

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM  
REGION IV

DIA-2132, Black Goose manganese Deposits

Socorro County, New Mexico

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U. S. Bureau of Mines

November 1951

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By John H. Soule<sup>1/</sup>

Claims on the Black Goose manganese deposits were located in 1950. A little exploratory work was done and the property leased to W. K. Pratt of Santa Fe, N. Mex., who applied for Government assistance under the Defense Production Act of 1950 to explore the property. The application, Docket DMA-2132, was for \$20,000, of which the applicant was to furnish 25 percent.

The deposits are situated in the western foothills of the Magdalena Mountains at an altitude of about 7,000 feet. The climate is generally good. No permanent streams exist in the area and information on sub-surface water is lacking. The area of the claims generally is not rugged and is wooded in patches with pinon pine and mountain cedar. Magdalena, the nearest town, lies about 21 miles by road to the north.

There are 19 unpatented lode claims in the Black Goose group, plus some placer locations to the south. The first claims were located by Duain Mangum and Leo Logan and were leased, with option to purchase, to W. K. Pratt of Santa Fe, N. Mex. Mr. Pratt and associates located additional claims. No manganese ore has been produced from the property.

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<sup>1/</sup> Mining engineer, Bureau of Mines



The manganese deposits occur in rhyolite on the northeast side of a northwest-trending fault. The mineralization is widespread in small amounts but occurrences of minable ore are few. The better grade of manganese ore is confined to shear and breccia zones that usually are spurs from the main fault. The manganese minerals are superficial and do not extend to any great depth.

Minaible ore reserves are small. Geologic evidence indicates that these reserves cannot be greatly increased by additional exploratory work.

Because the reserves are small, the grade is low, and the chances of improvement of either are poor, it is recommended that the application for Government assistance in exploring the Black Goose manganese deposits be denied.

**BLACK GOOSE MANGANESE DEPOSITS  
SUCORRO COUNTY, NEW MEXICO  
DMA-2132**

**Engineering Report**

**By John H. Soule  
Mining Engineer  
U. S. Bureau of Mines**

**November 1951**



BLACK GOOSE MANGANESE DEPOSITS  
SOCORRO COUNTY, NEW MEXICO  
IMA-2132

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## INTRODUCTION

The Black Goose manganese deposits have been of interest since the discovery of the deposits in July 1950. The property has been visited by numerous engineers including representatives of the Bureau of Mines,

The property was acquired by lease and option to purchase from the original locators and has been expanded to include a large number of claims, both lode and placer. The placer claims were located after the reported occurrence of gold in the manganese-bearing area.

The lessees of the property applied for Government assistance under the Defense Production Act of 1950 to explore the deposits that contain manganese. The application, Docket DMA-2132, was for \$20,000, of which \$15,000 would be furnished by the Government. This application was sent to the field for an examination of the property and to acquire additional information.

## ACKNOWLEDGMENTS

Acknowledgment is made of the assistance rendered by W. K. Pratt, lessee, and Frank Robinson, engineer, in pointing out various parts of the property and for information furnished the examining engineer. Acknowledgment also is due W. D. McMillan, mining engineer, Bureau of Mines, whose information on previous examinations of this property was useful in writing this report.



### LOCATION, TOPOGRAPHY AND CLIMATE

The Black Goose manganese deposits are located 21.5 miles by road south of Magdalena, Socorro County, N. Mex., as shown in figure 1. Access to the property is by State Highway 107 southwestly from Magdalena for 7.2 miles to a sign labeled the Muleshoe and other ranches. There the left fork is taken southeasterly for 6.5 miles to another fork. There the right fork is followed southerly for 5.2 miles to an old wooden windmill tower just east of the road. That point is about one-fourth mile north of the old Rheinhardt ranch headquarters. Turn east or left at the old windmill tower and follow the tracks easterly for one mile, then take the right fork and continue easterly, then northerly through a fence and onto the deposits, an additional distance of 1.6 miles. After passing through the fence gate, keep to the best marked tracks. The route is shown in figure 1.

The original Black Goose No. 1 claim was located in sec. 34, T. 4 S., R. 4 W. The property has been expanded so it now lies in secs. 27 and 35 of the same township and enters sec. 22 of the same township and sec. 2, T. 5 S., R. 4 W., as shown in figure 2. A number of placer claims have been located south of the lode claims.

The deposits lie in the western foothills of the Magdalena Mountains. The topography is not rugged in general although steep slopes are common in the northeastern part of the area. Gentle slopes characterize the southwestern part. The deposits lie at an altitude of nearly 7,000 feet (see figure 3).

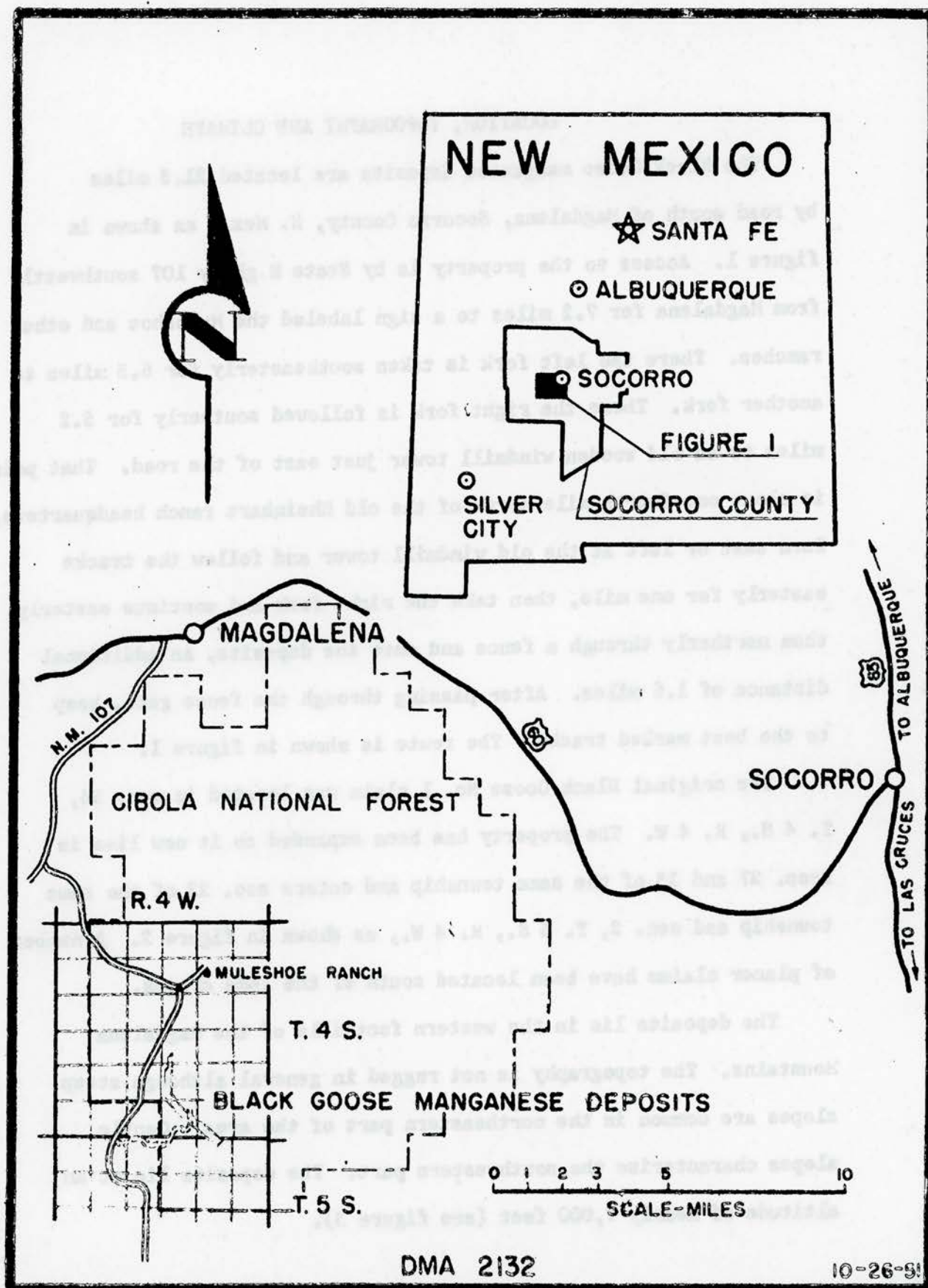


FIGURE 1-LOCATION MAP, BLACK GOOSE MANGANESE DEPOSITS, SOCORRO COUNTY, NEW MEXICO



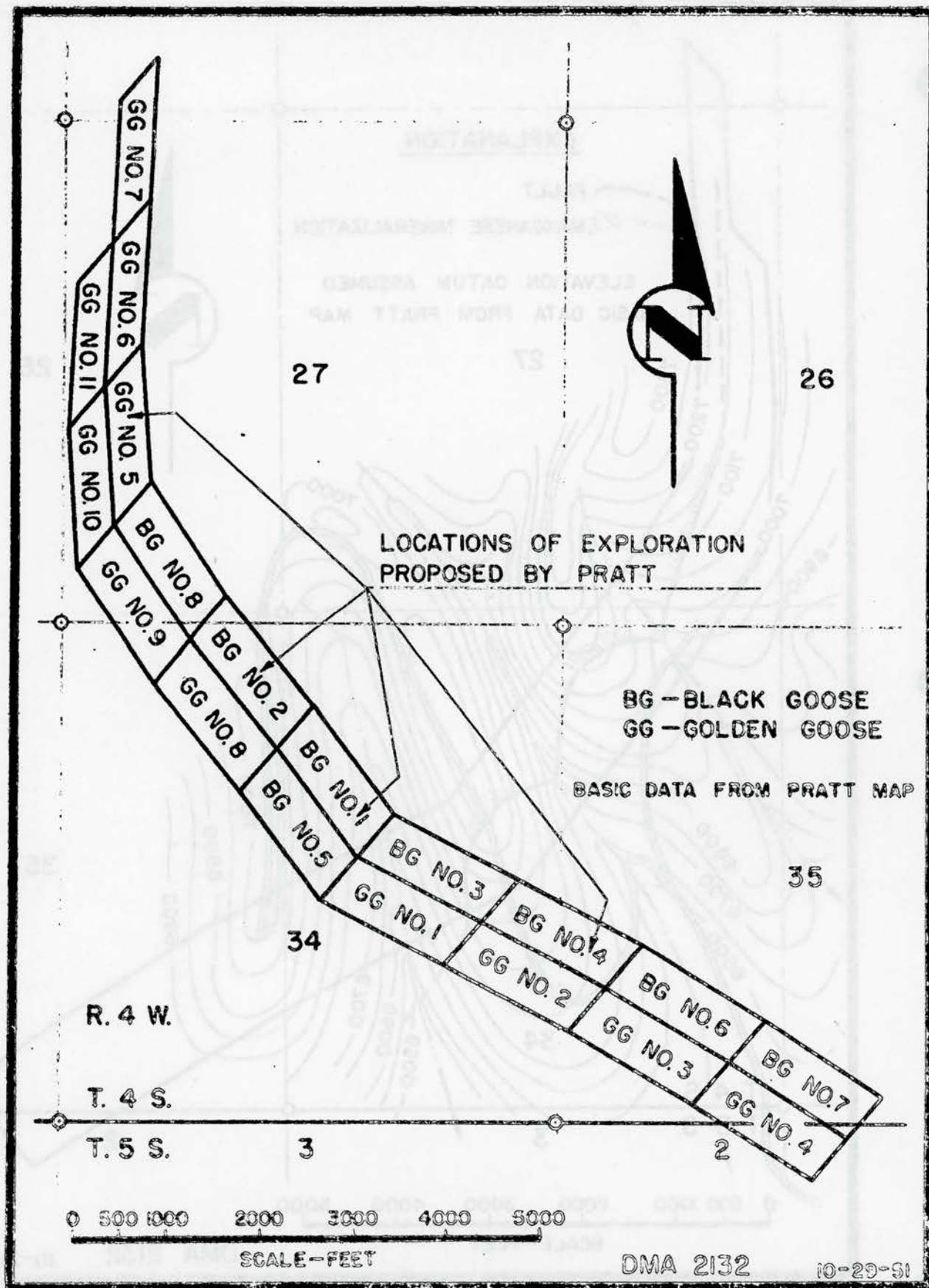


FIGURE 2.-CLAW MAP, BLACK GOOSE MANGANESE DEPOSITS

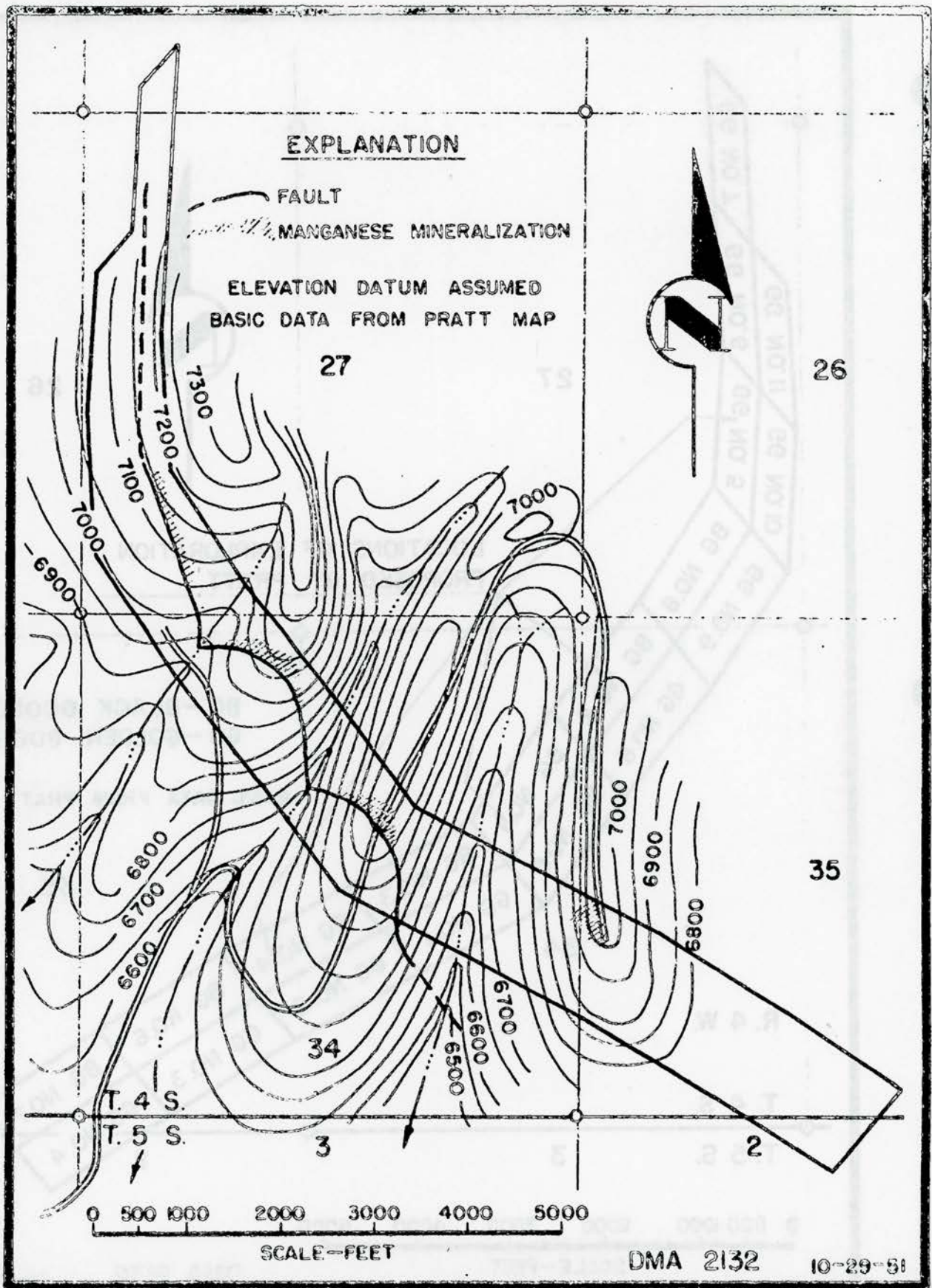


FIGURE 3—TOPOGRAPHIC & GEOLOGIC SKETCH, BLACK GOOSE MANGANESE DEPOSITS



The deposits lie within the Cibola National Forest. Considerable cedar and piñon pine abound, as well as cactus, various shrubs and range grasses. There is no timber suitable for mining use nearby but stands of Ponderosa Pine occur in the higher mountains a few miles to the east.

The mean annual precipitation is about 20 inches, largely as summer thunder showers. Winter snows usually are neither severe nor prolonged. There are no permanent streams in the area but there are a couple of springs which the ranchers have fixed for cattle watering places. Enough water may be obtainable from these springs for a limited mining operation. Nothing is known of the amount of sub-surface water that might be obtained from deep wells.

The temperatures generally are pleasant in the summer with a minimum of hot weather. Winter freezing weather may be severe but usually not prolonged. High winds are common during the spring months.

There are no living accommodations at the deposits. The closest available accommodations are at Magdalena, 21 miles by road to the south. A limited amount of skilled and unskilled mining labor is available at Magdalena. Minor mining supplies, telephone and telegraph services, and express and freight services also are available at Magdalena, which is at the end of a spur line of the Atchison, Topeka and Santa Fe railroad from Socorro.



## HISTORY AND PRODUCTION

The Black Goose manganese deposits were discovered in July 1950 by Duain Mangum and Lee Logan of Magdalena. Some old prospect pits give evidence of much earlier interest in manganese. There is no record of the earlier work. In the spring of 1951, the property was acquired by W. K. Pratt and associates of Santa Fe, N. Mex., who have located additional claims.

No production of manganese has resulted from this recent interest in the deposits although some small amount of exploratory work was done. Gold was reportedly found on the claims, and this caused considerable excitement. It is difficult to reconcile the enormous amounts of gold stated to be present from press releases with the sudden lack of interest in gold. No production of gold has resulted from this "strike".

## OWNERSHIP AND EXTENT

Lee Logan and Duain Mangum located eight Black Goose claims, which were leased with option to purchase to W. K. Pratt and associates. Pratt located eleven Golden Goose claims. These lode locations are shown in figure 2. In addition, Pratt and associates have located a large number of Gander placer claims, which lie south of the group of lode claims. None of the claims are patented.

## DESCRIPTION OF THE DEPOSITS

The country rock in the area of the manganese deposits is a rhyolite porphyry of probable Tertiary age. This rock is one of a series of volcanic rocks that are very extensive to the south and



in the San Mateo mountains to the west. The rhyolite near the manganese deposits usually consists of a very fine-grained ground mass containing phenocrysts of orthoclase feldspar and quartz with minor biotite. Many of the phenocrysts are rounded. In sections of the formations, the phenocrysts constitute a large portion of the rock mass. The bedding of the flows is very poorly exposed and in only one place was a dip of approximately 30 degrees to the northeast suggested.

The area is traversed by a fault as shown in figure 3. This fault contains a quartz vein that is irregularly exposed both laterally and vertically. This vein has been brecciated and recemented with silica wherever exposed and has been rebrecciated and not recemented in places. The dip of the fault and the vein are difficult to determine but topographic features suggest an approximate 60 degree dip to the southwest.

The rhyolite is generally unaltered and appears fresh when broken. A small amount of hydrothermal alteration was noted in small shear and brecciated zones associated with the main fault.

Known manganese mineralization is confined to the rhyolite northeast of the fault, and excepting the most southeasterly exposure, is close to the fault, rarely exceeding a couple of hundred feet. The southeastern exposure may be about 1,500 feet from the fault projection. The areas of manganese mineralization are shown on figure 3.



The manganese minerals are psilomelane and pyrolusite which occupy fractured and brecciated zones in the rhyolite. The primary minerals, rhodochrosite and rhodonite, were not observed. The zones seem to be spurs from the main fault. Their strike is difficult to determine although the strike seems to be a little east of north. Where brecciation has been intense and large voids were present, fairly good-grade manganese deposits were formed. However, throughout much of the area the brecciation was not intense and the manganese minerals merely occupy the cracks between breccia fragments and the fracture planes in fractured rock, and constitute low grade mineralization. This type of mineralization is quite extensive.

Although all of the manganese minerals probably were derived from a common source, presumably by the weathering of overlying rocks containing small amounts of manganese, subsequent erosion has detached the exposures. That the mineralization is superficial and extends to no great depths is indicated where erosion has cut valleys between the deposits. Manganese mineralization was sparse at a depth of approximately 100 feet vertically below the outcrops at the highest points. Concentrations of manganese do not exist at the bottom of the two main canyons that cut through the area. To the northwest and north along the fault, the manganese mineralization seems fairly continuous laterally where it is not dissected by erosion.



## ORE RESERVES

Ore reserves are based on the sampling of the Black Goose No. 1 deposit with a general sample taken on the Black Goose No. 4 claim. The material sampled was representative of ore that would be mined by an operation producing more than just a few tons per day. The sample results are shown in an assay plan, figure 4.

There is a negligible amount of measured ore in the Black Goose deposits. Indicated reserves are on the order of 900 long tons containing an excess of 15 percent manganese. There are 16,200 long tons of material indicated that contain 4.4 percent manganese, while the amount of rock containing one percent manganese is extensive. The better grades of ore are assumed to be 10 feet deep.

Inferred reserves of minable ore probably will not be much greater than those indicated. However, allowing for an assumed extension in depth to 50 feet of the better grade material, the inferred reserves would be about five times those indicated. Exploratory work was done on those places showing the highest grade manganese, and sample results suggest that lateral extensions of the indicated reserves of the best ore are not warranted (see figure 4).

The following table classifies the ore reserves as calculated:

TABLE 1. - Ore reserves in long tons.

Reserve type	Plus 15% Mn	2 1/2-15% Mn	1 1/2-2% Mn
Measured	Few	Few	Few
Indicated	900	16,200	1,320,000
Inferred	3,600	64,800	6,000,000
Total	4,500	81,000	7,320,000



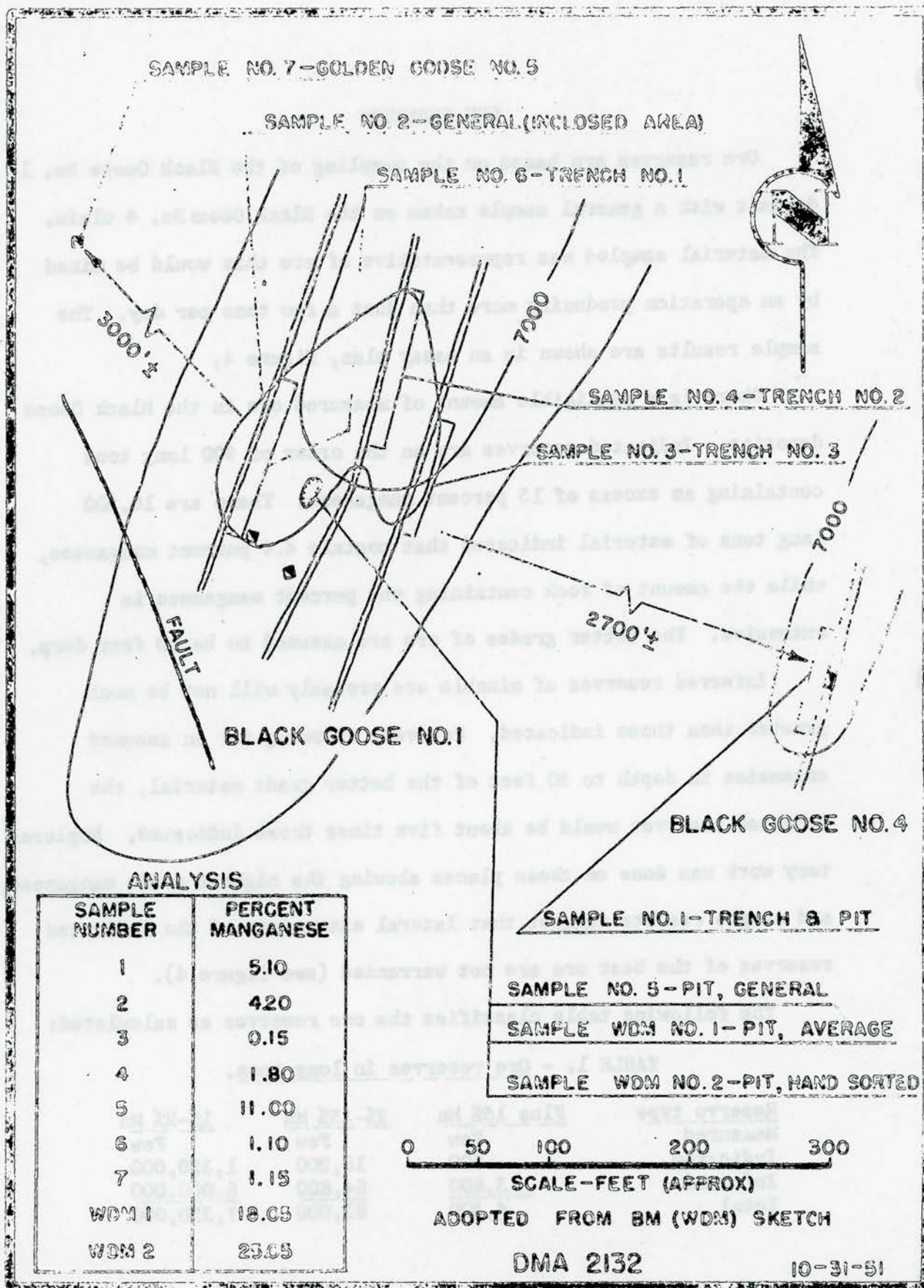


FIGURE 4.-SKETCH, ASSAY PLAN, BLACK GOOSE MANGANESE DEPOSITS



### PROPOSED EXPLORATION

The applicant proposed to explore the manganese deposits by mining methods. He had chosen 4 localities showing the best manganese exposures, and planned 140 feet of workings on each location. This work was broken down into 30 feet of adit or shaft, 40 to 80 feet of drifting, and 30 to 70 feet of crosscutting, aggregating 140 feet. The topography of the area is such that exploration would be cheaper and more quickly accomplished by trenching and drilling (either core or wagon), than by expensive mining methods.

The program was to cost \$20,000, of which the applicant would furnish one-fourth or \$5,000. The remainder would be furnished by the Government.

### CONCLUSIONS

The following conclusions are based on an examination of the property and a study of available data resulting from previous examinations by an engineer of the Bureau of Mines:

1. Very low-grade manganese mineralization is extensive although discontinuous along the northeastern side of a fault traversing the Black Goose property;
2. Medium grade manganese mineralization is confined in small faults, shears and breccia zones, usually spurs from the main fault;
3. The manganese mineralization is superficial and extends to no great depths, as shown in valleys cutting the deposits, the best manganese ore occurring at the tops of ridges, the valleys being practically barren of manganese;

1/ W. D. McKillan, mining engineer

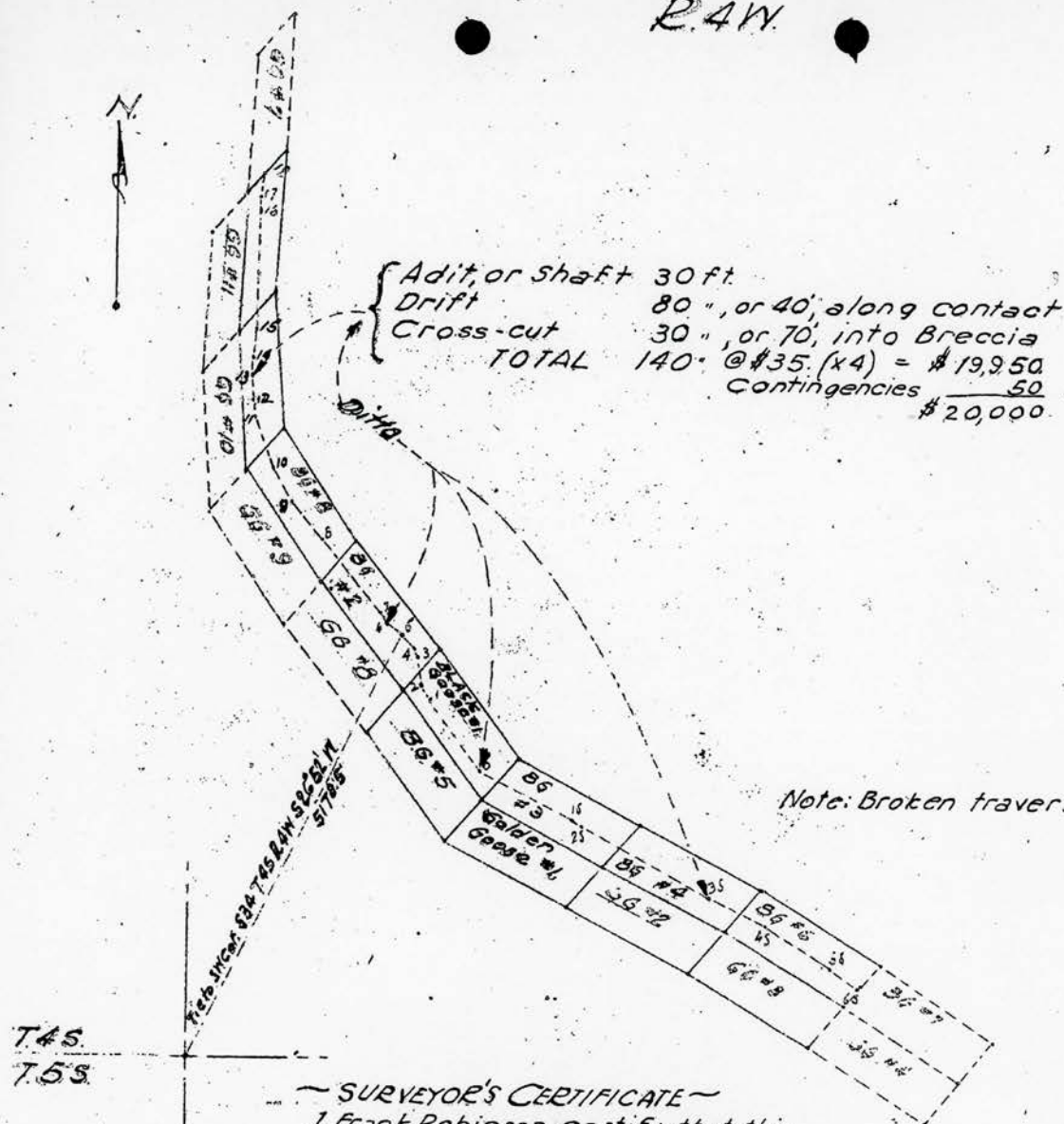
4. Movable ore reserves of manganese of acceptable grade are small, and geologic indications show that these will not be greatly increased by additional exploratory work.

#### RECOMMENDATIONS

Based on the above conclusions, it is recommended that the application for Governmental assistance in exploring the Black Goose manganese deposits, Docket BMA-2123, be denied.



R.4W.



SURVEYOR'S CERTIFICATE

I, Frank Robinson, certify that this plat, and the field notes shown hereon, represents a true and correct copy of a survey made under my supervision in the field, May 1951, and shows conditions existing on the ground at the time of the survey.

*Frank Robinson*  
 Reg. P.E. & L.S. Lic. 355, N.M.

SURVEY

for  
 Wm. K. Pratt & Associates  
 in  
 Sections 27, 34, T.4S. R.4W. &  
 " 4, T.5S. R.4W.  
 Magdalena, N.M. 5-51 Scale 1" = 1500'

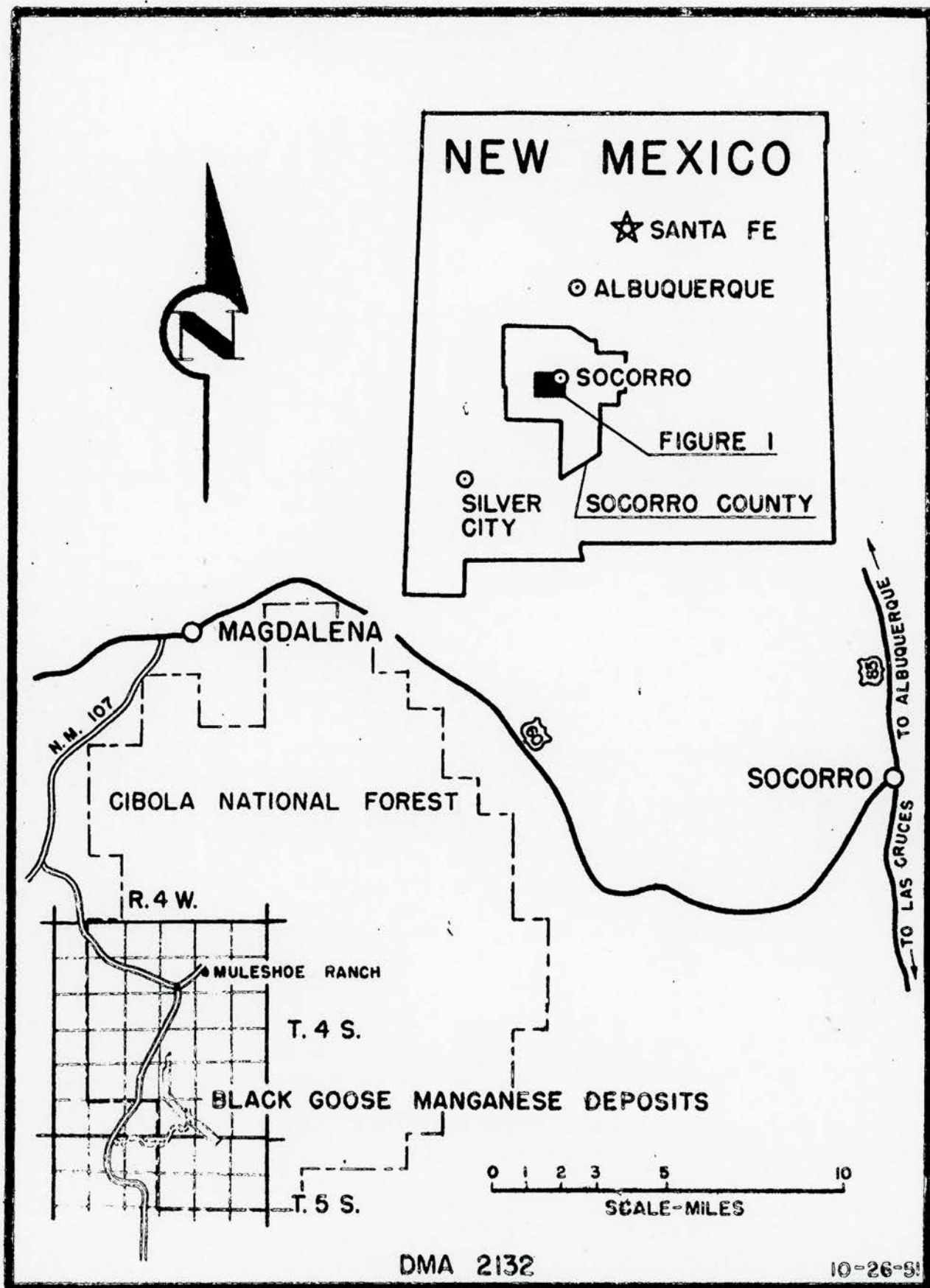


FIGURE 1-LOCATION MAP, BLACK GOOSE MANGANESE DEPOSITS, SOCORRO COUNTY, NEW MEXICO



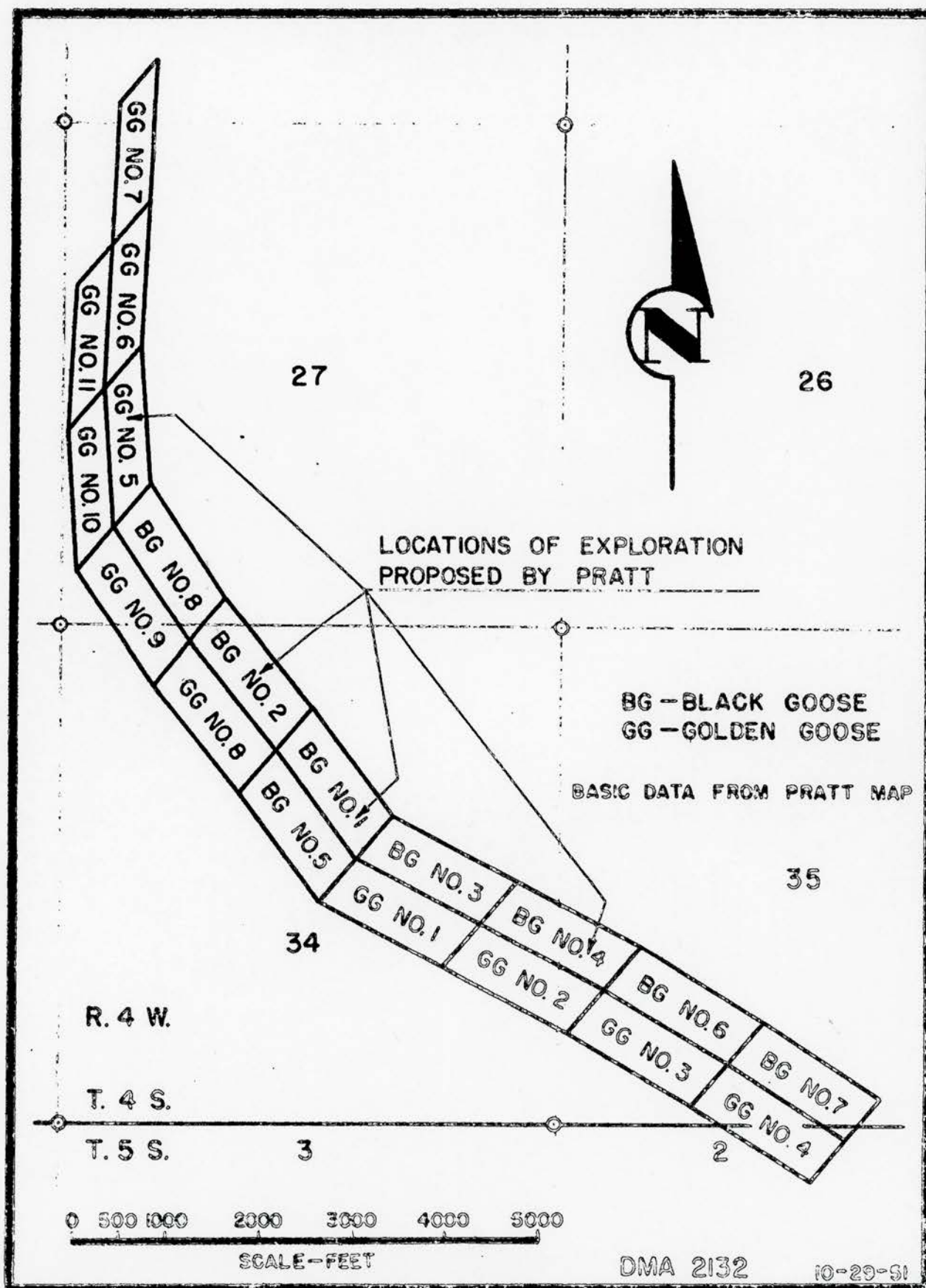


FIGURE 2.-CLAW MAP, BLACK GOOSE MANGANESE DEPOSITS