



United States Department of the Interior

NATIONAL PARK SERVICE

WESTERN REGION

450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:

APPRAISAL OF MINERAL INTERESTS
INHERENT IN THE
KAISER STEEL CORPORATION PROPERTIES
IN THE
PLACER-MYSTERY CANYONS AREA
WITHIN THE
JOSHUA TREE NATIONAL MONUMENT
RIVERSIDE, CALIFORNIA

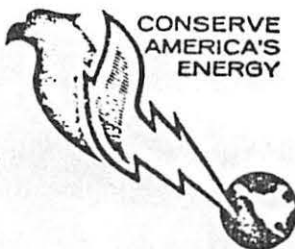
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SUMMARY

The subject property consists of eight patented mining claims and portions of three patented mining claims. The total area of these eleven parcels is approximately 190 acres.

Small deposits of iron minerals, principally magnetite, crop out in FERRO NO. 40, SUPERIOR NO. 12, SUPERIOR NO. 13, SUPERIOR NO. 15, FERRO NO. 38, FERRO NO. 39, and SUPERIOR NO. 17 mining claims. None of these deposits or the aggregate of all of them, is large enough to warrant the expense to develop them for mining. These small iron deposits have nil value.

The mineral interests inherent in these eleven parcels have no value. The date of this value estimate is January 16, 1975.

INTRODUCTION

The purpose of this appraisal is to estimate the fair market value of the mineral estate included in the boundaries of eleven patented mining claims in the Joshua Tree National Monument. Eight of the patented mining claims lie entirely within the Monument. The south boundary of the Monument passes through three patented mining claims; only that portion of each claim that lies within the Monument is included in this appraisal.

An appraisal of the mineral interests inherent in these claims is needed to prepare a complete appraisal of the market value, which in turn is needed to conduct negotiations for the acquisition of the subject area by the National Park Service.

The area within and adjacent to the claims boundaries was examined by C. T. Weiler, Mining Engineer, National Park Service, and Orlo Anderson, Resident Geologist, Kaiser Steel Corporation, on February 8, April 4, and June 12, 1974. A helicopter was used in the reconnaissance and mapping of iron mineral outcrops on April 4, and June 12, 1974.

Location

The subject property is in Riverside County and is located in Sections 14 and 15, Township 3 South, Range 13 East, San Bernardino Meridian, it is north and adjacent to the boundary of the northeast portion of Joshua Tree National Monument. The area is about 55 miles west-northwesterly from the town of Blythe, and about 25 miles north of Interstate Highway 10 north-

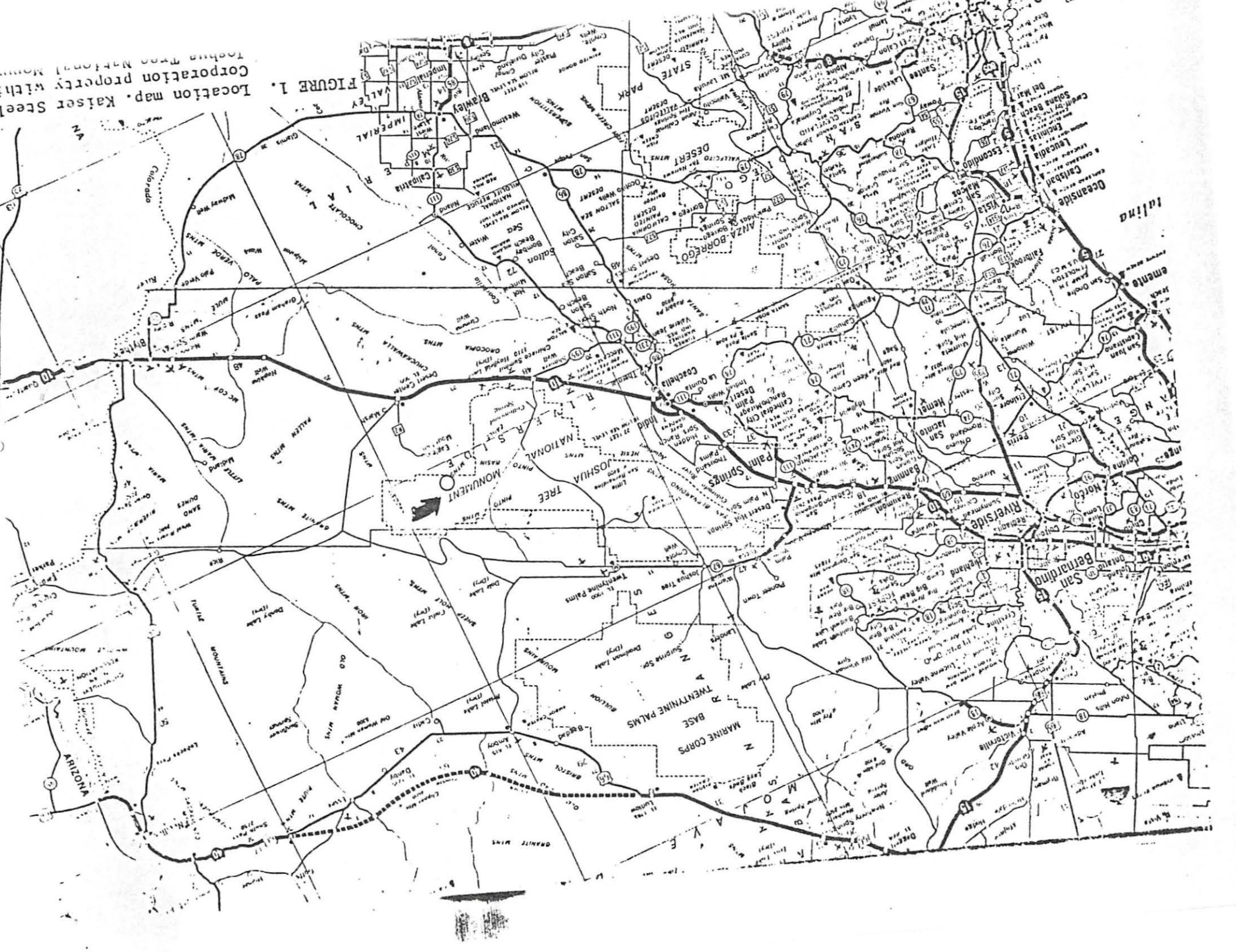
northwesterly from the town of Desert Center. Figure 1 shows the location of the claims area.

The claims are on the northern flank of the Eagle Mountains, from Placer Canyon (SUPERIOR NO. 17) on the east extending northwesterly about 6,000 feet to the edge of the Pinto Basin (SUPERIOR NO. 12). FERRO NO. 40 is about 3,000 feet west of SUPERIOR NO. 12, separate from the rest of the claims.

Exhibit A is a claims area map showing the topography of the area, the relative position of each of the claims, and their position within the Joshua Tree National Monument.

Location map. Kaiser Steel Corporation property with Toiyah National Monument

FIGURE 1.



PROPERTY DESCRIPTION

The subject property consists of eleven parcels totaling approximately 190 acres. The parcels are patented mining claims, or portions of patented mining claims. The south boundary of the Joshua Tree National Monument cuts across three of the claims, and only the portion of the claims within the Monument is included in this report.

These parcels are identified as mining claims in the respective patents. Figure 2 is a plat showing the respective location of each parcel.

Table 1 presents pertinent data about each parcel.

TABLE 1. Description of parcels

<u>NPS parcel no.</u>	<u>Patented mining claim</u>	<u>Acres</u>	<u>Mineral survey no.</u>	<u>Mineral patent no.</u>	<u>Date of patent</u>	<u>Granted of patent</u>
19-101	Ferro No.40	20.66	4895	459605	2-25-15	Iron C Mining Compa
19-102	Superior No.12	20.66	5142	507838	1-15-16	do
19-103	Superior No.13	20.66	5142	507838	1-15-16	do
19-104	Superior No.14	20.66	5142	507838	1-15-16	do
19-105	Superior No.15	20.66	4896A	460784	3-3-15	do
19-106	Ferro No.39	20.66	4896	460784	3-3-15	do
19-107	Ferro No.38	20.66	4896	460784	3-3-15	do
19-108	Superior No.16	20.66	4896	460784	3-3-15	do
19-109	Superior No.17	19.66	4896	460784	3-3-15	do
19-110	Ferro No.9	6.6	5145	507840	1-15-16	do
19-111	Ferro No.2	1.0	5145	507840	1-15-16	do

The mineral survey plats for the claims are shown in Exhibit B.

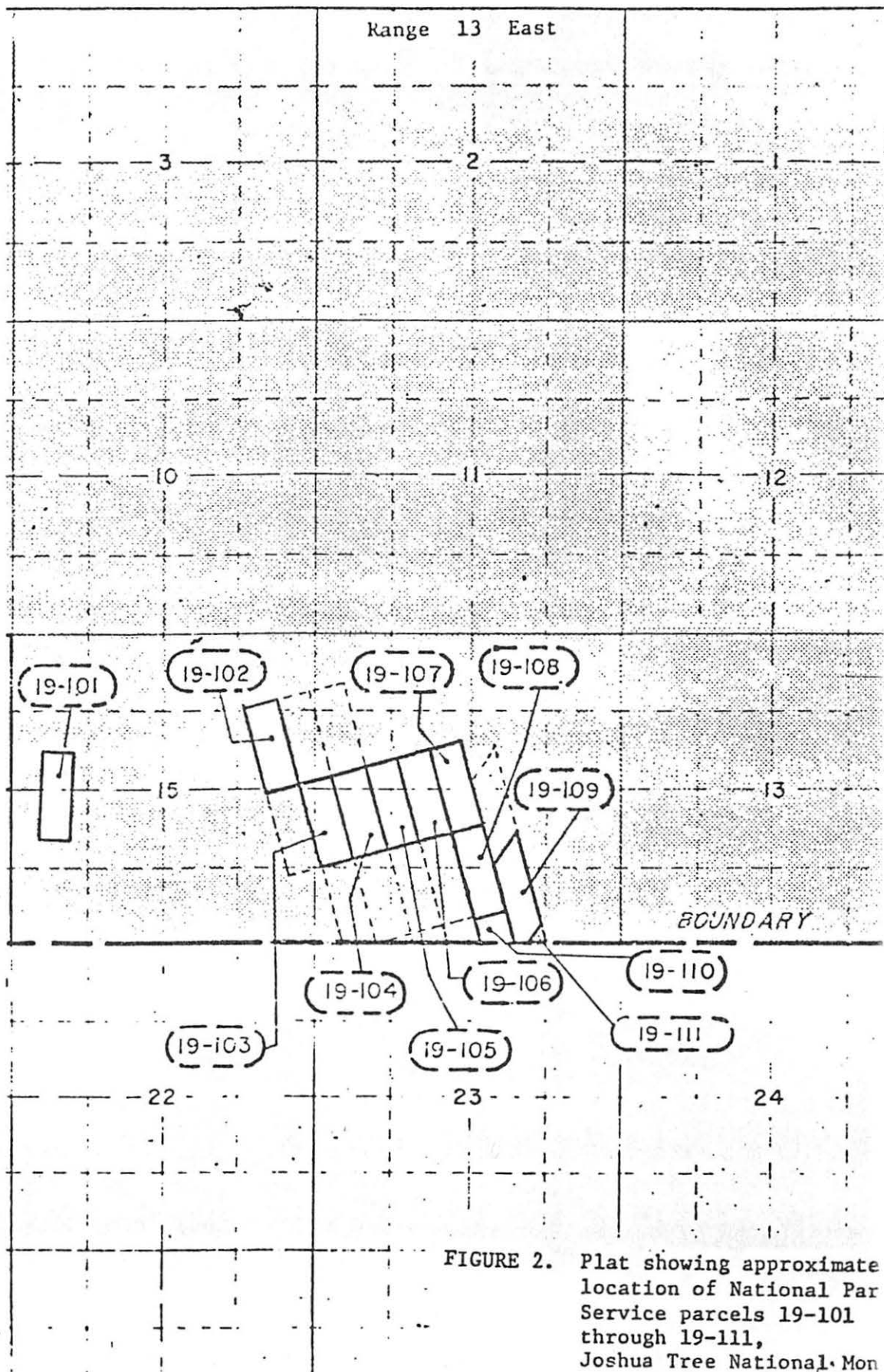


FIGURE 2. Plat showing approximate location of National Park Service parcels 19-101 through 19-111, Joshua Tree National Mon

HISTORY AND BACKGROUND

The small iron deposits that occur on the subject patented mining claims occur within the western extension of the same rock formation in which the ore deposits being mined by Kaiser Steel are found. These small iron deposits are about 5 miles from the westernmost mining activity of Eagle Mountain operations which are at the Black Eagle mine. The only feasible opportunity for exploitation of these small iron deposits would be as part of Eagle Mountain mine operations.

Additional information about the history and background of mining operations at Eagle Mountain mine is contained in Exhibit C.

A perspective of the size and scope of the iron-mining operations at Eagle Mountain may be gained from Photographs 1 through 4. Photo 1 shows the main office in the left foreground, the pellet stockpiling and reclaiming facilities, and the open pit in the background. Photo 2 shows the stockpile reclaiming area with the townsite in the background. Photo 3 shows the plant with tailings dump area at top center. Photo 4 shows the ANFO preparation plant alongside the main haulage road from the plant to Black Eagle area mine workings. Ore mined at the north end of the mine is hauled five miles in 100-ton trucks over this road to the plant area.

GEOLOGY

The Eagle Mountain Range trends northwesterly and is bounded on the north and the southeast by broad, flat, alluvium-filled intermontane valleys. The mountains rise abruptly to altitudes of 2,000 to 2,500 feet above the valley floor.

The oldest rocks in the Eagle Mountains are Precambrian, and consist of gneiss, schist, and quartzite, with local thin layers of crystalline limestone. Next oldest rock formation is a thick series of metasedimentary rocks called the Eagle Mountain metasedimentary group. These rocks crop out north of the Precambrian rocks as a large anticlinal structure. These two rock groups are separated by variable thicknesses of an intrusive, a porphyritic quartz monzonite.

The Eagle Mountain iron deposits occur mainly as selective replacements within dolomite members of the metasedimentary group. The deposits occur in a mineralized zone which varies from 1/4 mile to 1 1/2 miles in width, and extend for over 7 miles in an east-west to west-northwesterly direction across the northern portion of the Eagle Mountains.

The lower part of the metasedimentary series is massive vitreous quartzite with thickly-bedded schistose feldspathic layers; the upper part includes crystalline dolomite, quartzite, schist, and lime-silicate rock. These metasedimentary rocks have been intruded by large bodies of quartz monzonite.

Table 2 shows an idealized stratigraphic section of the metasedimentary group (1), and the general thickness of the included units.

TABLE 2. Eagle Mountain metasedimentary series

<u>Rock unit</u>	<u>Thickness, (feet)</u>
Upper quartzite	Undetermined
North ore zones	50-400
Middle quartzite	150-400
South ore zone	20-200
Schistose meta-arkose	20-200
Lower quartzite	1,000+

The metasedimentary rocks also have been intruded by sills of quartz monzonite. The small iron deposits within the subject property are in contact with or are nearby quartz monzonite sills.

Iron deposits occur as replacements within the dolomites and to a lesser extent, within the quartzites and quartz monzonites. Metamorphism altered the existing rocks with the formation of actinolite and tremolite, and for the most part, preceded the forming of iron deposits. Iron-ore minerals replaced part of the alteration minerals; the alteration zones controlled the ore emplacement.

After the formation of the iron deposits, a period of uplifting and tilting followed, accompanied by faulting which caused marked vertical

I. Dubois, R. L., and R. W. Brummett. Geology of the Eagle Mountain Mine Area, Riverside County, California.

displacement of the metasediments and the iron deposits. Later, fine-grained black dikes up to 25 feet wide intruded and intersected the iron deposits.

Two beds of ore extend for 2 miles. These beds dip about 45 degrees to the north and are separated by 250 feet of quartzite and tremolitic rock. The replacement of the dolomite beds was complete. Farther west, the iron deposits occur as bands or irregular masses of incomplete replacement within the dolomite.

The principal iron-ore minerals are hematite and magnetite. The hematite occurs mainly as secondary mineral after pyrite and magnetite, although isolated bodies of specular hematite of primary origin have been found.

Primary mineralization apparently was pyrite and magnetite; the pyrite originally was widely distributed throughout the iron deposits. At most places within 100 to 150 feet of the surface, the pyrite has been oxidized to hematite or limonite. Pyrite is the major source of sulfur in iron ores at Eagle Mountain.

OCCURRENCES OF MAGNETITE DEPOSITS

Seven small magnetite deposits were found during the reconnaissance and examination of the subject areas. Using a Kaiser Steel Corporation map (Exhibit D) of the designated area as a guide, the locale of each of five iron deposits indicated on that map was examined. The positioning of the claims on the map was revised according to mineral survey

monuments located during the reconnaissance, and by readily identifiable topographic features. The location and approximate boundaries of the outcrops of the seven small iron deposits are shown on Exhibit E, which is a revision of Exhibit D.

The seven small iron deposits are designated as A, B, C, D, E, F, and G from west to east, starting at the extreme westerly occurrence.

Deposit A is a 3-by-10-foot lens of magnetite occurring on the north slope on FERRO NO. 40 claim. Photograph 5 in Exhibit F shows Don Landells, helicopter pilot, standing on debris which partly fills and blocks the entrance to an adit on FERRO No. 40 claim.

Deposit B is in SUPERIOR NO. 12 claim and is a 5-foot-wide vein of magnetite which was traced for over 100 feet downhill on the westerly wall of a minor canyon. Photograph 6 shows the deposit and two adits nearby. Neither of the adits intersected iron mineralization. A random hand sample from this vein assayed 64.48 percent iron, 3.11 percent silica, and 0.011 percent phosphorus. Some chalcopyrite was noted in this occurrence. Exhibit G is the report from the assay laboratory.

Deposit C is an irregular mass, about 50 feet wide and 80 feet long, and at one point extends near vertically 20 to 25 feet above the canyon bottom. This body is in SUPERIOR NO. 13 claim. A random hand sample assayed: 65.28 percent iron, 4.23 percent silica, 0.007 percent phosphorus, and 0.09 percent copper. Photograph 7 is the view from the northeast corner of SUPERIOR NO. 13 to the mouth of the wash

at the north end line of SUPERIOR NO. 12. The northeast corner of SUPERIOR NO. 12 is between the road and the wash at the right center of the photograph. Photograph 8 shows Orlo Anderson standing near Deposit C.

Deposit D consists of two flat-lying 2-foot-thick lenses, one about 75 feet in length, the other about 100 feet; both are in the southeast part of SUPERIOR NO. 15 claim.

Deposit E consists of three lenses, one is 15 feet wide and 60 feet long; the other two are 5 feet wide and about 35 feet long. These bodies occur near and at the south end line of FERRO NO. 39 claim.

Deposit F is in FERRO NO. 38 claim, and is a 3-foot-wide vein-like body which could be traced for only 10 feet. The width decreased and the body pinched out. A minor amount of chalcopyrite was noted on the face of some broken magnetite rock.

Deposit G is a 6-foot by 20-foot lens of magnetite occurring on the west wall of Placer Canyon in SUPERIOR NO. 17 claim.

ORE RESERVES AND SURFACE IMPROVEMENTS

The subject area is completely undeveloped. Only a few foot-trails, probably 60 to 70 years old, may be seen on some of the slopes overlooking Pinto Basin. A few test pits and short adits occur on several of the claims. The remnant of a mining camp exists in the canyon between FERRO NO. 40 and SUPERIOR NO. 12. Well-marked foot-trails lead to some of the workings. This camp is called the Mystery mine and is reported to have been a gold mining venture. Other evidence of gold mining activity was noted about 2,000 feet south of SUPERIOR NO. 14 and SUPERIOR NO. 15 claims. Table No. 3 shows the probable tons of iron ore materials in each of the seven deposits noted.

TABLE 3. Probable tons of iron-rich ore materials

Deposit A	Less than 100 tons
Deposit B	From 100 to 500 tons
Deposit C	From 5,000 to 20,000 tons
Deposit D	From 500 to 1,000 tons
Deposit E	From 500 to 1,000 tons
Deposit F	Less than 100 tons
Deposit G	From 200 to 500 tons

Observations of the lateral extent of the small magnetite bodies showed they pinched and terminated abruptly. There is no evidence to show that the down-dip extension of the outcrops do not terminate just as abruptly.

REFERENCES

- U. S. Bureau of Mines, 1943. War Minerals Report 97, Eagle Mountain Iron District, Riverside County, California, 4
- Du Bois, Robert L. and Richard W. Brummett., Geology of the Eagle Mountains Mine area, Riverside County, California, 29 p. , 9 pl.
- Hadley, J. B., 1945. Iron-ore deposits in the eastern part of the Eagle Mountains, Riverside County, California. California Bureau of Mines Bull. 129, part A pp. 1-24.
- Harder, E. C., 1912. Iron-ore deposits of the Eagle Mountains, California. U. S. Geol. Surv. Bull. 503, 8
- Hughes, Martin J., 1958. A description of the operations of the Eagle Mountain iron-ore mine of Kaiser Steel Corporation. Skillings Mining Review, Feb. 22, 1958, pp. 2, 3, 21.
- Huseman, G. W., 1953. Kaiser stepping up production at Eagle Mountain iron mine. Engineering & Mining Journal, vol. 154, No. 5, May 1953.