4490 0008

Elko Co. General File
SNAKE MTNS
Item 88
ELKO CO.
[redacted]
No. of wells

THE HOT CREEK PROPERTY

FINAL REPORT

[redacted]

[redacted]

January 17, 1984

## SUMMARY AND RECOMMENDATIONS

A total of 1525 feet of reverse circulation drilling was completed in six holes on selected geologic targets within the Hot Creek property position. Results from the drilling were generally negative. Geochemical anomalies at the surface decreased with depth. Only one ten foot interval from 55 to 65 feet in HCR - 3 had detectable gold values of 30 to 40 ppb. The favorable Roberts Mountain/Hansen Creek host lithologies are apparently cut off by a thrust fault which places these units over a highly carbonaceous Devonian black shale/siltstone sequence which outcrops approximately 3 miles to the west of the drill sites. The alteration/mineralization described in the report is attributed to a near-surface hot spring environment of undetermined age. However, the system does not appear to have been associated with any significant precious metal mineralization.

The areas drilled represented the best lithologic, structural and geochemical targets developed during the field work and literature review of previous [redacted] reports. The results to date have been largely negative. The lack of a clear cut target for future work on the property leads to the conclusion that no further work is recommended for the immediate project area.

INTRODUCTION:

The property is located approximately 40 miles northwest of Wells, Nevada, in T42N, 43N, R60E and T42N, R61E on the west side of the Snake Range. The property lies in moderately rolling sagebrush covered hills at an average elevation of approximately 6400 feet. (See enclosed photos)

Access to the property is good via numerous dirt roads and trails.

No past gold production is recorded for the area. An inactive barite mine is located approximately five miles south of Hot Creek.

Past work in the area has included a drilling program by Freeport Exploration in 1980 and a mapping and sampling program by Homestake Mining in 1981.

The property is held by Alloyed Associates of Pocatello, Idaho and has subsequently been leased to [redacted]

GEOLOGY:

MEMORANDUM

TO: [redacted]
FROM:
SUBJECT: Hot Creek Report
DATE: July 15, 1983

SUMMARY:

Recent mapping and sampling on the Hot Creek Property has identified a promising drilling target in the SE ¼ of Section 2, T42N R60E. A series of drill holes are proposed to test this area.

INTRODUCTION:

A period of 8 days were spent mapping and sampling portions of the Hot Creek Property. The property is located approximately 40 miles northwest of Wells, Nevada, in T42,43N R60E and T42N, R61E on the west side of the Snake Mountains. The property lies in moderate, rolling sagebrush covered hills at an average elevation of approximately 6400'. (see enclosed photos)

GEOLOGY:

The geology of the area consists of a NNW trending series of erosional windows of Transitional Facies, carbonate dominated sediments overridden along the Roberts Mountain Thrust by siliceous Western Facies cherts, quartzites and greenstones. The erosional windows are bounded to the SW by a Basin and Range normal fault that downdrops the section under a cover of thick colluvium and alluvial fans.

In the local area the upper plate Ordovician Valmy Formation consists of massive to thin bedded banded cherts with

occasional interbeds of thin bedded black carbonaceous argillites and less common greenstones. Thick quartzite lenses crop out along the thrust contact in the Hot Creek drainage area. The Valmy Formation weathers to a distinctive dark reddish brown soil with abundant black chert fragments. The formation forms subdued outcrops generally exposed on hill slopes with the exception being bold outcrops of quartzite.

The Ordovician Hansen Creek Formation was identified as a moderately hard, light to medium gray, massive to thin bedded limestone. Locally it contains chert lenses and when thin bedded and bleached becomes difficult to distinguish from the Roberts Mountain Formation. Calcite veining is prominent in several areas generally associated with brecciation, iron staining, bleaching and other features associated with hydrothermal activity. The rock forms generally good outcrops and occupies hilltops in the erosional windows.

The Silurian Roberts Mountain Formation is characterized as a platy, thin bedded, buff red to tan, fine laminated, calcareous siltstone. The rock tends to be hard and brittle where unaltered but becomes soft and locally bleached with hematite stain along laminae in weakly altered areas. The rock forms subdued outcrops and weathers to a light reddish soil with flaggy rubble.

STRUCTURE:

The Roberts Mountain Thrust is the dominant structural feature in the area. The thrust surface consists of a generally low angle undulatory surface between the dark upper plate cherts and the lighter lower plate carbonate dominated sediments. Both upper and lower plate rocks have been highly deformed by the emplacement of the structural block. In places where the thrust is exposed the upper plate rocks tend to be brecciated and contorted into recumbent folds. Lower plate rocks are also tightly folded along NNW trending axes, sheared and in places silicified.

Drill results from the present program indicate that a second major thrust fault underlies the Roberts Mountain/Hansen Creek sequence. The fault zone itself appears to act as a local aquifer with significant amounts of water being encountered at the transition between the above described units and the underlying carbonaceous shale.

The Hot Creek Windows lie near the eastern toe of the Roberts Mountain Thrust system. As such there appears to have been significant structural complications created by buttressing affecting both upper and lower plate rocks. A competent quartzite lens that crops out approximately ½ mile up Hot Creek from the hot springs has apparently been caught up in lower plate rocks along the sole of the thrust and pushed into a near vertical orientation. Behind, and below this block lower plate rocks are in attitudes ranging from vertical to overturned. Areas of brecciation and silicification occur along fault zones within the Roberts Mountain and Hansen Creek Formations in a belt that parallels the outcrop trend of the thrust contact. Hansen Creek limestones occupy the ridge tops just to the south and east of the quartzite lens overlying the younger Roberts Mountain Fm. Fold orientations along the Hansen Creek/Roberts Mountain contact indicate that the limestones have been pushed as a slab from the east to the west with the Roberts Mountain Formation underthrusting the coherent block wedged up against the quartzite. A similar situation appears to be present in the other windows but the outcrops are not as clear as in the Hot Creek area. The silicified or jasperoid breccia zones described above would occur approximately along this area of underthrusting paralleling the alignment of the windows, the fold axes and the regional strike of the Roberts Mountain Thrust. These jasperoid areas were tested by Freeport Exploration in their drill program. Loss of circulation problems and the structural complexity of area prevented the drilling from hitting targets in the Roberts Mountain Formation.

Normal faults within the area appear to have a variety of orientations but a general NE trend controls drainages and parallels fracture patterns mapped in outcrop. Several VLF lines were run in the area to define significant structures. At least one area with a strong VLF response is coincident with a geochemical anomaly was identified in the SE ¼ of Section 2.

[redacted] will have more information on this phase of the work.

ALTERATION/MINERALIZATION:

There are several alteration features within the Hot Creek area:

1. Silicification - Silicification occurs as jasperoid in the Roberts Mountain Formation approxiately ½ mile above the hot spring on Hot Creek. This feature has been described above. The jasperoid consists of silica replaced and silica cemented breccia fragments with abundant limonite and gossanous boxworks after pyrite. A bright red color anomaly occurs in soils adjacent to the jasperoid. A second area of jasperoid occurs in the Roberts Mountain Formation immediately below the Hansen Creek Formation approximately 2000' NE of the hot springs. At this location the jasperoid appears to be related to brecciation and folding along the underthrust contact. A third area of jasperoid occurs along Willow Creek at the SW base of Hill 6682 in Section 2. This jasperoid may be developed in the Hansen Creek Formation. All of the above areas were initially tested by the Freeport drilling. Another area of silicification is located approximately 1000' SE of Hill 6682. In this area the Roberts Mountain Formation is silicified, pyrite and sericite occur on fractures and areas of remobilized carbon may be associated with bleaching and limonite flooding. This area is coincident with a strong geochem anomaly, detectable gold and a VLF response.

2. Local hot spring sinters in the Roberts Mountain Formation in the NE ¼ of Section 34 and in the Hansen Creek Fm. in the SE ¼ of Section 28. The sinter are characterized by laminated chalcedonic quartz, pervasive calcite veining and minor silicification in proximity to the other features. Another less distinctive center of hot spring activity may be associated with silicification in the SE ¼ of Section 2 described above.

3. A weak argillic-sericitic [redacted] alteration occurs in the Roberts Mountain Formation along the NNW trend mentioned above but more in proximity to the inferred Basin and Range structure. The siltstones become soft (you can break it in your fingers), minor sericite develops along bedding laminae and fractures, hematitic coloring becomes more obvious, rare pyrite may be introduced, the rock may become decalcified and the soil around the outcrop becomes reddish in color. This alteration may reflect a wider alteration halo to the silicification and related hot spring activity.

4. Alteration related to the present hot spring activity. These effects include argillic alteration peripheral to the springs, local formation of jasperoid, and perched sinter terraces above the present valley flood to the SE of the springs.

Mineralization - The only obvious mineralization noted is the presence of barite veins at the prospect pit immediately north of the hot springs and the pyrite/limonite occurence noted above.

The pooling of alteration fluids beneath an inferred trap formed by the overlying Western Facies rocks described in the Homestake report was not observed during our mapping. In many instances the hot spring sinters and related alteration noted above appears to thave been a near surface occurence and suggests that the overlying Valmy Formation had already been removed. The overthrust Hansen Creek could have acted as a permiablilty barrier to rising solutions in the Hot Creek drainage area.

GEOCHEMICAL SAMPLING RESULTS:

A strong geochemical anomaly has been identified in the SE ¼ of Section 2, T 42 N, R 60 E. Sample [redacted] yeilded the following assays: 0.014 OPT Au., 720 ppm. As., 13 ppm. Sb. and 710 ppb. Hg.; adjacent sample [redacted] ran 510 ppm. As, 2.1 ppm. Hg. and 14 ppm. Sb.; sample [redacted] contained 120 ppm. As., 4 ppm Sb. and 600 ppb. Hg. Admittedly, these values do not sound overwhelming but, out of over 1100

samples collected on the property the 0.014 OPT Au. result is the first assay above detection limits for gold and the background values for As., Sb. and Hg. are approximately 30 ppm., 1 ppm. and 50 ppb. respectively in rocks and much lower in soils. (see enclosed maps) A weaker anomaly is located over an inferred fossil hot spring described in the NE ¼ of Section 34, T 43 N, R 60 E. In this location, 3 samples yielded gold assays near the detection limit, but felt by the Hunter Labs to be legitimate; 5 samples with marginal silver values, (there were no significant silver values to speak of, the highest being 0.02 OPT. Ag) and several moderately anomalous As. and Hg. results.

CONCLUSIONS:

The coincident area of favorable geology, alteration and geochemistry in the SE ¼ of Sec. 2 represents the primary drilling target on the property. Secondary targets would include the area described in the NE ¼ of Section 34 and an area of alteration and weakly anomalous samples in the SE ¼ of Section 28, T 43 N, R 60 E.