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REPORT ON THE

TRENCHING PROGRAM

MOUNT NANSEN MINES LTD.
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INTRODUCTION

During the 1967 field season, an extensive geochemical survey of the Mount Nansen Mines property disclosed a large number of silver-arsenic anomalies. As several of these coincided with the known vein systems of the Webber, Huestis and Brown McDade areas, it was believed that numerous unknown vein systems occurred on the property obscured by the widespread overburden. A trenching program was therefore initiated in 1968 to expose the underlying bedrock and the source of the silver-arsenic anomalies. Figure 1 shows the anomalies disclosed by the geochemical survey, superimposed on the Mine Grid on a 400 feet to 1 inch scale.

The trenching program got underway on May 19, 1968 and was terminated on September 7, 1968 by the urgent need of the trenching equipment at the mill site. Owing to the relatively short season and an unusually wet summer, the trenching program did not progress as far as was expected, but nevertheless, was successful in revealing the occurrence of six mineralized zones immediately north of the Webber mine. Nothing is known of the extent of the new mineralized zones at this time, but the initial success is very encouraging for continuance of the program in 1969.

In conjunction with the trenching program, a field examination and mapping of all outcrops was started. The outcrops, confined exclusively to the ridges and hilltops, are

quite scarce, but recent road building and excavations have provided additional sources of information. All completed surface mapping has been incorporated with the new trench geology on the Regional Geology Map, 400 feet to 1 inch scale, Figure 2.

Several attempts were made to draft a claim map of the property in the area of the mines, but without success. During the year a number of scattered claim posts were located. However, a great discrepancy occurs between the apparent location of the posts, the presently accepted position of several key claims and the mine workings of Webber, Huestis and Brown McDade which could not be satisfactorily reconciled on the 400 scale mapping. In connection with the maps submitted for the assessment work these discrepancies were not obvious on the scale range used in that instance.

TRENCHING PROCEDURE

The seasons' trenching was carried out on three anomalous zones in the vicinity of the Webber mine; E-F and L-M-O in the Webber Creek basin, and part of U-T between Webber Ridge and Cabin Creek. Figure 2 shows the extent of the trenching and the surface geology of the area.

The trenching equipment consisted of three D-7 and one D-6 Caterpiller bulldozers. Priority for trenching was given to one D-7, the remainder being available as other commitments permitted. Owing to the almost complete absence of darkness, the equipment was used on two ten-hour shifts per day.

Trenches were laid out parallel to, and coincident with, the geochemical picket lines, that is, traversing the general trend of the anomalies. Measurements were tied into the geochemical base line and thence to the Mine Grid. Width of all trenches averaged very close to 15 feet, while length totalled approximately 22,200 feet of which 4300 feet exposed the bedrock. Depth varied greatly and reached as much as 20 feet in places without completely penetrating the overburden. It is calculated that a minimum of 77,600 cubic yards of material was removed.

Permafrost was encountered in the overburden generally at a depth of 3 feet under a mantle of moss and shrubs. Below that point the problem of trenching frozen overburden necessitated the working of a number of trenches simultaneously. Exposure of the frozen soil would permit the effective removal of up to only 12 or 15 inches of material and further efforts only damaged the equipment. Therefore, rotation among five or six trenches kept the equipment working continually.

Trench debris was removed through cuts on the downslope side of the trenches which should be spaced not more than fifty to seventy-five feet apart. It is extremely important to maintain these cuts to the level of the trench floor in order to allow proper drainage of mud and water, particularly during a very wet season. Any attempt to push wet debris for any great distance along a trench ended in plugging of the trench and bogging the equipment.

Because of the adverse weather conditions encountered this season a good deal of the initial trenching on the lower slopes had to be abandoned. The thick, saturated overburden

was difficult to dispose of and run-off water repeatedly filled the lower reaches of the trenches with mud. Occasionally, thick soil overlying depressions in the bedrock had to be by-passed. It is suggested therefore that for economic reasons no attempt should be made to trench at lower levels during any but a dry season.

SAMPLING AND ASSAYING

As deepening of the trenches progressed and bedrock was approached, a large number of oxidized zones appeared in the overburden material. Regardless of their location with respect to the silver-arsenic anomalies, all these zones were sampled and assayed. With few exceptions, the initial and often subsequent sampling yielded only traces or very low gold-silver assays. However, as the bedrock was penetrated a number of quartz vein systems were recognized and from then on trenching and sampling became very selective.

In the trenches of the L-M-O anomalies, located north of the Webber Mine, six mineralized zones comprising one or more separate veins were disclosed; 4 in trench 4N, and 1 in each of 8N and 12N. The location of these zones with assays are shown on the 40 scale Trench Geology maps, Figures 3 and 4. A series of assays at any one location represents a series of samples taken successively as the trench was deepened.

In both the E-F and the U anomalous areas, oxidized zones were uncovered in only one short interval of each area. When the trenching program was terminated for the season, bedrock had not been penetrated sufficiently to disclose the occurrence

of vein material in either of these areas.

It should be stressed that in all cases, only grab samples were obtained since trenching had not exposed the shows sufficiently to permit taking of channel samples and the infrequent widths shown for some assays are only approximate. The 40 scale maps, Figures 3 and 4, show all assays regardless of their range. It is suggested that any location where only low assays occur, but which appear to correspond with anomalies, should receive further attention when the program is resumed.

GEOLOGY AND MINERALIZATION

The surface geology disclosed by the trenching of the L-M-O anomalous area is shown on the Trench-Geology Maps, Figures 3 and 4. North of Webber Creek the bedrock comprises massive basalts and andesites of the Mount Nansen Volcanics, comparable to the volcanics exposed on the ridges to the north and west. Several strong anomalies cross this section of the trenches but no vein material was observed at the present stage of the trenching.

South of Webber Creek the bedrock comprises quartz hornblende gneiss and occasional biotite schists of the Yukon Series, intruded by several phases of granitic rocks. For simplicity, the intrusives have been mapped as two groups: (1) quartz porphyry and granodiorite, (2) quartz feldspar or phyolite porphyry. The intrusives appear to have invaded the Yukon Metasediments as a series of dykes or sills extending from the main porphyry-granite mass to the east and south.

Owing to the highly broken condition of the unglaciated bedrock, structural features were generally obscured. However, a few fracture patterns and shear zones were observed, and a number of prominant gouge zones, up to 15 inches wide, were interpreted and mapped as regional faults. Some difficulty was encountered in determining structural attitudes but all the major fault zones appear to strike from northwest-southeast to east west, usually with steep northerly dips. Bedding in the metasediments and quartz hornblende gneisses (Yukon Quartzite), where measureable, appears to strike about N60-70° (Mine Grid) with dips about 45° to the northeast. Actual contacts were observed in only one location.

As mentioned previously, trenching of the L-M-O anomalous zone has disclosed six new mineralized zones, some of which contain more than one vein. The location and assays of these veins are shown on the Trench Geology Maps, Figures 3 and 4, and for convenience are summarized on Page 7.

The individual veins comprise thin seams of milky white to yellowish quartz, and occasionally calcite, interbedded with brown to lemon yellow gouge and highly oxidized wall rock. Owing to the very limited exposure of the veins structural attitudes are not clear, but in general the strikes trend approximately east-west (mine grid) and dips steeply to the north. Thus, lithologically and structurally the new veins closely resemble those of the Webber vein system.

The most interesting of the new veins are those of zone A, located in trench 4N approximately 700 feet north of the Webber 4260 level, in which four separate veins were disclosed.

ANOMALY L-M-O

VEIN AND ASSAY DATA

ZONE	VEIN	TRENCH	LOCATION	ASSAYS OZ/TON AU	AG
A	#1	4N	420W*	1.09	0.9
				0.84	52.2
				0.59	13.0
	#1A	4N	400W	0.53	37.8
	#2	4N	426W	0.34	6.8
	#3	4N	434W	0.32	21.4
				1.32	22.8
	#4	4N	443W	0.19	57.0
B	#1	4N	910E*	0.27	27.1
				0.15	21.2
				0.10	10.2
				0.23	49.0
C	#1	4N	1178E	0.82	87.9
				1.09	98.8
				0.49	59.8
	#2	4N	1196E*	3.12	125.8
D	#1	4N	1651E*	0.08	3.0
				0.37	79.8
E	#1	8N	1486E*	0.60	55.0
	#2	8N	1491E	0.57	3.8
				0.52	24.8
F	#1	12N	169W*	0.17	12.3
				0.29	8.1

* Denotes location of 4' iron pin marking occurrence of vein in trench.

Veins 1 and 1A appear to be the same vein offset a few feet by a strong northeast trending fault. The single vein occurring in zone F, trench 12N, and those of zone A all directly underlie geochemical anomaly "O", hence, both zones may be extensions of the same system. No vein material was observed in the intervening trench 8N owing to difficulties of maintaining the trench.

Of the remainder of the vein zones, it will be observed that several are coincident with geochemical anomalies while several others have no apparent bearing to an anomaly. At this early stage in the trenching program it is just too premature to draw any conclusions regarding relationships between anomalies and veins except to say that discovery of the former has led to discovery of the latter.

RECOMMENDATIONS

On the assumption that the trenching program is to be continued in the following field season it is recommended that priority be given as follows:

1. Complete the development of the vein systems disclosed in trenches 4N, 8N and 12N with particular emphasis on zones A and F.
2. Obtain subsurface samples and assays of these veins by means of the overburden drill.
3. Resume trenching on lines 32N to 48N of anomaly E-F, and lines 4S to 20S of anomaly U-T.
4. Stripping and trenching of lines 60S, 64S and 68S of anomaly Z, located east of the mill as plotted on Figure 2.

5. Stripping and trenching of several anomalies on the high ground north of the Huestis as time permits.

It is suggested that if the field season is unusually wet the field geologist should dispence with trenching on low ground and any prominant anomalies should be tested with the overburden drill exclusively.

Trenching progress should be checked daily by the field geologist that recommended procedures are followed, that is:

- A constant level should be maintained throughout the trenched interval.
- A sufficient number of side-cuts be kept open and maintained to the level of the trench floor at all times to facilitate drainage.
- Approximately six or more trenches should be worked simultaneously to allow several days thawing in each trench.
- Demand co-operation of all cat drivers who are not all experienced at trenching in permafrost.

It is further suggested that in conjunction with the trenching, the field geologist complete the surface mapping. Many of the road excavations between the Webber and the Huestis mines have not been examined, and it appeared that many of the older trenches in this area would also yield considerable information without having to be cleared.