GEOCHEMICAL AND GEOPHYSICAL REPORT

ON THE

RADICAL AREA

AURORA DISTRICT

MINERAL COUNTY

NEVADA

FOR

ELECTRA NORTH WEST RESOURCES LIMITED

BY

STAN REAMSBOTTOM AND ASSOCIATES LIMITED

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July 1988
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SUMMARY

Reconnaissance geochemical and geophysical surveys were conducted in the Silver Hill area of the Aurora district, Mineral County, Nevada.

This area is underlain by Tertiary pre-Esmeralda Aurora volcanic rocks which have been intruded by northeast- and northerly-trending gold-quartz veins. Strong silver, arsenic and associated mercury soil anomalies define portions of vein systems which contain precious metals. The Bald Eagle - Spotted Tiger and Summit vein-systems are defined by the stronger anomalous zones. Rock samples from the Bald Eagle - Spotted Tiger vein system assay up to 0.172 ounces per ton of gold and 6.02 ounces per ton of silver. The high silver-gold ratio in these veins probably accounts for the silver-arsenic anomalies.

VLF-EM surveys conducted in the area define strong conductors associated with the Bald Eagle - Spotted Tiger veins.

Magnetic surveys outline the strong northeast fabric of the area as defined by the quartz vein swarms. Local northerly-trending positive anomalies probably reflect vein and fault intersections.

A programme to sample the vein systems is warranted and recommended. Phase I is estimated to cost U.S.$ 260,000.
INTRODUCTION

At the request of Mr. Douglas Stelling, President of Electra North West Resources Ltd., the writer and his assistant, Mr. Viktor Mukans, undertook a reconnaissance geophysical and soil geochemical survey in the Silver Hill area of the Aurora district, Mineral County, Nevada, U.S.A.

The following report briefly documents the results of these surveys and makes recommendations for additional work in the area.

LOCATION AND ACCESS

The area studied is in the southern end of the Aurora mining camp in Sections 19, 20, 30, 31 of Township 5 North, Range 28 East of Mineral County. The claims are readily accessed by good all weather gravel roads from Hawthorne which is approximately 23 miles northeast of the district.

The claims are three quarters of a mile south of the historic ruins of Aurora. They cover gold-quartz vein systems of Silver and Summit Hills, to the west and east, respectively, of Esmeralda Canyon. (Fig. 1).
CLAIMS SURVEYED

The vein systems of interest are part of the Esmeralda - Radical and Summit veins. (Fig. 2.). Survey grids were laid out to cover the following claims:

**Winslow**
Radical, Bald Eagle, Monarch, Seminole, Summit.

**Intermountain**
Silver Hill, Wyandote, Blackhawk, Spotted Tiger, The Gladiator, Virginia, Keystone Wedge, Lucky Sam, Elamie, Clarence, Goodhope, Thanksgiving, O.K.

**Green**
Cortez, Utah

**Van Hafften**
Hornet 1-3, Wasp, Snow
Part of the unpatented Snap Group were also covered.
HISTORY

Gold was discovered in the Aurora district in 1860. The Radical - Esmeralda vein systems were the site of the initial discoveries. As the camp was opened up, development centred on the Last Chance area, the Humboldt area, the Juniata area and the Prospectus area. A total of $31,350,000 worth of gold was produced in the district in the period 1860 - 1918.

Electra North West Resources acquired the Humboldt vein system in 1980 and defined in the order of 2 million tons of mineralization grading 0.12 ounces of gold per ton. In the period 1980 to the present, a heap leach operation has been established at Aurora. Approximately 10,000 ounces of gold has been produced to date. In partnership with Minex Resources Ltd., the Aurora project is projected to produce 25,000 ounces of gold in 1988.
GEOLOGY AND MINERALIZATION

Gold - quartz epithermal veins in the Aurora district fill several northerly- and northeasterly-trending fissure systems which cut the Pre-Esmeralda Tertiary volcanic rocks. Vein systems like the Esmeralda-Radical, Bald Eagle-Spotted Tiger, Humboldt and Prospectus, trend for several thousand feet and pinch and swell in thickness between 2 and 60 feet. Rich gold ore in the veins is usually confined to wavy banded and contorted zones within, and often on the footwall of, the fissure. Mineralization consists of chalcedonic quartz, adularia, argentiferous tetrahedrite, pyrite, chalcopyrite and an alloy of gold-silver and selenium. Locally grades of several ounces of gold per ton have been sampled on the Humboldt East vein between the surface and 400 feet. Primary sulphide is not evident in the near surface portions of the Humboldt vein system.

The Silver and Summit Hill areas are underlain by Pre-Esmeralda Andesitic Aurora volcanics which have been cut by a myriad of northeast-trending southeast-dipping quartz veins. These are locally cut by northerly (Radical) and easterly conjugate vein sets. Strike-length of vein systems is often greater than 3,000 feet. The area is cut by a series of northerly-trending post-mineralization faults. (Fig. 3).
GEOCHEMICAL SURVEYS

Reconnaissance soil samples were collected at 200 foot intervals on grid lines 15N to 65N which are separated by 500 feet. Samples were submitted to Legend Metallurgical Labs., Reno for atomic absorption analysis of trace gold, silver, arsenic, mercury and antimony in the soils.

**Gold**
Gold in soils proved to be consistently less than 0.05 ppm.

**Antimony**
Antimony in soils proved to be consistently less than 5 ppm.

**Silver**
Silver in soils ranged from less than 0.1 to 4.3 ppm. Anomalies are coincident with the Radical-Bald Eagle, Summit and un-named veins due east of Cottonwood Canyon. (Fig. 4).

**Arsenic**
Arsenic in soils ranges from less than 5 to 115 ppm. Strong anomalies, coincident with silver, occur in the area of the Radical-Bald Eagle and Summit vein systems. (Fig. 5).

**Mercury**
Mercury in soils ranges from less than 10 to 4900 ppb. Anomalies are locally coincident with, but mostly form haloes around the silver-arsenic anomalies. (Fig. 6).
GEOPHYSICAL SURVEYS

Reconnaissance VLF-EM and Magnetic surveys were conducted on the grids.

Magnetics

A reconnaissance magnetic survey was conducted on the grids utilizing a Sabre Fluxgate magnetometer which measures the vertical component of the earth's magnetic field.

Results of the survey are shown in Figure 7. Generally the magnetic field varies between 41,000 and 48,000 gammas. The strong northeast fabric of the district is well defined by the survey. Locally northerly trending magnetic highs define quartz-vein or fault intersections. Generally northeast vein swarms are defined by zones of low magnetics. (Fig. 7).

VLF-EM Survey

A Sabre - Electronics VLF-EM unit was used in the survey. The station at Hawaii transmitting at 23.4 KHZ was utilized throughout the survey. A strong conductor defined by crossovers on Lines 15 to 40 North corresponds generally with the strong Bald Eagle - Spotted Tiger vein system.

Conductors on lines 55 and 65 N correspond with vein-systems on the Summit Peak area. (Fig. 8).
CONCLUSIONS

The writer sampled the Radical and Bald Eagle - Spotted Tiger veins in September 1987. Four samples collected on the northerly trending Radical vein assayed between 0.005 and 0.001 ounces of gold per ton. Two samples taken on the Bald Eagle - Spotted Tiger vein near its intersection with the Radical returned the following results:
BE 1 - 0.046 opt gold, 1.9 opt silver;
BE 2 - 0.172 opt gold, 6.02 opt silver.

The higher silver-gold ratio noted in these samples probably accounts for the strong silver, arsenic and associated mercury anomalies which occur within the northeast-trending Bald Eagle - Spotted Tiger and Summit veins. In the Humboldt area gold-silver ratios are approximately 1:1.

A programme to sample the veins in the Silver Hill - Summit area is warranted.
RECOMMENDATIONS

The veins should be sampled at surface in areas of strong silver-arsenic anomalies. Follow-up reverse circulation drill - sampling should be conducted in these anomalous zones to define contained precious metals mineralization.

Estimated Budget

PHASE I

Preliminary surface sampling:

\[
1,000 \times $10/\text{sample} \quad \text{U.S.} \quad 10,000.00
\]

Reverse circulation drill programme

\[
10,000' \times $20/\text{ft} \quad 200,000.00
\]

Geology/Supervision

20,000.00

Report

5,000.00

Contingency

5,000.00

TOTAL

\[
\begin{align*}
\text{U.S.} & \quad 260,000.00
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Respectfully submitted,

STAN REAMSBOTTOM AND ASSOCIATES LIMITED

Stanley B. Reamsbottom, Ph.D., P.Eng.