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PRELIMINARY REPORT

on the

WEST END CONSOLIDATED MINES CORPORATION

Tonopah, Nevada

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The West End Consolidated Mines Corporation owns, or controls, 310 acres, comprising several mines, in the Tonopah Mining District. These mines are made up of contiguous groups of patented claims, covering 290 acres in the western to west central part of the district. The remaining 20 acres, the Halifax No. 2 claim, located in the eastern part of the district, is optioned at the present time.

The group of claims, or mines, in the western part of the district are:

The West End Mine	194 acres
The Tonopah 76	48 acres
The West End Extension	48 acres

These groups are shown on the accompanying property map of the Tonopah Mining District. The 20-acre Halifax No. 2 claim will not be considered in this report.

The West End also owns several other claims, not in the Tonopah Mining District. One of these, the Mable, may be of interest.

Control of the West End Consolidated Mines Corporation is in the hands of Mr. Fred C. Ninnes, 160 Ryland Street, Reno, Nevada, and Mr. H. D. Budelman, Box 286, St. Helena, California.

Only a tentative discussion has been held regarding the terms on which a deal could be made for the property. Both of the majority stockholders, Mr. Ninnes and Mr. Budelman, are elderly gentlemen, approaching — if not in — their eighties, and feel that they should have some money coming in as soon as possible. A probable arrangement would allow a three to six months' free period in which to make a thorough study of the mine maps and, if at all feasible, to go underground to check geology and to sample. At least one exploratory diamond drill hole might be put down during this period.

At the end of this free period, advance payments would begin. The end price could be a fixed lump sum, or a percentage of the ore reserves, as determined at the time the mine goes into production, and, except for the advance payments, would be paid as a royalty from production.

The veins in the Tonopah Mining District are in Tertiary volcanics. These rocks have been segregated into seven formations by Thomas B. Nolan, in

the University of Nevada Bulletin No. 5, "The Underground Geology of the Tonopah Mining District". Although Spurr Burgess and others have used somewhat different nomenclatures, Nolan's formational names are listed with the youngest formation at the top of the following list:

Formations YOUNGER than the ore bodies: (These are either intrusive into or overlie the older formations, in which the ore bodies are found.)

> "Post-ore rhyolite: Dikes and lenticular masses intrusive into all the other formations.
>
> "Fraction breccia member of Esmeralda formation: A volcanic breccia that unconformably overlies the ore bodies and their wall rocks."

Formations OLDER than the ore bodies: (These five formations form the wall rocks of the ore bodies.)

> "West End rhyolite: Sills, as much as 600 feet thick, intrusive into all the older formations.
>
> "Extension breccia: Tabular intrusive mass. Found only in the western half of the district.
>
> "Mizpah trachyte: A series of surface flows, with minor volcanic breccias, at least 2,000 feet thick originally, but much of this thickness removed by erosion locally.
>
> "Sandgrass andesite: Dark lavas, interlayered with the Tonopah formation.
>
> "Tonopah formation: Interbedded volcanic tuffs, breccias, and flows, which are conformably overlain by the Mizpah trachyte. More than 1,000 feet thick."
>
> The bottom of the Tonopah formation has not yet been found in any of the mines.

After the older formations were formed, there was a period of faulting and vein deposition. This was followed by erosion accompanied by oxidation and enrichment of the outcrops. The older formations and their veins were then covered by the Fraction Breccia and intruded by the Post-ore Rhyolites. There are only small outcrop areas of the older formations exposed.

The five older formations were originally horizontal but were disturbed by

widespread faulting. According to Nolan, the history of the faulting is as follows:

> "The earliest faulting was developed along the Halifax fault zone. This zone is made up of north-south faults, with a low easterly dip, and is exposed in the Halifax and Mizpah Extension mines.
>
> "At the same time, or slightly later than the Halifax fault zone, the east-west striking and variably dipping compound Tonopah fault, and branches, came into existence." In his description of the Tonopah fault Nolan says, "The three major fractures comprising the fault all have similar characteristics. Both in plan and in section they have curved traces, being convex eastward in plan and convex upward in section ..." "The uplift represented by the Halifax and Tonopah faults is believed to have been succeeded by a period of settling or collapse. This readjustment took place along at least three sets of faults." Of these later faults, one set strikes northwest, another set strikes northeast, and a third set strikes north and dips west.

In speaking of the mineralization Nolan says, "All the faults, including the Tonopah and Halifax groups, are locally followed by quartz veins of considerable size but in many places of negligible silver or gold content. These quartz bodies have replaced the shattered walls of the faults. They are on the whole earlier than the introduction of the ore minerals. The ore shoots also follow the faults but are far less extensive in their distribution. Their limitation to faults or parts of faults with nearly east-west strike (the Tonopah fault and its branches and some of the northwest faults) suggests that these fractures were open to the passage of ore solutions as a result of tensional forces which acted concurrently with the settling that followed the uplift. ... The ore bodies are replacement veins that follow faults or minor fractures and commonly are without well-defined walls. ....The size of the ore shoots and the grade of the ore mined have both varied within rather wide limits. As most of the veins have only assay walls, the price of silver and the method and cost of mining and milling at the time of extraction have been determining factors as to what could be profitably mined. ...The total production, from 1901 through 1934, has been slightly less than $150,000,000."

Most of the ore shoots are restricted to a "Productive" zone, 600 to 1000 feet in vertical thickness, which Nolan believes "represents the temperature interval within which the silver minerals could be deposited in commercial concentration...".

The principal veins, that have been worked in the West End Mine, are the West End vein and the Ohio vein. These veins are branches of the Tonopah fault, and are from 50 to 400 feet apart vertically. They are flat dipping and were mined over an average width of 10 feet. Mr. Budelman, in his report, dated February 1, 1934, says, "The major portion of the $16,000,000 production of the West End mine has come from these two veins and their branches."

The West End vein was reported to be very profitable but appears to have been fully developed and is probably worked out. Mr. Budelman says, "Future possibilities are to the north and south, but conditions as at present understood do not appear favorable in either direction on the main West End vein."

The Ohio vein is reported to have produced over $6,000,000 in high-grade milling ore. Mr. Budelman says of the Ohio vein, "On the west it terminates in a roughly north-south line. ...This vein was good ore, from 5 to 20 feet wide, and probably averages 10 feet in width along this termination for a distance of 1,000 feet. It is believed the termination was due to faulting, which is clearly demonstrated on the southern portion, but the limited development west of the fault has so far failed to disclose the faulted segment in that direction. This fault has been designated as the Ohio fault: it has a strike of about North 25 degrees west, and a dip of 30 to 40 degrees easterly and is believed to have a vertical throw of at least 100 feet."

Nolan has named Budelman's Ohio fault the Monarch-Pittsburg fault and has placed it in the group of faults having a northwest strike and northeast dip. He concurs with Budelman's statement that this fault cuts off the Ohio vein. He says, "It is also exposed on the 800-foot and 960-foot levels of the West End mine where it cuts off the Ohio vein fissure."

Nolan feels that in the Tonopah Extension mine, some 2,000 feet or more to the northwest, the offset along the Monarch-Pittsburg fault could amount to 1,000 feet vertically.

In the West End mine this offset portion of the Ohio vein has not been found, and it appears that very little exploration work has been done in search of it. It does seem that when found it will be below the 800-foot level, in Nolan's productive zone, and in ground covered by the Montana, Oregon or Taft claims.

The Ohio 800-foot level, to the west of the Ohio shaft and Monarch-Pittsburg fault, extends for about one mile through the West End Consolidated, Tonopah 76, and West End Extension mines. Some mining was done in this area, mainly along the Merton vein in the Tonopah 76 and the northeast

corner of the West End Extension mines. Stopes were extended down into the Tonopah Extension ground because an apex on the West End's property gave extra lateral rights.

The West End Consolidated Mines Corporation annual report for 1924 states, "In 1923 the vein opened up on the Tonopah 76 is about one mile from the Ohio shaft. Value and width are extremely variable. ....Drifts and raises have opened runs of ore of good grade in various places, although for the larger part the average grade has not exceeded a dollar or two per ton. The width has varied from a few inches to ten or twelve feet. While undoubtedly some small chutes of low-grade milling ore are available here, their extent and value are not sufficiently proved to be stated as reserve tonnage." The 1925 annual report says, "About 3,000 feet of development work was driven in the claims of the Tonopah 76 claims and the West End Extension Companies and about 3,600 tons of ore were milled from that territory. While some very good ore was found, the spotty condition which to date has been characteristic of that territory has continued to prevail. The average grade of the ore milled was low. The situation is encouraging enough, however, to justify further development and there is a reasonable chance that ore shoots of importance may be discovered."

The grade of ore put through the West End mill, as given by their annual reports, has been as follows: (Recovery has been about 93% of the values.)

Year	Tons Milled	oz. Au/Ton	oz. Ag/Ton	$/Ton @ Au $35.00/oz. Ag $1.29/oz.
1913	44,756	0.21	21.5	35.09
1914	55,888	0.19	18.9	30.93
1915	56,976	0.24	23.3	38.07
1916	32,009	0.19	18.6	30.64
1919	45,910	0.16	14.7	24.56
1918	50,195	0.17	16.5	27.24
1919				
1920	53,039	0.19	17.9	29.04
1921	74,674	0.177	15.9	26.71
1922	98,181	0.165	15.3	25.52
1923	70,458	0.17	16.0	26.59
1924	43,745	0.195	17.9	29.82
1925	28,440	0.16	14.8	24.69

The West End Consolidated Mines Corporation is the owner of the Mable mine, west of Mina, Nevada. This was a small high-grade mine that, according to the Nevada Bureau of Mines Bulletin 58, produced gold, silver and lead from much faulted quartz veins. Production, as given in the West End's annual reports, is as follows:

Year	Tons	oz. Au/Ton	oz. Ag/Ton	% Pb/Ton	$/Ton @ Au $35.00/Ton Ag $1.29/Ton Pb $016/Lb.
1923	659	1.24	106.39	4.5	$194.14
1924	401	1.47	106.7	9.6	219.96
1925	927				219.76

Report by H. O. Budelman - February 1, 1934

1922 through 1929	4,310	1.28	91.93	5.1	$179.71

The Mable was developed by a 567-foot shaft, with 100-foot levels, and a winze from the 600 to 700-foot level.

Although the Tonopah Extension and Halifax mines had water problems, at depth, the West End mines have always been dry.

Conclusions:

That part of the Ohio vein that has been offset by the Monarch-Pittsburg fault has not been found. It does not appear to have been searched for diligently. The offset portion could well be as large, and of as good grade, as the Ohio stope and should be worth looking for.

A study of the assay maps may indicate the possibility of developing ore reserves at the present price of silver, or at a future higher price of silver, from material that was not ore at the price of gold and silver prevailing when the mine shut down.

There is also the possibility of developing new veins south of the Ohio 800-foot level and the Merton vein.

The Tonopah Extension Mining Company, whose ground lies to the north and west of the West End Consolidated Mines Corporation property, has

been optioned for some time. I understand that the optionee has not been living up to his commitments. Should active work begin at the West End Consolidated, there seems to be a reasonable chance that the Tonopah Extension would be interested in becoming associated with such activity.

Recommendations:

1. Establish the terms of a deal with the West End Consolidated Mines Corporation.

2. Make an office study of the geology and ore reserves from the mine maps and other data filed in West End mine office at Tonopah.

3. If possible, go underground to check the condition of the mine and the geology.

4. From the results of the office study and the proposed underground inspection, lay out a sampling and drilling campaign, if such appears to be warranted. This would probably entail several drill holes 1,000 to 1,500 feet in depth, plus at least 1,000 feet of check sampling, provided that the workings are accessible.

At the present time, it does not seem that surface geophysical or geochemical work would be useful. There is the possibility that these methods would be applicable underground.