mesh grind	68.4		1.74					94.4
Conc. from 200-mesh grind	66.7		1.88	1.64	0.061	0.011	Tr	92.6

Additional test work would probably reduce the phosphorus content of the concentrate.