(283) item 9

UNIVERSITY OF NEVADA
NEVADA BUREAU OF MINES AND GEOLOGY
RENO, NEVADA 89507

RETURN POSTAGE GUARANTEED

3100 0009

SECOND REPORT FOR MINERALS DEVELOPMENT COMPANY
ON IRON ORE PROSPECTING IN THE BUENA VISTA HILLS,
PERSHING COUNTY, NEVADA.
by E. L. Stephenson (June 1958)

3100 0009

283
Item 9

SECOND REPORT FOR MINERALS DEVELOPMENT COMPANY ON IRON ORE PROSPECTING IN THE BUENA VISTA HILLS PERSHING COUNTY, NEVADA

By

E. L. Stephenson
Consulting Geophysicist

Reno, Nevada
June 1958

Contents

Illustrations

SECOND REPORT FOR MINERALS DEVELOPMENT COMPANY ON IRON ORE PROSPECTING IN THE BUENA VISTA HILLS PERSHING COUNTY, NEVADA

By

E. L. Stephenson
Consulting Geophysicist

INTRODUCTION

This report presents the results of a second magnetometer survey made for Minerals Development Company in the Buena Vista Hills, Pershing County, Nevada. The survey is part of a program of prospecting and development of iron ore occurrences started by the Company in the spring of 1958. The work is centered in Sections 16 and 22, T. 25 N., R. 34 E., where the writer surveyed a series of magnetometer grids for American Ore Company in 1951 and 1952.

In March 1958 the writer relocated certain of the old American Ore Company grids for Minerals Development Company and staked locations for diamond drill holes in some of the stronger magnetic anomalies. At the same time magnetometer measurements were made in Section 22 to extend old Grid No. 5 into untested ground to the southeast, and magnetometer traverses were run in parts of old Grid No. 1, in Section 16, to redefine the best anomalies. The results of this work are presented in the first report. Later diamond drilling showed the presence of iron ore of good grade extending to considerable depth beneath the southwest magnetic anomaly in Grid No. 1.

In April 1956 the second magnetometer survey was made in Section 16 to explore a rather large area west and southwest of Grid No. 1. As the new grid corresponds in traverse bearing and general plan with Grid No. 1 and directly adjoins it on the west, the new grid is here designated as Grid No. 1 Extension. The work resulted in discovery of a sharp magnetic anomaly that indicates probable iron ore of good grade at fairly shallow depth, and of a broad anomaly of moderate magnetic intensity that probably indicates a zone of disseminated magnetite in the diorite. This report and accompanying illustrations summarize the results of the second survey and present suggestions for further testing and development.

GEOLOGY

The country rock in the surveyed area is coarse-grained diorite, much of which is strongly scapolitized. The ore bodies in the Buena Vista district, composed dominantly of magnetite but with much hematite in places, are replacement deposits occurring along faults and at fault intersections in the diorite. They vary in size from small pods to bodies containing many thousands of tons. Although structural control imparts to the deposits some of the general features of veins, the individual bodies are quite irregular and also tend to be sharply lenticular both horizontally and vertically. In addition to depositional irregularity, splits and horses of waste are very common features, and extensive post-mineral faulting is a further complicating factor.

Generally the high-grade ore bodies occur along broad and long mineralized zones within which the scapolitized diorite is variably impregnated with magnetite in the form of individual grains and small irregular veinlets and stringers. These zones are marked by broad positive magnetic anomalies of moderate intensity, within or along which the individual ore bodies are marked by stronger and sharper magnetic peaks and associated negative reversals.

MAGNETOMETER SURVEY

Plan of the survey

The plan of the survey is shown on the accompanying magnetic map of Grid No. 1 Extension. The control point, 600N-0, is 100 feet west of the two claim posts that are in the low saddle southeast of the northwest hill. These posts are approximately 30 feet west of the 500W line of old Grid No. 1, so that the 600W line of the present survey would be approximately the 630W line of the old grid.

From the control point a base line was projected due west, as nearly as could be determined from the average of several slightly divergent compass readings, and north-south traverse lines were spotted at 100-foot intervals to 1400W. Depending upon the magnetic readings, the traverses were run to varying distances as shown on the map, with magnetometer stations at 25-foot intervals within the anomaly areas and 50-foot intervals on the borders. To obtain additional magnetic detail on the new anomaly, shorter traverses also were run at 850W and 950W.

The 1400W line was run to 1500N to check the broad area between the present grid and the old Lahontan grid noted in the first report, but no important magnetic variations were found. Similarly, the 2000W line, not included on the map, was run to check the southwest central part of Section 16. Essentially no magnetic variation was found on this traverse.

Results of the survey

The results of the survey are shown on the sheet of magnetic profiles, plotted on a horizontal scale of 100 feet to the inch and a vertical scale of 4,000 gammas to the inch; and on the magnetic map, which has a scale of 100 feet to the inch and contour intervals of 1,000 gammas in the areas of lower intensity and 5,000 gammas in the peak area of the new anomaly.

The profiles from 700W to 1000W are strikingly similar to those of the Grid No. 5 area in Section 22, the Lahontan grid, and other mineralized zones in the Buena Vista district. They show the characteristic magnetic reversal, including a broad negative zone on the north, the main positive peak, and a rather variable positive zone of moderate intensity on the south. The profiles from 1000W to 1400W also show the broad, moderately positive anomaly that probably marks a general zone of disseminated mineralization in the diorite. The zone is not as broad, however, as the profiles suggest, as the traverses cross it at a low angle to the strike.

The magnetic map shows the true plan and areal relationships of the anomalies. The broad positive anomaly, which reaches peak values of a little over 4,000 gammas, strikes about N. 30° W. and extends beyond the borders of the surveyed area. Its trend, its position in Section 16, and information from earlier surveys all suggest that this mineralized zone may be the northwesterly continuation of the major zone that has been traced through Grid No. 5 in Section 22.

The new anomaly of immediate interest lies off the northeast side of the broad mineralized zone, centering near 325S on the 850W traverse. The long axis of the anomaly strikes about N. 70° E. and projects directly toward the southwest anomaly in Grid No. 1. The strike length is about 400 feet within the lowest, or 2,000-gamma closure and about 280 feet within the 5,000-gamma closure. The 10,000-gamma closure, about 110x80 feet in area, suggests that a block of higher grade material lies within a strongly mineralized center. The peak value on the 850W line is about 21,500 gammas, but from this point the peak values drop quickly along the strike. A good width is maintained, however, throughout the area of higher values.

The anomaly, as just described, is not especially large or strong as iron anomalies go, but it is believed to mark a substantial near-surface concentration of magnetite, at least some of which may be of direct shipping grade. No exact magnetic value can be designated as the dividing point between commercial and submarginal material, since the magnetic effects within any anomaly vary with the size and depth of burial of the body, the attitude and depth extent, the magnetite-hematite ratio, and various other factors. Dozer stripping and drilling will be necessary to determine the true commercial significance of this anomaly.

RECOMMENDATIONS

It is recommended that the anomaly areas mapped in the present survey be further tested and developed by diamond drilling and dozer trenching or stripping. The sharp anomaly should be checked by both methods, whereas only dozer work may be justified in the area of the broad anomaly to remove overburden and determine the nature and iron content of the rock. It is assumed that the broad anomaly indicates only low-grade material that will not be of immediate economic importance.

Assuming a steep south dip of the zone represented by the sharp anomaly, it is suggested that the first diamond drill hole be a vertical one located approximately at 850W-340S of the grid. This location is indicated in red on the magnetic map. Depending upon results here, other holes then can be spotted on or near the long axis of the anomaly. If good ore is found it is probable that both vertical and inclined holes will be necessary to determine depth extent and true widths.

The suggestion has been made that shallow testing be done with a wagon drill. If this method is used, it is suggested that the holes be laid out around the first diamond drill hole on a 10-foot or 20-foot coordinate system corresponding with the magnetic grid. Such drilling should be started near the center of the anomaly, and drilling limits will be determined progressively by the sampling results.

In trenching by dozer the trenches should be more or less normal to the long axis of the anomaly. It should be noted, however,

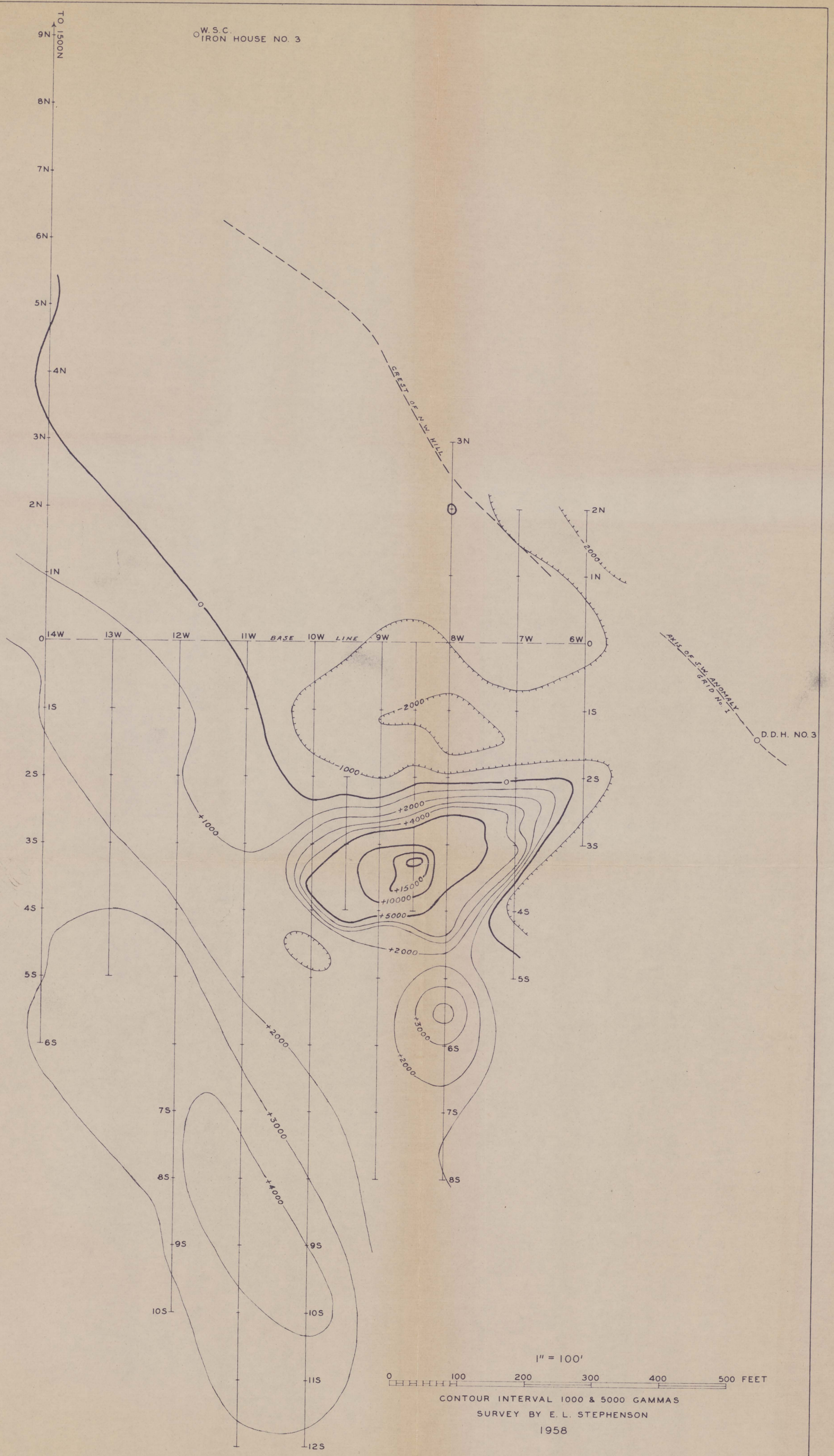
that ore might occur on either side of the central peak but substantially below the rock surface, in which event only drilling would provide an adequate test.

In the area of the broad anomaly it is suggested that at least a few long dozer trenches be dug on bearings of N. 45° E. to N. 70° E., or approximately normal to the long axis of the anomaly. The overburden probably is thin in this area and the rock surface probably can be rather easily exposed. It is probable that magnetite-impregnated diorite of low grade will be found, but if magnetite of some kind is not found at the rock surface a re-evaluation of the anomaly and deeper testing may be justified.

Reno, Nevada
June 3, 1958

E. L. Stephenson
Consulting Geophysicist

MINERALS DEVELOPMENT COMPANY

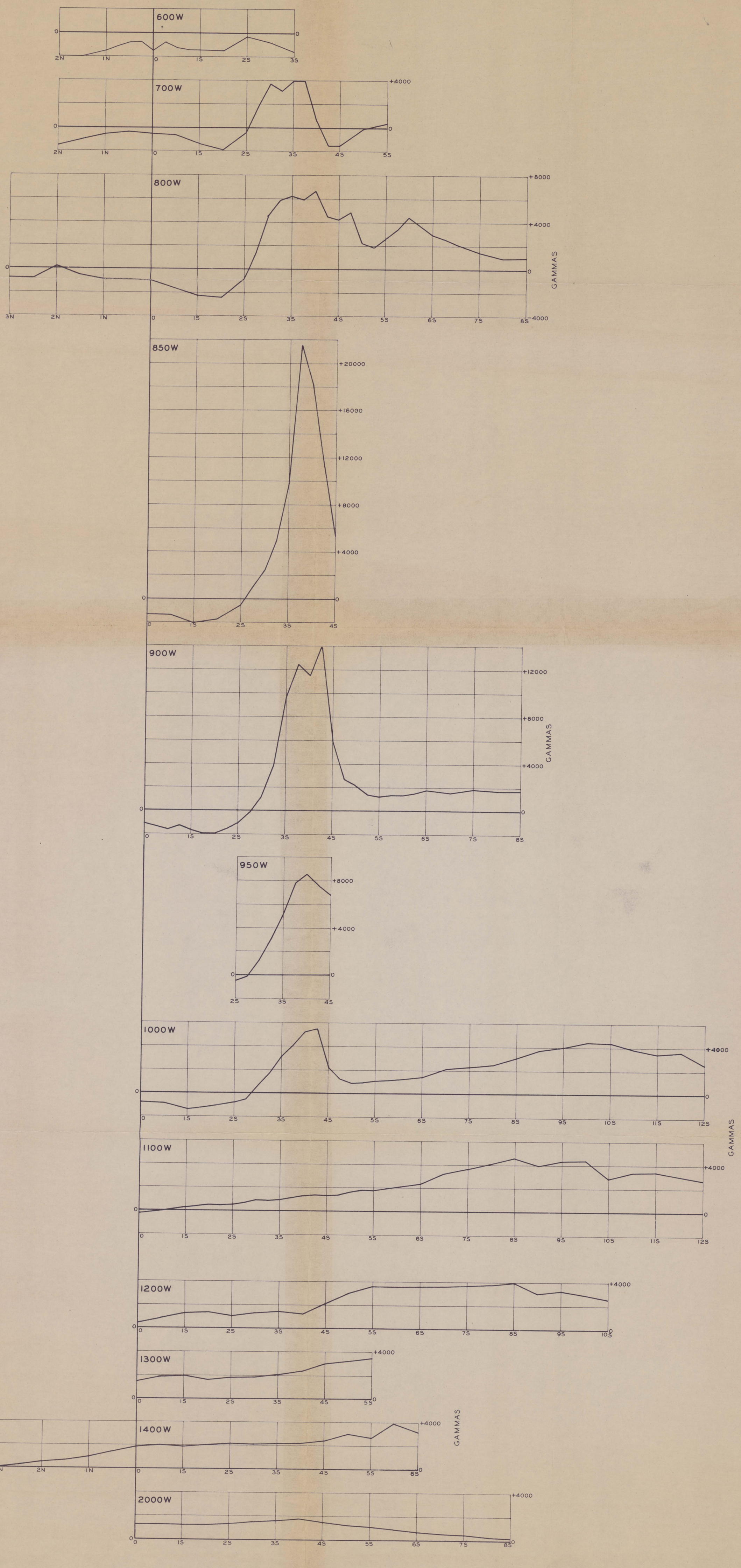


MAGNETIC MAP OF GRID NO. 1 EXTENSION, SEC. 16, T. 25N., R. 34E., PERSHING CO., NEVADA

283

Item 9

MINERALS DEVELOPMENT COMPANY



SURVEY BY E. L. STEPHENSON 1958

1" = 100'

MAGNETIC PROFILES IN GRID NO. 1 EXTENSION, SECTION 16, T. 25 N., R. 34 E., PERSHING CO., NEVADA

283

Item 9