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UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA-3103, Nsuex Claim

Nevada Mining District

White Pine County, Nevada

W. T. Benson, Mining Engineer
U. S. Bureau of Mines

Roscoe M. Smith, Geologist
U. S. Geological Survey

September 10, 1953

Docket No.: DMEA-3103 (Manganese)

Name and address of applicant: Ceasar Caviglia, and
Joe Parodi,
P. O. Box 486,
Ely, Nevada

Name and location of property: Essex Claim, Nevada Mining Dist.,
White Pine County, Nevada

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Mr. Ceasar Caviglia and Joe Parodi, partners, Box 486, Ely, Nevada, have applied to the Defense Minerals Exploration Administration for government assistance in a $31,500.00 program to explore surface and underground showings of ore on the Essex claim, situated in the Nevada Mining District, White Pine County, Nev.

A field examination was requested by the Executive Officer, DMEA Field Team, Region III to determine whether the ore reserves are sufficient to justify the project proposed by the applicant and to obtain data necessary to complete a contract. Accordingly an examination was made August 11 by W. T. Benson, Mining Engineer of the U. S. Bureau of Mines and Aeseee M. Smith, Geologist of the U. S. Geological Survey.

The applicant proposed to explore on the 74-foot level of the Northeast shaft by drifting 400 feet northwest and 500 feet southeast along a manganese bearing vein exposed in the bottom (74-foot level) of the shaft.

The applicant's proposed program is sound and the project appears to have merit. It is recommended, therefore, that the Defense Minerals Exploration Administration enter into a contract with the applicant to do the proposed work. On a matching fund basis, the government's share

of the cost will be $25,625.00. The program is estimated to require 18 months to complete.

INTRODUCTION

In connection with an application for exploration assistance (docket DMEA-3103), the property of the Manganese Mining Company was visited on August 11, 1953 by W. T. Benson of the U. S. Bureau of Mines and Roscoe M. Smith of the U. S. Geological Survey for the purpose of inspecting development openings that pertained to Mr. Caviglia's application for aid in exploring manganese showings found on the Essex claim.

NAME AND LOCATION OF PROPERTY

The Manganese Mining Co. controlled by Josephine Caviglia, Joe Perodi and Caesar Caviglia, recently acquired the Steptoe holdings comprising the Essex, Essex No. 1, and Packard No. 2, unpatented lode mining claims, on a bond and lease arrangement. The owner's consent to the lien has been obtained and a copy of it and the lease was submitted with the docket.

Property holdings, comprising 7 unpatented lode claims, are situated in the Nevada Mining District, sec. 10, T. 15 N., R. 64 E., 10 miles southeast of Ely (fig. 1). To reach the property from Ely, Highway 93 is followed southeasterly 7 miles to the CC Ranch road turnoff. From this point, a fair dirt road, passing between the ranch buildings, is traveled in an easterly direction, 3 miles to the property.

COMPETENCY OF APPLICANTS

Mr. Caesar Caviglia has been connected with mining operations in White Pine County for the past thirty years, in both an operating and leasing capacity. His principal activities have been with the Chainman gold and silver lease; manager of the Willard Leasing Co., producing high grade zinc ore; and manager of the Manganese Mining Co. since 1943.

Mr. Perodi has had more than 25 years experience as a miner and since 1943 has been assistant manager of the Manganese Mining Co.

These men, considering their wide experience, are competent to supervise exploratory operations.

HISTORY

The Nevada Mining District, in which the deposit is located, has been one of the principal producers of manganese ore of metallurgical grade in the State of Nevada.

Prospectors seeking gold and silver first made locations in the Nevada District as early as 1869. In 1910, W. C. McDonald located the Essex, Essex No. 1, and the Packard No. 2 claims comprising the Steptoe mine. It is reported a car load of ore was shipped that year. No further activity occurred in the district until 1917 when rising prices stimulated the production of manganese. Adjoining claims, the Manganese No. 1 to No. 4, comprising the Manganese Mining Company's property, were located by Joseph Vietti and Caesar Caviglia in 1917. Shipments of manganese ore from the two properties were made in 1917 and 1918 and have continued at intervals to the present time.

Recorded production to 1938 is 15,814 tons of which 11,077 tons contained between 35 to 47 percent manganese. The remaining 4,737 tons assayed between 25 and 35 percent manganese. Since 1938, about 5,000 tons containing between 35 and 40 percent manganese has been produced.

PHYSICAL FEATURES

The claims are located on the north side of the Steptoe Valley in the western foothills of the Schell Creek Range, at an altitude of about 6900 feet. U. S. Highway 93 passes three miles west of the property. Dirt roads, which are passable except for short periods during the winter and spring months, extend from the highway to the mine. Ely, 10 miles northwest, is the nearest shipping and supply center on the Nevada Northern Railroad.

Climate in the area is temperate with moderately hot summers and cold winters. Precipitation, mostly in the form of snow, is moderate to heavy during the winter months. Occasionally, winter storms are severe enough to impede mining operations for a week or so at a time. Water for domestic and mining use is supplied by trucks from Ely. Vegetation consists of sagebrush and desert grass at the lower elevations, with juniper and pinon pine at the higher altitudes.

Transmitted electric power is not available, and fuel oil for generation of power is trucked from Ely, 10 miles northwest.

HOUSING FACILITIES

Two small frame houses on the property are sufficient to accommodate four men. According to the applicant these facilities will

not be used, but instead the crew will live in Ely where accommodations with board are available.

Plant facilities include shaft houses and compressor rooms at the Vietti and Caesar John shafts.

A small hoist house is available at the Northwest shaft, the site of the proposed work, but this structure is too small and will have to be replaced by a larger structure to house a hoist and compressor.

EQUIPMENT

Equipment on the property includes a Gardner-Denver, 240 cubic foot compressor, powered by an International Diesel motor, a single drum hoist, powered by a Buda gasoline motor, Ingersoll-Rand jackhamer equipped with shell for drifting, a CP stoper, sufficient jackhammer and stoper steel for completion of project, mine cars, ore buckets, mine rail and pipe, 3/4-ton International truck, and a Dodge car.

DEVELOPMENT

In the vicinity of the proposed project, development openings comprise the Northwest pit 100 feet long, 15 to 20 feet wide, and from 25 to 30 feet deep. On the southwest edge of this pit is a 60-foot Millick shaft inclined 60 degrees from which manganese ore was produced during World War I period. About 135 feet north and west of the pit is the 74-foot vertical Northwest shaft in which the proposed new work will be done.

GEOLOGY

The Nevada District is underlain by sedimentary rocks of Mississippian[1/] age which are steeply tilted, but by faults in several systems, and intruded by rhyolite dikes.

The sedimentary rocks consist of limestone and shale, which crop out in belts trending northwest and dipping southwest. They have been divided by Roberts (Pl. 49) into six units. Listed from youngest to oldest, these are: Upper limestone, Upper shale, Middle limestone, Middle shale, Lower limestone and Lower shale. These rocks are locally folded and cut by faults which have caused repetition of the units, but for convenience they are listed as if they formed a normal stratigraphic sequence.

The shales are thin-bedded, light to dark brown, red or green and locally contain sandy layers. The Upper and Middle shales resemble the Chainman shale in the Ely district; the Lower shale is similar to the Pilot shale. The limestones are light to dark gray, and for the most part, thin-to-medium-bedded; they contain abundant chert layers and nodules and in some places are shaly-parted. All the limestone units are similar to the Joanna limestone and contain lower Mississippian fossils. Most of the manganese ore bodies are in the Middle limestone.

A rhyolitic intrusive occurs in the Southwest pit but no other igneous rock has been found in the district.

1/ Roberts, R. J., 1942, Manganese Deposits in the Nevada District, White Pine County, Nevada, U. S. Geol. Survey Bull. 931M, Pl. 49.

The rocks have been cut by three sets of faults. One set consists of steep thrust faults - along contacts between shale and limestone - which strike northwest and dip southwest. The thrust faults and the sedimentary rocks have been displaced by two sets of normal faults, whose maximum vertical displacement may be more than 400 feet. One set strikes north to northwest and dips west; the other strikes northwest and dips southwest. The rocks are also cut by steep east-striking fractures of small displacement.

ORE DEPOSITS

The manganese ore bodies in the Nevada District are replacement deposits in limestone and fissure fillings in fractured zones along faults, and have been mined at several locations in a northwest trending zone 2,000 feet long. Ore shoots range from a foot to 40 feet in width, from a few feet to 170 feet in length, and have been mined to a depth of 70 feet.

Ore minerals are pyrolusite, psilomelane and wad in a gangue of calsite, quartz and locally fluorite. Manganese ore shipments of 15,000 tons made between 1917 and 1938 contained 26 to 47 percent Mn, 5 to 21 percent insoluble, 2 to 8 percent Fe, 0.02 percent P, and 0.1 to 0.7 percent Zn.

According to Roberts (p. 307) the ore bodies are localized in fractured zones at their intersections with cross faults and at the intersections of faults with favorable limestone beds. Most of the ore bodies are associated with normal faults and with the Middle limestone.

In the Northwest shaft (fig. 2), a brecciated silicified limestone containing small amounts of manganese and iron oxides was cut between 60 and 70 feet. The zone is 17 feet in thickness, strikes northwest and dips 31 degrees southeast. It is overlain by soft clay shale and is underlain by shaly parted limestone which strikes N. 15° W. and dips 31° W. Immediately above the limestone and a three foot zone is reported to contain 18 percent manganese. Samples BM-1596 and BM-1597 of this material assayed 29 to 35 percent Mn.

SAMPLING

Two samples were taken of manganese ore exposed in short drifts off the bottom of the 74-foot Northwest shaft. These samples are considered representative of the ore exposed. Details regarding them follow:

Sample No.	Width/feet	%,Mn	%,Fe	%,P	%,Insol.	%,Cu	%,Zn
1596	3.0	29.4	5.0	0.007	43.15	0.04	0.1
1597	3.0	35.0	3.5	0.006	36.50	0.08	0.1

Manganese ore of this type and grade would be suitable for the production of manganiferous pig iron by the Columbia Steel Co., since a relatively low-grade ore can be used for this purpose and a high silica content is permissible.

ORE RESERVES

The probable reserves of the Manganese and Steptoe mines to a depth of 200 feet below the outcrop, as estimated from drilling by the American Machine and Metals Inc., including the ore apparent in the stopes, amounts to about 15,000 tons containing 30 percent or more of manganese. The greater part of this tonnage is in lateral and down-

ward extensions of the ore bodies that have been mined. It is possible additional reserves of 30 percent ore may be found in ore bodies not yet discovered. It is estimated that 5,000 tons of 10 to 30 percent ore remains in stopes, pits, and on dumps.

PROPOSED EXPLORATION

The applicant has proposed to drift from the bottom (74-foot level) of the Northwest shaft, 500 feet in a southeasterly direction and 400 feet in a northwesterly direction. The proposed southeast drift will explore the downward continuation of the ore bodies mined in the Northwest pit and also the downward continuation of surface showings in two small pits 400 feet southeast of the Northwest shaft. The proposed drift northwest would explore the limestone-shale contact underneath an area covered by a thick alluvial fan. As no geological information can be derived from the surface, this exploration would have to be guided by day to day conditions found underground. Diamond drilling under the Northwest pit and also underneath the Northwest shaft (drill holes 10 and 11) did not reveal ore in commercial quantities principally because of poor core recovery. Additional drilling instead of drifting would not be a preferred method of exploration because of the probability that core recovery would again be poor.

CONCLUSIONS

Cost estimates submitted by the applicant on a unit basis of $36.00 per foot for furnishing labor, supplies and rental of equipment have been checked and are found to be fair and reasonable.

It is, therefore, recommended by the examining engineers that the Defense Minerals Exploration Administration enter into a contract with the applicant to do the proposed work. On a matching fund basis, the government's share of the cost will be $25,625.00 and will require 18 months to complete.

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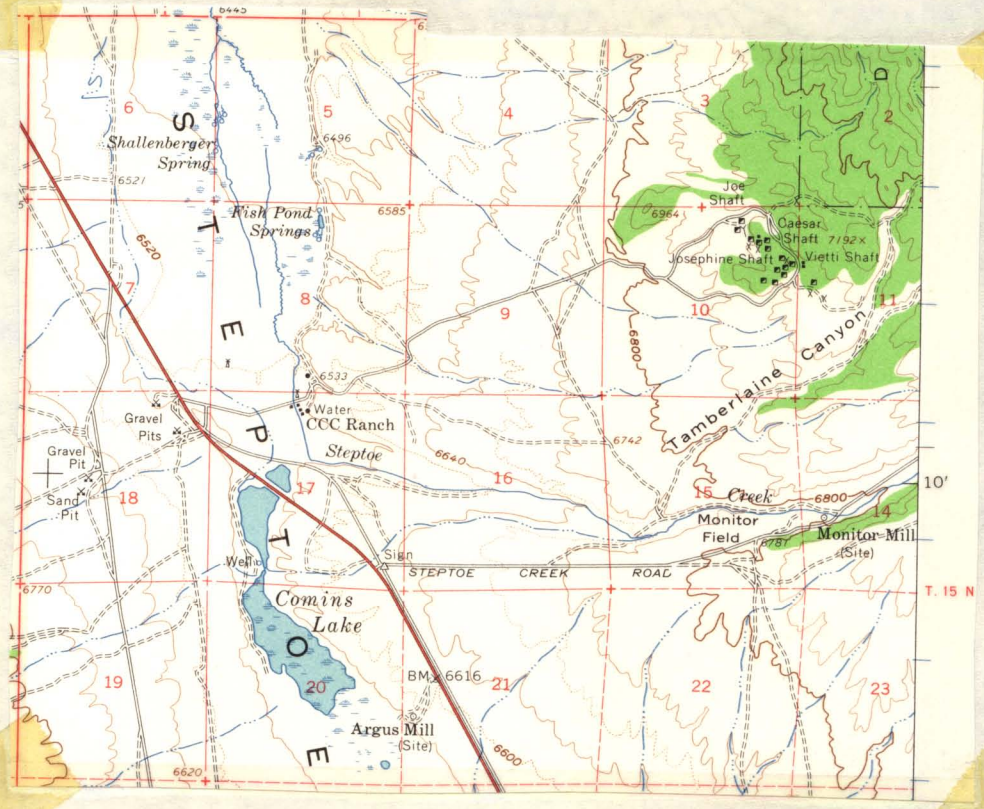

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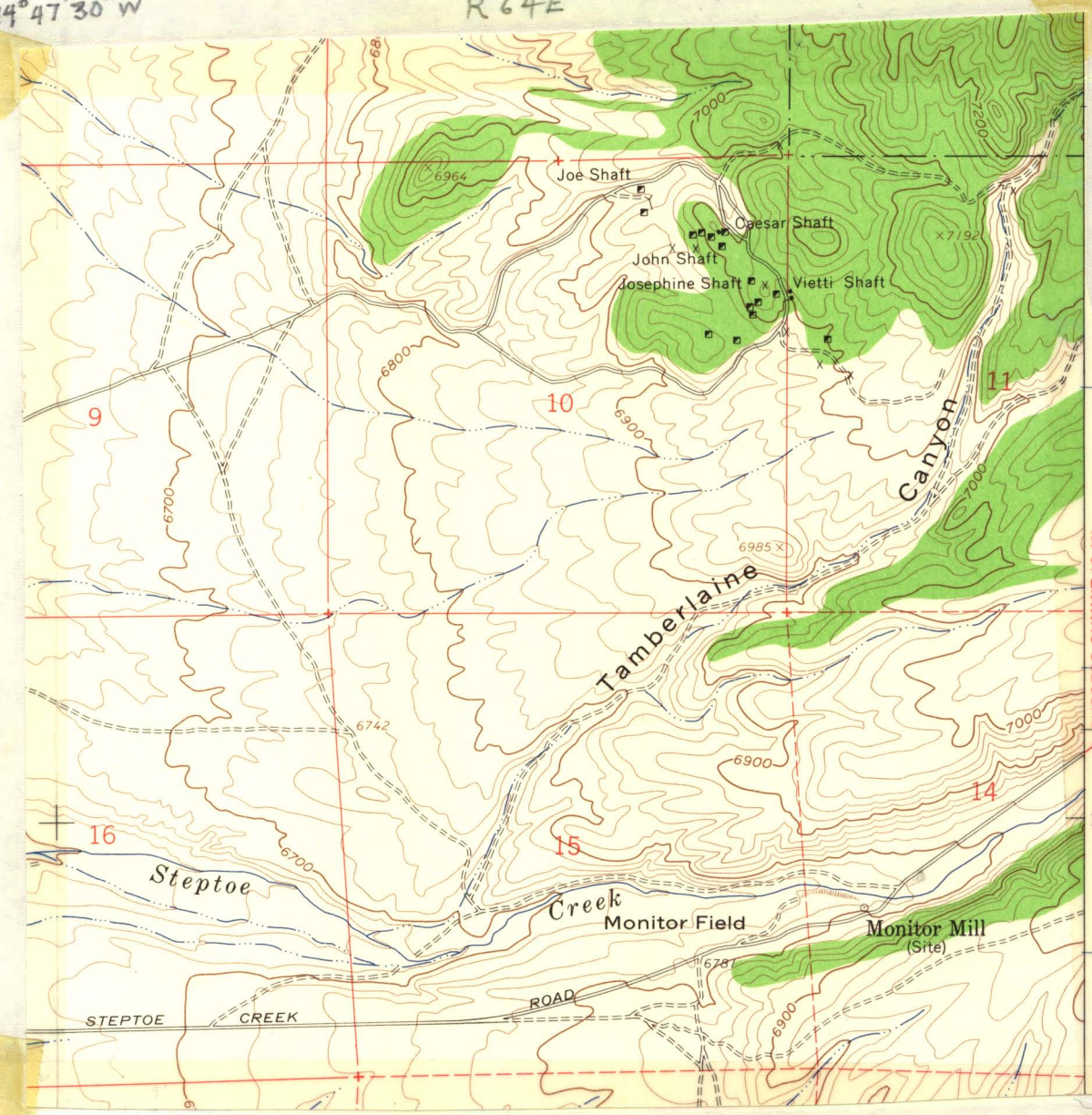

Nevada district

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DATUM IS MEAN SEA LEVEL

16½°

TRUE NORTH

MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1958

COMINS LAKE QUADRANGLE

NEVADA—WHITE PINE CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)

NE/4 ELY 15' QUADRANGLE