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White Pine district
Onetha Mine
by
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1959

(344)
Item 87

GEOLOGY

Geologic Setting

The oldest rocks in the mine area are dolomite of Silurian age and limestone of Devonian age. These rocks are gently tilted and are cut by three sets of faults. The lead-zinc-copper-silver deposits are in northeast-striking faults.

The dolomite exposed in the eastern part of the area (fig. 2) is part of the Lone Mountain dolomite of Silurian age. The Lone Mountain dolomite is about 2,000 feet thick in the Hamilton area and consists of light- to dark-gray, fine- to coarse-grained, thin-bedded to massive, crystalline dolomite. The Onetha mine is in the lower part of the formation in a unit that strikes northeast and dips about 20° SE. This unit is dark-gray, fine-grained, massive, sparsely fossiliferous, and is in part brecciated and cut by abundant veinlets of white calcite.

Overlying the Lone Mountain dolomite is the Nevada limestone of Devonian age. This limestone is about 1,500 feet thick in the Hamilton area and consists of light- to dark-gray, thin-bedded to massive limestone and dolomite. The Oro mine is near the middle of the formation in a unit that strikes about north and dips about 20° E. This unit is dark gray, fine-grained, thin-bedded to massive with shaly lenses, and is locally highly brecciated and cut by veinlets of white calcite.

The rocks in the mine area are cut by three sets of faults, a north-trending set, a northwest-trending set, and a northeast-trending set. Displacement along the northwest- and northeast-trending faults probably does not exceed about one hundred feet but the major north-trending fault (Sherman fault) that bisects the area (fig. 2) has a displacement of several thousands of feet.

Ore Deposits

The lead-zinc-copper-silver ore bodies are localized in veins along steeply-dipping, northeast-striking faults that cut dolomite and limestone of both the Lone Mountain and Nevada formations (fig. 3).

The principal ore minerals are cerussite, anglesite, galena, smithsonite, and chrysocolla. Most of the lead minerals contain some silver and locally in rich concentrations. Some cerargyrite and argentite are also present. Minor ore minerals are azurite, malachite, tenorite, and chalcopyrite. Gangue minerals are hematite, limonite, calcite, quartz, and pyrite. Much of the vein material consists of brecciated and silicified limestone and dolomite with sparse fragments of shale and cherty limestone. The depth of the zone of oxidation is not known but it is more than 400 feet.

The ore bodies that have been mined are narrow veins along faults that strike N. 60°-80° E. and are vertical or dip steeply north or south. They range from a few feet to about one hundred feet in length,

are from one to twenty feet and average about four feet wide, and have been mined to a depth of about 150 feet down the dip. They contain from a few tons to as much as a thousand tons of ore. The grade of the ore ranges from 1 to 60 percent lead, 1 to 20 percent zinc, a trace to 5 percent copper, and 1 to 100 ounces of silver per ton. Much of the ore that was produced in the early days of the mines was hand-sorted to about 30 percent lead and 30 to 40 ounces of silver per ton, but the ore that is now being mined from the Onetha vein averages about 12 percent lead, 16 percent zinc, 1.3 percent copper, 3 ounces of silver and a trace of gold per ton.

The Oro mine has yielded about 700 tons of high-grade lead-silver ore from an ore body about 100 feet long, 3 feet wide, and 60 feet along the dip. This ore body was localized along a zone of abundant cross-fractures in the northeast-trending Oro fault between two steeply-dipping, north-trending faults. These faults are shown on the upper-level and 20-foot sublevel maps attached to the application and on the lower-level DMEA map (fig. 3). The ore exposed on the lower level, that is about 80 feet below the old stope, is lower in grade and is localized in small lenses and pipe-like bodies at the intersections of the main fault and minor cross-faults (fig. 3).

Because of the limited strike length of the mineralized part of the vein and because of the decrease in grade and size of the ore shoots on the lower level it is inferred that the ore potential of the Oro vein at depth is small and does not warrant extensive exploration unless it can be done at a low cost.

The Onetha mine has yielded about 800 tons of lead-silver ore from three ore bodies the largest of which is about 60 feet long, 4 feet wide, and 100 feet along the dip. These ore bodies are localized in zones of cross fracturing from 20 to 50 feet apart along the Onetha fault (fig. 3). The recently discovered ore body is about 50 feet east of the old stope and has been drifted in for about 20 feet. The face of the drift is six feet wide and is all in ore that assays 13.4 percent lead, 18.9 percent zinc, 1.43 percent copper, 2.60 ounces of silver and a trace of gold per ton. As neither wall is exposed the true width and grade are not known. The length and extent along the dip of the ore shoot has not been determined but the outcrop of the vein is mineralized about 100 feet east and 200 feet above the adit face.

From the Sherman fault that cuts off the Onetha vein on the west, to the mineralized surface exposure 100 feet east of the adit face, the deposit has a proven strike length of over 700 feet. Exploration to determine the downward extent of this deposit is warranted.

Sampling

Twelve samples were taken during the examination and assayed as follows:

Sample No.	Length, feet	percent			ounces per ton	
		Lead	Zinc	Copper	Silver	Gold
577	2.3	4.2	17.0	3.42	3.90	trace
578	3.3	7.5	8.0	1.38	8.90	trace
579	3.0	6.8	6.9	1.52	18.40	0.005
580	4.0	9.2	11.0	2.49	13.90	0.005
581	grab (4 tons ore)	1.9	4.3	0.80	2.40	trace
582	3.0	2.4	1.8	0.31	1.70	trace
583	0.7	1.4	0.6	0.06	0.70	trace
584	6.0	13.4	18.9	1.43	2.60	trace
585	6.0	11.3	15.0	1.36	2.70	trace
586	grab (50 tons low-grade)	6.8	11.1	0.46	2.00	trace
587	grab (35 tons ore)	13.3	13.9	1.32	3.60	trace
588	6.0	6.4	6.3	1.58	11.90	0.005

The sample locations are shown on figure 3, except for samples Nos. 586 and 587 that were taken from the ore stockpiled at the Onetha mine and are representative of the ore that is being mined.

Ore Reserves

The reserves on the Oro and Onetha claims total about 6,500 tons of ore that averages about 11 percent lead, 14 percent zinc, 1.5 percent copper, 5 ounces of silver and a trace of gold per ton. These reserves are summarized as follows:

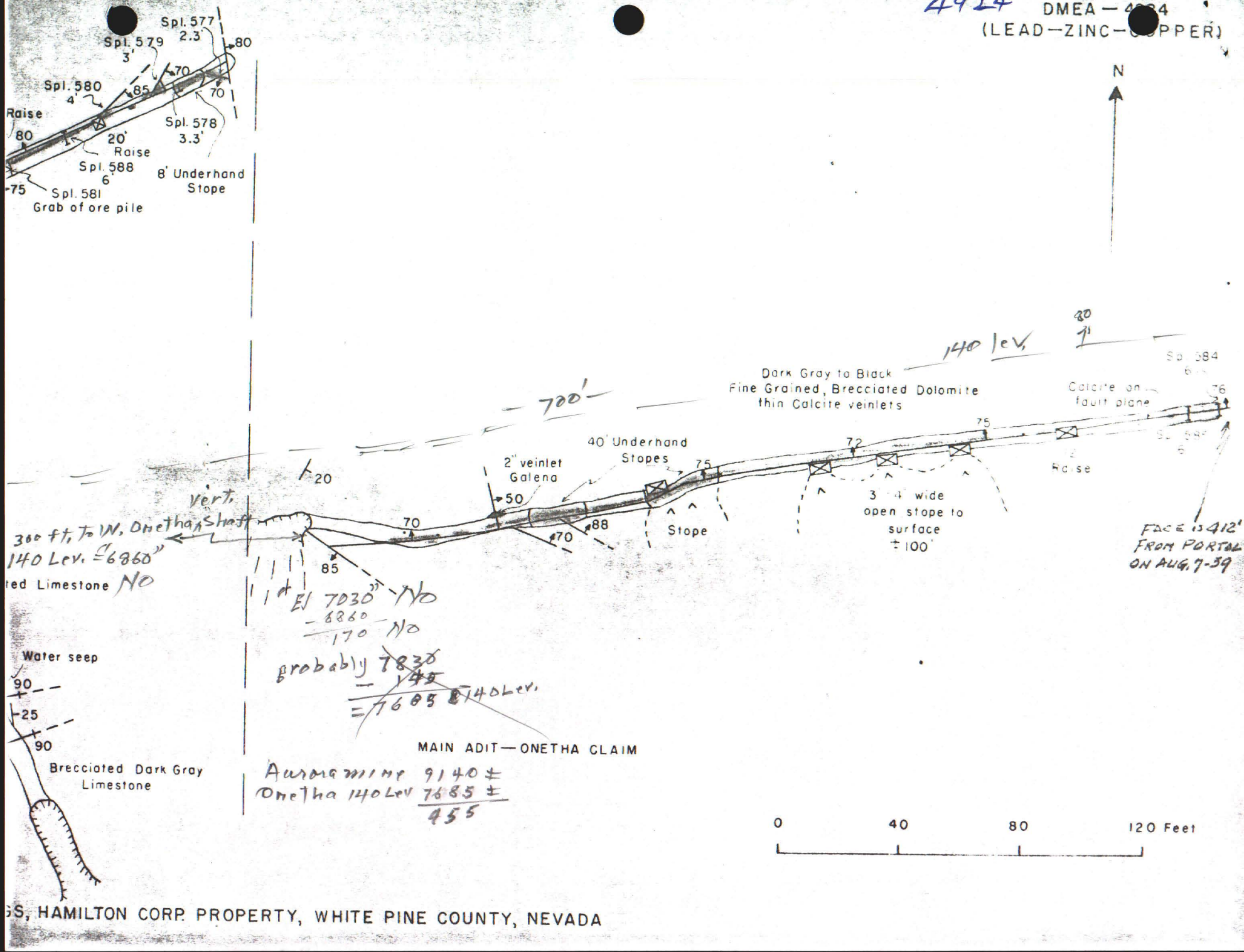
Class	Tons	percent Lead	Zinc	Copper	ounces per ton Silver	Gold	Mine
Measured	100	7.0	9.0	2.0	12.0	0.005	Oro
Indicated	500	7.0	9.0	2.0	12.0	0.005	Oro
Inferred	1,000	7.0	9.0	2.0	12.0	0.005	Oro
Total:	1,600	7.0	9.0	2.0	12.0	0.005	
Measured	100	12.0	16.0	1.3	3.0	trace	Onetha
Indicated	800	12.0	16.0	1.3	3.0	trace	Onetha
Inferred	4,000	12.0	16.0	1.3	3.0	trace	Onetha
Total:	4,900	12.0	16.0	1.3	3.0	trace	

The measured reserves at the Oro mine are contained in the walls and pillars of old stopes and in the back of the lower level drift. The indicated reserves are in the block of ground 100 feet long, about 4 feet wide, and extending from the lower level up the dip of the vein to the 20-foot sublevel, a distance of about 80 feet. The inferred reserves are in a similar block of ground extending about 200 feet below the lower level.

The measured reserves at the Onetha mine are contained partly in the walls and pillars of the old stopes and principally in the last 20 feet of the main adit drift, from which they are projected five feet into the face, back, and sill. The indicated reserves are in a block of ground along the Onetha vein that extends 50 feet above the level, 50 feet below the level, and averages 4 feet thick for a strike length of 50 feet (30 feet beyond the present face of the adit). The inferred reserves are in the block of ground along the Onetha vein from the shaft to the end of the proposed DMEA drift (700 feet), from 50 feet below the main adit level to 50 feet below the proposed drift level.

ERIOR

4924 DMEA — 4924
(LEAD—ZINC—COPPER)



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