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10.0127

4-9-63

Photos

Seligman IRON ORE



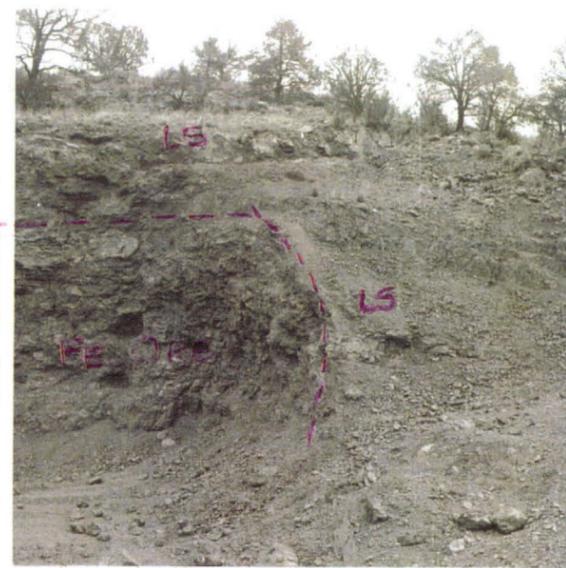
4/9/63



Hillside area

4/9/63

13-31



Pit No. 1

4-9-63

4/9/63



Hillside Area

Pit No. 1



Hillside Area

4/9/63



Hillside area

4/9/63

4/9/63



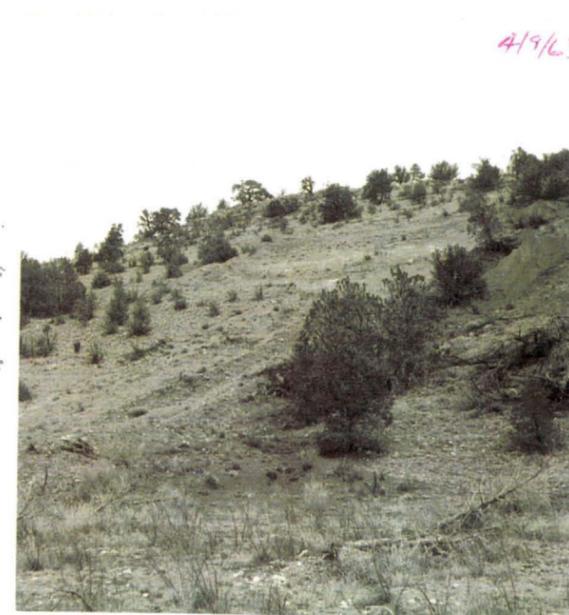
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Hillside area



Hillside area



Hill side area - no Timore beyond

number 102

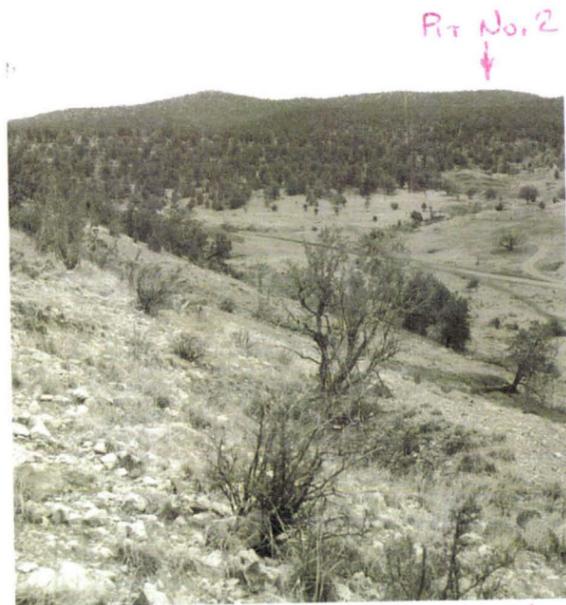


Pit No. 2

4/9/63



Saligman - Fe loading facilities 4/9/63



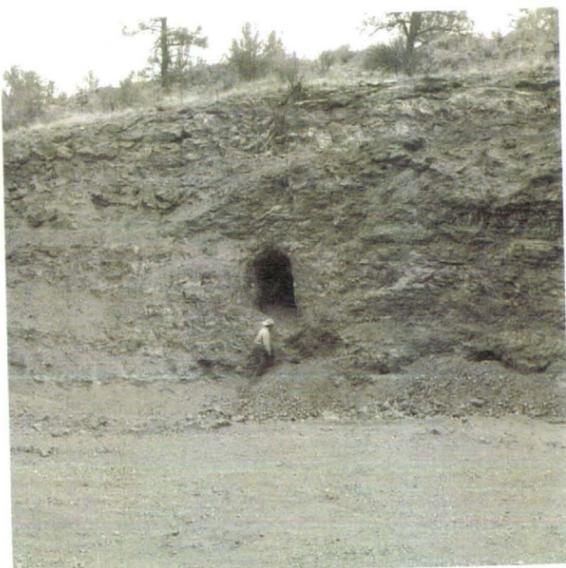
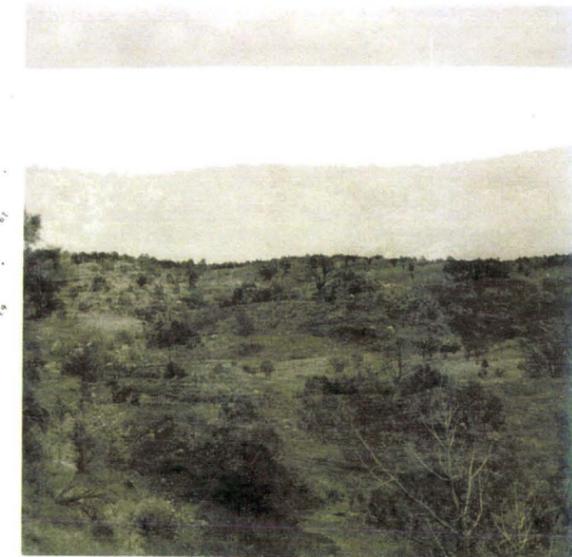
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4/9/63



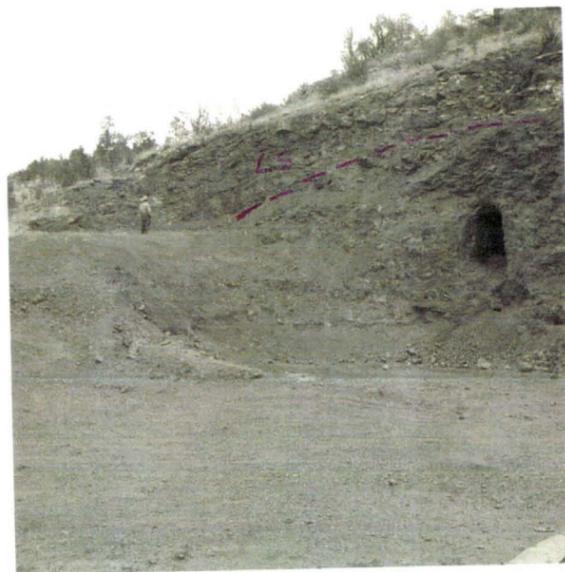
Pit No. 2

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Pit No. 1



4/9/63

Pit No. 1



Pit No. 2

4/9/63



Hillside area

4/9/63

Los Angeles, April 16, 1963

10.0127

FILE MEMO:

I visited the iron ore deposits located 20 road miles southerly of Seligman with Agent John Mow April 9, 1963.

My first visit to the area was in August, 1957. At that time the deposits were leased to Mr. Campbell, Western Drilling Company, Lubbock, Texas. Mr. Elwood Wright, geologist for Mr. Campbell, informed me prior to that visit that from 200,000 to 250,000 tons of iron ore had been indicated by drilling. (Incidentally, in late 1953, the E. J. Longyear Company, Minneapolis, did some drilling on the property but pulled out with results unknown). It is my understanding that the lease is still held by Mr. Wright since Mr. Campbell is now deceased. According to Mr. Mow, Mr. Cowden, owner of the deposits has recently sued to void the Wright lease without success. A Mr. Guy Schwartz and a Mr. Frick are reportedly either the present sub-lessees or have obtained the lease from Wright. This should be investigated. Certainly it would seem that Wright would at least retain an override.

The only tonnage shipped has been for paint pigment to C. K. Williams Co., Emeryville. Mr. Mow reported 12 cars were shipped in 1962.

The present proponent (check further into name details etc.) plans to ship 1000 tpd to Long Beach for export to Japan. (Present rate is \$6.10/NT or \$6.83/GT) A Mr. Pulliam, Oklahoma City, is to handle the loading and haul to railhead at Seligman. On March 29th Mr. Pulliam and a Mr. Likens also of Oklahoma City visited the deposit with others including

Asst. Divn. Engr. Miller and Agent Mow. It was Mr. Mow's impression as stated April 9th, that Mr. Likens was the "angel" on this project. At least everyone directly connected with the project showed him deference.

Since 1957 the two small pits then in existence have been opened up further. This shows that the ore as now exposed is not only lense-like in form but can terminate abruptly against limestone laterally indicating the typical characteristic of a replacement-type ore deposit. (See photos of Pits No. 1 and No. 2) Faulting also plays a role in cutting off lateral continuity.

A hillside area adjacent to Pit No. 1 (see photos) has been cleared off for about 600 feet. Due to iron staining this area appears to be all iron ore from a distance. However on close inspection and, as defined by prospect tunnels and vertical shafts, the ore zone ranges from 25 feet down to six feet in thickness. At the prospect showing the 25 foot thickness the iron ore dips approximately 35 degrees into the hillside. At another prospect exposure, 125 feet away, the ore thins to six feet and shows a dip reversal within a small fault zone. This reversal occurs in the space of a few feet. The next prospect, about 135 distant, shows the iron ore bed to be approximately eight feet in thickness and horizontal. About 20 feet above this opening is another iron ore showing which dips into the hillside about 25 degrees from the horizontal. The base of the ore at this prospect could not be determined due to fill but from eight to ten feet was exposed. About 35 feet above this is a vertical shaft estimated to be 50 feet in depth. Being inaccessible and due also to the ever prevalent iron staining it was not possible to effectively observe

the thickness of the ore within the shaft. The last prospect, some 100 feet away consisted of a vertical shaft about 20 feet deep. This shaft was driven entirely in, barren, hard, silicified limestone. From this shaft to the west there were no further iron showings within a reasonable mining distance.

In this hillside area the ore zone or bed is confined within limestone. The limestone above this bed ranges from 75 to 125 feet in thickness disregarding the fact that the principal bed dips rapidly into the hillside which would increase the amount of limestone overburden rapidly. This ore zone therefore could not be mined economically by stripping off the overburden; the stripping ratio would be too high. Costly underground methods would have to be employed. To mine only the outcrop for a short distance inward would also be difficult and not very productive since the ore is sandwiched between limestone above and below as previously stated.

In summary, this inspection indicated that an excessive amount of hard limestone overburden precludes economic extraction at today's prices for iron ore. Although the "ore" is geologically widespread over a 20-acre area at least, it appears to be erratically distributed laterally from place to place; lenses in and out; and its continuity is further complicated by faulting.

As to further economic considerations: Although, wherever exposed, the ore is of a high grade, it has the disadvantage of friability due both to intimate fracturing and to the occurrence of hard and soft zones within the bed itself. This leads to a large production of fines - possibly

25 percent under  $\frac{1}{4}$  inch. In this regard Mr. Powell, Raw Materials Superintendent, Kaiser Steel, told me in 1957 that Kaiser Steel would not use the ore for the open-hearth furnaces because even the segregated lump ore eventually broke down when stockpiled. He was also afraid that handling and shipping would accelerate this breakdown.

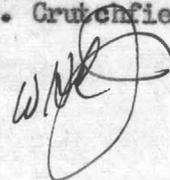
Then there is the important cost of transportation; First, there is the 20-mile truck haul to Seligman which at five cents per ton mile amounts to \$1.00 per ton. The current rail rate is \$6.83 GT to Long Beach Harbor.

Reportedly Cowden exacts a royalty of 50 cents per ton. Wright et al would exact perhaps another 25 cents per ton on the override. Also I have reason to believe that a broker is involved in the present proposal. This could amount to another 25 cents "off the top". Royalty etc. could therefore well reach at least \$1.00 per ton.

Stevedore charge at Long Beach would be close to \$1.00 per ton. Sampling would amount to five cents per ton.

All of the above charges are exclusive of mining costs, crushing and screening, and loading at railhead. The Japanese, to my knowledge, do not pay more than \$11.00 per long ton loaded and trimmed aboard ship. Transportation, royalties etc., stevedoring and sampling at dock runs the cost up to \$10.93 per long ton exclusive of mining etc.

Wm. H. Crutchfield, Jr.



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