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GEOLOGY OF THE MARY ANN CANYON ALLUVIAL FAN - GOLD PLACER DEPOSIT, OSCEOLA MINING DISTRICT, WHITE PINE COUNTY, NEVADA

Prepared by

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for

Rex K. Nelson & Fran-Nel Company

Boise, Idaho

Summary:

On November 25, 1968, I examined the Mary Ann Canyon alluvial fan gold placer deposit. From this examination and from published references on the area, I have made the following observations concerning the geology and economic potential of the area.

The alluvial gravels of the fan were derived from Mary Ann Canyon which is an area of known lode gold mineralization. The presence of placer gold in the alluvial fan is well established by reports in government publications as well as by the numerous small workings in the area. The volume of material easily mineable by placer methods is quite large. An estimate of 30 million cubic yards over a 550 acre productive area is reasonable. The probability of several high grade pay zones on false bedrock levels above the actual bedrock enhances the economic outlook. There are no apparent geologic problems that will interfere with processing of the alluvial material. An adequate water supply should be available from the Spring Valley area.

As with most placer deposits, the financial success of this property will depend on the economics of processing the gravel versus the value of recoverable gold per cubic yard. If an efficient and mechanized mining operation is developed and if the gold values are sufficiently high, I see no geologic reasons why this property should not be a financial success.

Introduction:

This report has been prepared at the request of Mr. Rex Nelson and Mr. Rex Frandsen of the Fran-Nel Company of Boise, Idaho. The subject of the report is an alluvial gold placer deposit in the Hogum-Osceola Mining District, in T.14N., R.67E., White Pine County, Nevada. The Osceola Mining District covers an area approximately the size of one township and is located on the western flank of the Snake Range of eastern Nevada. The enclosed topographic map shows the geographic features of the area.

The content of this report must necessarily exclude specific statements and data pertaining to the value and volume of material under claim. I have not had an opportunity to run independent assay samples or to check the precise location of claims and area covered by claims. I did however spend part of November 25, 1968, examining the property in the field. From this examination and from various published references I am able to comment on the geology of the area and make a preliminary appraisal of the potential of the property. The following published references discuss the geology and gold occurrences of the Osceola Mining District and the Mary Ann Canyon alluvial fan as part of this district. The references are: 1)Geology and Mineral Resources of the Osceola Mining District, White Pine County, Nevada, by F. B. Weeks, U. S. Geological Survey Bulletin 340, pages 117 to 133, (1907), and 2) Placer Mining in Nevada, by W. O. Vanderburg, Nevada Bureau of Mines Bulletin, Volume 30, No. 4, pages 167-173, (1936).

Geologic Setting:

The alluvial fan which has been deposited at the mouth of Mary Ann Canyon is located in parts of sections 22, 23, 24, 25, 26, and 27, T.14N., R.67E. An alluvial fan occurs where a stream emerges from a mountain and flows out on the valley floor. The gradient of the valley floor is relatively flat compared to that of the mountain so the stream loses velocity and deposits the gravel and sediment it is carrying. This gravel and sediment or alluvium has been eroded and removed from the mountain valley containing the stream. An alluvial fan therefore is simply a deposit of material eroded and transported out of the mountains by a stream. If the stream valley or drainage basin contains lode gold deposits, it can be assumed that material eroded from these deposits will be found in the alluvial fan. This is what has occurred during the deposition of the Mary Ann Canyon alluvial fan.

Lode gold occurrences have been reported in Mary Ann Canyon in the reference by Weeks, page 131-132. The deposits occur as gold-quartz veins radiating out from a granite porphyry also exposed in the canyon. Veins such as these are undoubtedly the source of the gold in the alluvial fan at the foot of the canyon. This alluvial fan was deposited by stream and flood waters over several million years time and consists of numerous interlaced and interbedded channel and flood deposits. The material ranges in size from fairly large boulders at the upper end to a mixture of silt, pebbles, and cobbles towards the lower end. Vanderburg, page 171, reports that the high grade placers occur in channels buried within the fan. High grade deposits are found on the natural bedrock surface as well as in several overlying zones of false bedrock surfaces. Weeks, page 132, reported pay strata that yielded $6 to $8 per cubic yard at a gold price considerably less than today's price. It can be expected that the average value for the total fan thickness will be less than this range. The thickness of the alluvial fan will vary from less than 10 feet at the uppermost point to at least 75 to 100 feet at its lower end. An average thickness of thirty feet is a conservative estimate.

Economic Potential:

A large volume of alluvial fan material can be expected to underlie the property in question. The following calculations show the minimum volume of material in a 500 acre area of alluvial fan: 4840 sq. yds/acre x 500 acres x 10 yard thickness = 24,200,000 cubic yds. In other words a 500 acre area with an average of 30 feet of alluvium will contain approximately 24 million cubic yards of material. According to estimates given to me by Rex Frandsen, the property contains about 550 acres of potentially productive ground with an estimated volume of 30 million cubic yards. From the above calculations it appears that this is a reasonable estimate.

An adequate water supply for processing the gravel can probably be obtained from wells on the lower end of the property. The numerous

springs shown on the topographic map indicate a near surface water supply farther out in Spring Vall. . One well has been drilled and completed on the property at the present time and an adequate water supply seems assured. Pumping costs will contribute a small amount to the processing cost. The alluvial gravels are poorly consolidated and present no particular mining problems. It is not likely that drilling or blasting will be necessary during the mining operations.

In the absence of specific assay data I can not make an accurate estimate of the property's value. However, the general geology of the alluvial fan and its source area leads me to believe that this property has a good economic potential. A large volume of easily mineable material is present. There is known gold mineralization in the source area of the alluvial fan. An adequate water supply to process the material is present. With these favorable geologic conditions the future of the property simply becomes a question of economics. Will the average gold value per cubic yard exceed the average cost of mining and processing per cubic yard? If so this property should have a favorable economic future. Yes.

Respectfully submitted,

Robert B. Kayser
President & Chief Geologist
Exploration Sciences, Inc.
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